

Forth Seabird Group

Forth Islands Bird Report 2016

Compiled by Bill Bruce

February 2017

SEABIRD SPECIES SUMMARIES

Notes:

- AOS / AOB / AON / AOT = apparently occupied sites / burrows / nests / territories.

FULMAR

For the previous three years there have been slight increases in numbers of AOS. This year some islands are showing increased numbers however the total for all islands has fallen (-4%) slightly compared to last year. This year's count is only a few sites different to the average for the previous ten years.

CORMORANT

This year's total is only 3 AON more than last year though the islands show some variation ie Inchkeith is up by 22 AON (+21%) while Lamb is down by 27 AON (-39%). Overall numbers are up 17% on the average for the previous five years.

SHAG

Numbers are down on most of the islands (-67 AON, -6%) though still well above the low figures following the storms in the winter storms 2012-13.

GANNET

No count this year. It is interesting to note that the first AON has been recorded at St Abbs Head.

EIDER

Not counted on all islands

GREAT BLACK-BACKED GULL

This species continues its dramatic increases. In 1996 there were 24 AOT recorded for all islands. By 2006 there were 52 AOT and by this year 164 AOT.

LESSER BLACK-BACKED GULL

On the islands where these were counted this year and last year, most islands are showing increased numbers however on Inchcolm numbers have halved this year.

HERRING GULL

On most islands, including Inchcolm, numbers have increased with the total AOT being up 22% on the average for the previous five years.

KITTIWAKE

Most islands are showing a decrease in AON since last year, though Inchkeith is showing an increase (+83 AON, +32%). Overall numbers are down (-657 AON, -13%), however this year's count is exactly on the average for the previous ten years.

COMMON & ARCTIC TERN

Numbers of both species have increased again this year, common tern by +42 AON (+29%) and arctic terns by +43 AON (+9%).

ROSEATE TERN

There were two reports of mixed roseate/common tern pairs nesting.

SANDWICH TERN

This species has not been recorded as breeding on the islands for some years: May Isle had 151 AON in 2004, then 3 AON in 2005 followed by a single AON in 2008. It is therefore good to see that 21 AON were recorded there this year.

RAZORBILL

The picture for each island varies but overall numbers are up this year by 311 AOS (+8%). This continues the upward trend since 2009.

GUILLEMOT

May Isle numbers are showing an increase (+1440 IND, +7%) while the other islands show decreases. Overall numbers are down since last year (-299

IND, -1%). This is still well up (+29%) on the average for the previous ten years.

PUFFIN

Burrow counts were carried out on Craigleith and Fidra this year. Compared to the previous counts in 2014, Craigleith showed a decrease (-25%) while Fidra showed an increase (+2%). After discussions with the experts on May Isle it is felt that the Craigleith count was carried out before all of the puffins had returned to the island.

Table 1: Summary of seabird counts for the Forth Islands, 2016

2016	Bass Rock	Craigeleith	Lamb	Fidra	Eyebr-oughty	Inchkeith	Carr Craig	Inchcolm	Haystack	Inch-mickery + Cow & Calves	Inch Garvie / Forth Bridge	Long Craig	May Isle	Total
Fulmar (AOS)	c43	133	9	160		241	0	246	0	33	196	0	309	1,370
Cormorant (AON)	0	c40+	42+	0		128	85	0	0	0	0	0	0	295+
Shag (AON)	c22	139	43	168		222	11	26+	0	67	0	0	349	1047+
Gannet (AON)	x	0	0	0		0	0	0	0	0	0	0	0	x
Eider (AON)	x	111+	x	35+		x	x	x	x	43+	39	6	1,128	1362+
Great B-b Gull (AOT)	0	51	5	6-7		13	1	6	1	c6	3	0	72	164
Lesser B-b Gull (AON)	x	138	3	206		1213	9	831	14	177	23	0	1,924	4538+
Herring Gull (AON)	x	1,187	90	1,127		2,504	47	633	18	479	281	0	3,799	10,165+
Kittiwake (AON)	c325	468	101	259		343	0	48	0	0	0	0	2,912	4,456
Common Tern (AON)	0	0	0	0		0	0	0	0	0	0	168	19	187
Arctic Tern (AON)	0	0	0	0		0	0	0	0	0	0	0	527	527
Roseate Tern (AON)														0
Sandwich Tern (AON)	0	0	0	0		0	0	0	0	0	0	0	21	21
Razorbill (AOS)	c91AOS (c140 IND)	186AOS (282 IND)	82 AOS (154 IND)	122AOS (189 IND)		96 AOS (140 IND)	0	7 AOS (29 IND)	0	0	0	0	c3,570 (5117ind)	c4,154
Guillemot (IND)	c2,230	c2,568	3,070	464		188	0	0	0	0	0	0	23038 (15,132pr)	c31,558
Puffin (IND unless otherwise stated)	2+ IND	4,125 AOB	x	1,050 AOB		549 IND on sea	0	20+ IND on sea	0	12 IND on sea	0	0	x	5,758+ AOB

CHRONOLOGICAL LIST OF VISITS AND SIGHTINGS

Fidra 31 January 2016

Whooper swan - 1 flying over
Greylag goose - c3 flying over
Oystercatcher - several
Wren
Blackbird
Rock pipit - several
Mallard - pair in bay by harbour
Guillemot - several offshore
Shag - 2-3 birds on rocks
GBB gull - 4 birds
Herring gull - many around
Fulmar - several sitting on sites, many others flying
Linnet - flock c50+

Craigeleith 30 March 2016

Greylag goose – 8 birds, mostly along the north side of the island. Nests seen: 2 nests each with 3 eggs, 1 nest with 7 eggs, also 3 nests started with no eggs
Puffins – hundreds on water and some ashore, many birds circling and flying over the island
Pied wagtail – one bird seen around landing area
Peregrine – one bird (probably female) flying around at lunchtime, good views of it as it flew over us many times. Chased several times by gulls.
Cormorants – birds gathering on cliffs, several collecting sticks (tree mallow?) and flying off in direction of nesting area.
Most of other usual seabird species seen

Craigeleith 2 April 2016

A further 2 GL goose nests with eggs, in addition to those seen on 30 March

Bass Rock April 2016 (from Maggie Sheddan)

count of the all the shags below the front battlements (some hidden from boat): 15 occupied nests
2 GBB, close together (not yet nesting)
LBB, 2 pairs at nest sites (whether they are settled?)
Fulmar numbers dramatically down from early visits, and no guillemot or kittiwakes on cliffs although I think they had been in early a.m.
Gannets on eggs - the first seen on camera on the 14/15th April.
Shags on eggs since around the 16th March.
Eiders beginning to settle with the odd egg being seen.
Herring gull – a couple of eggs but most just beginning to pair up

Inchkeith 1 May 2016

Eider - 160 approx. in the harbour area, roughly 60% male, 40% female;
Cormorant -75+ nests;
Willow warbler – 3-5 birds
Linnets – 2 birds
Mallard – 1 female flushed from incomplete nest, no eggs; 1 female flushed from nest with 9 eggs.
1 other pair seen.
Peregrine - 1 (female);
Herring Gull, present in numbers, not counted.
Great BB gull, present, not counted.
Lesser BB gull, present in numbers, not counted.
Kittiwakes, present, not counted.
Puffin, small numbers seen. Many burrows.
5 chickens (1m, 4f); (Report of 2 cockerels and 5 hens present).
Grey seal – approx 12
Rabbit – several seen.

Carr Craig 1 May 2016

Cormorant - 40+ nests
Shag - 10 nests approx
Great black-backed gulls - 1 pair
Red-breasted mergansers - 1 pair off-shore.

Inchcolm 1 May 2016

1 pair of greylag geese in north bay, (1 unattended nest with 7 eggs). Report of a second pair seen on 28th April with 6 goslings and possibly a third pair.

Inchmickery 1 May 2016

3 harbour seals.

Craigeleith 6 May 2016

Rock pipit (several seen and heard singing)
Pied wagtail (pair)
Wren (singing)
Feral pigeon
Greylag goose – 11 flying around island, 1 gosling seen on north side
Dunnock (singing in elder bushes)

Fidra 17 May 2016

Pied wagtail
Song thrush
Shelduck (4 birds but no evidence of breeding)
Feral pigeon
Swallow (flying over)
Dunnock (singing)
Rock pipit
Oystercatcher
Eider duck (35 nests seen, minimum count)

Garden tiger moth caterpillar (several seen)
Red admiral butterfly

Fidra 22 May 2016

Dunnock (singing)
Pied wagtail (2 territories)
Rock pipit (1 territory by arch, 1 territory on Castle)
Carrion crow
Oystercatcher (1 pair)
Cormorant (1 bird roosting on Castle)
Feral pigeon (several seen)
Swallow (flying over)
Small tortoiseshell butterfly
Garden tiger moth caterpillars

Lamb 22 May 2016

Little egret (roosting in cliffs on north side as we passed on way to Fidra)
Rock pipit (singing on south side)

Craigleith 28 May 2016

Linnet - 2 birds seen
Rock pipit - 4-5 birds seen
Swallow - flying over
Spotted flycatcher - 1 pair in elder bushes in Glen
Blackcap - 1 female in elder bushes in Glen
Willow warbler - pair in elder bushes in Glen
Dunnock - pair with 2 young plus 1 other bird
Wren - singing
Greylag goose - total of 6 birds and 5 young (includes a pair with 3 young and another bird with 2 young)
Wood pigeon on nest
Carrion crow - 2 pairs, one new nest seen plus one old nest
Pied wagtail - 1-2 birds seen

Colour ringed shags:
Red EEA,
Green AXW, RDP, AWZ, ARA, ARB, ANW,
ARN, EUC and RHU

Small tortoiseshell butterfly
White (sp?) butterfly

Inchkeith 29 May 2016

Oystercatcher - c9 territories, inc 1 nest with 3 eggs
Pied wagtail - 3 territories including 1 nest
Peregrine - 1 pair
Buzzard - 1 bird seen, being mobbed by peregrine
Shelduck - 3 birds seen
Mallard - 1 female flushed, 2 males
Crow - 1 pair present
Feral pigeon - present
Rock pipit - 3 territories
Sandwich tern - 1 flying over

Wren - 1 singing
Eider - several broods with chicks
Chickens - 1 male and 3 female
Common scoter - c25 seen off south end
Gannet - 1 ashore

Rabbit - several seen

Orange tip butterfly - 2 seen
Red admiral butterfly - 1 seen
Small tortoiseshell butterfly - 2-3 seen
Green veined white butterfly - many seen

Grey seal - c65 on Iron Craig, c16 on Seal Carr

Notes: In recent years, the island has often been almost completely covered with a thick tangle of oil seed rape and other mustard plants. Any gulls trying to nest in these areas must have had difficulty getting back into the air. However, this year, the only signs of these yellow flowers are on the slopes of Lighthouse Bay.

Inchmickery 31 May 2016

Oystercatcher - 1 AON
Wood pigeon - nest with 1 egg
Shelduck - 2 pairs, 1 of the nests having 7 eggs
Blackbird

Inchgarvie 31 May 2016

Rock pipit - 2 pairs
Linnet - 1 pair
Cormorant - 1 bird roosting at east end
Kittiwake - 1 bird roosting on cliffs on north side
Shag - 2 birds roosting (1 adult & 1 juvenile)

Haystack 31 May 2016

Eider with ducklings in water

Carr Craig 31 May 2016

Carrion crow - 1 bird seen

Inchcolm 1 June 2016

Eider - present & breeding - not counted
Mallard - 2 birds
Shelduck - 2 male birds
Blackbird - 2 (both male)
Chaffinch - 4+ pairs
Dunnock - 2 pairs plus 1 male
Jackdaw - 15+ pairs
Pied wagtail - 3 birds seen (1 pair plus 1 single)
Robin - 1 bird
Rock pipit 1
Swallow - 3 flying over
Wood pigeon - 2 nests seen (1 with 2 eggs, 1 with 2 squabs) and 12+ birds
Wren - 1 bird seen with nest

Carrion crow - 1 pair
Feral pigeon - many seen
Mallard - 1 seen (female)
Shelduck - 2 birds seen
Oystercatcher - 9 territories inc 4 nests with eggs

Inchkeith 13 July 2016

Cormorant Nests: Outer Section - 65 , Section by
Blockhouse - 24
Rock Pipit - 4
Blackbird - 2 adults and nest with 2 dead young
Guillemot - 8
Razorbill - one chick still in nest, many adults present
Peregrine - 2 adults and 3 young
Shag
Cormorant
LB-B Gull
Great B-b Gull
Oystercatcher - 4
Puffin - many
Herring Gull
Arctic Tern - 4 to 5 (on boat over)
Sandwich Tern - 4 (on boat over)

Small Tortoiseshell Butterfly - 5
Green-veined White - many
Garden Tiger Moth - 1

Grey Seals:
South Bay - 6
Iron Craig - 93

Shag Darvics: Red RFZ, Green RED, Green ECI,
Green EDB, Blue BHH, Green EED, Green
EDS, Red FND, Red RHZ

Inchkeith 30th September 2016

Curlew - 10
Peregrine - 2 (juv)
Robin - large fall
Greylag Goose - Total of 130 flying south
Goldfinch - 3
Shag - 26
Meadow Pipits - very many migrating over
Cormorant - 3
Great Black-back Gull - 4
Oystercatcher - 29
Grey Heron - 2 adults and 1 juv
Red Admiral - 21
Linnets - 16
Blackbird - 1 male and 2 female
Pied Wagtail - 1
House Mouse - 2 Juv
Kestrel - 1
Song Thrush - 1
Small Tortoiseshell - 1
Gannet - 1 imm sleeping in Kirkcaldy Harbour
Rabbits - more spotted than usual

Devil's Coach horse - a few spotted around
Snails - many - three distinct species

Grey Seals:
Seal Carr - 18
Iron Craig - 45
South Tip and Long Craig - 68
Lighthouse Bay - 1
Harbour 1

