

# Marine Protected Area and Marine Renewable - related black guillemot surveys





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# COMMISSIONED REPORT

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**Commissioned Report No. 612**

## **Marine Protected Area and Marine Renewable - related black guillemot surveys**

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## COMMISSIONED REPORT

# Summary

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## Marine Protected Area and Marine Renewable – related black guillemot surveys

**Commissioned Report No.: 612**

**Project no: 14585**

**Contractor: Bob Swann, North of Scotland Ornithological Services**

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### **Background**

In order to obtain information to support work on proposed Marine Protected Areas (MPAs) and Marine Renewable energy developments, black guillemots were surveyed at five sites throughout Scotland from late March to early May 2013. The data from these counts was then compared with counts collected in a similar manner for Seabird 2000.

### **Main findings**

- Overall the results from the five sites surveyed show that black guillemot numbers have remained relatively stable or increased.
- 2,089 birds were counted in the Fetlar-Haroldswick area in Shetland. Of these 1,997 birds were in summer plumage, similar to the 2,004 counted in the same sections for Seabird 2000.
- On Papa Westray, Orkney a maximum of 679 birds were counted. Of these 631 birds in summer plumage were counted in sections covered for Seabird 2000 (within the proposed MPA), higher than the 457 counted in 1999.
- In North Caithness 212 birds were counted. Counts of summer plumage birds in comparable sub-sections covered in 2013 with those done for Seabird 2000 show an increase from 95 to 201 birds.
- On the Small Isles 1,017 birds were counted on Rum and 215 on Canna, giving a total of 1,232 birds. Numbers of summer plumaged birds remained fairly stable on Canna, where 214 were counted, compared to 204 in 2000. On Rum there was a marked increase from 642 counted in 2000 to 1,013 counted in 2013.
- On Sanda 349 birds were counted, all in summer plumage, lower than the 406 reported for Seabird 2000.

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The counts were undertaken by A. Call, G. Bell, S. Foster, R. Frag, K. P. Harvey, K. Lees, E. Masden, M. Mellor, S. Morris, R. Morton, A. Robbins, R. Swann, R. Tallack, B. Thomason, H. Towl and S. West.



*Black guillemots in flight © Nicola Boulton.*

## 1 INTRODUCTION

MPA (Marine Protected Area) search features, including 21 habitats, 15 species and five large-scale features, have been used to underpin the identification of possible Nature Conservation MPAs (pMPA) in Scotland's seas. Black guillemots (*Cepphus grylle*) are the only bird species included. The pMPAs will assist in the conservation of black guillemot feeding and breeding areas. Black guillemots are at the southern edge of their global range in Scotland, being more typically found into Arctic areas and they are not specifically protected under the EC Birds Directive as a qualifying species.

Black guillemots are a resident seabird, breeding around much of Scotland's coastline. Surveys of black guillemot differ considerably in timing and methodology from other seabirds and as such there is little up-to-date contextual information on their numbers around Scotland. To help determine trends in the current population Scottish Natural Heritage commissioned surveys for black guillemot (*Cepphus grylle*) in six locations around Scotland in spring 2013. This information will be used to support work on developing the suite of pMPAs. Around Scotland there are 33 pMPAs, of which black guillemot is a proposed protected feature on six of these. These six pMPAs were included in this survey, the North Caithness Cliffs were also surveyed additional to the East Caithness Cliffs MPA in order to provide information to assist in the assessment of Marine Renewables casework.

The sites chosen for survey work in April 2013 were:

- North and East Caithness Cliffs (pMPA)
- Fetlar to Haroldswick, Shetland (pMPA)
- Monach Isles, Western Isles (pMPA)
- Papa Westray, Orkney (pMPA)
- Sanda Island within the Clyde Sea Sill (pMPA)
- Rum and Canna within the Small Isles (pMPA)

Map 1 shows the distribution of the pMPAs for black guillemots in Scotland.



## 2 METHODS

The methods outlined in the Seabird Monitoring Handbook (Walsh *et al.*, 1995) were employed. These were identical methods to previous seabird surveys undertaken for Seabird 2000.

The handbook suggests that counts should be made in the pre-laying period - ideally the first three weeks of April in most of the range, although counts in late March and late April are acceptable. Counts should be made in the early morning, from first light to c. two hours later (c. 0600-0800 BST). Winds should not be stronger than Beaufort scale Force 4, and preferably not blowing onshore. Sea-swell should be slight to moderate. Counts may be made from the sea or from the land. The use of boats is preferable for high cliffs, offshore islands or long stretches of coast with little or scattered suitable breeding habitat.

All birds seen on the sea within c. 300 m of the shore and any on land, were counted and divided into the following categories:

- a) birds in adult summer plumage;
- b) birds in other plumages (largely or partly grey, or with dark bars visible in white wing-patch);

In addition any birds seen >300 m offshore were counted separately, as were feeding birds (as they are less obviously associated with breeding habitat).

For each group of birds their location was either noted on a map or recorded using GPS. Weather and sea conditions were noted as was the time of starting and completing each section of coast.

All counts were undertaken using the same sections as used in previous counts to ensure data were comparable.

### 2.1 Fetlar to Haroldswick, Shetland

Surveys were undertaken between 26<sup>th</sup> March and 8<sup>th</sup> April, by a team of surveyors, all with previous experience of counting black guillemots. The methodology followed that established by JNCC (Walsh *et al.*, 1995) and outlined in SNH's *Statement of Requirements*. All surveyors were briefed in this methodology prior to commencing surveys. All counts were land-based apart from the outlying islands, which were surveyed by boat on 8<sup>th</sup> April (M V Dunter III). The time taken to survey all sections was 52hours, 40mins.

It should be noted that the majority of counts were undertaken during the ideal period between dawn and three hours after dawn. Five counts did continue beyond this, but with just one exception (see Table 4) all were completed within four hours of dawn. In the remaining case it was felt that there was no need to undertake a recount as the numbers were similar to those found in Seabird 2000. All observers felt that their counts were either good or excellent – the weather was ideal, with predominantly high pressure persisting during the period, and the birds behaved very well – most were sat on the sea close inshore, with very few birds needing to be flushed off of the cliffs. Details of count sections are given in Annex1 and weather conditions, timings and observer details are given in Table 4.

## 2.2 Papa Westray

The first round of surveys was carried out between the 2<sup>nd</sup> and 9<sup>th</sup> April, as weather allowed. The Holm of Papa and the southeast cliffs were surveyed first, followed by the RSPB reserve, and then the west coast of the island. The Holm of Aikerness near Westray was also surveyed using a telescope from Papa Westray, so only one side of the island could be seen, but it is not included within the MPA boundary. The weather was generally fair, although it was quite cold and there were a few rain and snow showers. The coastal footpaths and stiles made it easy to survey the entire coastline.

A second round of surveys was carried out between the 21<sup>st</sup> and 26<sup>th</sup> of April, later than planned, due to inclement weather. The reserve coastline was surveyed first, followed by the Holm of Papa and the southeast cliffs, and then the west coast and the Holm of Aikerness. Again, weather was generally fair, although there were a few rain showers.

