

SKOKHOLM

BIRD OBSERVATORY



Seabird Report 2024

Ymddiriedolaeth Natur
De a Gorllewin Cymru
Wildlife Trust of
South & West Wales

A summary of the status of seabirds breeding on Skokholm in 2024.

The lower limits given here, taken from the Skokholm Island Management Plan, have been established by the Wildlife Trust of South and West Wales and endorsed by the Seabird Subgroup of the Islands Conservation Advisory Committee. A green box is an attribute above its lower limit, a red box an attribute below the lower limit stipulated in the plan.

Whole Island or Annual Plot Total (2023-2019 in parentheses)		Productivity (2023-2019 in parentheses)
Great Black-backed Gull		
Population	Productivity	Whole Island population: not to drop below the 2016-2018 peak of 93 pairs
		Productivity: 3 in any 5 consecutive years with less than 1.10 fledglings per breeding pair
		64 nests (66, 78, 80, 83, 86) 1.03 (1.05, 1.30, 1.51, 1.40, 1.43)
Herring Gull		
Population	Productivity	Whole Island population: not to drop below the 2019-2023 mean of 305
		Productivity: 3 in any 5 consecutive years with less than 0.70 fledglings per breeding pair
		313 nests (309, 309, 305, 301, 301) 0.93 (0.78, 0.69, 0.84, 0.33, 0.69)
Lesser Black-backed Gull		
Population	Productivity	Whole Island population: 3 in any 5 consecutive years with less than 4600 pairs
		Productivity: 3 in any 5 consecutive years with less than 0.60 fledglings per breeding pair
		724 aia (715, 833, 935, 880, 1028) 0.80 (0.70, 0.53, 0.89, 0.12, 0.27)
Guillemot		
Population	Not set	Whole Island population: not to drop below the 2019-2023 mean of 5065
		Productivity: not monitored on Skokholm
		4989 aol (4992, 5515, 5065, 5101, 4654) - (0.55-0.61 in 2013)
Razorbill		
Population	Productivity	Whole Island population: not to drop below the 2019-2023 mean of 3429
		Productivity: 3 in any 5 consecutive years with less than 0.80 fledglings per breeding pair
		4333 aol (3552, 3965, 3356, 3517, 2755) 0.50 (0.55, 0.64, 0.47, 0.56, 0.63)
Puffin		
Population	Productivity	Whole Island population: adult count not to drop below the 2019-2023 mean of 10,006
		Productivity: 3 in any 5 consecutive years with less than 0.74 fledglings per breeding pair
		10,000+ (12,192, 10,611, 11,245, 8534, 7447) 0.75 (0.79, 0.72, 0.80, 0.78, 0.76)
Storm Petrel		
Population	Not set	Study plot population: any measurable decrease in the population
		Productivity: limit not yet set due to a lack of data
		94 transect responses (92, 102, 86, No census, 89) 0.75 (0.80, 0.85, 0.80, 0.45, 0.74)
Fulmar		
Population	Productivity	Whole Island population: not to drop below the 2019-2023 mean of 210
		Productivity: 3 in any 5 consecutive years with less than 0.50 fledglings per breeding pair
		198 aos (195, 224, 225, 207, 198) 0.41 (0.54, 0.52, 0.51, 0.51, 0.62)
Manx Shearwater		
Population	Productivity	Study plot population: any measurable decrease in the population
		Productivity: 3 in any 5 consecutive years with less than 0.69 fledglings per breeding pair
		639 sites in 8000m ² (521, 710, 670, 730, 655) 0.72 (0.68, 0.69, 0.79, 0.68, 0.72)

Great Black-backed Gull *Larus marinus*

Gwylan Gefnddu Fwyaf

Fairly Common Breeder and Common Visitor

26 trapped (including 17 pulli), 2 retrapped, 74 resighted

1936-1976: 231 trapped, 2012-2023: 556 trapped, 15 retrapped, 373 resighted, 10 controls

Although staff were absent for the first nine days of the month, counts during the remainder of March suggested that birds were elsewhere. Peak March roost counts of 24 on the 13th and 25 on the 15th were down on a 2014-2023 peak March roost mean of 38.4 (there was a high of 71 last year, a low of 20 in 2020). A peak March daycount of 76 on the 11th was down on a 2013-2023 mean high of 104.7 and on that logged in all but two of these years (with lower highs in recent years mirroring the declining breeding population). April evening roosts reached 49 on the 8th, 43 on the 11th and 34 on the 29th, the peak down on a 2013-2023 mean high of 63.9, on those logged in all but three years during this period and on highs of 213 in 2013, 63 in 2015 and 58 in 2016 and 2017. April daycounts followed the pattern seen in March, with a peak of 112 on the 23rd being the second lowest April maximum of the last 13 years, down on a 2013-2023 mean high of 138.8. Nests were mapped between the 4th and 20th May, this revealing 64 apparently incubating birds (the only nests not visited to confirm the presence of eggs were adjacent to the Bog Lesser Black-backed Gull colony

and on offshore stacks); although the total matched the 20th highest on record, it was the lowest tally since 2008, 3.0% down on the 66 mapped last year, 22.9% down on a 2013-2023 mean of 83.0 $\pm$ sd 8.5 and well down on highs of 93 in 2016, 2017 and 2018. This became the sixth year in succession in which the total number of breeding pairs has fallen below the lower limit stipulated in the Skokholm Management Plan. A drop in adult survival is seemingly, at least in part, to blame for this decline in the breeding population (see below).