Harbour Seal - 1 juv on Iron Craig

Inchkeith 8th October 2016

Robin - large fall as per last visit
Meadow Pipit - large migration as per last visit, but
this time very many on the island
Swallow - feeding above the harbour - 30+
Wren - 15
Oystercatcher - 20
Gannet - fishing off the North Point - 1 adult and 5
immature
Linnets - 50+
Great Black-back Gull - 30
Peregrine - 2 adults and 2 juv
Shag - 119
Skylark - 2
Cormorant - 10
Redshank - 3
Rock Dove - 1
Goldcrest - 1
Blackbird - 6
Sparrowhawk - 1

Hoverflies - a few species around generally
Red Admiral - 11
Small Tortoiseshell - 2
Devils Coach Horse - 3

House Mouse - 1 Juv
Rabbits - a great many around and very much evidence
of new diggings all over the island

Grey Seals:
Iron Craig - 44
Seal Carr - 6

Harbour Seal - 1 juv on Seal Carr

Common Scoter 5 on way to Inchkeith

Carr Craig 8 October 2016

Shag - 16
Pied Wagtail - 1
Oystercatcher - 1
Curlew - 1

Inchcolm 8 October 2016

Feral Pigeons - NW Bay absolutely covered in them
Wren - 7
Robin – large fall
Jackdaw - 10+
Carrion Crow - 4
Grey Heron - 1 adult

Harbour Seal - 1 adult on NW beach

Inchmickery 8 October 2016

(from boat, single pass down the E side)
Harbour Seal - 9 on eastern slope
Grey Seal - 1 on eastern slope
Shag - 3
Oystercatcher - 4

Craigleith 13 November 2016

Greylag goose - 2 flying over
Carrion crow - several
Blackbird
Wren - several
Robin - several
Linnet - small flock
Peregrine - 1
Rock pipits - several
Purple sandpiper - 3
Curlew - 2
Oystercatcher - 2
Redshank

Bass Rock 13 November 2016

Purple sandpiper - 6
Turnstone - c24 in east cave
GBB gull - a few
Herring gull - a few
Red-throated diver - 1
Grey seal 1 cow in west cave
Rock pipit: - 1

Grey seal – 1 cow in west cave

Fidra 13 November 2016

Peregrine - 2
Mallard - c8+
Greylag goose - 2

Divers (red throat?) - 2 in flight between Fidra and the
Lamb

Lamb 13 November 2016

Oystercatcher - 22+

Other Sightings

See the Fife Seal Group report for further observations
during the seal pup counts.

FSG FOOTNOTES

Reports and monitoring figures for previous years can be found on the group's website:

www.forthseabirdgroup.org.uk

DATES FOR MAIN ISLAND COUNTS

Bass Rock	28 May 2016
Craigleith	puffin burrow count 6 May 2016 main seabird count 28 May 2016
The Lamb	22 May 2016
Fidra	puffin burrow count 17 May 2016 Main seabird count 22 May 2016
Eyebroughty	no count
Inchkeith	29 May 2016
Carr Craig	31 May 2016
Haystack	31 May 2016
Inchcolm	31 May & 1 June 2016
Inchmickery	31 May 2016
Inchgarvie	31 May 2016
Long Craig	through breeding season
Isle of May	through breeding season

Bass Rock and Lamb were counted from boat; Craigleith, Fidra and Inchgarvie were counted partly from boat and remainder after landing; all other islands were counted from ashore.

Tree Mallow Project – SOS Puffin

For further information about this project go to the Scottish Seabird Centre website at

www.seabird.org or for information on tree mallow go to www.abdn.ac.uk/treemallow

COUNTERS & CONTRIBUTORS

Thanks to everyone who helped with counts or provided data for this report

Data passed on to (includes):

Dr R M Sellers for inclusion in the annual Cormorant Breeding Colony Survey;
JNCC Seabird Monitoring Programme.

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Scottish Wildlife Trust Reserve Long Craig Island 2016 Annual Report

A pre-season island maintenance visit was made on 8th May year two black bags of debris were removed for disposal. The significant movement of the scree areas continues to make the re-marking of recording areas difficult.

As in recent years the Mayweed continues to survive in a significantly reduced level, plants found during the pre-season maintenance and end of season visits were grubbed out. The rough grass is now well established in the central area of the island.

Eider

Six nests found on the island this year. No outcomes for the nests were noted. Four ducks and three ducklings present on 11th June.

Long Craig Island	2011	2012	2013	2014	2015	2016
Eider Nests	5	4	3	3	3	6



Eider Duck on nest

Oystercatcher

Birds were again noted present in the immediate vicinity feeding in the intertidal mud throughout the breeding season however no birds nested on the island this year.

Common Tern

Birds were present in the area from early-May with two present on the 8th. The terns were well into nesting by the end of May with 76 apparently occupied nests (AON) recorded on 29th May and a calculated population of 110 pairs present.

A maximum adult count of 226 birds was made on 18th June giving a calculated total of 151 pairs. However nest counts and mapping during the period gave a total 206 clutches of one or more eggs were laid.

A count of 117+ chicks was made on 12th July; however the increased eggs laid count suggests a low hatching success for this year and a resultant lower fledging success.

Long Craig Island Common Tern Breeding					
	2012	2013	2014	2015	2016
Maximum adult count	5	109	312	200	266
Breeding pairs	0	73	131	132	168
Clutches	0	84	137	134	206
Eggs laid	0	151+	180+	169+	270+
Eggs Hatched	0	96	140+	161+	117+
Eggs Un-hatched	0	16	12	-	-
Eggs outcome unknown	0	39	10	-	-
Young Fledged	0	c90	130+	157	44+
Young Died	0	4	c10	4	20

Roseate Tern

For the second year running a mixed pairing of Roseate/Common Tern was recorded. The nest contained three eggs on 11th June. All three eggs hatched and the chicks survived well beyond the downy stage however fledging success is unknown.

Mixed Roseate/Common pairings have occurred previously on Long Craig the most recent prior to last year occurred in 2011. The reason for this occurrence of mixed pairing is probably due to the unavailability of an opposite sex partner for the Roseate Tern, a factor of the severely reduced numbers of Roseate's returning to the Firth. However other contributory factors are not necessarily excluded

Of note another mixed pairing of Roseate/Common terns also occurred at the not too distant Leith Docks colony this year where one young was raised (Scottish Birds 36(3) Sept 2016, pages 214-215. Andrews/Gillon).



Adult Roseate Tern on nest



Roseate/Common chicks

Ringling

This year forty-four tern chicks were ringed (Nos. SR29685 – SR29728) during two visits; 23rd July and 19th August, made to the island. During the latter visit 20 dead chicks were found one of which (SR29704) had been ringed on the previous visit. The following recovery of a bird ringed this season has been received.

Recapture History

Ring Number	Type	Age/ Sex	Capture Date	Details
Common Tern				
SR29718	N	1	23/07/2016	Long Craig Island, Fife
	XF	3	Fresh dead 12/09/2016	Bishop Burn, Loch Ryan, Dumfries and Galloway
				(158 km, SW, 51 days)

Development

Many of the nest boxes installed for Roseate Terns have deteriorated and need replacement also the rocky hollows created have been disrupted by winter storms and are in need of re-dress. New boxes are planned for pre-season maintenance visit.

In October 2015 the RSPB started the major LIFE-funded project on conservation of the Roseate Tern in the UK and Ireland. The project is to be delivered in the partnership with BirdWatch Ireland and North Wales Wildlife Trust. The project aims to boost the ongoing effort to secure roseate tern populations and provide suitable conditions for their expansion to former breeding sites.

Funding for the stabilisation of the east and south sides of the island with gabion baskets has been secured under the Roseate Tern LIFE programme and following on site discussions planning is in hand with a view to work on site commencing during 2017.

Work on the construction of the new Forth Crossing Bridge has continued throughout. Completion currently programmed for May 2017.

Mark Oksien (Reserve Convenor)
Long Craig Island Scottish Wildlife Trust Reserve

Other Common Tern counts

Carlingnose Pier 2016

Site checked on 29th May no terns present on or around pier and no signs of any attempted breeding activity.

St Abb's Head National Nature Reserve Seabird Report Summary for 2016

Whole Colony Counts

Species	Count Unit	2016 Total	Change on 2015	Comments
Fulmar	Apparently occupied site (AOS)	101	+9%	An increase on last year, but still a low count. It represents 74% of the 10 year mean of 136 AOS, and just 41% of the 32 year mean of 243 AOS.
Shag	Apparently occupied nest (AON)	124	-7%	The third lowest count on record. It represents 92% of the 10 year mean of 124 AON, and 53% of the 32 year mean of 233 AON.
Herring Gull	Apparently occupied nest (AON)	197	-4%	The third lowest count on record. It represents 86% of the 10 year mean of 228 AON, and 58% of the 32 year mean of 335 AON.
Kittiwake	Apparently occupied nest (AON)	2779	-34%	The lowest count on record. It represents 63% of the 10 year mean of 4,414 AON, and just 29% of the 32 year mean of 9,740 AON.
Gannet	Apparently occupied nest (AON)	1	N/A	First breeding attempt on record (not successful).

Productivity

Species	Mean productivity in 2016 (chicks fledged/active nest)	Change on 2015	Comments
Shag	1.66	-28%	A decrease on the last two years, but still above average. It represents 106% of the 10 year mean of 1.56 and 128% of the 27 year mean of 1.30 chicks fledged per active nest.
Kittiwake	0.77	-29%	A decrease on the last two years, but still above average. It represents 131% of the 10 year mean of 0.59 and 120% of the 30 year mean of 0.64 chicks fledged per active nest.

Liza Cole/National Trust for Scotland/December 2016

Guillemot	0.77	+ 13%	This is a 13% increase on the 2015 figure of 0.68 chicks fledged per active nest.
<u>Razorbill</u>	-	-	No productivity monitoring carried out this year.

Counts at Monitoring Plots

Species	Count Unit	Sum of plot means in 2016	Change on 2015	Comments
Guillemot	Individuals	1684	+15%	A small increase on last year and represents 111% of the 10 year mean of 1513 and 115% of the 33 year mean of 1469.
<u>Razorbill</u>	Individuals	126	+11%	A small increase on last year and represents 90% of the 10 year mean of 126 and 100% of the 33 year mean of 140.

Whole colony counts were carried out by Liza Cole and Lizy Smith. Shag productivity by Lizy Smith, kittiwake productivity by Liza Cole and guillemot productivity by Jill Grozier. Counts at guillemot and razorbill plots were carried out by Liza Cole.

Liza Cole/National Trust for Scotland/December 2016

Species Accounts

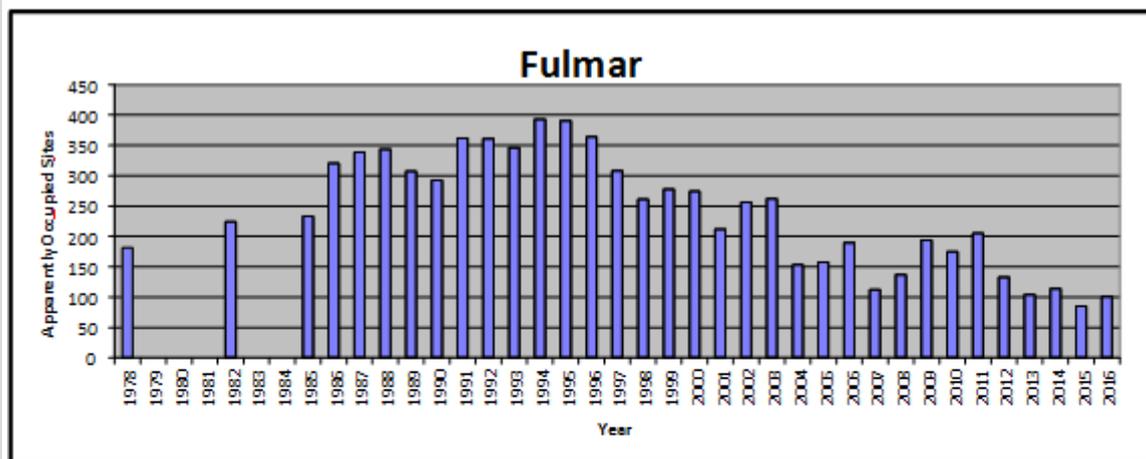
Fulmar

Whole colony count

A count of apparently occupied sites (AOS ie a site with a bird sitting tightly on a reasonably horizontal area judged large enough to hold an egg) was carried out from land on 20th, 21st, and 22nd June. Blind spots were counted from a boat on 23rd June.

Results

101 AOS were counted, an increase of 9% on the 2015.



Breeding Success

No formal productivity monitoring done, but only 6 chicks fledged from the whole colony (no boat counts).

Shag

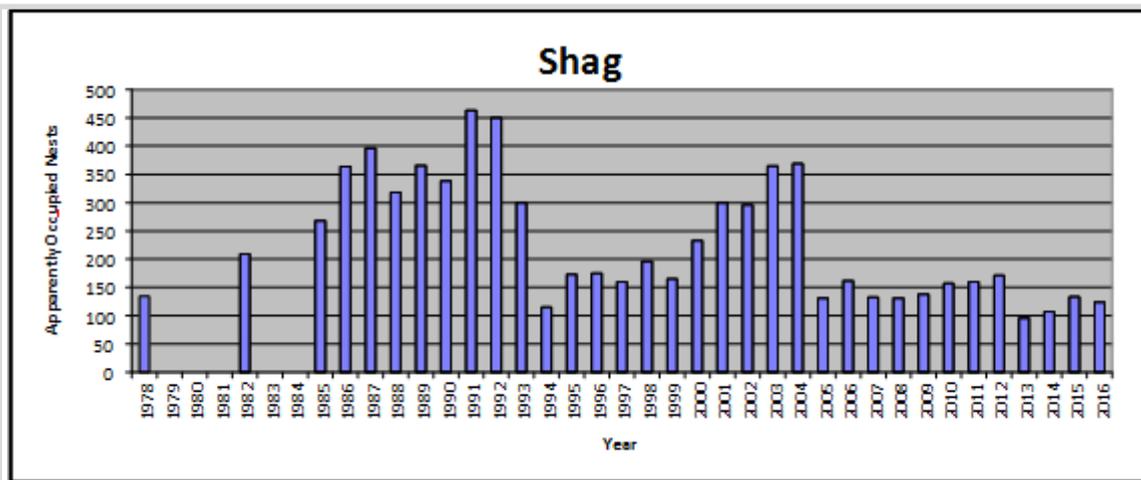
Whole Colony Count

A count of apparently occupied nests (AON ie a well-built nest capable of holding eggs with at least one bird in attendance) was carried out on 29th and 30th May and the 2nd and 6th June. Blind spots were counted from a boat on 8th and 23rd June.