Most of the island was surveyed by foot. The exceptions were The Holm of Papa, which had to be surveyed by boat. The southeast cliffs were also surveyed from the boat, after surveying the Holm of Papa on the way back to Papa Westray. It took 15 hours over five morning sessions (between 0600 and 0900) to complete the first round of surveys, and four mornings to complete the second round of surveys. Details of count sections are given in Annex 2.

## 2.3 North and East Caithness Cliffs

The North Caithness Cliffs were covered by boat on 9<sup>th</sup> and 12<sup>th</sup> April 2013 by three observers. Table 1 gives details of dates, times, sea and weather conditions. On the Thurso Bay to Duncansby Head section, Huna to Duncansby Head were not counted, whilst between Thurso Bay and Dunnet Bay, only Clardon Head was counted, with no counts from Thurso Bay, Murkle Bay, Hattel, or Dunnet Bay. On the Tongue Bay to Holbourn Head section, only the section east of Melvich Bay was counted. Within this stretch Sandside Bay was not counted. Unfortunately no counts at all were made on the East Caithness Cliffs. Details of count subsections are given in Annex 3.

*Table 1 – Count sections, date and time of counts.*

Site	Date	Time start	Time end	Sea state	Swell	Weather
Thurso Bay-Duncansby Head	09/04/2013	0620	0922	calm	slight	Slight pptn, 3/8 cloud
Holborn Head-Melvich Bay	12/04/2013	0705	0919	calm	slight	Dry, 2/8 cloud

## 2.4 Small Isles - Rum and Canna

All counts were done from the sea using the AquaXplore RIB, hired from Bella Jane Boat Trips, Elgol, Skye. It had been hoped to count Canna on one morning and Rum on the following morning(s). However adverse weather conditions meant that plans had to be changed with the aim being to survey sheltered shores. This meant Rum was surveyed over three mornings and Canna over two mornings. All the survey sections on Rum were covered during the ideal period (0600-0800), but the Canna counts were completed outwith this period between 0800 and 0920. Table 2 gives details of the dates and times the different sections were surveyed and Table 3 details the weather and sea conditions.

*Table 2 – Count sections, date and time of counts.*

Site	Date	Grid Ref start	Grid ref end	Time start	Time end
Canna north shore	25/04/2013	NG280052	NG201050	0810	0900
Canna south shore	27/04/2013	NG201050	NG267049	0810	0850
Sanday	27/04/2013	NG267049	NG278048	0850	0920
Rum, SW shore	27/04/2013	NM379908	NM293997	0610	0800
Rum, north shore	25/04/2013	NM410998	NM293997	0550	0755
Rum, SE shore	26/04/2013	NM413993	NM379908	0600	0715

*Table 3 – Weather and sea conditions.*

Site	Date	Wind direction/ speed	Sea state	swell	weather
Canna north shore	25/04/2013	SW 2	calm	slight	showery, 6-8/8 cloud
Canna south shore	27/04/2013	N 2	medium	slight	dry, 2/8 cloud
Sanday	27/04/2013	N 2	medium	slight	dry, 2/8 cloud
Rum, SW shore	27/04/2013	N 3	medium	moderate	dry, 2-3/8 cloud
Rum, north shore	25/04/2013	SW 3	medium	slight	dry, 6/8 cloud
Rum, SE shore	26/04/2013	W 4-5	medium	slight	showery, 6-8/8 cloud

On the 25<sup>th</sup> and 27<sup>th</sup> April three observers counted, one scanning the cliffs, one the sea between the cliffs and the boat and one from the boat out to sea. A fourth observer on the 26<sup>th</sup> April assisted, with the cliff scanning. In addition the skipper of the boat, also helped pinpoint birds on the sea.

When a group of birds were located, they were approached to get an accurate count. If disturbed, birds were followed to ensure no double counting occurred. In all it took two hours to survey Canna and five hours 10 minutes to survey Rum. Just over 20km could be surveyed by RIB in one three hour period.

## 2.5 The Monach Islands, Western Isles

These islands were not surveyed due to poor weather.

## 2.6 Sanda Island

The island was surveyed, using a boat chartered from Mull of Kintyre Seatours. The survey was done in ideal conditions on 5<sup>th</sup> May 2013. There was a light force one wind, good visibility, dry, cloud 7/8 and only a slight swell. Sanda was counted between 0630 and 0830, Glunimore 0830-0900 and Sheep Island 0900-0930.

### 3 RESULTS

This section gives details of the number of birds counted in 2013 and then compares these with similar surveys undertaken for Seabird 2000 conducted in April 1999 or April 2000.

#### 3.1 2013 Counts

Five of the six proposed survey areas were counted in 2013, though in Caithness only parts of the north cliffs were counted.

##### 3.1.1 Fetlar – Haroldswick, Shetland

A total of 2,089 individuals in breeding plumage were counted, plus 134 birds in immature plumage. Details of numbers counted in the different count sections, with details of dates, times, observer, weather, sea state are given in Table 4. Details of count sections are given in Annex 1.

Table 4 – Numbers according to count sub-sections Fetlar – Haroldswick.

Count section	Date	Time	Observer	Weather	No. Adults	No. Imms
Fetlar – Ravrapund to Ramsness	26/03/13	0640-0930	H Towll	NW 2, 5/8 Light swell	117	14
Fetlar – Tresta to Rams Ness	26/03/13	0600-0930	M Mellor	NW 2, 5/8 Light swell	297	8
Fetlar - Tresta to Wick of Aith	26/03/13	0600-1000	G Bell	NW 2, 5/8 Light swell	76	4
Fetlar - Funzie Bay to Wick of Aith	27/03/13	0550-0845	R Fray	NW 3, 6/8 Light swell	152	5
Fetlar - Funzie Bay to Outer Brough	27/03/13	0550-0820	P Harvey	NW 3, 6/8 Light swell	278	5
Fetlar - Ness of Gruting to Outer Brough	27/03/13	0550-0815	M Mellor	NW 3, 6/8 Light swell	141	3
Fetlar - Ness of Gruting to East Neap	27/03/13	0550-0900	H Towll	NW 3, 6/8 Light swell	69	5
Fetlar - Urie Ness to East Neap	27/03/13	0535-0900	R Tallack	NW 3, 6/8 Light swell	87	4
Fetlar - Urie Ness to Ruvrapund	27/03/13	0540-0900	G Bell	NW 3, 6/8 Light swell	146	4
Hascosay	29/03/13	0540-0850	P Harvey	NE 2-3, 2/8 Slight ripple	92	10
Yell - Mid Yell Voe to Kay Holm*	29/03/13	0530-0540	P Harvey	NE 2-3, 2/8 Slight ripple	20	
Yell – Vatsetter to Ness of Lusetter	29/03/13	0540-0640	H Towll	NE 2-3, 2/8 Slight ripple	70	1
Yell –Burra Ness to Kirkabister	29/03/13	0730-0900	H Towll	NE 2-3, 2/8 Slight ripple	27	2
Yell – Aywick to Vatsetter	29/03/13	0530-0830	R Tallack	NE 2-3, 2/8 Slight ripple	183	5
Uyea	03/04/13	0605-0830	P Harvey	Var 0-1, 6/8	52	16

Count section	Date	Time	Observer	Weather	No. Adults	No. Imms
Balta	03/04/13	0700-0910	R Tallack	calm Var 0-1, 6/8	115	1
Huney	03/04/13	0655-0750	B Thomason	calm Var 0-1, 6/8	35	11
Unst – Uyeasound to SkeoTaing	03/04/13	0555-1120	H Towll	calm Var 0-1, 6/8	66	10
Unst - Baltasound to The Nev	04/04/13	0530-0835	B Thomason	SE 4, 4/8 light swell	27	7
Yell – Gutcher to Burra Ness	08/04/13	0530-0600	P Harvey & R Tallack	N 1-2, 2/8 Calm	6	
Misc. Islands	08/04/13	0540-0800	P Harvey & R Tallack	N 1-2, slight chop in east	33	19
<b>TOTAL</b>					2,089	134

Figure 2 shows the distribution of adult summer plumage birds in the Fetlar-Haroldswick area. The size of the dot indicates the number of birds counted in each count section (as per the key) and is centrally positioned in each section. For small offshore islands, the use of a single central grid reference results in the dot being placed in the centre of the island but the count refers to the entire island coastline.