The number of Great Black-backed Gull breeding pairs 1928-2024 (where data exists). Control of numbers started in 1949 (destruction of both nests and adults) and stopped in 1985.



A colour ringing project, begun ten years ago, is providing an insight into how adult return rates influence the number of breeding pairs. Of 23 adults wearing rings in 2014, 19 (82.6%) returned for the 2015 breeding season; the number of nesting pairs dropped from 84 in 2014 to 83 in 2015. There followed an apparent increase in adult survival, during which time the breeding population increased to, and then stabilised at, 93 pairs; of 21 adults wearing colour rings in 2015, 19 returned in 2016 (90.5%), whilst 32 of 33 returned in 2017 (97.0%) and 32 of 36 returned in 2018 (88.9%). Of 43 adults wearing rings in 2018, only 34 (79.1%) returned in 2019, the breeding population dropping by seven pairs during the same period, whilst 37 of 43 birds (86.1%) returned in 2020 (the nest count dropped by three), 29 of 37 (78.4%) returned in 2021 (there were again three fewer pairs), 25 of 29 (86.2%) returned in 2022 (there were two fewer pairs) and 28 of 33 (84.9%) returned last year (there

were 12 fewer pairs). This year saw 28 of 34 adults return (82.4%), whilst there were two fewer breeding pairs; this suggests that approximately 23 established adults did not return to breed in 2024 and that 19 new birds recruited in their place. Although what was apparently the largest drop in adult survival (logged in 2021) did not correspond with the largest drop in breeding numbers (the 15.4% decline recorded last year), it is interesting to note that the population has only increased or remained stable with adult survival of 88.9% or better. One potential issue is that the ringing of adults on the nest could deter them from returning (thus making survival appear lower than it is in reality), however if we exclude the data collected in the year after ringing (when any disturbance should take effect), the return rates remain at a similar 89.5% in 2016, 100% in 2017, 90.6% in 2018, 74.2% in 2019, 81.8% in 2020, 78.4% in 2021, 86.2% in 2022, 82.1% in 2023 and 82.8% this year; it thus seems likely that disturbance during ringing is not responsible for a decline in return rates.

The 2018 and 2019 return rates were previously reported as being lower than listed above. However a chance close encounter with a metal only ringed bird in 2020 revealed it to be an adult colour ringed in 2014 (which lost its colour mark between the 2017 and 2018 seasons). A close inspection of birds occupying territories from which colour ringed individuals had previously gone missing revealed a further darvic loss, this from another 2014 ringed adult (which had lost its ring between the 2018 and 2019 breeding seasons). Additionally W:142, ringed as an adult in 2016, lost its colour ring between the 5th and 6th June 2020; the dropped ring was found in the Puffin study plot, allowing the loss to be attributed to snapping rather than glue failure. Although the rate of ring loss is seemingly low, it will probably increase as the rings age; a careful check for metal rings is thus important, although reading the inscribed digits demands good views and significant patience. In an effort to better understand ring loss, an additional red ring was fitted above the metal ring on each bird ringed from 2022 onwards; it is hoped that this ring will outlast the taller numbered darvic and thus draw attention to any birds with missing rings.



It is not clear what may have caused such seemingly high adult mortality since 2018, however interactions with the fishing industry, poisoning and the H5N1 strain of highly pathogenic avian influenza (HPAI) have previously been raised as areas for concern (although the only bird to test positive for the latter was an adult found along the south coast cliffs on 9th July 2023). Major leg

injuries (including missing feet and snapped bones) and punctured torsos have occurred, wounds seemingly too severe to have been caused by anything other than anthropogenic means. Aggressive encounters with other gulls and extreme weather events have previously resulted in broken wings and apparent internal injuries, whilst it seems likely that undamaged corpses are the result of toxins (including those produced by *Clostridium botulinum*) or starvation (suggested as a probable cause of death following the necropsy of an adult found near North Pond on 30th May 2023). A full record of the injuries recorded in previous years can be found in the Skokholm Seabird Reports. The only injured Great Black-backed Gull encountered this year was a juvenile with a broken wing first seen above the Anticline on 20th October and which had walked to Home Meadow by 6th November; following an attack by a Raven on 20th November, it eventually died between the 25th and 26th. This species was again regularly observed behind fishing vessels, although as in 2023, flocks were smaller than of late; rod and line fishers brought a peak count of 14 to the 'Celtic Wildcat' on 19th April. An important step in understanding the Skokholm population will be to discover if such anthropogenic food sources are regularly exploited; additional food will increase survival, particularly during the winter or periods of low seabird and Rabbit numbers, however foraging around boats or mainland food sources also has the potential to seriously impact health.

Checks of any accessible and seemingly complete nests from 5th April failed to find any eggs until the 17th when a search of the area to the southwest of North Pond located a nest with three eggs; a further 20 nests were found to be empty and no other sitting birds were seen elsewhere. The first lone egg of 2023 was found on the 14th, whilst the 2013-2023 first egg mean is 15th April (with the earliest found on the 10th in 2014 (a single egg) and 2018 (a clutch of three) and the latest on the 25th in 2013). The first two chicks to be seen were at the same site to the southwest of North Pond on 15th May, these two days later than the first of last year (but otherwise matching the first of 2021 as the earliest of the last seven years). Of 38 monitored nests, 16 pairs failed, eight pairs fledged a singleton, 11 pairs fledged two and three pairs fledged three. There were thus 39 young fledged, resulting in a productivity figure of 1.03 fledglings per monitored pair; productivity was the poorest since the 0.93 of 2014, 1.9% down on that of 2023, 26.4% down on a 2013-2023 mean of 1.40 ($\pm$ se 0.07) and 5.5% down on the 1989-2004 mean of 1.09. This was the second consecutive year with below average productivity, this despite the fact that the loss of large chicks observed in 2023 was not repeated this year.