Results

124 Apparently Occupied Nests (AON), 7% decrease on 2015.

Liza Cole/National Trust for Scotland/December 2016

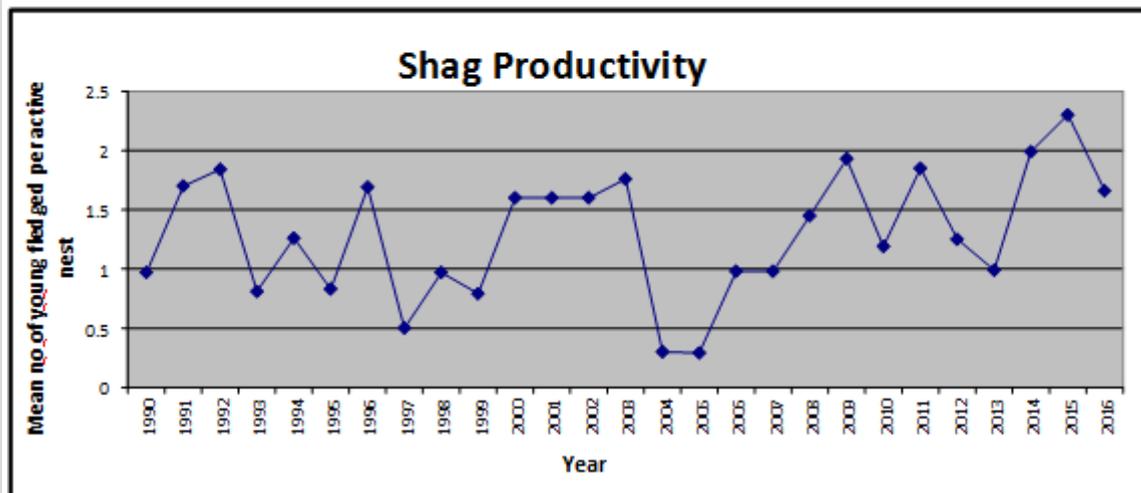


Breeding Success

An assessment of Shag breeding success was carried out using methods described in the 1990 report and following recommendations in the Seabird Monitoring Handbook. Nests were individually mapped on monitoring plots and 18 visits were made to the 4 monitoring plots between the 19th March and 5th August to record the progress of each nest up to fledging. NB the monitoring was started earlier this year because the Seasonal Ranger's contract started at the beginning of March rather than the beginning of April.

Results

A total of 51 active nests were mapped on the plots and 86 chicks successfully fledged. The breeding success, expressed as the mean of the individual plot figures, was 1.67 young fledged per active nest; a decrease of 28% on 2015.



Liza Cole/National Trust for Scotland/December 2016

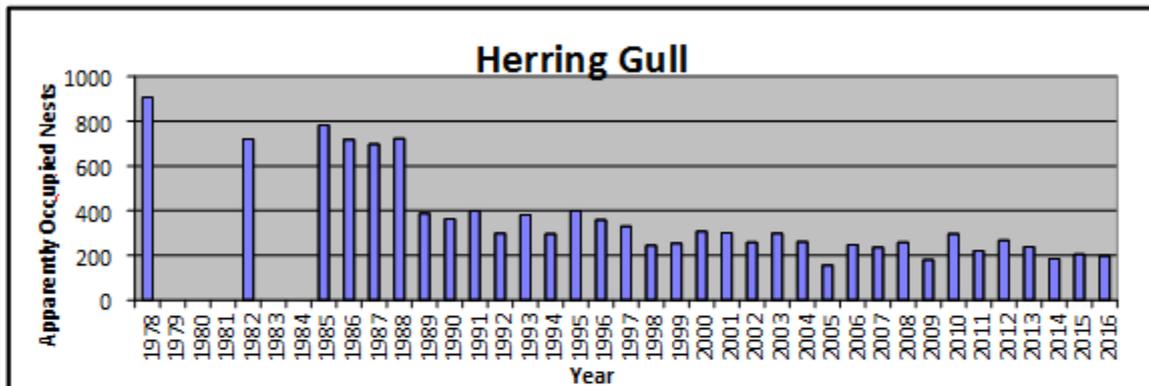
Herring Gull

Whole Colony Count

A whole colony count of apparently occupied nests (AON) was carried out on 29th and 30th May. Blind spots were counted from a boat on 6th June.

Results

197 AON, 4% decrease on 2015.



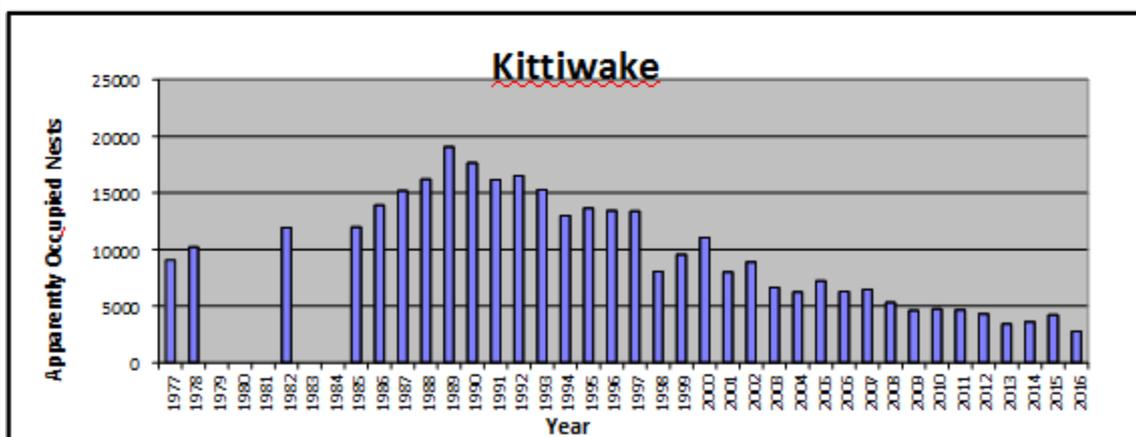
Kittiwake

Whole Colony Count

A count of apparently occupied nests (AONs) was carried out on 20th, 21st, 22nd and 28th June. Blind spots were counted from a boat on 23rd June.

Results

2,779 AON, 34% decrease on 2015.



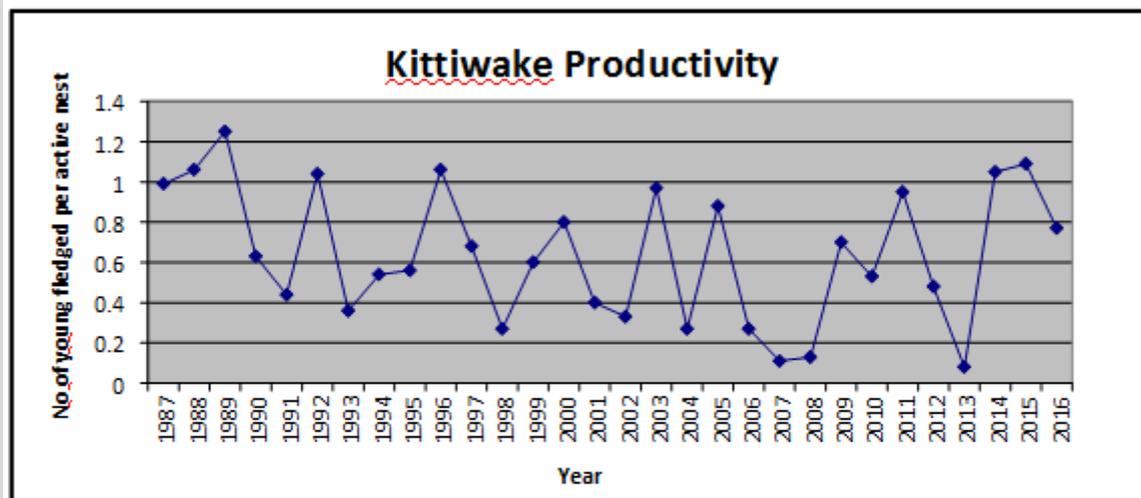
Liza Cole/National Trust for Scotland/December 2016

Breeding Success

An assessment of breeding success was carried out using methods described in the 1995 Report following recommendations from the Seabird Monitoring Handbook. Each of the plots was visited on 28th May when all nests were marked on laminated photographs of the plots, then again on 10 further occasions up to 9th August to check the progress of each nest up to fledging.

Results

A total of 178 active nests were mapped on the plots and 137 chicks successfully fledged. The breeding success, expressed as the mean of individual plot figures, was 1.09 young fledged per AON; a decrease of 29% on 2015.



Gannet

This year we had the first ever record of gannets attempting to breed at St Abb's Head. Four pairs settled on Foul Carr in the third week in May (first sighting 22/5/16), and stayed in residence until early June. One pair showed display behaviour, built a rudimentary nest and were witnessed mating. Therefore we have a count of 1 apparently occupied nest (AON ie one or two adults with nest material, however flimsy). The breeding attempt was not successful.

Guillemot

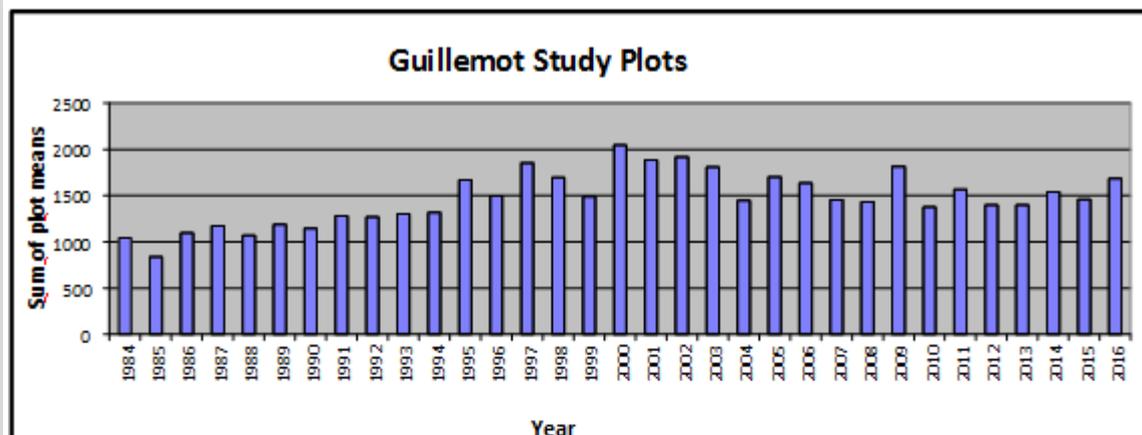
Counts at Monitoring Plots

Six counts of individual birds on ledges were carried out at each of the five plots between 3rd & 18th June.

Liza Cole/National Trust for Scotland/December 2016

Results

The mean number of individuals on study plots in first three weeks of June is 1,684, a 15% increase on 2015.



Breeding success

An assessment of breeding success of guillemots was carried out for the third time this year. This was broadly following the method from the Seabird Monitoring Handbook with amendments suggested by Mike Harris (Co-author of the handbook) and Mark Newell (Isle of May). The protocol is described in the 2016 report and this will be the method used from now on so that results from year to year are comparable. Fifty Apparently Occupied Sites (AOS) were individually marked on photographs of each of the 2 monitoring plots selected, and 36 visits were made to observe progress at each AOS between 11th May and 9th July.

Results

A total of 116 active nest sites were monitored, of which 89 chicks successfully fledged. The breeding success, expressed as the mean of the individual plot figures, was 0.77 young fledged per active site.

Razorbill

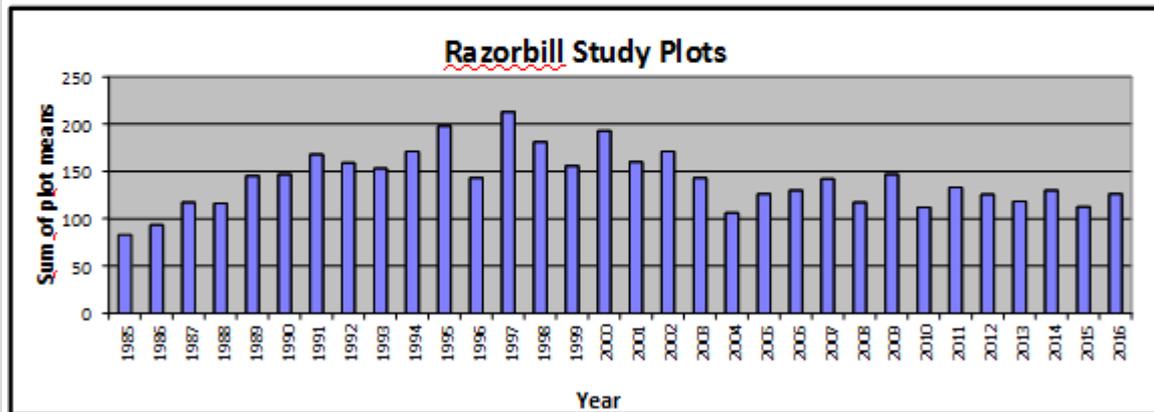
Counts at Monitoring Plots

Six counts of individual birds on ledges were carried out at each of the five plots between 3rd & 18th June (as for the guillemots).

Liza Cole/National Trust for Scotland/December 2016

Results

The mean number of individuals on study plots in first three weeks of June is 126, an 11% increase on 2015.