Figure 2. Shetland 2013 Counts

### 3.1.2 Papa Westray, Orkney

Two complete surveys of Papa Westray were undertaken, the first in early April and the second towards the end of April. During the early April round of surveys 660 adults in summer plumage were counted, with 13 birds in immature plumage. In addition five extra birds were located >300m offshore and one feeding bird. Of these 603 (585 summer plumage, 12 immatures and six offshore) were located within the proposed MPA boundary.

During the late April round of surveys 612 adults in summer plumage were counted, along with three in immature plumage and two more than 300m offshore. Of these 548 were located within the proposed MPA boundary. Details of counts and sections are given in Annex 2. The distribution of birds for each of the counts is shown in Figures 3 and 4.

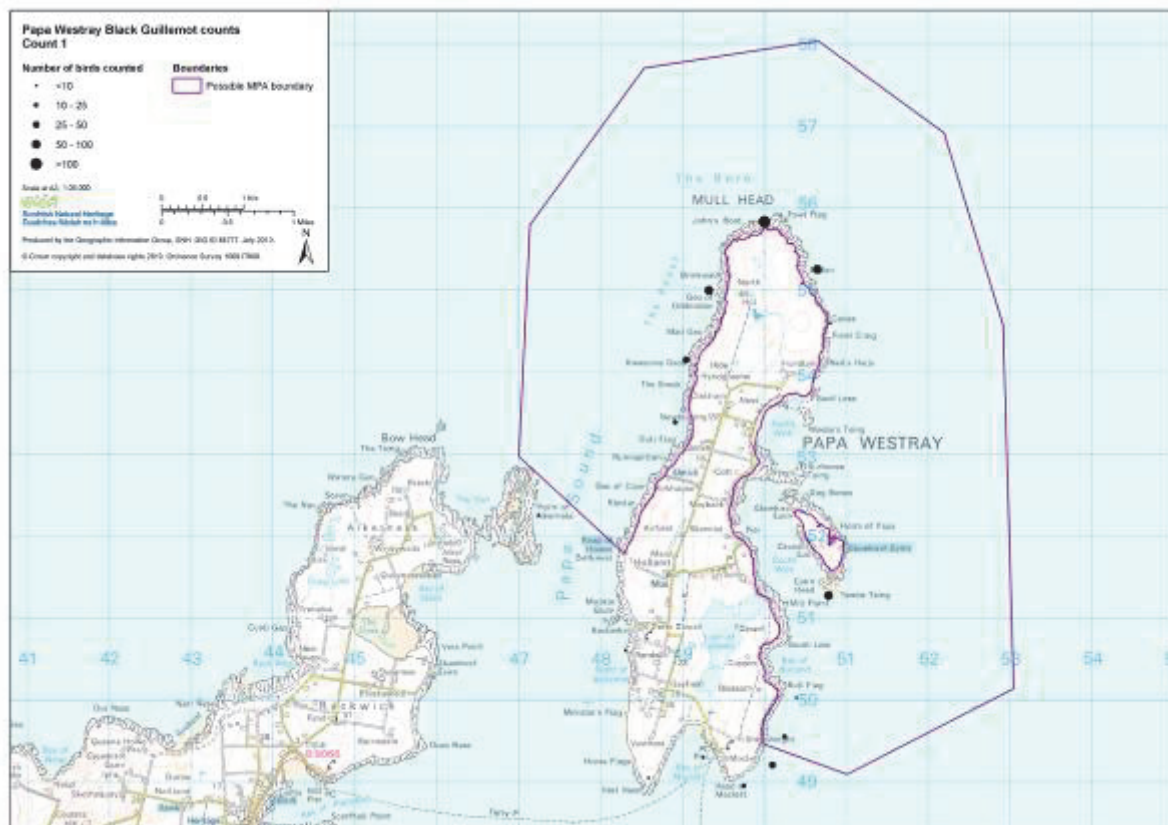


Figure 3. Papa Westray 2013 Count 1.

On Figures 3 and 4 the dots are positioned in a central point in each count section and the size of the dot indicates the number of birds as per the key.

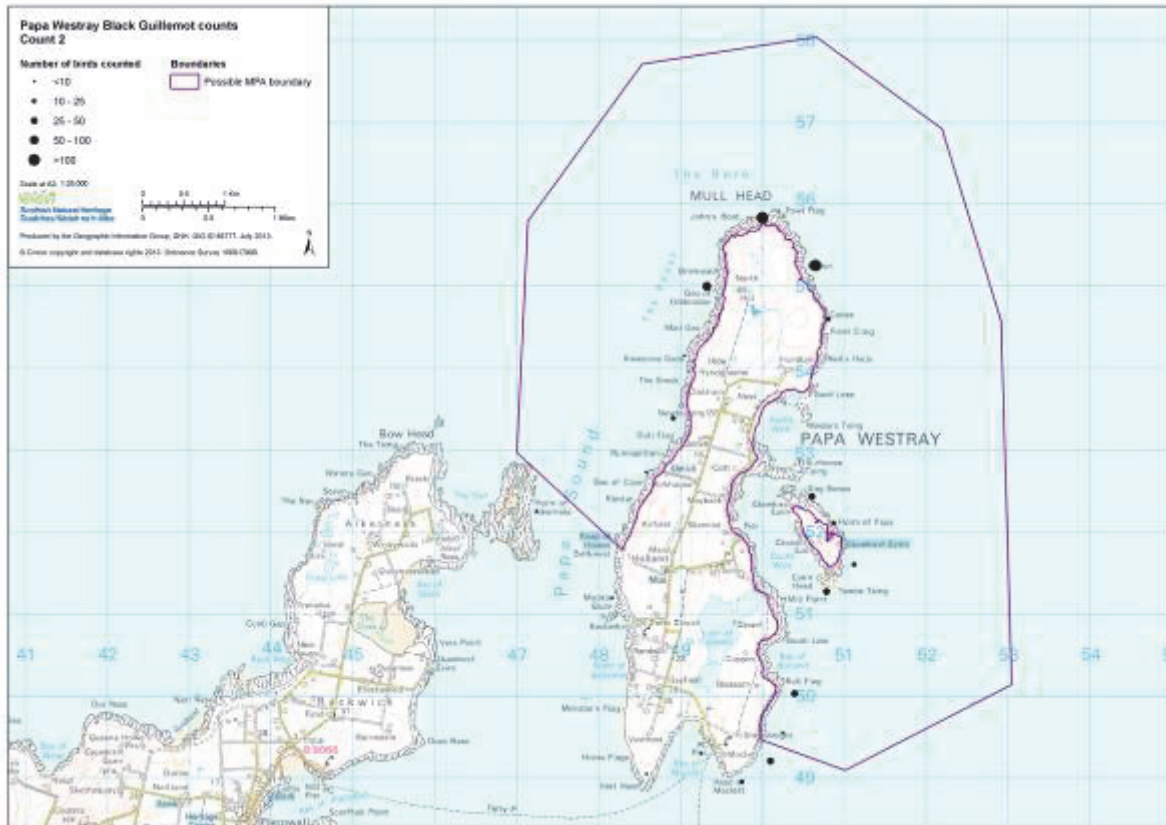


Figure 4. Papa Westray 2013 Count 2.