Productivity estimates 2002-2024 (average number of fledglings per monitored pair).

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1.09	0.91	-	0.76	1.07	1.02	1.02	-	0.71	0.89	-	1.80
2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
0.93	1.66	1.38	1.54	1.40	1.43	1.40	1.51	1.30	1.05	1.03	

The Great Black-backed Gulls are spectacular apex predators and an exciting component of the Skokholm seabird assemblage, however it is important that we monitor their impact on the Manx Shearwater population. Dead shearwaters were counted for an 11th consecutive year, the vast majority of which had been eaten by Great Black-backed Gulls (see the Manx Shearwater section for further details); a total of 2689 eaten corpses, comprising 2060 adults and 629 youngsters, were marked this year. The number of adults marked was the third lowest of the last 11 years, down on a record 3008 logged in 2020 and 10.2% down on a 2014-2023 mean of 2295.2 $\pm$ sd 452.7. The number of eaten youngsters was the lowest to date, 41.4% down on a 2014-2023 mean of 1073.3 $\pm$ sd 238.9 (a high of 1398 was recorded in 2016 and a previous low of 728 in 2022). The total number of marked corpses was the third lowest to date, 20.2% down on a 2014-2023 mean of 3368.5 $\pm$ sd 586.0. There are many factors influencing the number of corpses found; observer effort has been rather consistent, but possible or certain differences between years have included the number of Great Black-backed Gulls present (which may include differences in the number of shearwater specialists (Westerberg *et al.*, 2018)), the number of shearwaters available (including differences in

the number of prospecting individuals likely to spend longer on the surface), the frequency of optimal hunting conditions (governed primarily by the moon cycle and weather), the size of the Rabbit population (which may provide an alternative food source) and the prevalence of puffinosis (which may make young birds easier to catch). Although the number of dead birds currently being found represents a relatively small proportion of the Skokholm shearwater population, there is clearly a benefit to understanding these relationships in greater detail. Ad hoc observations again suggested that shearwaters were regularly being dug out from their burrows this year (as opposed to being taken from the entrance or from above ground), although only one of 167 study burrows was seemingly accessed in this way (five of 166 study burrows were accessed via an excavated hole in 2023); this form of hunting has the potential to impact more than just the eaten individual, as it reduces the suitability of nest sites and the stability of the colony.



The percentage of Great Black-backed Gulls, colour ringed as near-fledglings, known to be alive in each subsequent year. The mean is that for the period prior to 2023.

Ringed in	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Mean
% not seen again	25.58	44.23	53.12	63.89	39.47	18.18	46.15	51.43	70.00	64.29	45.78
% seen again	74.42	55.77	46.88	36.11	60.53	81.82	53.85	48.57	30.00	35.71	54.22
% alive 1+ year	48.84	38.46	31.25	27.78	42.11	43.18	46.15	28.57	15.00	21.43	35.70
% alive 2+ years	37.21	32.69	18.75	22.22	42.11	36.36	41.03	22.86	5.00		28.69
% alive 3+ years	32.56	28.85	18.75	22.22	39.47	34.09	35.90	8.57			27.55
% alive 4+ years	30.23	26.92	15.63	19.44	31.58	34.09	15.38				24.75
% alive 5+ years	18.60	21.15	15.63	16.67	23.68	25.00					20.12
% alive 6+ years	16.28	15.38	15.63	8.33	13.16						13.76
% alive 7+ years	13.95	15.38	12.50	2.78							11.15
% alive 8+ years	11.63	11.54	12.50								11.89
% alive 9+ years	6.98	7.69									7.33
% alive 10+ years	6.98										6.98
% found dead	9.30	3.85	9.38	2.78	7.89	6.82	2.56	5.71	5.00	0.00	5.92

The colour ringing project initiated in 2014 is also providing information on juvenile survival and recruitment. Of 43 fledglings ringed in 2014, 32 (74.4%) have been resighted subsequently, including

four which have been found dead. At least 21 birds (48.8%) definitely survived their first full year, 16 (37.2%) survived two years, 14 (32.6%) survived three years, 13 (30.2%) survived four years, eight (18.6%) survived five years, seven (16.3%) survived six years, six (14.0%) survived seven years, five (11.6%) survived eight years and three survived both nine and ten years (7.0%). The birds ringed as fledglings in subsequent years have provided similar results (see table above). Although these figures do not give an exact measure of juvenile survival, the birds ringed longer ago (of which more have returned to Skokholm and for which there has been longer for them to be encountered on the mainland), suggest that at least 25% of fledglings are surviving to four years of age. Two ringed as fledglings in 2015 bred on Skokholm for a third straight year, whilst one ringed as a fledgling in 2016 bred for a second year and four ringed as fledglings bred for the first time (singles ringed in 2014 and 2015 and two ringed in 2016). Only time will tell whether this study provides a sound estimate of recruitment to the breeding population, something which may well be dependent on how many establish territories on Skokholm or Skomer (where they should be seen) as opposed to other less studied breeding sites. Of 75 youngsters which have so far returned to Skokholm at some point, 14 were first back as first-summers, ten as second-summers, 27 as third-summers, 16 as fourth-summers, five as fifth-summers and three as sixth-summers; it would appear that birds are most likely to first return in their third summer, with 8.46% of all youngsters ringed between 2014 and 2021 having first returned to the Island at this age (10.97% returned at this age, this including birds first back in earlier years).