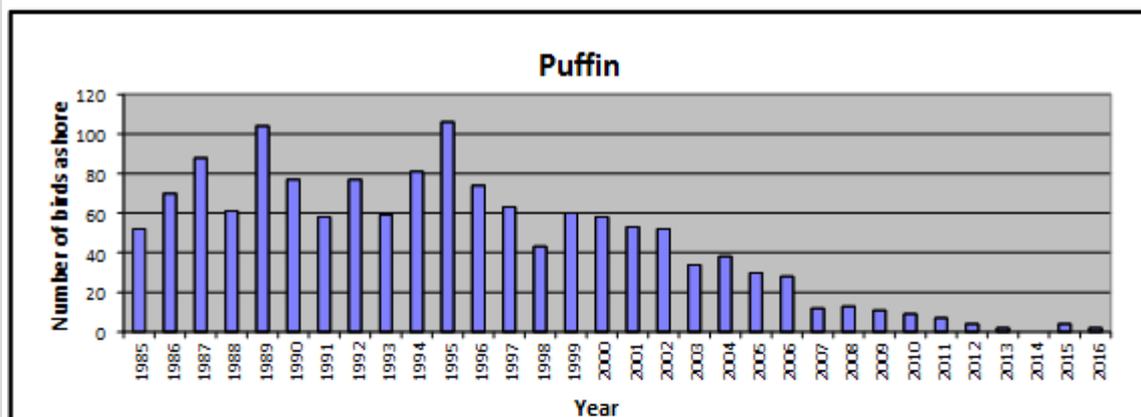


Breeding success

No monitoring of breeding success of razorbills took place this year, it was decided that we should concentrate all staff resources on monitoring guillemot breeding success.

Puffin

A small number of birds were seen ashore on several occasions during the season and an evening count in late June recorded 2 birds ashore.



Liza Cole/National Trust for Scotland/December 2016

Cliffs at St Andrews 2 June 2016

Count done from 18:30 – 20:30

Counters Ron Morris, Bill Bruce, Sue Hamstead

Wind easterly force 1-2, waves 2-3 feet, overcast, dry

2016	Harbour to Castle	Castle to St Andrews Aquarium	Total
Fulmar (AOS)	63	335	398

Other sightings

Herring gull 3 AON
 Rock pipit 4 pairs
 Sand martin colony of c110 nest holes

Also noted:

1 fulmar AOS on cathedral tower
 A number of herring gulls nesting on cathedral walls
 Eider duck nesting in gardens off The Scores
 Drake mallard in garden off The Scores
 Possibly 5-10 fulmar AOS on Kinkell Braes – viewed at a distance from near harbour

Previous fulmar counts

Fulmar (AOS)	Harbour to Castle	Castle to St Andrews Aquarium	Total
2016	63	335	398
2003			459
1999	53	363	416

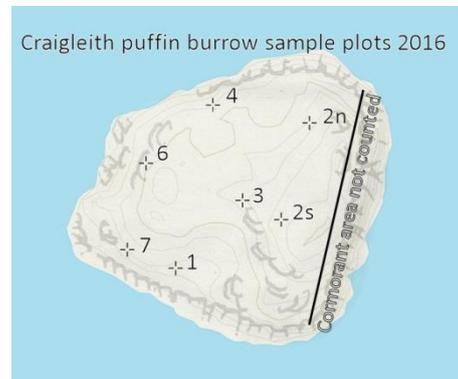
Craigleith Puffin Burrow Count 6 May 2016

Conditions: sea flat calm, wind easterly force 0-1, dry. Count started 12:15, ended 17:45.

The party were split into two teams lead by John Hunt and David Ross. They covered most of the island counting all holes. There was no attempt to identify whether these were active burrows or not or whether they were used by puffins or rabbits.

Bill Bruce and Ptolemy McKinnon set up seven sample plots across the island (see diagram). The teams counted these separately and then these were checked in detail to identify whether they were active puffin burrows or not. The results are shown in the table overleaf.

Other members of the party: Caroline Clyde, Madeleine Barker, Gordon Anderson, Katherine Keogan, Helena Prentice, MaryAnne Hunt, Fiona McGibbon and EJ Shields. Heather Lyons also came out to complete her MSc project recording puffin burrow densities and vegetation along pre-set transects.



Notes:

1. Cormorants are nesting along the eastern side of the island so this area could not be counted. This is estimated to be 10% of the island so an adjustment is added for this area.
2. Time was running out at the end of the day so a small area between sample plots 2n and 2s was not counted. There would not have been many puffin burrows in this area so this has not been adjusted for.
3. Separating the burrows used by rabbits and those used by puffins is not always an easy decision. We know that in the last year the number of rabbits present has been reduced by myxomatosis. We didn't identify too many rabbit burrows in the sample plots ie 3.4% of the holes compared to 7.2% in the 2014 count.
4. There was a bigger proportion of old burrows this time (17.6%) compared to the last count (7.6%) The two teams counted a total of 5761 potential burrows to which an estimate of 640 is added for the area occupied by the cormorants. From the sample plots a correction of 0.64 was calculated which is applied to this total, giving an estimated 4125 apparently occupied burrows (AOB).

For interest, the last puffin burrow count on Craigleith was in 2014 when the count gave an estimated 5475 AOB. The 2016 count therefore shows a drop in numbers of approx. 25%.

A count of eider duck nests gave a minimum count of 111 nests.

Footnote: As the season progressed, the researchers on May Isle noticed that puffins there were later in returning than usual. It is likely, therefore, that Craigleith's count was too early and was done before all of the birds had returned to the island.

Management Area	Area	Sample Plot								Correction Factor	Cumulative correction factor	Correction factor if there were no rabbits:
	Team Count	Plot Location	Plot No	Team count	Puffin AOB	Burrows started (>0.2m <0.5m)	Old burrows	Dead End	Rabbit			
1	2364	NT 5521 8692	1	21	12	2	3	2	1	0.57	0.57	0.60
2		NT 5532 8697	2s	20	12		3	4	1	0.60	0.59	0.63
3		NT 5528 8699	3	24	14		4	3		0.58	0.58	0.58
2 (south)			n/a									
5 (part)			n/a									
7	3397	NT 5516 8694	7	10	5	1		3		0.50	0.57	0.50
6		NT 5518 8703	6	28	23		5	2	2	0.82	0.64	0.88
4		NT 5525 8709	4	12	7		5	7		0.58	0.63	0.58
2 (north)		NT 5535 8707	2n	20	14	4	6	2	1	0.70	0.64	0.74
Estimate for cormorant area not counted	640		n/a									
Totals	6401			135	87	7	26	23	5	0.64	0.64	0.67

Estimated AOB 4,125

Previous count (2014) 5,475

% Change -25%

Fidra Puffin Burrow Count 17 May 2016

Wind westerly, force 2; dry with sunny periods; sea calm (waves dropping to <1ft)

Count started 10:30, ended 14:30

The main team, led by John Hunt, was made up of Allison Leonard, Grant McGregor, Mark Mitchell, Sarah Long, David Robertson, Debbie Tribak and Andy Crofts.

The sample plots were checked by Bill Bruce, David Ross and Sarah Long.

The breeding colonies can be split into seven main areas and these can be described as shown below. In each of the areas 1 to 6 (but not area 7) a sample plot was set up and numbered to correspond to the area and the approximate positions of these are shown on the map.

- Area 1 – top of Castle Tarbet
- Area 2 – lower and western parts of Castle Tarbet
- Area 3 – South and west of garden
- Area 4 – North west of garden
- Area 5 – North and west of lighthouse
- Area 6 – Above arch
- Area 7 – East of garden

The main team walked through each of these areas counting all holes without trying to identify whether they were currently in use by puffins or not. When they reached one of the sample plots these were counted separately. Subsequently each sample plot was checked thoroughly to determine which holes were thought to be apparently occupied burrows (AOB).

There are no rabbits on the island so these don't need to be taken into consideration.

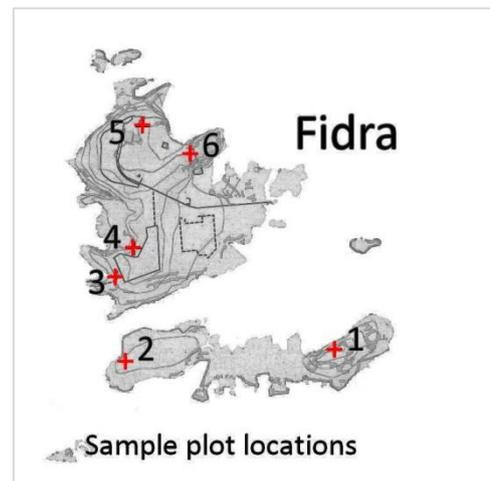
For consistency the sample plots were placed in roughly the same positions as used for the previous counts.

The figures for each area and sample plot are shown in the table overleaf. From the figures for the sample plots a correction factor for the whole island was calculated (ie actual AOB divided by team count) and this was applied to the total number of potential burrows for the whole island giving an estimated AOB for the island:

Unadjusted total number of burrows	1427
Average Correction Factor	0.74
Estimated AOB	1050

For comparison, the following table gives the figures for the previous puffin counts on Fidra.

	2009	2010	2012	2013	2014	2016
Unadjusted count	987	1240	954	957	1140	1427
Correction factor	0.81	0.93	0.79	0.79	0.90	0.74
Adjusted count (AOB)	799	1149	750	755	1026	1050
% change		44%	-35%	0%	36%	2%



Area	Area Team Count	Sample Plot							Correction Factor	Cumulative correction factor
		Plot Location (approx centre)	Plot No	Team count	Puffin AOB	Burrows started (>0.2m <0.5m)	Old burrows	Dead End		
Castle Tarbet (top)	308	NT 5143 8676	1	28	21	1	1	1	0.75	0.75
Castle Tarbet (lower)	43	NT 5121 8675	2	7	6		2		0.86	0.77
South & west of garden	139	NT 5120 8684	3	41	31		8		0.76	0.76
North west of garden	96	NT 5122 8687	4	26	16			5	0.62	0.72
North & west of lighthouse	668	NT 5123 8700	5	48	36	9	2	3	0.75	0.72
Above arch	119	NT 5128 8697	6	24	18	1			0.75	0.94
East of garden	54		n/a							
Totals	1427			174	128	11	13	9	0.74	0.74

Estimated AOB 1,050

Previous count (2014) 1,026

% Change +2%

Notes

Burrows started = burrows at least 20cm and less than 50cm

Old burrows = burrows that are at least 50cm but have not been maintained this year

Dead End = burrows that have been started but have run into rock and have been abandoned

Lothian Ringing Group – Terns at Leith Docks 2016

I made the count on 18/06/2016 from the docksides on either side of the colony. Therefore, my count will not be as accurate as in previous years when we've counted on the "island". However comparison counts on & off the island in previous years have shown both to be within less than +/- 5% of one another.

The total was 719, including one Common/Roseate pair on the island & 12 pairs on the old jetty.

I found no terns on the pontoons at Granton or at Port Edgar.

John C. Davies

BTO Rings Recovered

Craigleith 2 April 2016 Rings: 1352678 and 1352679. Species: Shag, rings found close together. Interesting recoveries. Both birds were ringed as chicks (in a brood of three) on Craigleith on 10/07/1999! I assume that both chicks died before fledging.

Species: Shag (*Phalacrocorax aristotelis*) Ring no: 1484363

Ringed: 06-Jun-2016 on Craigleith by Lothian Ringing Group

Colour ring on left leg: GW(WBL)

Found: by Niels van Steijn on 02-Dec-2016 at Pointe de la Rochette, Wimereux, Pas-de-Calais, France

Condition: Freshly dead (within about a week) on beach

Bird was found 179 days after ringing and was found 655 km from place of ringing.

Species: Guillemot (*Uria aalge*) Ring Number: X32843

This bird was ringed by A J Crease, age at least 2 years, sex unknown on 03-Jul-2001 at Faraid Head, near Durness, Highland, UK OS Map reference NC3871

Found on 13-Nov-2016 at Craigleith, East Lothian, UK

Condition: Dead for more than a Week, Not fresh, only one leg & ring Found

Bird was found 5612 days (15 years and 134 days) after it was ringed, and found 308 km from the ringing site.

Colour ringed shags seen on Fidra on 17 May 2016

Darvic	BTO	Ringling Age	Ringling Year	Ringling Location	Information
RTHW	1459401	Pulli	2013	Fidra	No further information
GPIW	1478911	Adult	2015	Fidra	Sexed as a male through observations of size and voice
GPWU	1478918	Adult	2015	Fidra	Sexed as a male through at the time of ringing

Colour ringed shags seen on Fidra on 22 May 2016

Darvic	BTO	Ringling Age	Ringling Year	Ringling Location	Information
RTHI	1418017	Pulli	2009	Fidra	Recorded in the Firth of Forth (Earlsferry & Elie) in winters 2009-2010 and 2012-13. It was last seen on Fidra in July 2014.
GPWX	1478920	Adult	2015	Fidra	Sexed as a breeding male at ringling in 2015. This is the first sighting of this bird since then.
RTHD	1418014	Adult	2009	Fidra	Sexed as a breeding male at ringling. He was sighted regularly at Earlsferry in winter 2010-2011 and was last reported to us in Nov 2012 on the Isle of May.
GPWU	1478918	Adult	2015	Fidra	Sexed as a breeding male at ringling in 2015. He was also seen on Fidra on your last trip on 17th May.
GEXX	1478727	Adult	2015	Fidra	Sexed as a breeding female at ringling in 2015. She has not been reported to us since then.
RTIP	1418039	Adult	2009	Fidra	We have 50 winter records for this bird since ringling! A regular bird to Portknockie during the winter months. It was last recorded in Portknockie on 18th Feb 2016.