### 3.1.3 North Caithness Cliffs

Between Thurso and Duncansby Head 110 adults in summer plumage, plus 11 in immature plumage were counted. Not all sections of coast were covered, so these figures are not comparable with previous total counts for that section

From Tongue Bay to Holburn Head 91 adults in summer plumage were counted, though again not all sections were covered, only the sections east of Melvich. Details of counts and sections covered are given in Annex 3. The distribution of birds is shown in Figure 5, the size of the dot indicates the number of birds seen (as per the key) and the dots are positioned based on GPS readings.

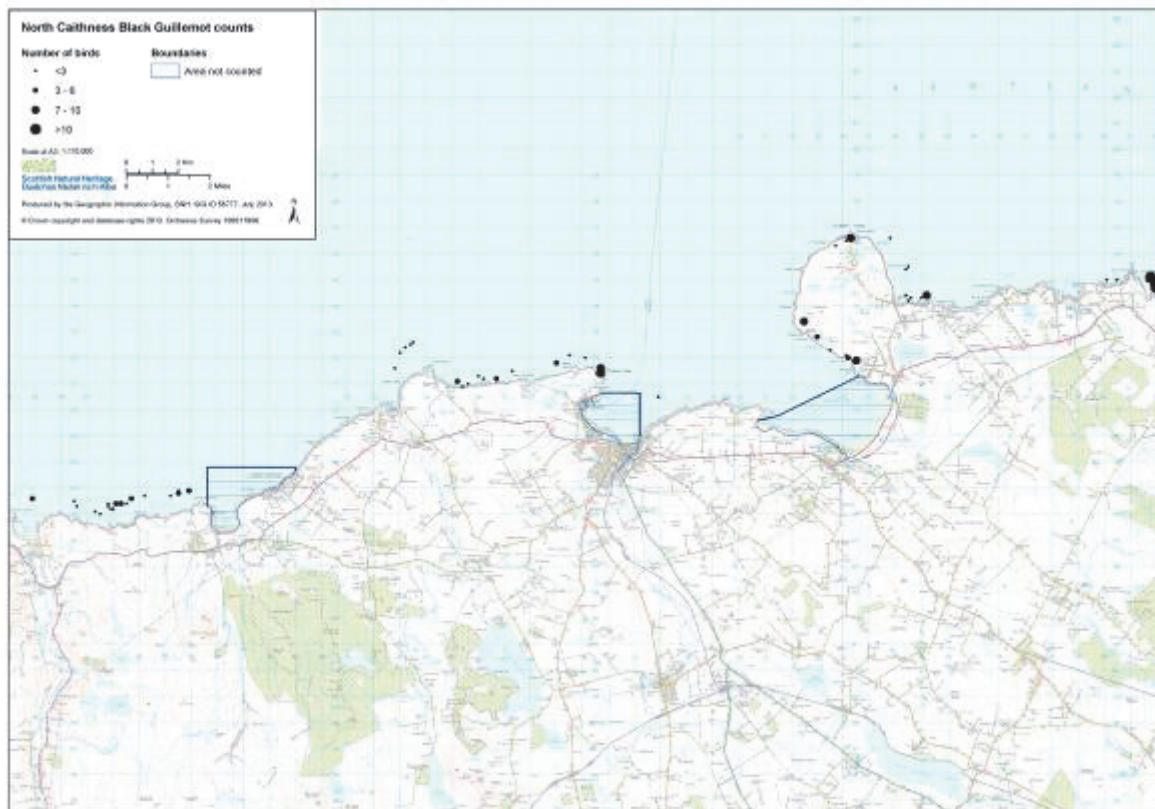


Figure 5. North Caithness Cliff 2013 Counts. Note that between Thurso Bay and Dunnet Bay, only Clardon Head was counted, with no counts from Thurso Bay, Murkle Bay or Hattel.

### 3.1.4 Small Isles: Rum and Canna

On Rum 1017 birds were counted, 1013 were in breeding plumage, and only four in winter/immature plumage (table 5). Birds were present in singles, pairs and in groups up to a maximum of 94. Most were located on the sea below suitable nesting cliffs. None were located more than 300m offshore.

Table 5 – Numbers according to count sections on Rum.

Site	Date	Grid Ref start	Grid ref end	No in summer plumage	No immatures
Rum, SW shore	27/04/2013	NM379908	NM293997	490	2
Rum, north shore	25/04/2013	NM410998	NM293997	172	0
Rum, SE shore	26/04/2013	NM413993	NM379908	351	2

On Canna of the 215 birds counted, 214 were in breeding plumage, and only one in winter/immature plumage (Table 6). Birds were present in pairs and in groups up to a maximum of 44. Most were located on the sea below suitable nesting cliffs, though in some sections birds were loafing on low rocks. None were located more than 300m offshore. Details of birds counted on both islands are given in Annex 4. The distribution of birds is shown in Figure 6, the size of the dot indicates the number of birds seen (as per the key) and the dots are positioned based on GPS readings.

Table 6 – Numbers according to count sections on Canna

Site	Date	Grid Ref start	Grid ref end	No in summer plumage	No immatures
Canna north shore	25/04/2013	NG280052	NG201050	134	0
Canna south shore	27/04/2013	NG201050	NG267049	42	0
Sanday	27/04/2013	NG267049	NG278048	38	1