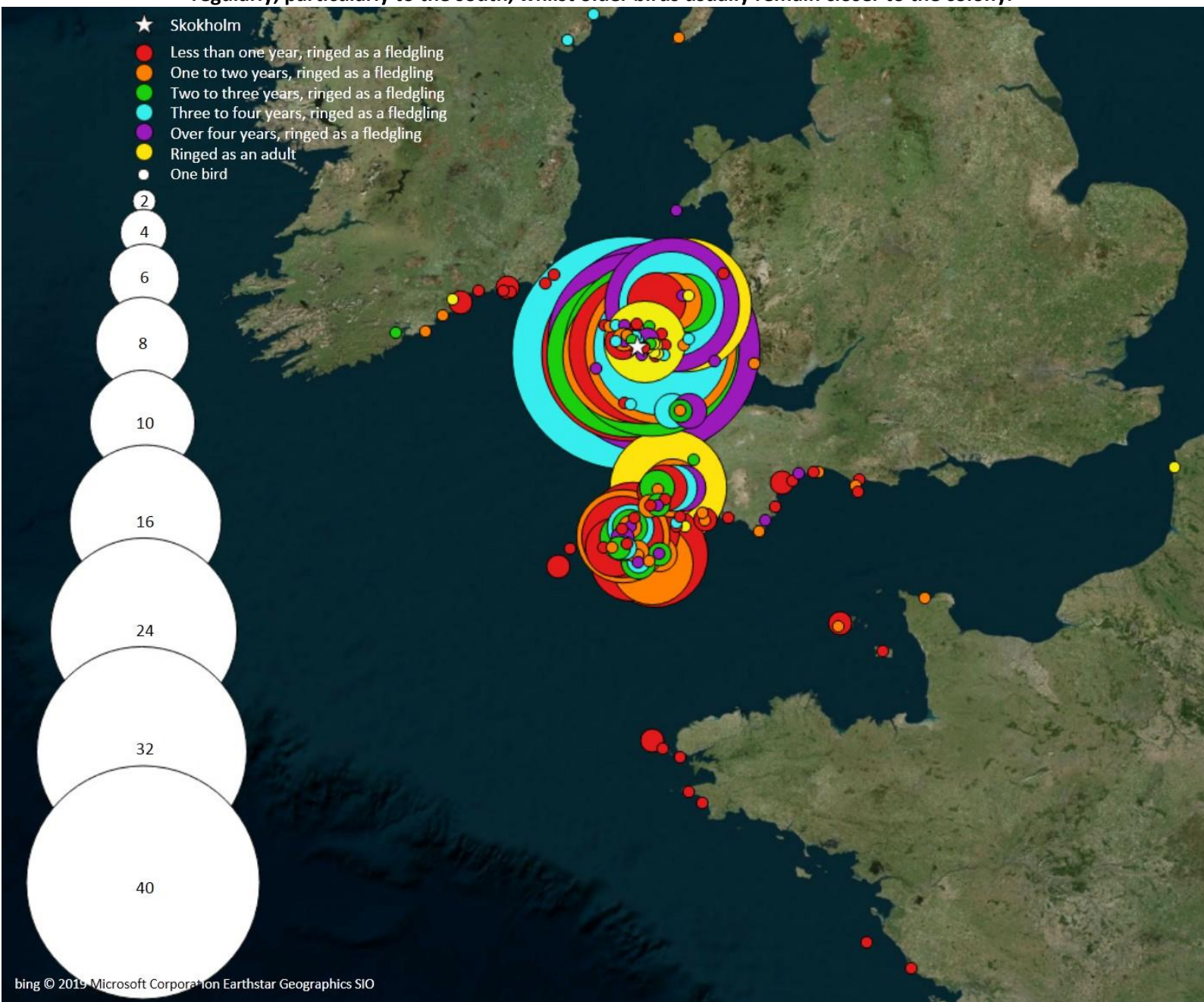
Although resightings away from Skokholm will be somewhat biased by a preponderance of birders at the main roost sites in Cornwall, it seems likely that the typical southerly movements observed in young Great Black-backed Gulls reflect their genuine post-fledging distribution (see map below). Birds gravitate back towards Pembrokeshire as they get closer to breeding age (see both the table and map below). The ages given in the following table are known for birds ringed as near-fledglings, whereas 'adult' denotes a bird ringed at a minimum of four years which is thus of unknown age. All of these records were received since a similar table was published in the 2023 Seabird Report.

Darvic	Ring	Location	County/COUNTRY	Age	Date
W:004	MA37971	Skokholm	Pembrokeshire	Fifth-summer	20/03/24, 22/06/24
W:064	HT94925	Skomer Island	Pembrokeshire	Tenth-summer	04/04/24, 20/05/24
W:067	HT94927	Skomer Island	Pembrokeshire	Tenth-summer	14/04/24
W:067	HT94927	Gann Estuary	Pembrokeshire	Eleventh-winter	16/12/24
W:077	HT94934	Skokholm	Pembrokeshire	Tenth-summer	14/05/24 (breeding)
W:077	HT94934	Skokholm	Pembrokeshire	Eleventh-winter	11/09/24