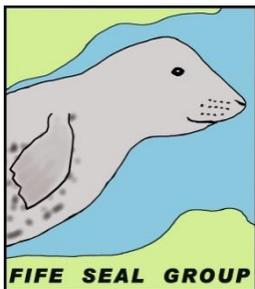
The following table gives details of shags ringed on the Forth islands and re-sighted elsewhere between January and April 2016

Ringin Site	Ringin Year	Ringin g Age	Darvic	Resightings (dates & locations)			
Craigeith	2014	Adult	GACE	19/02/16-Rosehearty			
Craigeith	2014	Pulli	GACR	05/02/16-Pittenween	24/02/16-Isle of May	25/02/16-Isle of May	07/03/16-Isle of May
Craigeith	2014	Adult	GACW	23/01/16-Portknockie	08/02/16-Portknockie	18/02/16-Pittenweem	
Craigeith	2014	Pulli	GAES	08/03/16-Isle of May			
Craigeith	2014	Pulli	GAFW	13/01/16-Isle of May	10/02/16-Isle of May		
Craigeith	2014	Pulli	GAHE	05/02/16-Pittenween			
Craigeith	2014	Pulli	GAIW	08/01/16-Fraserburgh			
Craigeith	2014	Pulli	GASW	08/01/16-Elie			
Craigeith	2014	Pulli	GAWE	11/01/16-Isle of May			
Craigeith	2014	Adult	GAWS	06/01/16-Fraserburgh			
Craigeith	2014	Pulli	GAW W	19/03/16-North Sutor			
Craigeith	2014	Pulli	GAWX	12/01/16-Isle of May	20/01/16-Isle of May	07/03/16-Isle of May	
Craigeith	2014	Pulli	GAXW	13/01/16-Isle of May	21/01/16-Isle of May	05/02/16-Pittenween	
Craigeith	2015	Pulli	GRAP	12/01/16-Isle of May			
Craigeith	2015	Pulli	GRBI	08/01/16-Fraserburgh			
Craigeith	2015	Adult	GRHA	17/01/16-Dysarth, Fife			
Craigeith	2015	Pulli	GRHE	06/01/16-Fraserburgh			
Craigeith	2015	Adult	GRHU	07/02/16-Fraserburgh	25/02/16-Portknockie		
Craigeith	2003	Pulli	RBBB	16/01/16-Fraserburgh	04/02/16-Portknockie	08/02/16-Portknockie	09/02/16-Isle of May
Craigeith	2011	Adult	REEA	23/01/16-Fraserburgh			
Craigeith	2011	Adult	REEU	16/01/16-Dunbar	23/01/16-Rosehearty	07/02/16-Rosehearty	20/02/16-Fraserburgh
Craigeith	2012	Adult	RETB	21/01/16-Isle of May			
Craigeith	2012	Adult	RETC	23/01/16-Portknockie	07/02/16-Fraserburgh	18/02/16-Fife Ness	
Craigeith	2014	Pulli	RHSU	13/01/16-Isle of May	23/02/16-Isle of May	08/03/16-	

Craigleith	2014	Pulli	RHSU	23/02/16-Isle of May	08/03/16-	
Craigleith	2014	Pulli	RHSU	08/03/16-		
Craigleith	2009	Pulli	RTNN	01/01/16-Hunstanton		
Craigleith	2009	Adult	RTPC	28/01/16-North Sutor	18/02/16-Flamborough	
Craigleith	2006	Pulli	YAHC	07/03/16-Isle of May		
Fidra	2014	Pulli	GESL	04/01/16-Fraserburgh	13/02/16-Fraserburgh	
Fidra	2014	Pulli	GESN	20/01/16-Isle of May	11/02/16-Isle of May	24/02/16-Isle of May
Fidra	2014	Pulli	GEUC	20/01/16-Isle of May	11/02/16-Fraserburgh	
Fidra	2014	Pulli	GEUD	09/01/16-North Sutor		
Fidra	2014	Pulli	GEUI	08/02/16-Portknockie		
Fidra	2014	Pulli	GEUN	24/02/16-Isle of May		
Fidra	2014	Pulli	GEWH	11/01/16-Isle of May		
Fidra	2014	Pulli	GEXA	10/02/16-North Sutor	25/02/16-Portknockie	07/03/16-Isle of May
Fidra	2014	Pulli	GEXD	03/03/16-Isle of May		
Fidra	2014	Pulli	GEXJ	16/01/16-Portknockie	10/02/16-North Sutor	23/02/16-North Sutor
Fidra	2015	Pulli	GEXS	28/04/16-Arbroath		
Fidra	2015	Pulli	GEZN	18/02/16-Portknockie	25/02/16-Portknockie	
Fidra	2015	Pulli	GEZT	10/01/16-Burghead		
Fidra	2015	Pulli	GPAW	18/02/16-Fife Ness	25/02/16-Portknockie	
Fidra	2015	Adult	GPBE	20/02/16-Fraserburgh		
Fidra	2015	Pulli	GPEF	09/01/16-North Sutor		
Fidra	2015	Pulli	GPEN	10/01/16-North Sutor		
Fidra	2015	Adult	GPLE	22/03/16-Fidra		
Fidra	2015	Pulli	GPRA	01/01/16-Portknockie		
Fidra	2015	Pulli	GPRT	03/01/16-Scarborough		
Fidra	2015	Pulli	GRXS	03/02/16-North Sutor		
Fidra	2009	Adult	RPTT	11/01/16-Isle of May	12/01/16-Isle of May	
Fidra	2009	Pulli	RPUT	23/01/16-Portknockie	04/02/16-Portknockie	08/02/16-Portknockie
Fidra	2009	Adult	RPZL	13/01/16-North Sutor		

Fidra	2009	Adult	RTIB	18/02/16-Sandhaven				
Fidra	2009	Pulli	RTIE	18/02/16-Portknockie				
Fidra	2009	Adult	RTIP	01/01/16-Portknockie	23/01/16-Fraserburgh	04/02/16-Pittenween	08/02/16-Isle of May	18/02/16-Flamborough
Fidra	2009	Adult	RTIX	05/02/16-Buchanhaven				
Fidra	2014	Adult	RWJP	06/01/16-Portknockie	08/01/16-Rosehearty	07/02/16-Portknockie		
Inchkeith	2014	Pulli	GEAW	08/01/16-Fife Ness				
Inchkeith	2014	Pulli	GEBF	18/02/16-Rosehearty	25/02/16-Isle of May			
Inchkeith	2014	Adult	GEBP	09/01/16-Castlesea Bay	18/02/16-Portknockie	20/02/16-Rosehearty		
Inchkeith	2014	Adult	GEBP	18/02/16-Portknockie	20/02/16-Rosehearty			
Inchkeith	2014	Pulli	GECB	23/02/16-North Sutor				
Inchkeith	2014	Pulli	GECS	06/01/16-Fraserburgh				
Inchkeith	2014	Pulli	GECZ	03/03/16-Fife Ness				
Inchkeith	2014	Pulli	GEDD	20/02/16-Fraserburgh				
Inchkeith	2014	Pulli	GEDF	12/01/16-Isle of May				
Inchkeith	2014	Adult	GEEH	20/01/16-Isle of May				
Inchkeith	2014	Pulli	GEES	19/01/16-Isle of May				
Inchkeith	2014	Pulli	GEFE	11/01/16-Isle of May	21/01/16-Isle of May	24/02/16-Isle of May		
Inchkeith	2014	Adult	GEFN	07/02/16-Fraserburgh				
Inchkeith	2015	Adult	GRED	28/01/16-Flamborough	07/02/16-Fraserburgh	13/02/16-Quarryhead	20/02/16-Fraserburgh	
Inchkeith	2015	Pulli	GRJW	06/01/16-Fraserburgh				
Inchkeith	2015	Adult	GRPD	07/01/16-Elie				
Inchkeith	2015	Pulli	GRPP	06/01/16-Fraserburgh				
Inchkeith	2015	Pulli	GRUD	03/01/16-Fraserburgh	05/02/16-Buckie			
Inchkeith	2015	Adult	GRUZ	18/02/16-Rosehearty				
Inchkeith	2013	Adult	RPWB	20/02/16-Sandhaven				
Inchkeith	2013	Adult	RRIJ	09/01/16-Burghead	15/01/16-North Sutor			
Inchmickery	2014	Pulli	GEJN	21/01/16-Isle of May				
Inchmickery	2014	Pulli	GEJX	11/01/16-Isle of May				

Inchmickery	2014	Pulli	GELC	18/02/16-Portknockie				
Inchmickery	2014	Pulli	GENX	08/03/16-Isle of May				
Inchmickery	2014	Pulli	GEPU	11/01/16-Isle of May	12/01/16-Scapa Pier, Orkney			
Inchmickery	2014	Pulli	GERC	20/01/16-Isle of May	21/01/16-Fraserburgh			
Inchmickery	2015	Pulli	GRRP	03/02/16-Portknockie	10/02/16-Isle of May	17/02/16-Portknockie	03/03/16-North Sutor	19/03/16-North Sutor
Inchmickery	2015	Pulli	GRSD	10/01/16-Portknockie				
Inchmickery	2015	Pulli	GRTU	25/02/16-Pittenweem	02/04/16-Portknockie			
Inchmickery	2015	Pulli	GRXS	23/02/16-Isle of May	19/03/16-North Sutor	31/03/16-North Sutor		
Inchmickery	2015	Pulli	GURA	06/02/16-Aberdeen				
Inchmickery	2010	Pulli	RLTX	23/01/16-Portknockie	08/02/16-Portknockie			
Inchmickery	2009	Pulli	RPNN	13/02/16-North Sutor				
Inchmickery	2009	Pulli	RPSJ	21/01/16-Portknockie				
Inchmickery	2013	Pulli	RWCD	20/02/16-Isle of May				



Fife Seal Group Annual Report 2016

Compiled by Dr Sue Hamstead & Sarah Long

Introduction

As has been the case in past years, one main focus of this report is the grey seal population on Inchkeith during their breeding season, but this year in addition we are able to incorporate – with grateful thanks to Sarah Long – a very detailed account of the Craigleith population. And as usual, data was also collected on other islands in the Forth where grey seals have sometimes been found to breed. Notes were also made on sightings of harbour seals and on the various bird species spotted on the islands.

Inchkeith

This year a number of extra visits were made to Inchkeith in an attempt to gain additional information about the grey seal population and perhaps arrive at a better estimate of the total number of pups born. There were four main visits to Inchkeith (see Appendix 1) taking place on 23 October, 12 November, 3 and 28 December, the dates chosen to map as nearly as could be managed onto the dates of last year's visits. These are the dates, then, which allow the most direct comparison with previous years. There were also two extra visits (Appendix 2) on 20 November and 11 December, the dates timed to fall approximately one week after each of the middle two main visits. Combining the data from these extra two visits with the first and last of the main visits could tell us more about when the pup numbers were peaking and perhaps offer more clues as to what percentage of pups were maturing in under 21 days. Some supplementary data was also collected on two other dates: 7 and 15 November (Appendix 3). In both cases, the counting team was taking advantage of trips to Inchkeith that were being undertaken for other reasons, so the dates have no special significance for seal-counting purposes. It is in order to present the main data clearly and to facilitate comparisons with previous years that the raw data from the counts is dealt with in the separate appendices specified.

The first visit (23 October), as was the case last year, just caught the beginning of the pupping season but only 16 (all alive) were counted compared to 23 in 2015. The pups were all estimated to be between 1 and 5 days old.

The second of the main counts (12 November) yielded a total of 394 pups, comprising 372 live whites,¹ 10 dead whites and 12 moults. Unlike recent years, the number of moults on this trip was lower than the number of whites on the first trip. It may still be – as has been assumed previously – that other pups had been born, moulted and left the island between these visits but there is no evidence this time in these numbers to support this scenario. The running total of 398, then, is derived simply by adding up the number of whites (including dead whites) from the two visits. This is slightly lower than the equivalent figure from last year which was 405 at this stage.

On the third of the main visits (3 December) there were 217 whites – including 31 dead – and 185 moults, all of which were alive. This represents a substantial increase over the equivalent count from last year (170 whites and 180 moults). The running total (adding the whites to our previous total) had now overtaken last year's, standing at 615 compared with 575.

On the fourth of the main visits (28 December) we counted 19 whites including 2 dead and 27 moults including 1 dead. The youngest of the pups appeared to be about 3-5 days old, so were likely to be just about the last born this season. Adding in these whites gives a final total of **634** pups for the season representing an increase of 6% from last year's total of 598.

¹ We define a 'white' to be any pup with at least some white fur remaining (generally under three weeks old). A 'moult' is a pup born this season that has completely moulted its white coat.

The total number of dead pups for these four trips was 44. This suggests a mortality rate of 7%. To avoid any double counting, the intention was to include dead pups only if the corpse looked to be less than 3 weeks old. In practice this was complicated by the extra counts: there was confusion as to whether we were counting those deemed to have died in the last three weeks or only those deemed to have died since the last time we counted. Without the extra counts, these would have been one and the same thing, hence the uncertainty. We feel confidence that the main counts were not greatly affected, but the figures for dead pups on the extra counts might not be very reliable. Even so, it seems most pup mortality occurred during the latter part of the breeding season, roughly from the second half of November onwards. The explanation might lie in weather-related factors or it might be that less mature – hence less experienced – cows are more likely to breed later in the season and have a lower chance of success. There might of course be a combination of factors at play. What is notable is the very low mortality among the older – i.e. weaned – pups: just one of the 44 from the main counts. No evidence was found this year of the kind of ‘corkscrew’ injuries that on occasion have been encountered in the past.

If using the two middle counts in Appendix 2 (20 November and 11 December) in combination with the first and last of the main counts (23 October and 28 December), it is immediately apparent that the number of moults on this alternative second count (57) far exceeds the number of whites on the first count (16). Adding in the 57 moults instead of the 16 whites will give us a minimum number of pups and running totals of 518 (from second count), 622 (after third count) and a final total of 641. It could be argued that the original 16 pups should also be added in as they are likely to have moulted and left the island in the four-week gap between first and second counts with these alternative dates. That would bring the total to 657. There might also be a number of pups which were born, moulted and left the island all within that four-week gap, but there is no obvious way to estimate how many. Even so, our minimum alternative total of 641 is at least slightly higher than the 634 from the main counts. It is evidence that there are more pups born than are captured by the main counts, though again it is difficult to estimate how many. There are also problems in trying to extrapolate figures from one year to the next as there are many factors (climate, food sources, etc.) that could be causing significant variation.

The extra counts in Appendix 3 give us two more points at which the pups were counted. Plotting the total pups from all eight count that were made this season – if we can assume a roughly normal distribution – suggests that numbers are reaching their maximum around 24-5 November *Figure 1* shows pup count plotted against date throughout the season, differentiating between whites and moults. Dead pups were excluded so as not to skew the results, the argument being that had a pup not died it might have reached the next stage by the time of the visit (i.e. a white might have moulted and a moult might have left the island).