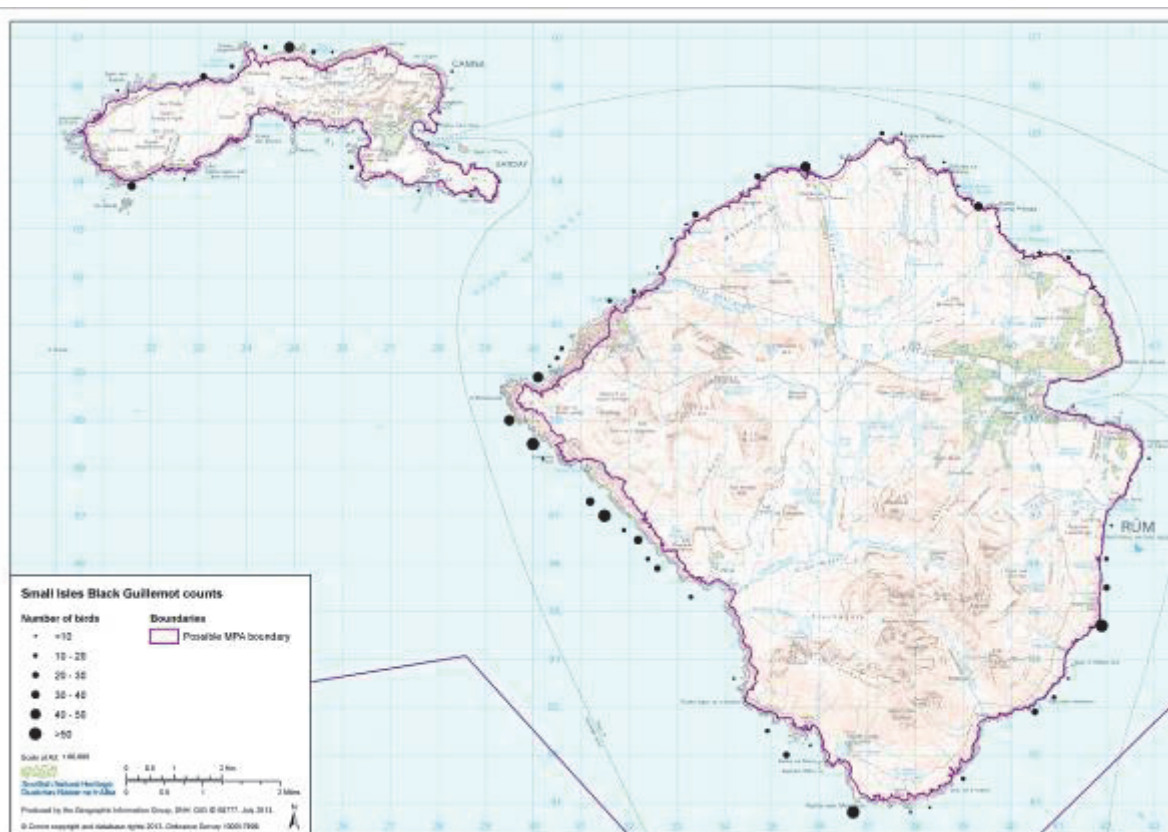


Figure 6. Small Isles 2013 Counts.

### 3.1.5 Sanda Island

A total of 349 birds were counted, all were within 300m of the shore and all were in summer plumage. The island was split into three sections for these counts (Table 7).

Table 7 – Numbers according to count sections on Sanda

Site	Date	Grid Ref start	Grid ref end	No in summer plumage	No immatures
Sanda	05/05/2013	NR725049	NR732048	329	0
Glunimore	05/05/2013	NR741050	NR741050	0	0
Sheep Island	05/05/2013	NR732053	NR731057	20	0

### 3.2 Comparison of 2013 counts with Seabird 2000 counts

This section compares the counts undertaken in 2013 with those done in April 1999 or April 2000 as part of the Seabird 2000 project. The figures compare the number of birds in summer plumage within 300m of the shore.

#### 3.2.1 Fetlar – Haroldswick, Shetland

Four main areas were counted, these were Fetlar, East Yell, Bluemull Sound islands and south and east Unst. Table 8 compares the 2013 counts with those conducted in 1999 and 2000 for the Seabird 2000 project.

Table 8 – Comparison between Seabird 2000 and 2013 Shetland counts, by section.

Site	2000	2013
Yell east	216	306
Fetlar	1330	1363
Bluemull Sound islands	62	31
Unst	396	297
Total	2004	1997

The 2013 East Yell count, excludes the Hascosay count (90), as this island was not counted during Seabird 2000. Table 8 suggests that overall black guillemot numbers have remained stable.

#### 3.2.2 Papa Westray, Orkney

For Black Guillemot counts the island is split into nine sections, two of these (518 and 606) are not within the proposed MPA. For two others (517 and 519) only parts are in the proposed MPA. Table 9 compares the 2013 counts with those conducted in 1999 for the Seabird 2000 project. The early (maximum) count figures are used in this comparison.

Table 9 – Comparison between Seabird 2000 and 2013 Papa Westray counts, by section.

Site	1999	2013
Holm of Papa (482)	211	181
North Hill 1 (505)	6	10
North Hill 2 (506)	169	332
North Hill 3 (507)	22	33
Papa Westray (517)	0	13
Papa Westray (519)	41	58
Papa Westray (520)	8	4
Total	457	631

The counts in Table 9 suggest that there has been an increase in black guillemot numbers.

#### 3.2.3 North Caithness Cliffs

Only the Thurso to Duncansby Head and Tongue Bay to Holburn Head stretches of coast were covered and within these two areas not all sub-sections were counted. Table 10 compares the counts made in 2001 with the 2013 counts, using only those sub-sections counted in both years.

*Table 10 – Comparison between Seabird 2000 and 2013 North Caithness cliffs counts, by section.*

<b>Site</b>	<b>2001</b>	<b>2013</b>
Thurso to Duncansby Head	26	110
Melvich to Holburn Head	69	91
<b>Total</b>	<b>95</b>	<b>201</b>

The Table 10 counts show an increase in numbers since the 2001 survey.

### 3.2.4 *Small Isles: Rum and Canna*

Tables 11 and 12 give details of the changes on Rum and Canna between the 2000 counts and the 2013 counts.

*Table 11 – Comparison between 2000 and 2013 Rum counts, by section.*

<b>Site</b>	<b>2000</b>	<b>2013</b>
Rum, SW shore	263	490
Rum, north shore	226	172
Rum, SE shore	153	351
<b>Total</b>	<b>642</b>	<b>1013</b>

Table 11 suggest that not only has there been an increase in numbers, but that some redistribution has occurred since the 2000 survey, with a decrease in the number of birds counted on the north shore.

*Table 12 – Comparison between 2000 and 2013 Canna counts, by section.*

<b>Site</b>	<b>2000</b>	<b>2013</b>
Canna north shore	125	134
Canna south shore	31	42
Sanday	48	37
<b>Total</b>	<b>204</b>	<b>213</b>

Table 12 suggests little change in numbers between 2000 and 2013 on Canna and shows similarities in distribution between the two survey periods.

### 3.2.5 *Sanda*

Table 13 details of the changes on Sanda between the Seabird 2000 counts, done on 8<sup>th</sup> April 2001 and the 2013 counts.

*Table 13 – Comparison between 2001 and 2013 Sanda counts, by section.*

<b>Site</b>	<b>2001</b>	<b>2013</b>
Sanda	260	329
Glunimore		0
Sheep Island	146	20
<b>Total</b>	<b>406</b>	<b>349</b>

Table 13 highlights some redistribution and a slight decline since 2000.

## 4 DISCUSSION

Full counts, comparable with the Seabird 2000 data were obtained from Fetlar-Haroldswick, Shetland, Papa Westray, Orkney, Small Isles (Rum and Canna) and Sanda. No data was received from the Monach Islands and only partial data from the North and East Caithness Cliffs.

### 4.1 Comparisons with Seabird 2000 data

Very different trends are shown between the different survey areas and possible reasons for these differences are discussed.