W:101	HT94964	Skomer Island	Pembrokeshire	Ninth-summer	08/07/24
W:119	HT94979	Skokholm	Pembrokeshire	Ninth-summer	14/07/24 (breeding)
W:121	HT94981	Skokholm	Pembrokeshire	Ninth-summer	29/06/24 (breeding)
W:124	HT94955	Skokholm	Pembrokeshire	Ninth-summer	17/04/24 (breeding)
W:154	MA37811	Skokholm	Pembrokeshire	Eighth-summer	19/06/24 (breeding)
W:154	MA37811	Skokholm	Pembrokeshire	Eighth-summer	31/08/24
W:162	MA37820	Skomer Island	Pembrokeshire	Eighth-summer	03/06/24 (breeding)
W:168	MA37826	Gann Estuary	Pembrokeshire	Eighth-winter	16/01/24
W:168	MA37826	Skokholm	Pembrokeshire	Eighth-summer	26/04/24 (breeding)
W:168	MA37826	Skokholm	Pembrokeshire	Ninth-winter	14/09/24
W:179	MA37838	Nevern Estuary	Pembrokeshire	Eighth-winter	16/01/24
W:179	MA37838	Skokholm	Pembrokeshire	Eighth-summer	29/04/24 (breeding)
W:222	MA37887	Skomer Island	Pembrokeshire	Seventh-summer	26/06/24
W:246	MA37915	Skokholm	Pembrokeshire	Sixth-summer	05/05/24
W:254	MA37919	Skokholm	Pembrokeshire	Sixth-summer	20/08/24, 26/08/24
W:261	MA37906	Gann Estuary	Pembrokeshire	Sixth-summer	03/04/24
W:261	MA37906	Skokholm	Pembrokeshire	Sixth-summer	26/08/24
W:267	MA37924	Skokholm	Pembrokeshire	Sixth-summer	18/08/24
W:274	MA37931	Skokholm	Pembrokeshire	Sixth-summer	03/08/24
W:278	MA37935	Gann Estuary	Pembrokeshire	Sixth-winter	13/01/24
W:296	MA37964	Skokholm	Pembrokeshire	Sixth-winter	29/03/24, 14/09/24
W:298	MA37967	Grassholm	Pembrokeshire	Fifth-summer	18/08/24
W:303	MA46932	Skokholm	Pembrokeshire	Fifth-summer	18/05/24
W:303	MA46932	Skomer Island	Pembrokeshire	Fifth-summer	08/07/24
W:305	MA37980	Skokholm	Pembrokeshire	Fifth-summer	05/05/24
W:307	MA37982	Lowland Point	Cornwall	Fifth-summer	04/08/24
W:315	MA37989	Skokholm	Pembrokeshire	Fifth-summer	17/03/24, 31/08/24
W:317	MA37991	Marloes Mere	Pembrokeshire	Fifth-summer	11/05/24
W:320	MA37994	Skokholm	Pembrokeshire	Fifth-summer	15/03/24, 29/08/24
W:320	MA37994	Skokholm	Pembrokeshire	Sixth-winter	14/09/24
W:322	MA37996	Skokholm	Pembrokeshire	Fifth-summer	26/04/24
W:322	MA37996	Marloes Mere	Pembrokeshire	Fifth-summer	11/05/24
W:325	MA37999	Skokholm	Pembrokeshire	Fifth-summer	03/08/24, 21/08/24
W:332	MA46913	Skokholm	Pembrokeshire	Fourth-summer	16/04/24
W:335	MA46916	Skokholm	Pembrokeshire	Fourth-summer	12/04/24
W:343	MA46924	Newlyn Harbour	Cornwall	Fourth-winter	21/02/24
W:343	MA46924	Southerly Point, The Lizard	Cornwall	Fifth-winter	24/09/24
W:346	MA46927	Skomer Island	Pembrokeshire	Fourth-summer	03/06/24
W:347	MA46928	Skokholm	Pembrokeshire	Fourth-summer	12/03/24
W:347	MA46928	Camel Estuary	Cornwall	Fourth-summer	07/08/24
W:349	MA46930	Skokholm	Pembrokeshire	Fourth-summer	16/04/24
W:349	MA46930	Sidmouth	Devon	Fourth-summer	04/06/24
W:349	MA46930	Skokholm	Pembrokeshire	Fourth-summer	19/08/24
W:353	MA46937	Skokholm	Pembrokeshire	Fourth-summer	16/04/24, 18/08/24
W:353	MA46937	Skokholm	Pembrokeshire	Fifth-winter	07/09/24
W:358	MA46942	Gann Estuary	Pembrokeshire	Fourth-winter	21/01/24, 24/01/24
W:361	MA46946	Skokholm	Pembrokeshire	Fourth-summer	15/04/24
W:364	MA46948	Skokholm	Pembrokeshire	Fourth-summer	31/08/24
W:365	MA46949	Skokholm	Pembrokeshire	Fourth-summer	21/03/24
W:370	MA46956	Skokholm	Pembrokeshire	Third-summer	31/08/24

W:376	MA46963	Skokholm	Pembrokeshire	Third-summer	29/04/24
W:379	MA46966	Gothian Sands, Gwithian	Cornwall	Fourth-winter	17/12/24

The movements of Skokholm ringed Great Black-backed Gulls 2014-2024. The different colours represent the different ages at which the birds were resighted. 81 resightings of birds ringed as fledglings and seen on Skokholm over four years later and 55 resightings of birds ringed as adults and seen on the Gann Estuary are omitted. Younger birds are seen further from Skokholm more regularly, particularly to the south, whilst older birds usually remain closer to the colony.