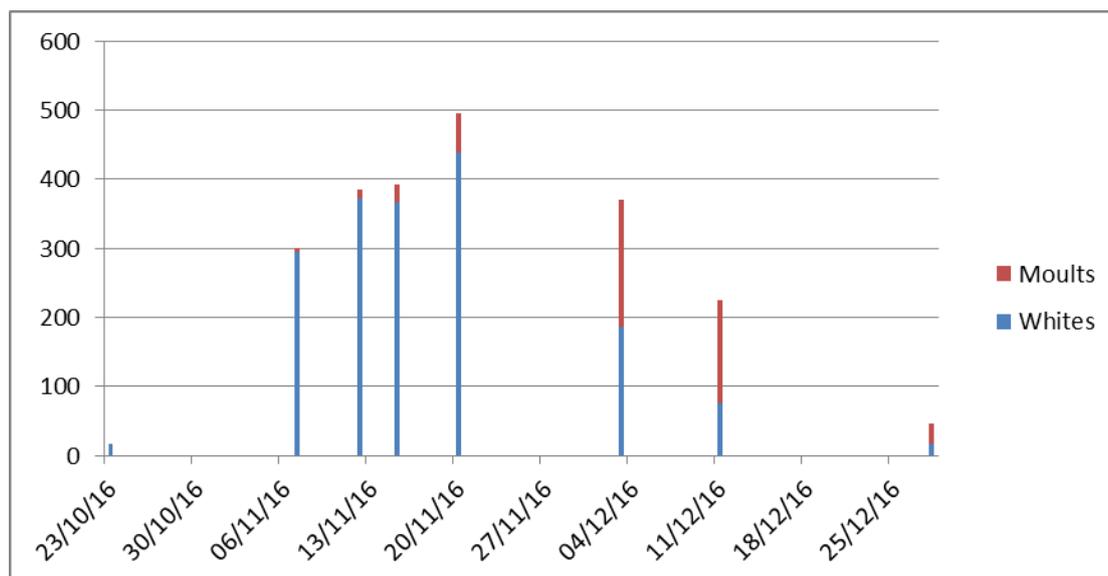


Figure 1

Inchcolm

For each of the main trips this year (i.e. 23 October, 12 November, 3 and 28 December) there were enough experienced volunteers to be able to deploy two counting teams on Inchkeith, each team covering approximately half the island. This saved sufficient time to allow for landings on Inchcolm and Inchmickery and also making observations of Swallow Craig and Carr Craig from the boat. The data collected appears in Appendix 4.

It can be seen, therefore, that at least **10** pups were born on Inchcolm, all in the south bay which has also in previous years been the most popular site on the island for pupping. This count is up from 7 last year.

Inchmickery

We noted one moult on Inchmickery on 3 December, but there was no evidence that any pups had actually been born there this season. What we did discover, however, was that a large number of adult grey seals were using the east side of the island as a haul-out site when we visited on 28 December at the end of the pupping season. The seals were mostly on the rocks but moved off into the sea when our approach was noticed. The count of 60, therefore, is only approximate. It also made it too difficult to differentiate for the most part between bulls and cows or to count accurately any younger animals among them.

Swallow Craig (Inch Gnome)

Swallow Craig was also being used by some adult seals at the end of the season together with a couple of moults.

Carr Craig

A couple of moults were seen in the company of adult females on Carr Craig. This again was on the 28 December visit.

Birds

Notes on bird species sighted were made on most of the seal-counting trips. Also, there were a few notes made on other wildlife sightings. A summary in tabular form appears in Appendix 5.

The Craigleith Island Grey Seal Population 2016 – Report by Sarah Long

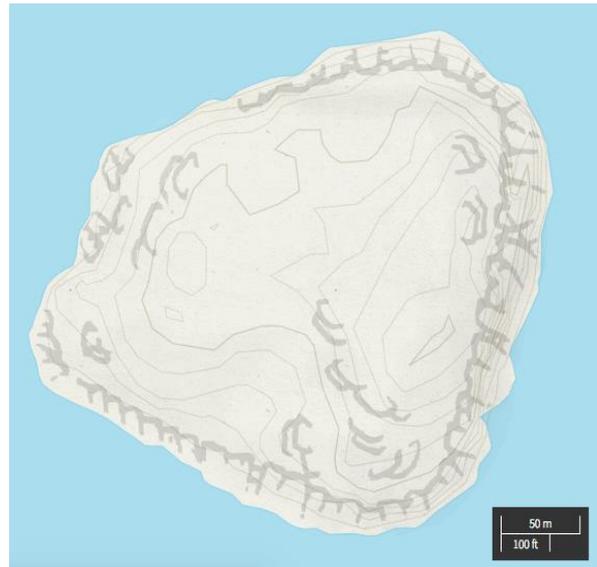
Craigleith is a small (7.67ha) uninhabited island in the Outer Firth of Forth area, 1.12km from North Berwick. The island is mostly vegetation, the majority of it covered in grass, tree mallow or nettles. The North side of the island is mostly sheer cliff, however on the South side of the island, the area between the two small hills forms a 'glen'. A small grey seal (*Halichoerus Grypus*) colony breeds in the glen on the island each winter. The colony is thought to have started in the late 1990s (see page 10). Births start in October or November. Females (cows) have one pup per year, and males (bulls) tend to mate with multiple females each year.

The Scottish Seabird Centre is based at the harbour in North Berwick, East Lothian. It has been a conservation and education charity since 2000, part of the centre being the Discovery Centre. Remote cameras based on islands in the Firth of Forth and the East Lothian mainland link back to the Discovery Centre where they are controlled by visitors and staff, allowing users to watch wildlife live via video link.

This report is a summary of the grey seal population surveys on Craigleith over the winter breeding season, via the cameras in the Discovery Centre and one landing count, to find the total number of pups born in 2016.



Map 1: Aerial view of Craigleith and, in red, the glen area (source for all maps: Ordnance Survey)



Map 2: Topographical map of Craigleith



Map 3: Craigleith Island, 1km North of North Berwick. Inset: North Berwick within East Lothian

Methods

The majority of the counts in this report were carried out via the remote cameras based in the Scottish Seabird Centre. In addition to these weekly counts, one landing survey was organised by the Fife Seal Group on 13/11/2016.

Survey dates were every Saturday, except for Sunday the 13th of November (landing count), and Sunday the 4th of December. Throughout the day, multiple surveys were carried out and the highest number for each age/sex group was taken while any lower counts were disregarded.

Pups surveyed that were born this season were separated by their appearance, which is indicative of their age. 'Whites' are any pups born during the season with any white fur remaining (generally under three weeks old). A 'moult' is a pup born this season that has completely moulted its white coat.



Figure 1: A 'white' pup, close to becoming a 'moult' (Inchkeith population, 2015)



Figure 2: Three 'moult' pups (Inchkeith population, 2015)

Limitations of Survey Method

There are many advantages to having access to the camera-based survey method but also drawbacks, and these have been outlined below.

Constraints of survey method (compared to landing on the island):

- There is a single camera in a fixed position on the South side of the island. Although it can be moved 360 degrees, only one view of the glen area can be observed. This means that pups hidden behind rocks, other seals, vegetation, etc, that would be spotted easily in person can be missed.
- As the camera (and seal population) is on the South side of the island, and as the sun becomes lower as the pupping season progresses, glare from the sun was an issue. It is possible to misidentify whites for moults or a bull for a cow due to the lack of colour contrast on the screen. There doesn't seem to be the same issue on the Isle of May cliff-top camera, possibly because the camera looks down at the colony from the cliff, rather than at the sun.
- Technical problems such as solar panel/timer issues meant there was occasionally no camera at all, which could affect the consistency of surveys. During seal season 2015, the Craighleith cameras were off for some time during the winter due to damaged solar panels. On many days during this survey, the cameras were not active until the afternoon (due to low amounts of sunlight in the morning) which reduced the possible surveying time significantly.
- As my main job was a Discovery Centre Assistant, my time spent surveying was limited or interrupted by delivering talks, welcoming visitors, etc. On most survey dates, I counted the seals multiple times throughout the day. However on some dates I only had time for one count, which could lead to inconsistencies.

- For supplementary notes on Craigleith’s birdlife, small birds could not always be confidently identified as the camera is too grainy to see all the features of the bird. Although the camera can zoom in fairly close, the quality is significantly reduced.

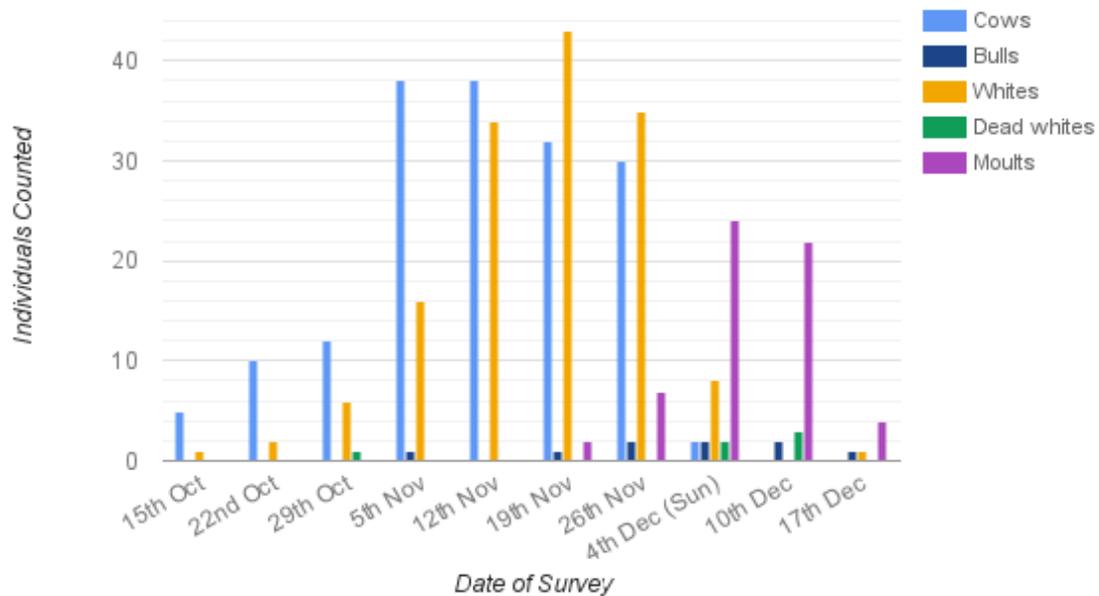
Positives of survey method (compared to landing on the island):

- Using a remote camera means that the seal population on Craigleith is not affected by human presence during the surveys. This mostly affects the adult seals, who can move into the water after spotting humans and are then more difficult to identify/count during a landing survey. This also means more natural behaviours can be observed.
- Being mainland-based means that surveying is not affected by sea swell, heavy rain, and other factors that could prevent landing on the island.
- Time is not such a factor on camera surveys so it is possible to do multiple counts over the course of the day, covering different tide phases, allowing for foraging adults to return, etc. When landing on the island to survey there is usually a shorter period of time available which only captures a brief period of the seals’ day.
- Having visitors in the Discovery Centre can mean extra pairs of eyes to observe the seals. Members of the public spotted a live pup birth on Craigleith this season. My colleagues were also a great help, informing me of bulls coming to Craigleith on days I wasn’t in the centre, and technical help such as recording clips of interesting behaviour from the seals.

Results

Date	Cows	Bulls	Whites	Whites (dead)	Moult
15th Oct	5	0	1	0	0
22nd Oct	10	0	2	0	0
29th Oct	12	0	6	1	0
5th Nov	38	1	16	0	0
12th Nov	38	0	34	0	0
13th Nov (LANDING) (Sunday)	44	3	45	0	0
19th Nov	32	1	43	0	2
26th Nov	30	2	35	0	7
4th Dec (Sunday)	2	2	8	2	24
10th Dec	0	2	0	3	22
17th Dec	0	1	1	0	4

Camera Based Survey of Grey Seals on Craigleith, Oct-Dec 2016



Graph 1: Survey information from results table shown.

'Individuals Counted' is the maximum number of each age/sex counted on each date.

The final count of grey seal pups born on Craigleith Island in 2016 was **56**.

Counts on the 29th October, 13th November, and 4th December were used to find the final result. The 13th November gave the peak count of the season, partly due to it being the only landing count. The 29th Oct and 4th Dec counts were three weeks to either side of the landing count, and meant that any white pups counted on the landing count would have moulted by the count three weeks later. This reduces the chance of counting the same seal twice.

- Whites from the 29th October survey have not been included as they were all still whites during the 13th November landing survey. The dead white from this survey has been included.
- Moults from the 4th December survey have not been included as they were counted while they were whites on the 13th November landing survey.

The first pup was born on the island on the 15th of October, and the last pup is estimated to have been born no later than the 1st of December.

There were three bulls breeding on Craigleith Island this year. Two bulls were seen consistently on Craigleith in the weeks directly after the landing count, when the highest numbers of pups were counted.

The observed mortality rate of white pups was 11%.

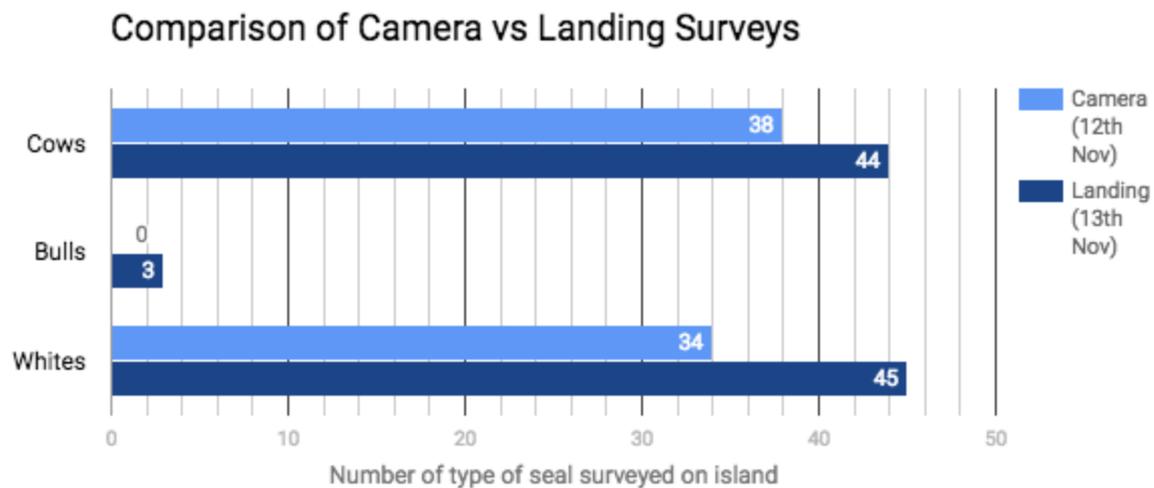
I estimate that a small number of pups (up to 3) may have been hidden from view on the dates that were chosen for the final count, based on a comparison between the landing count on the 13th Nov and the camera-based count the day before. An estimated maximum count of **59** pups takes pups missed on the 4th December survey into account.