#### 4.1.1 *Fetlar-Haroldswick, Shetland*

A total of 1,997 individuals in breeding plumage were counted in 2013, compared to 2,004 counted in 1999/2000. Although some areas showed increases and others decreases since Seabird 2000, the overall total suggests little change. The difference between the two counts was well within the 10% error that can be expected with black guillemot counts.

It should be noted that the majority of counts were undertaken during the ideal period between dawn and three hours after dawn. A few counts did continue beyond this, but with just one exception all were completed within four hours of dawn. In the remaining case it was felt that there was no need to undertake a recount as the numbers were similar to those found in Seabird 2000. All observers felt that their counts were either good or excellent – the weather was ideal, with predominantly high pressure persisting during the period, and the birds behaved very well – most were sat on the sea close inshore, with very few birds needing to be flushed off of the cliffs.

There are discrepancies between the excel spread-sheet and the proposed MPA boundary map provided by SNH. Two areas included within the spread-sheet are not included within the site boundary and have not been counted (see Annex 1 for further details), while a third – the island of Hascosay – is shown within the site boundary but not included within the spread-sheet. This island was counted and the data added to the foot of the excel spread-sheet, but the totals were not used in the comparison with the Seabird 2000 data.

#### 4.1.2 *Papa Westray, Orkney*

There was a 38% increase in numbers between the 457 counted in 1999 and the 631 counted in the same sections in 2013. The increase mainly affects one section (North Hill 2) and appears to be real, with counts at this section in both years apparently being made in a similar manner.

#### 4.1.3 *North Caithness Cliffs*

Although the two sections of coast counted, were not counted in their entirety it is possible to compare counts from subsections counted in both 2001 and 2013. These suggest an increase in numbers since the 1999 survey with just over twice as many birds being counted in 2013. The 2001 counts were undertaken, by a single observer on 21<sup>st</sup> and 22<sup>nd</sup> April, within the ideal counting period and with good weather and sea conditions. The Thurso Bay-Duncansby count was done between 0530 and 0705, though the Tongue Bay-Holburn Head count was done slightly later, between 0650 and 0930, so slightly outwith the ideal time. Despite this, of the two counts it is the Thurso Bay- Duncansby one that is significantly higher in 2013.

#### 4.1.4 *Small Isles: Rum and Canna*

The counts from the two islands show very different trends with a 58% increase on Rum, but no change on Canna. One concern was that with the counts being done over a three day period on Rum, with different weather and wind conditions from one day to the next, that birds may have been moving from one side of the island to the next in order to seek more sheltered conditions. Discussions with Martin Heubeck, who has been conducting long-term black guillemot surveys in Shetland, revealed that this was unlikely. Indeed even on relatively exposed areas of coast, birds tended to find sheltered bays in which to gather. In addition there was no evidence from Canna, which was done over two days that birds switched from one side of the island to the other to seek out sheltered sites.

Some of the increase in black guillemot numbers on Rum may be real, though the possibility of some level of undercounting during the 2000 survey cannot be ruled out. The 2000 survey was completed in just over two hours. Sea conditions were ideal, calm with no swell, which would certainly have made flocks on the sea fairly obvious. However, it does appear, based on 2013 experience, where it took over five hours to cover the same stretch of coast, that small groups, particularly birds on cliffs, may have been missed.

#### 4.1.5 *Sanda*

The count of 349 was lower than the 406 birds counted for Seabird 2000. The 2013 count was conducted just outwith the ideal count period. Many birds were still likely to be in pre-breeding flocks as a result of the cold late spring of 2013, which may have delayed breeding. However, it is possible that other birds were out of sight in nest cavities, resulting in a slight undercount.

### 4.2 **Lessons learnt**

#### 4.2.1 *Conducting Surveys*

It appears that counts undertaken by experienced observers taking time to cover each section thoroughly leads to more accurate counting. This applies to both land and sea based counts. Sea based counts involving several counters (three or more) covering different areas appear to be more accurate than counts conducted by a single observer.

#### 4.2.2 *Organising Surveys*

It was unfortunate that not all chosen areas were surveyed. There appear to be two main reasons for this. Firstly delays in awarding contracts resulted in some contractors delaying a start to fieldwork particularly in the case of Sanda. Secondly, calm seas and ideal counting conditions at the end of March and during the first half of April 2013 were followed by very unsettled conditions with strong SW and NW winds potentially creating difficult counting conditions. For the sites where the ideal weather window was missed, counts were more difficult.

In some locations with planning, it was possible to overcome these conditions. As survey work on the Small Isles showed, by targeting sheltered shores it was possible to survey birds even during apparently adverse conditions and get very good counts.

## **5 CONCLUSIONS**

This work showed that on Canna and in the Fetlar-Haroldswick section on Shetland the number of black guillemots have remained fairly stable between the Seabird 2000 counts and the latest 2013 counts.

On Papa Westray, in North Caithness and on Rum, there were marked increases between the 2013 counts and the Seabird 2000 counts. It is possible that at some sites, particularly Rum, that these increases were exacerbated by undercounts during Seabird 2000. Only Sanda showed a decrease, though this may partly be due to the 2013 count being undertaken outwith the ideal counting period.

There is certainly no evidence from any of the surveyed sites that black guillemots are showing significant declines in the areas surveyed.

## 6 REFERENCES

Walsh, P.M., Halley, D.J., Harris, M.P., del Nivo, A., Sim, I.M.W. & Tasker, M.L. 1995. *Seabird monitoring handbook for Britain and Ireland*. JNCC/RSPB/ITE/Seabird Group, Peterborough.

## ANNEX 1: FETLAR – HAROLDSWICK COUNTS

Site	Subsite	StartGrid	EndGrid	date	Record Type	2013 Count*	Seabird count	2000	Notes
Bluemull Sound	Daaey	HU600954		08/04/2013	Boat	9	16		
Bluemull Sound	Haaf Gruney	HU635983		08/04/2013	Boat	6	23		
Bluemull Sound	Linga	HU560 985		08/04/2013	Boat	13	22		
Bluemull Sound	Sound Gruney	HU580962		08/04/2013	Boat	0	1		
Bluemull Sound	Urie Lingey	HU595955		08/04/2013	Boat	3	0		
	Cunnister to								
East Yell	Lade of Basta	HU554956	HU528960	29/03/2013	Land	20	0		
East Yell	Gamla	HU516908	HU547891	29/03/2013	Land	77	46		
	Gutcher to								includes 6 birds just north of Gutcher but within site boundary
East Yell	Burra Beach	HU549993	HU554956	29/03/2013	Land	13	0		
East Yell	Mid Yell Pier	HU523955	HU516908	29/03/2013	Land	20	7		
East Yell	The Groin	HU545870	HU534855	29/03/2013	Land	31	43		only north part counted as rest south of pMPA site boundary
East Yell	The Poil	HU547891	HU545870	29/03/2013	Land	145	120		
East Yell	The Sullock	HU534855	HU537836		Land				Not counted, outside of pMPA site
	Big Holm to								
Fetlar	Moo Wick	HU623884	HU622877	26/03/2013	Land	50	51		
	Brough								
	Slipway to								
Fetlar	Oddsta Pier	HU576927	HU583943	27/03/2013	Land	11	8		
	Corbie Head								
	to Brough								
Fetlar	Slipway	HU584914	HU576927	27/03/2013	Land	11	24		
	Funzie Bay to								
Fetlar	Wick of Aith	HU663895	HU641900	27/03/2013	Land	152	154		
	Head of Hosta								
Fetlar	to the Tind	HU677918	HU674905	27/03/2013	Land	41	70		