Darvic	Ring	Location	County/COUNTRY	Age	Date
W:384	MA46971	Skokholm	Pembrokeshire	Third-summer	15/04/24
W:392	MA46981	The Gannel, Newquay	Cornwall	Third-winter	24/01/24
W:392	MA46981	Skokholm	Pembrokeshire	Third-summer	24/05/24
W:392	MA46981	Grassholm	Pembrokeshire	Third-summer	18/08/24
W:392	MA46981	Gothian Sands, Gwithian	Cornwall	Fourth-winter	17/12/24

W:422	MA55414	Skokholm	Pembrokeshire	Second-summer	31/08/24
W:427	MA55420	Teifi River	Pembrokeshire	Adult	17/03/24
W:431	MA55424	Dawlish Warren	Devon	First-summer	11/04/24
W:432	MA55425	Whiting Bay, Waterford	IRELAND	Second-winter	20/09/24
W:433	MA55426	Ballycotton, Cork	IRELAND	First-summer	07/08/24
W:440	MA55433	Gann Estuary	Pembrokeshire	First-winter	02/02/24
W:440	MA55433	Copperhouse Creek	Cornwall	Second-winter	27/10/24
W:453	MA55448	Gann Estuary	Pembrokeshire	Adult	16/12/24
W:463	MA55458	Perelle Beach, Guernsey	CHANNEL ISLANDS	First-winter	26/11/24, 31/12/24

Breeding season roosts again formed regularly in the Bog, with 23 counts of 25 or more between 15th April and 15th June being 15 more than logged during the same period last year. Roost counts reached 44 on 22nd May, 68 on 28th May and 39 on 5th June, the peak being the highest since the 82 of 27th May 2015, up on recent peaks of 56 in 2016 and 54 in 2022 and well up on a high of 35 recorded during the same period last year. The first flying fledgling was above Blacksmith's Landing on 1st July, this three days earlier than the first of last year and two days earlier than the 2014-2023 mean (the earliest during this period were recorded on 29th June 2022, the latest on 11th July 2021). The largest July roosts were of only 34 on the 3rd and 28 on the 4th, whilst more regular August roosts peaked at 45 on the 19th, 55 on the 27th and 54 on the 29th; the peak August roost reached 86 in 2021, 68 in 2022 and 66 last year. September counts mirrored the declining breeding population, with a daycount high of 104 on the 8th being down on a 2013-2023 mean of 185.9 (there were highs of 365 in 2013 and 249 in 2015), whilst roost counts peaked at 68 on the 9th, 92 on the 27th and 53 on the 30th (September roosts peaked at 40 in 2023, 95 in 2022, 48 in 2021, 130 in 2020, 113 in 2019, 135 in 2018, 183 in 2017, 193 in 2016, 179 in 2015, 52 in 2014 and 355 in 2013). Although October daycounts of 98 on the 2nd and 103 on the 19th were down on a 2013-2023 mean high of 132.7 (with peaks of 264 in 2013 and 175 in 2016), a bird-days total of 1143 was up on the last three Octobers and close to a 2013-2023 mean of 1217.2. Similarly November counts did not reflect the much lower breeding numbers seen of late; daycount highs of 50 on the 3rd, 56 on the 5th and 52 on the 25th took the bird-days total to 678, this the highest of the last six years (when staff have been present throughout). Counts during the first three days of December peaked at an all-time high of 67 on the 1st.

The first fledgling to be seen away from Skokholm was still on the Island on 4th October and had reached Perelle Beach, Guernsey by 26th November; the mean 2014-2023 first southwest resighting date is 28th October, with the earliest at Newquay Harbour, Cornwall on 10th August and the latest at Dawlish Warren, Devon on 11th April of the following year. The observer of the Perelle Beach bird highlighted a possible consequence of the additional red ring added for the purpose of monitoring darvic loss (see above), a ring which may inadvertently also increase the number of resightings:

'You may be interested to learn that this bird was very distant to me and it was the small bright colour ring on the left leg that alerted me to the fact that it was ringed at all. It was only then I noticed the coded colour ring on the right leg and decided I would endeavour to get the code. I assume that this is its intended purpose and as a colour ring hunter I can say that it worked a treat!'

Herring Gull *Larus argentatus*

Gwylan y Penwaig

Common Breeder Abundant Breeder in the 1970s

7 trapped (including 5 pulli), 44 resighted

1934-1976: 13,265 trapped, 2013-2023: 183 trapped, 31 retrapped, 137 resighted, 2 controls