Analysis of Missing Pups

It is clear that there were pups not counted as they were in blind spots from the camera, although exact numbers of missed pups are not known. Missing pups would explain the dramatic increase between the 12/11/16 camera survey and the 13/11/16 landing survey. The camera count's number of white seals is almost 25% lower than that of the landing count.

It could be interesting to see the difference between camera-based and landing survey figures when recorded on the same day in the future. There might be a consistent ratio found between the two survey methods.

There were also significant differences in just the camera surveys over the course of the day (see Supplementary Notes: 19th November), with up to 10 pups 'disappearing' from view over a period of just a few hours.



Graph 2: Comparison between seals counted on camera Saturday 12th November and seals counted when landed on Craigleith, Sunday 13th November.

Moults were not included in this graph as the number for each survey method was 0.

Supplementary Notes: Historical Grey Seal Surveys on Craigleith Island

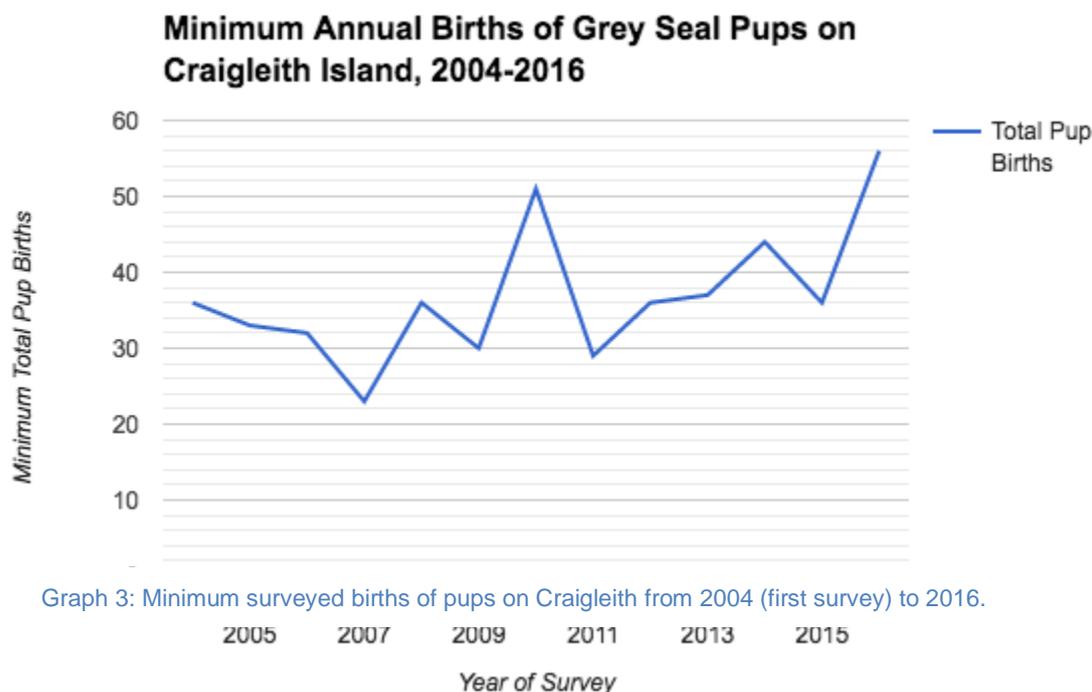
The grey seal colony on Craigleith Island is thought to have started in the late 1990s-early 2000s. The Forth Seabird Group/Fife Seal Group began surveying the Craigleith population during the 2004 breeding season. Below is a brief summary of the survey methods used from year to year.

From 2004 – 2006, counts on Craigleith were all in late November as they tended to be about a week after the main Inchkeith counts. All counts during this period were performed either by landing on the island or from the boat.

From 2007 – 2009, the remote camera in the Scottish Seabird Centre started being used for seal surveys on Craigleith. No landing counts were arranged. Using the camera gave the FSG accurate dates of the first pup births of the season from the volunteers working in the centre.

From 2010-2015, the survey methods varied from year to year and used different dates. Notably, both 2010 and 2014 used two landing surveys during their survey seasons, and the dates used for the 2010 surveys are almost the same as the dates used for 2016. A direct, in-depth comparison between this report's results and the results from previous years is not possible due to the large variations between survey methods and frequencies.

2016 saw both the earliest pup birth (15th Oct) as well as the highest number of births (56) recorded at present on Craigleith. The data so far points towards a well-established and gradually increasing grey seal population on Craigleith Island.



Graph 3: Minimum surveyed births of pups on Craigleith from 2004 (first survey) to 2016.

Supplementary Notes: Detailed Count Information for the Surveys of Craigleith's Grey Seals

These notes were written on the day of surveying each week.

Saturday 15th October 2016

Found Craigleith's first pup at 1pm today - had been watching for a couple of hours already and couldn't see any signs of pups. The first pup was hiding behind some short stems of Tree Mallow. The pup's mother found it and gave it attention; lots of feeding.

On the 19th, James Leyden working on a Sea-Fari boat trip spotted one bull on the South shores of the island and in the water. The bull attempted to mate with a female and was rejected.

Saturday 22nd October

Strange behaviour from the second mother on Craigleith was observed earlier this week (Monday). Rolling over her pup, putting her flipper on its neck. I took a short video of the behaviour for reference.

On Tuesday there were 15 cows on the island, but I haven't included this in my official count as this wasn't on a survey date.

Saturday 29th October

One live birth was witnessed by a visitor this week. Unfortunately no video was taken of the birth. 7 pups were counted today, one very young pup for most of the day was hidden behind one of the rocks near the shore of the glen. At 15:30, one of the pups was very close to the water, trapped by an adult female protecting her pup. It tried to move past her up to dry land, but she was aggressive and snapping at it. After 5 minutes, the pup moved into the water and swam about five metres away, hidden behind an outlying part of the island. I assume it drowned, however it could have been hidden behind a lip on the rock. At 4pm it still had not reappeared so I have classed it as a 'dead white'.

Saturday 5th November

The first seal pup is now 3 weeks old however as it's still pretty white, it is still classified as a 'white'. The coat is difficult to see in the bright sunlight which will probably be an ongoing problem with this South-facing breeding area.

The first surveyed bull is now on the island, near the water's edge. He is not looking territorial and was not attempting to mate with any of the females during observation.

Saturday 12th November

Earlier this week (Tuesday) there was a bull on the island. It was mating with one of the females (a video was taken) in the glen. The first pup is now a definite moult, and is still in its usual place next to the pond.

Update: After surveying the seal population in person on the 13th November, the first pup of the season still has some white on its coat and I have now changed the figures to no moults on the island yet.

Miscellaneous/unrelated info: Earlier this week (10th Nov @ 8:32am) I received a text from the British Divers Marine Life Rescue (BDMLR) about a seal pup on North Berwick's West Bay. This is the strip of beach directly facing Craigleith. At 9:17am the pup was picked up by the SSPCA. It is possible that this was the white that swam off on the 29th October, however an adult female seal could also simply have had a pup on the West Bay beach and abandoned it. It could be interesting comparing incidents of Craigleith pups going into the water with

pup stranding reports on North Berwick beaches. The 'drowned' pup would be about two weeks old at time of stranding if it is the same individual.

Sunday 13th November (LANDING SURVEY)

Seal surveyors: Bill Bruce, Sarah Long, Dave Nicol, Mike McFarlane.

The group surveyed the entire island, confirming that the grey seal pupping area is currently limited to just the glen area and this year did not spread out to the West of the island, where some seals have used in the past.

A landing survey will bring up different, probably more accurate, data to the camera-based survey and because it's a different method, I have not displayed this data in the bar graph in the 'results' section. A comparison bar graph between this method and the camera-based method is on page 8.

Today although some camera maintenance was carried out on Craigleith, the cameras were not working for the rest of the day so a comparison between landing and camera surveys could not be done.

Saturday 19th November

There was a large difference in the counts today - at 11.30am the pup count was 43 individuals, however at 1.30pm the count was 33 individuals. My guess is that the pups must be moving into blind spots that are out of the camera's field of vision.

More behaviour of cow smothering/crawling on top of her pup was observed today, and a video was taken. This is interesting as the same behaviour was observed on the second survey date. I am not sure if this is aggressive behaviour, as the pup easily wriggles away and the mother will then ignore her pup.

Moulted seals are now on camera, which can be difficult to identify compared to cows. Lack of colour contrast combined with glare from the sun can make it difficult to tell if a possible moult still has some patches of white fur left.

Saturday 26th November

The cameras on Craigleith have been unpredictable all week, turning on either at the end of the day or not at all. Stormy weather earlier this week meant that the solar panels had very little sun. Thankfully today they charged up enough to turn on by 11am today.

At least four of the white pups counted on camera this week were very young ie born in the past week.

Sunday 4th December

I'm concerned about a moult's physical development in the middle of the glen. The closest seals to it are at least 6 metres away. The moult is small, with a disproportionately large head, neck and flippers. From observing it for about 30 minutes, it appears to have limited use of its pelvic flippers and possibly its left pectoral flipper.

The second dead white was fairly fresh on Tuesday (eyes missing) and is still decomposing.

There was a white pup right by the water's edge with blood on its face. There were no cows nearby. It had its eyes closed and I needed to watch it for a short while to make sure it was still alive.

I thought that there was a dead moulted pup lying face down in a puddle this week but could not be sure.

Saturday 10th December

A pup which I thought was a white on camera today is the pup I believe to be the same from last week with blood on its face. It looks only just alive, is breathing irregularly and is very small with no females on the island. When the light changed later in the day I realised this pup is a very light-coloured moult. There are now no white pups left on the island.

Greater black-backed gulls are feeding on a dead white and on a rabbit. The peregrine falcon, although present on the island throughout the day, has not been interested in either carcass.

This morning, I believed the 'dead moult' from last week was actually a rock, as the light made the shape look very flat.

This afternoon, the shape was being pecked at by a greater black-backed gull and I have now listed it as a dead white. It may look bigger because it has absorbed water from the puddle. It has taken at least a week before the gulls have started feeding on the body which is interesting as I would expect that after spending at least a week in the water, the carcass would be too rotten for the gulls to eat.

I could not confidently find the moult with the disproportionately large head again today. Alex, my manager, saw it yesterday in the centre of the glen in the same place as it was sighted last week.

Saturday 17th December

The only white remaining has two very small tufts of white fur left on its body. It was probably born at the end of November.

One of the moults looks very small, possibly the underdeveloped pup from two weeks ago.

Today a visitor to the centre noticed a pup on the rock skerry. I contacted the BDMLR after seeing it as it was a moulted pup but very small and had some noticeable bones. The noise from two loud motorbikes travelling through the harbour startled the pup and after a couple of minutes of scrambling, it fell about two metres down into the gully. Eventually it managed to get itself out to sea and did not seem to be injured. Corinne Gordon from the BDMLR, who I spoke to over the phone, decided that it would not be wise to attempt to rescue the pup as the rocks were too hazardous for humans. I checked both beaches at the end of the day and could not see the pup. It's possible that this was a Craigleith pup, but there is no way to know for sure.

Supplementary Notes: Bird species sighted on Craigleith during camera-based surveys:

Peregrine Falcon (1) frequently during the pupping season. During the landing survey, we went to the falcon's perch and found a Guillemot leg. There was also a large amount of raptor droppings around the perch, and peregrine falcon feathers.

Linnets (10+) have been spotted since the 29th of October. They were spotted during the landing survey too.

Pied Wagtails (20+) are spotted on every camera-based survey, flitting amongst the cows and pups in the glen area. The majority of the wagtails are juveniles.

Herring Gulls (10+) and Lesser Black-Backed Gulls (10+) numbers increased on the island later on during the season after both populations were absent during the first couple of weeks surveying.

Shags (20+) are resident on Craigleith and have been on the low rocks close to the water throughout the pupping season.

Purple sandpipers (6) by the water's edge.

Greater black-backed gull (1) in the glen 26/11/16

Sparrows (unsure which species, and unsure of ID due to graininess of camera) (10+) 29/11/16

Raven (1) on 4/12/16, which brought up a pellet in front of the Craigleith South camera.