Fetlar	Horn of Rams Ness to Rams Ness	HU611870	HU607872	26/03/2013	Land	1	27
Fetlar	Inner Brough to Outer Brough	HU671931	HU672932	27/03/2013	Land	21	0
Fetlar	Kliffts to Big Holm	HU605900	HU623884	26/03/2013	Land	141	83
Fetlar	Krokahellia to Kliffts	HU610904	HU605900	26/03/2013	Land	0	0
Fetlar	Moo Wick to Horn of Rams Ness	HU621877	HU611870	26/03/2013	Land	96	49
Fetlar	Natural Arch to Head of Hosta	HU671928	HU677918	27/03/2013	Land	95	106
Fetlar	Oddsta Pier to Urie Ness	HU583943	HU598945	27/03/2013	Land	0	0
Fetlar	Outer Brough to Natural Arch	HU672932	HU671928	27/03/2013	Land	59	43
Fetlar	Rams Ness to Corbie Head	HU607872	HU584914	26/03/2013	Land	250	339
Fetlar	Sands of Paradise to Inner Brough	HU659915	HU671931	27/03/2013	Land	79	71
Fetlar	The Clett to Virva	HU642945	HU645921	27/03/2013	Land	52	18
Fetlar	The Tind to Funzie Bay	HU674905	HU663895	27/03/2013	Land	62	71
Fetlar	Tressa Ness to the Clett	HU622950	HU642945	27/03/2013	Land	94	92
Fetlar	Urie Ness to Tressa Ness	HU598945	HU622950	27/03/2013	Land	4	20

Fetlar	Virva to Sands of Paradice	HU645921	HU659915	27/03/2013	Land	68	49	
Fetlar	Wick of Aith to Wick of Houbie	HU641900	HU626905	26/03/2013	Land	65	41	
Fetlar	Wick of Houbie to Krokahellia	HU626905	HU610904	26/03/2013	Land	11	14	
Unst	Burn of Hogdale	HP635122	HP644105	04/04/2013	Land	0	0	
Unst	Cross Geo	HP664114	HP652119	04/04/2013	Land	13	9	
Unst	Haroldswick	HP652119	HP637122	04/04/2013	Land	3	0	
Unst	Swinna Ness	HP644105	HP647091	04/04/2013	Land	11	20	
Unst	West of Nev	HP666121	HP664114		Land		32	Not counted as outside pMPA site Counted between 1000 and 1030 (dawn 0600), but as many birds as previous 1999 count
SE Unst	Bakkahorda to Britta Geo	HP645085	HP641062	03/04/2013	Land	5	9	
SE Unst	Balta	HP660080		03/04/2013	Land	115	154	
SE Unst	Britta Geo to Sandwick	HP641062	HP618026	03/04/2013	Land	13	8	Counted between 1000 and 1030 (dawn 0600), but as many birds as previous 1999 count
SE Unst	Huney	HP650065		03/04/2013	Land	35	59	
SE Unst	Sandwick to Uyeasound	HP618026	HP593011	03/04/2013	Land	48	55	
SE Unst	Uyea	HU605990		03/04/2013	Land	52	33	
SE Unst	Wedder Holm	HU614974		08/04/2013	Boat	2	12	
SW Unsy	Uyea Sound to Belmont	HP592011	HP592011	08/04/2013	Boat	0	5	
East Yell	Hascosay	HU555925		29/03/2013	Land	92		Not counted for Seabird 2000

\* counts are of summer plumage adults.

## ANNEX 2: PAPA WESTRAY COUNTS

Subsite	Start Grid	End Grid	Start Date	time	method	Ads	imms	>300
Holm of Papa (482)	HY505526	HY507523	02/04/2013	06:33	Boat	39	1	1
Holm of Papa (482)	HY507523	HY509519	02/04/2013	06:41	Boat	57		
Holm of Papa (482)	HY509519	HY512513	02/04/2013	06:50	Boat	28	1	
Holm of Papa (482)	HY512513	HY505514	02/04/2013	06:57	Boat	57	5	
Bull Flag to Steepers Geo (520)	HY505503	HY503497	02/04/2013	07:24	Boat	4	2	
South-east cliffs to end of MPA (519)	HY503497	HY502494	02/04/2013	07:27	Boat	7		
South-east cliffs to end of MPA (519)	HY503497	HY502494	02/04/2013	07:27	Boat	6		
South-east cliffs (519)	HY502494	HY500490	02/04/2013	07:31	Boat	29		
South-east cliffs (519)	HY502494	HY500490	02/04/2013	07:31	Boat	16		
Head of Moclett (518)	HY500490	HY495489	02/04/2013	07:37	Boat	13	1	
Head of Moclett (518)	HY500490	HY495489	02/04/2013	07:37	Boat	4		
Moclett Pier (518_	HY493492	HY492494	02/04/2013	07:40	Boat	7		
North Hill RSPB (507)	HY489538	HY492545	03/04/2013	06:28	Land	33		
North Hill: Pow of Keldie to Green Tables (506)	HY492545	HY494555	03/04/2013	06:46	Land	56	1	2
North Hill: Green Tables to Geo of Boden (506)	HY494555	HY505556	03/04/2013	07:18	Land	179	1	
North Hill: Geo of Boden to Doo Geos (506)	HY505556	HY508549	03/04/2013	07:53	Land	97		2
North Hill RSPB (505)	HY508549	HY507543	03/04/2013	08:17	Land	10		
West coast: North Hill RSPB to Dull Flag (517)	HY489538	HY487530	05/04/2013	06:30	Land	12	1	
Geo of Clyar (517)	HY485525	HY485524	05/04/2013	07:15	Land			1
Holm of Aikerness (east coast only) (606)	HY472528	HY473517	08/04/2013	07:30	Land	1		
Bay of Moclett to Vestness point (518)	HY488493	HY484492	09/04/2013	07:13	Land	4		
King's Craig (517)	HY484506	HY484506	09/04/2013	08:00	Land	1		