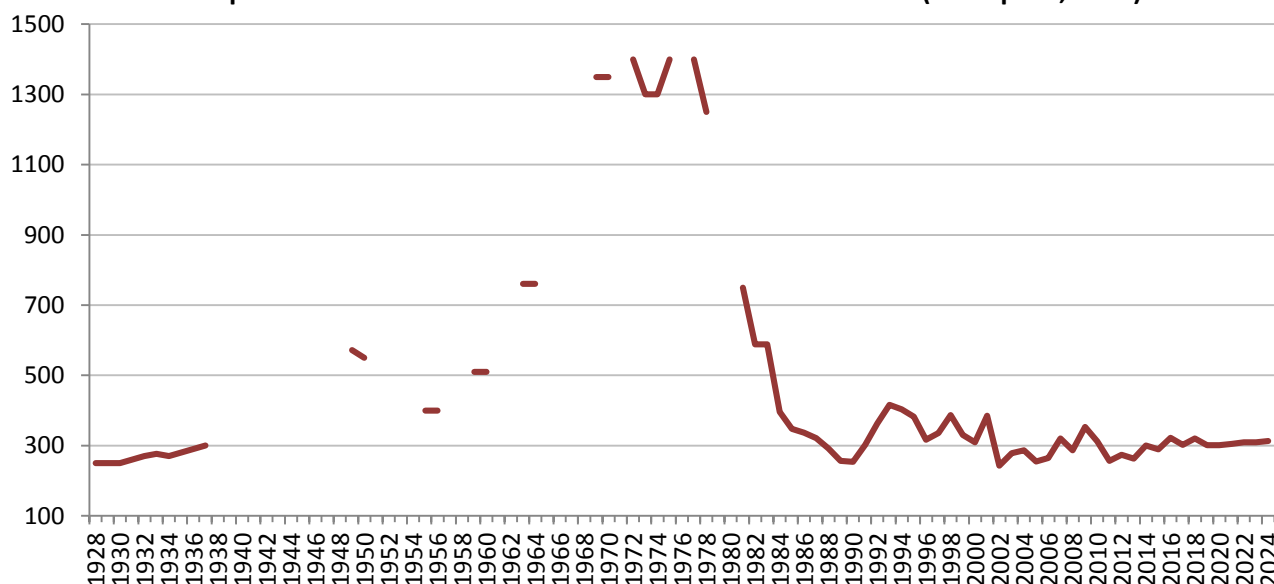
March daycounts again fluctuated widely, with 80 or less logged on five dates, including lows of 45 on the 23rd and 33 on the 24th when birds fed and roosted away from Skokholm, but highs of 227 on the 12th, 248 on the 15th and 232 on the 26th when many were back on territory. Although not as large as those recorded in recent years, March roosts again included a good number of young birds,

for example a North Pond roost of 30 on the 15th included 24 obvious subadults. April checks of seemingly complete nests failed to find an egg until the 20th when one was in Obione Bay (neighbouring nests were empty or still under construction); this was two days later than both the first lone egg of last year (found in Purple Cove) and the 2013-2023 first egg mean (see table below). Whole Island counts between the 12th and 16th May located 308 active nests, whilst an additional five were present on the east side of the Stack on 7th June; a total of 313 nests was four up on both the 2022 and 2023 totals, 2.4% up on the 2014-2023 mean ($305.8 \pm \text{sd } 9.8$), very close to a 1984-2023 mean of $314.7 \pm \text{sd } 44.3$ and the highest tally since 2018. This was the third year in six in which the total has risen above the lower limit set in the Skokholm Management Plan. The number of breeding pairs has apparently stabilised at a level close to that seen in the 1930s (the 1928-1937 mean was $269.7 \pm \text{sd } 17.5$), counts well down on the 1970s peak. At least nine of the breeding birds located this year were apparent third-summers with retained coverts, tertials and tail (see photograph below).

When in April the first egg was located in each year 2013-2024, along with the 2013-2023 mean.

2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Mean
18 th	14 th	25 th	17 th	18 th	19 th	18 th	22 nd	15 th	17 th	18 th	20 th	18 th April

The number of breeding pairs 1928-2024 (where data exists). The 1970s peak was attributed to the exploitation of local fish waste and the decline to botulism (Thompson, 2007).



The number of breeding pairs and productivity estimates (average number of fledglings per sample pair) 2010-2024.

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
312	257	274	263	300	289	322	302	320	301	301	305	309	309	313
0.82	0.67	1.15	0.72	0.70	0.66	0.86	0.70	0.73	0.69	0.33	0.84	0.69	0.78	0.93

The monitoring of adult survival in Herring Gulls has been undertaken on Skomer for many years, however recent struggles with trapping sufficient adults to produce a reliable estimate led to the Islands Conservation Advisory Committee recommending that a project be established on Skokholm in 2017. There were 13 adults colour ringed in 2017 (all trapped on the nest), 17 in 2018 (11 on the nest and six in the Gull Trap), ten in 2019 (nine on the nest and one in a Spring Trap), four in 2021 (all in the Gull Trap), 36 in 2022 (one on the nest and 35 in the Gull Trap) and one in the Gull Trap last year; a COVID-19 dictated staffing shortage meant that there were no adults trapped in 2020. Birds trapped away from the nest are only included in the adult survival sample in years after they have been found at a nest. Each bird is ringed with a red darvic inscribed W:9** or W:8** in white, the latter two digits identifying the individual. Of the 13 birds marked in 2017, 11 bred in 2018

(84.6%). Of 26 with rings in 2018, 17 (65.4%) were still alive during the 2019 breeding season, four of these Gull Trap birds (100% survival) and 13 nest trapped birds (59.1%); two of the nest trapped birds were only seen elsewhere and were seemingly not breeding, whilst two had changed nest site (one moved 370m and one moved 837m). Of 27 with rings in 2019, 20 (74.1%) were alive in 2020, five of these Gull Trap birds (100%) and 15 nest trapped birds (68.2%); six of the nest trapped birds and two of the Gull Trap birds were not seen at a nest. All 21 with rings in 2020 were alive in 2021; five nest trapped birds and one Gull Trap bird were not found breeding (three were only seen on the mainland and two were not seen until the following year). Of the 22 alive in 2021, 20 (90.9%) were alive in 2022, seven of these Gull Trap birds (100%) and 13 nest trapped birds (86.7%); six of these were not seen at a nest, including two only seen on the mainland and two not seen until 2023. Of the 40 logged in 2022, 30 (75.0%) were alive last year, 20 of these Gull Trap birds (76.9%) and ten nest trapped birds (71.4%); one of the Gull Trap birds was not seen until 2024. Of the 42 alive in 2023, 33 (78.6%) were seen this year, 26 of these Gull Trap birds (81.3%) and seven nest trapped birds (70.0%); two of the Gull Trap birds were only seen at the Gann.