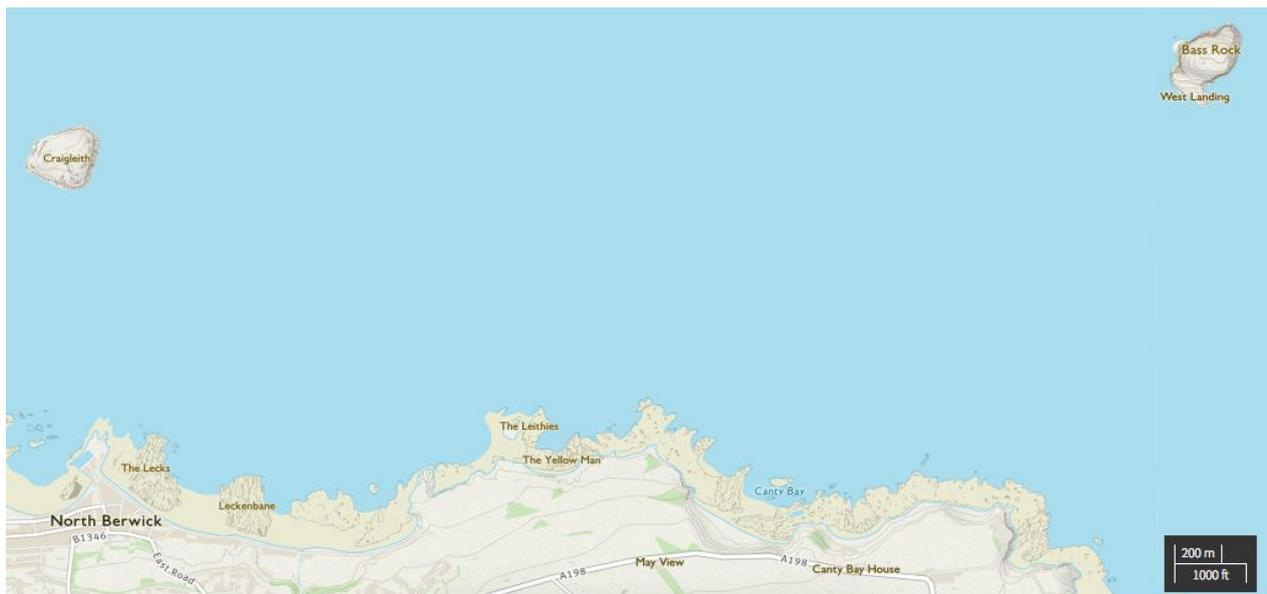
Figure 3: The raven spotted on Craigleith, 4th December 2016

Supplementary Report: Bass Rock Seal Population

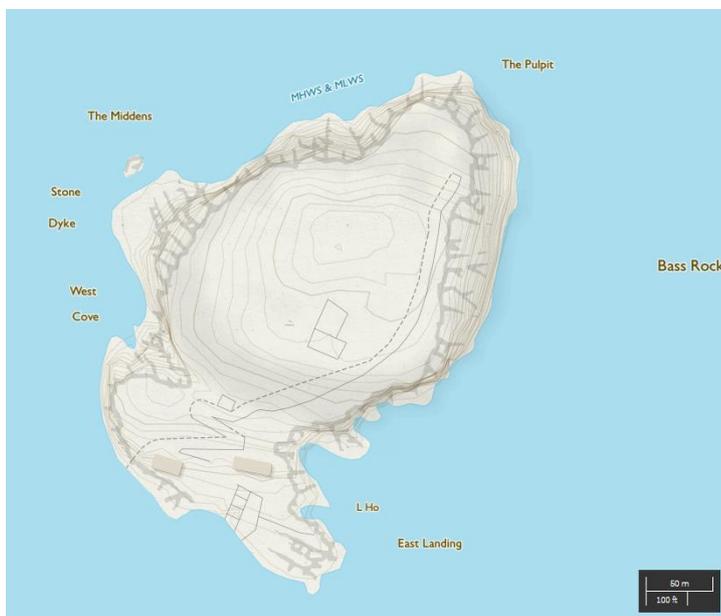
Each year there is normally a small breeding grey seal population on the Bass Rock. The island has few places suitable for hauling out on, one being the cave which starts next to the East Landing.

On the 13th November 2016, seal counters who did not land on Craigleith surveyed the Bass Rock with a non-landing trip and did not see any seals on or around the island.

On the 25th November 2016, a small group of staff from the Scottish Seabird Centre landed on the Bass Rock on a recreational day trip. Andrew Grieveson, the Education Officer for the centre, saw one white pup on the East side of the island next to the landing jetty. Although it may be safe to assume more have been born inside the cave, which cannot be safely surveyed, this pup is the only one observed on the island this year. No adults were seen on the island or in the water. When the party left the island via the East side jetty later that day, the pup had disappeared.



Map 4: Bass Rock in relation to Craigleith and North Berwick



Map 5: Topographical map of Bass Rock

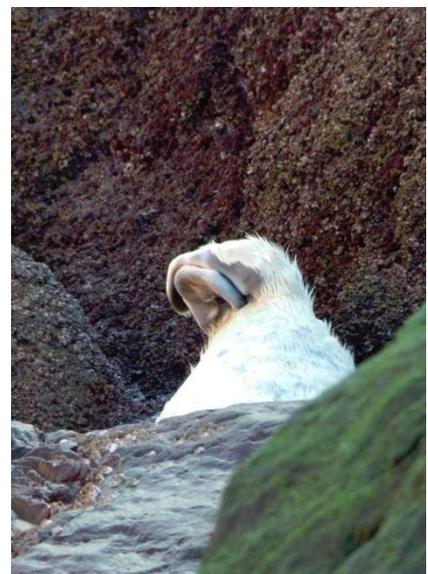


Figure 4: The grey seal pup recorded on Bass Rock, 25/11/16

Appendix 1

Inchkeith Main Counts

The tables below contain the raw data from the four main counts undertaken at Inchkeith.

The numbers of adult males are unlikely to be totally accurate as they were mostly in the water.

It was decided that in general no counts of adult females would be attempted. The cows are often not present with their pups, yet we know that there will have been at least as many females around as there are pups. However, whenever a count was made this information has been included.

Any box left blank indicates that no count was made (as opposed to an entry of 0 which means a count was made but none found).

Count 1: 23 October 2016

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
Area 1 (All west side of island)	0	0	0	0	7	
Area 2 (North bays – Kinghorn Harbour)	0	0	0	0	1	
Area 3 (North-east bay – Kirkcaldy Harbour)	6	0	0	0	3	
Area 4 (East bay / Lighthouse Bay)	10	0	0	0	3	
Area 5 (South-east bays)	0	0	0	0	1	
Area 6 (South point and Long Craig)	0	0	0	0	1	
Totals	16	0	0	0	16	

Overall total = 16 pups

Note:

Estimated ages of pups were as follows: 1 x 1-2 days; 3 x 2 days; 3 x 2-3 days; 4 x 3-4 days; 4 x 4 days; 1 x 4-5 days.

Count 2: 12 November 2016

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
Area 1 (All west side of island)	47	2	0	0	6	>8
Area 2 (North bays – Kinghorn Harbour)	74	2	0	0	4	
Area 3 (North-east bay – Kirkcaldy Harbour)	56	1	3	0	5	
Area 4 (East bay / Lighthouse Bay)	76	2	7	0	7	
Area 5 (South-east bays)	98	2	2	0	9	116
Area 6 (South point and Long Craig)	21	1	0	0	2	17
Totals	372	10	12	0	33	>141

Overall total = 394 pups

Count 3: 3 December 2016

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
Area 1 (All west side of island)	48	14	24	0	8	
Area 2 (North bays – Kinghorn Harbour)	27	1	37	0	3	
Area 3 (North-east bay – Kirkcaldy Harbour)	10	4	15	0	4	
Area 4 (East bay / Lighthouse Bay)	39	9	37	0	6	
Area 5 (South-east bays)	57	3	62	0	8	
Area 6 (South Point and Long Craig)	5	0	10	0	3	
Totals	186	31	185	0	32	

Overall total = 402 pups

Count 4: 28 December 2016

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
Area 1 (All west side of island)	4	0	8	0	Approx 37 (m+f)	
Area 2 (North bays – Kinghorn Harbour)	3	1	1	0	1	
Area 3 (North-east bay – Kirkcaldy Harbour)	3	0	3	1	1	
Area 4 (East bay / Lighthouse Bay)	2	1	3	0	1	
Area 5 (South-east bays)	2	0	11	0		
Area 6 (South point and Long Craig)	3	0	3	0		
Totals	17	2	29	1	Approx 40 (m+f)	

Overall total for Inchkeith = 49 pups

Notes:

1. Included in the Area 1 figures above are 3 moults and 35 adults on Seal Carr.
2. Estimated ages of live pups were as follows: 3 x 3-5 days; 5 x 1-2 wks; 9 x 2-3 wks; 4 x 3-4 wks; 10 x 4-5 wks; 12 x 5+ wks. No estimates for Seal Carr pups.

Appendix 2

Inchkeith Supplementary Counts

The same provisos as are listed at the beginning of Appendix 1 also apply here.

Count 2a: 20 November 2016

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
Area 1 (All west side of island)	80	5	0	0	8	
Area 2 (North bays – Kinghorn Harbour)	78	1	5	0	2	
Area 3 (North-east bay – Kirkcaldy Harbour)	46	5	9	0	5	
Area 4 (East bay / Lighthouse Bay)	89	6	19	0	5	
Area 5 (South-east bays)	126	6	22	0	10	
Area 6 (South point and Long Craig)	19	0	2	0	4	
Totals	438	23	57	0	33	

Overall total = 518 pups

Count 3a: 11 December 2016

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
Area 1 (All west side of island)	16	9	28	0	3	
Area 2 (North bays – Kinghorn Harbour)	11	4	26	0	2	
Area 3 (North-east bay – Kirkcaldy Harbour)	9	3	6	1	2	
Area 4 (East bay / Lighthouse Bay)	13	9	29	0	1	
Area 5 (South-east bays)	23	4	56	0	8	
Area 6 (South Point and Long Craig)	3	0	4	0	2	
Totals	75	29	149	1	18	

Overall total = 254 pups

Appendix 3

Inchkeith Ad Hoc Counts

The same provisos as are listed at the beginning of Appendix 1 also apply here.

07 November 2016

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
Area 1 (All west side of island)	9	0	0	0		30
Area 2 (North bays – Kinghorn Harbour)	53	2	0	0		
Area 3 (North-east bay – Kirkcaldy Harbour)	57	0	1	0		
Area 4 (East bay / Lighthouse Bay)	72	0	5	0		
Area 5 (South-east bays)	84	2	0	0	3	10
Area 6 (South point and Long Craig)	19	0	0	0		16
Totals	294	4	6	0	3	56

Overall total = 304 pups

15 November 2016

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
Area 1 (All west side of island)	55	1	0	0	4	
Area 2 (North bays – Kinghorn Harbour)	64	0	1	0	1	
Area 3 (North-east bay – Kirkcaldy Harbour)	49	0	3	0	5	
Area 4 (East bay / Lighthouse Bay)	77	1	15	0	5	
Area 5 (South-east bays)	101	3	6	0	4	
Area 6 (South Point and Long Craig)	20	0	1	0	3	
Totals	366	5	26	0	22	

Overall total = 397 pups

Appendix 4

Counts for Other Islands

Inchcolm

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
23 October 2016	0	0	0	0	0	
12 November 2016	4	0	0	0	1	
03 December 2016	4	0	5	1	2	
28 December 2016	0	0	0	0	0	1

Note:

Age of dead pup on 3 December judged by size of bones as little flesh left on carcass.

Inchmickery

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
23 October 2016	0	0	0	0	0	
12 November 2016	0	0	0	0	0	2
03 December 2016	0	0	1	0	1	3
28 December 2016	0	0	0	0	Approx 60 (m+f)	

Swallow Craig (Inch Gnome)

	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
23 October 2016	0	0	0	0	0	
12 November 2016	0	0	0	0	0	
03 December 2016	0	0	0	0	0	
28 December 2016	0	0	2	0	4	

Carr Craig

Other islands	Whites (live)	Whites (dead)	Moult (live)	Moult (dead)	Adults male	Adults female
28 December 2016	0	0	2	0	2	

Appendix 5

Birds (& Sundry)

The data collected is presented using a separate table for each of the islands visited. A number of the trips were limited to just Inchkeith, so there is rather less information for the other islands.

The most common species of birds (e.g. herring gulls) were not normally counted.

Any non-avian species sighted for each island are included in the notes following the relevant table.

Inchkeith

	23 Oct	7 Nov	12 Nov	15 Nov	20 Nov	3 Dec	11 Dec	28 Dec
Blackbird	5	many	many		many	4	6	7
Buzzard	1	1	1	1	2	2		1
Carrion crow	2		10		1		3	3
Common scoter	4							
Cormorant						3	4	
Curlew	16		10		2	2	24	1
Eider duck					6	8m/5f		
Fulmar						3		2
Gannet	some							
Goldfinch			many		3			20+
GBB gull	4	4	23	2	6		34	5
Grey heron					2	1		
Grey wagtail	1							
Guillemot	some							
Hen harrier							1(f)	
Kestrel	1		1	2	2		1-2	1
Linnet	20+		50+		50+	30+	30+	30+
Magpie		2	2			1	1	1
Meadow pipit	4							
Merlin		1						
Oystercatcher	25		7		11	3	34	5
Peregrine	1		1		2		1-2	2(m+f)
Pied wagtail								1
Pigeon						1		
Pink-footed goose						70+		
Razorbill	some							
Redshank	1		6	6	9	8	13	10
Red-breasted merganser	4							
Red-throated diver	1	1	1					
Redwing			some		10+			
Robin	many	many	1+	many	many	3	6	9
Rock pipit	1		4	many	10+	4	3	8
Sea eagle			1					
Shag	40+				20+		20+	
Short-eared owl			1					
Song thrush	1				1			
Sparrowhawk	1		1				1	
Starling			1					
Woodcock								1
Wren	20+	1	3+	many	many	5	6	5

Notes:

1. On 7 November a herald moth and 6 small tortoiseshell butterflies were found hibernating in passageways under the West Fort.
2. Possible sighting of a shrew (twice) and a dead rabbit on 12 November.
3. Rabbits and possibly a young rat were sighted on 15 November. Also, there were maybe 3 small tortoiseshells and a peacock butterfly hibernating in the South Fort.
4. On 20 November a Slavonian grebe was spotted at Granton Harbour.
5. There were 5 herald moths and 6 small tortoiseshells hibernating in the South Fort on 3 December. There was also a large number spiders (about 75, species unidentified) inhabiting the passageways under buildings towards the south of the island.
6. A rabbit was seen on 28 December.

Inchcolm

	23 Oct	12 Nov	3 Dec	28 Dec
Curlew			1	
Grey heron		1		1
Guillemot		some		
Pigeon (feral)				many
Red-throated diver		1		
Robin		some	1	
Shag		some	2	
Slavonian grebe				1
Wren		some		1

Inchmickery

	23 Oct	12 Nov	3 Dec	28 Dec
Carrion crow			1	1
Goldfinch				1
Oystercatcher			10	
Pigeon			6	
Purple sandpiper			1	
Red-breasted merganser		1		
Robin			1	
Rock pipit				6
Shag		some	33	20+
Turnstone			8	4

Note: A number of the shags sighted on 12 November were ringed.

Carr Craig

	23 Oct	12 Nov	3 Dec	28 Dec
Great black-backed gull				4
Redshank				1
Shag				25
Turnstone				1