Figures refer to Seabird 2000 count sections

### ANNEX 3: NORTH CAITHNESS COUNTS

Master Site	site	GR start	GR end
Thurso Bay to Duncansby, Caithness	Gills Bay	ND318745	ND345733
Thurso Bay to Duncansby, Caithness	St John's Point	ND309750	ND318745
Thurso Bay to Duncansby, Caithness	Mey	ND281742	ND309750
Thurso Bay to Duncansby, Caithness	Scarfskerry	ND258746	ND281742
Thurso Bay to Duncansby, Caithness	Brough	ND216751	ND258746
Thurso Bay to Duncansby, Caithness	Meikle Score	ND211764	ND216751
Thurso Bay to Duncansby, Caithness	Sow's Geo	ND206767	ND211764
Thurso Bay to Duncansby, Caithness	Easter Head	ND195764	ND206767
Thurso Bay to Duncansby, Caithness	Briga Head	ND182744	ND195764
Thurso Bay to Duncansby, Caithness	Chapel Hill	ND206713	ND182744
Thurso Bay to Duncansby, Caithness	Clardon Head	ND122690	ND166696
Tongue Bay to Holburn Head, Sutherland	Holburn Head	ND108716	ND106706
Tongue Bay to Holburn Head, Sutherland	Unknown/Spear Head	ND083712	ND109719
Tongue Bay to Holburn Head, Sutherland	Ness of Litter	ND072711	ND083712
Tongue Bay to Holburn Head, Sutherland	Brims	ND040715	ND072711
Tongue Bay to Holburn Head, Sutherland	Crosskirk	NC990677	ND040715
Tongue Bay to Holburn Head, Sutherland	Sandside Head	NC940659	NC956663
Tongue Bay to Holburn Head, Sutherland	Red Point	NC930660	NC940659
Tongue Bay to Holburn Head, Sutherland	Easter Clett	NC921656	NC930660
Tongue Bay to Holburn Head, Sutherland	Wester Clett	NC916654	NC921656
Tongue Bay to Holburn Head, Sutherland	Lady Bighouse	NC898660	NC916654
Tongue Bay to Holburn Head, Sutherland	Melvich Bay	NC876666	NC898660

Grid Ref	no.adults	no.imms	Total 2013	Total 2001
<b>Thurso Bay to Duncansby</b>				
ND342753		1		
<b>Gills Bay</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>
ND318751	12			
ND317750	3			
ND319749	7			
ND320747	30			
ND320746	2			
<b>St John's Point</b>	<b>54</b>	<b>0</b>	<b>54</b>	<b>7</b>
ND301750	1			
ND303750		1		
ND305750	1			
ND308751		1		
<b>Mey</b>	<b>2</b>	<b>2</b>	<b>4</b>	<b>1</b>
ND224744	1			
ND225742	1			
ND226743	1			
ND230743	2			
ND232744	9			
ND244740		1		
<b>Brough</b>	<b>14</b>	<b>1</b>	<b>15</b>	<b>6</b>
ND278750		2		
<b>Scarfskerry</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>1</b>
ND205719	6			
ND202720	3			

ND201721	2			
ND195723	1			
ND190728	4			
ND185734	9			
<b>Chapel Hill</b>	<b>25</b>	<b>0</b>	<b>25</b>	<b>8</b>
ND197763	1			
<b>Briga Head</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>
ND201765	2			
ND203766	6			
<b>Easter Head</b>	<b>8</b>	<b>0</b>	<b>8</b>	<b>0</b>
ND218766	1			
<b>Sow's Geo</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>
ND224754	2			
ND225755	2			
<b>Meikle Score</b>	<b>4</b>	<b>0</b>	<b>4</b>	<b>1</b>
ND164711		1		
ND154713		2		
ND152712		1		
ND129705	1			
ND119699		1		
<b>Clardon Head</b>	<b>1</b>	<b>5</b>	<b>6</b>	<b>0</b>
<b>Totals for TB-D sections</b>	<b>110</b>	<b>11</b>	<b>121</b>	<b>26</b>

**Melvich to Holburn Head**

ND108716	2			
ND107716	6			
ND107714	8			
ND107714	4			
ND106714	3			
<b>Holburn Head</b>	<b>23</b>	<b>0</b>	<b>23</b>	<b>2</b>
ND052711	4			
ND054709	1			
ND056710	2			
ND060713	2			
ND062712	1			
ND067712	3			
<b>Brim</b>	<b>13</b>	<b>0</b>	<b>13</b>	<b>1</b>
ND073715	2			
<b>Ness of Litter</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>1</b>
ND090718	3			
ND095721	2			
ND101720	2			
<b>Unknown/Spear Head</b>	<b>7</b>	<b>0</b>	<b>7</b>	
ND028716	1			
ND030722	2			
ND032724	1			
ND034725	2			
ND035726	2			
<b>Crosskirk</b>	<b>8</b>	<b>0</b>	<b>8</b>	<b>12</b>
NC932667	2			
<b>Red Point</b>	<b>2</b>	<b>0</b>	<b>2</b>	<b>5</b>
NC942667	2			
NC945669	2			
NC945668	3			

NC949669	3			
<b>Sandside Head</b>	<b>10</b>	<b>0</b>	<b>10</b>	<b>6</b>
NC889666	4			
NC905665	1			
NC906663	1			
NC913661	1			
NC915660	1			
<b>Lady Bighouse</b>	<b>8</b>	<b>0</b>	<b>8</b>	<b>25</b>
NC918664	2			
NC918663	2			
NC919662	1			
NC920662	1			
<b>Wester Clett</b>	<b>6</b>	<b>0</b>	<b>6</b>	<b>0</b>
NC921664	3			
NC923664	4			
NC925664	1			
NC927666	4			
<b>Easter Clett</b>	<b>12</b>	<b>0</b>	<b>12</b>	<b>14</b>
<b>Melvich Bay</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>
<b>Totals for Melvich-HH sections</b>	<b>91</b>	<b>0</b>	<b>91</b>	<b>69</b>

## ANNEX 4: SMALL ISLES: RUM AND CANNA COUNTS

### RUM: BLACK GUILLEMOT COUNTS

grid ref	no.adults	no.imms
NG417018	9	
NG412024	12	
NG406025	13	
NG393033	34	
NG389039	8	
NG386044	2	
NG377050	5	
NG373050	12	
NG357043	49	2
NG347041	30	
NG334033	28	
NG332031	8	
NG329028	9	
NG326022	10	
NG321017	20	
NG316015	12	
NG306005	20	
NG305003	18	
NG305000	2	
NM301999	50	
<b>Rum north shore</b>	<b>351</b>	<b>2</b>
NM413993	1	
NM423982	2	
NM421968	1	
NM420961	13	
NM420955	21	
NM419949	14	
NM419947	22	
NM419945	30	
NM412936	10	
NM409932	13	
NM405929	22	
NM390915	11	
NM383909	4	
NM379908	8	
<b>Rum SE shore</b>	<b>172</b>	<b>0</b>
NM367908	85	
NM365111	18	
NM358922	2	
NM353920	23	
NM349925	13	
NM342936	7	
NM333953	17	
NM326959	29	
NM324961	6	
NM323960	9	1
NM322965	32	

NM319967	13	
NM315970	95	1
NM312973	36	
NM302982	6	
NM300985	46	
NM299986	6	
NM295990	47	
<b>Rum SW shore</b>	<b>490</b>	<b>2</b>
<b>Rum total</b>	<b>1013</b>	<b>4</b>

### CANNA: BLACK GUILLEMOT COUNTS

grid ref	no.adults	no.imms
NG280052	9	
NG283063	2	
NG258067	3	
NG254067	11	
NG249068	44	
NG244068	19	
NG237064	18	
NG231062	23	
NG213059	5	
<b>Canna north shore</b>	<b>134</b>	
NG216039	33	
NG227042	2	
NG248053	7	
<b>Canna south shore</b>	<b>42</b>	
NG262043	16	1
NG276038	1	
NG287037	4	
NG293040	4	
NG282047	7	
NG278048	6	
<b>Sanday</b>	<b>38</b>	<b>1</b>
<b>Canna total</b>	<b>214</b>	<b>1</b>

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