For a seventh successive year, the only colour ring resightings of live birds away from Skokholm came from mainland Pembrokeshire (but see ring recovery below). The number of days since ringing is given after the age at ringing.

Darvic	Ring	Location	County	Age at ringing	Date
W:977	GV83149	Gann Estuary	Pembrokeshire	Third-summer (3509)	24/01/24
W:974	GV22432	Johnston	Pembrokeshire	Adult (2212)	26/06/24
W:971	GV22440	Gann Estuary	Pembrokeshire	Adult (2347)	09/11/24
W:965	GV83063	Gann Estuary	Pembrokeshire	Adult (1964)	01/02/24, 02/10/24
W:958	GY02321	Gann Estuary	Pembrokeshire	Adult (796)	24/01/24, 18/09/24
W:899	GY02325	Gann Estuary	Pembrokeshire	Adult (851)	12/11/24
W:892	GY02310	Gann Estuary	Pembrokeshire	Adult (848)	09/11/24
W:890	GY02307	Gann Estuary	Pembrokeshire	Adult (566)	01/02/24
W:879	GY02338	Gann Estuary	Pembrokeshire	Adult (3386)	09/11/24
W:878	GY02337	Gann Estuary	Pembrokeshire	Adult (557)	24/01/24
W:876	GY02366	Gann Estuary	Pembrokeshire	Adult (846)	09/11/24
W:873	GY02365	Gann Estuary	Pembrokeshire	Adult (558)	26/01/24

There was one colour ringed bird found dead this year (see recovery below), the post-2017 total now six. Unusually only one dead adult was recorded on the Island this year, this a long dead bird

found at the Neck on 11th March; six dead adults were encountered in 2023, with nine in 2022 and three in both 2021 and 2020, this year's tally suggesting that highly pathogenic avian influenza was not an issue this breeding season. Additionally a bird with a broken leg and swollen foot was near North Pond on 18th April, whilst a third-summer had a broken leg on 20th June. Injured Herring Gull are encountered most years (broken limbs and puncture wounds are most common, see previous Skokholm Seabird Reports); it would seem likely that interactions with fishing gear are responsible for some of these injuries, unsurprisingly so given how this species searches around boats for food (additionally a dead adult found in 2021 had been strangled by fishing line). Following four impacted birds in 2019, no incidences of oiling have been recorded for five years.



Chicks were present in two Peter's Bay nests on 15th May, this one day earlier than the first of last year and two days earlier than the 2017-2023 first chick mean. An adult nesting in South Haven was eating a young Wheatear on 6th June, although it was unclear whether it had killed the bird or found it dead (photograph below). The first flying fledgling was in Purple Cove on 2nd July, this on the same date as the first of last year and two days earlier than the 2013-2023 mean; the latest first fledgling noted during this period was aloft on 10th July in 2015, the earliest on 30th June in 2016 and 2021. Checks of the Neck productivity plot during July, where 138 pairs had established nests (one fewer than last year), located a maximum of 128 fledging-sized young (along with two smaller chicks which did not go on to fledge, one of these belonging to an apparent third-summer). The resulting 2024 productivity figure of 0.93 fledged young per pair was 19.2% up on the 0.78 of last year and 32.9% up on the 2014-2023 mean ($0.70 \pm \text{sd } 0.15$); there was a high during this period of 0.86 in 2016 and a low of 0.33 in 2020, with the remaining years all seeing productivity of between 0.66 and 0.84 fledglings per pair. Disappointing 2020 productivity was linked to a period of rough May weather which resulted in low nests being destroyed by unseasonable 11 metre waves. Large seas also destroyed nests in 2022, the resulting productivity estimate matching the third lowest of the last decade. However the weather in May 2021 was even more unusual, with southwesterly winds gusting at up to 69mph and the Mid Channel Rock Lighthouse Beacon off St Ann's Head registering an average wave height of 11 metres and multiple waves of at least 16 metres; nevertheless overall productivity was 0.84, with the pairs not impacted by the storm doing particularly well. It remains to be seen if the more regular spring storms predicted by current climate change models will impact numbers or encourage birds to nest elsewhere.

August saw the customary post-breeding departure of both adults and fledglings, with a mean daycount of 66.1 being the fourth lowest of the last 12 years and down on a 2013-2023 mean of 80.6; although there were highs of 210 on the 1st (when 120 were feeding off Crab Bay), 185 on the 17th (when 160 were feeding together offshore) and 190 on the 30th (when 102 were off the Stack), there were 11 daycounts of 16 or less. Late summer counts of anting birds peaked at 133 on North Plain on 10th August and an adult was still feeding a fledgling in South Haven on the 25th. September is typically quieter for Herring Gulls on Skokholm, with this year seeing 12 daycounts of 16 or less, however highs of 140 on the 3rd (when 113 were in Broad Sound), 211 on the 7th (when 187 were off the Quarry) and 204 on the 16th led to a September bird-days total of 1660, this the highest of the last 12 years (although the peak daycount was down on the 242 of 2022 and the 220 of last year). October counts were below average, with no sightings on two dates, a further 12 dates with single-figure tallies and highs of 68 on the 24th and 98 on the 28th taking the bird-days total to 690 (the 2013-2023 October mean is 953.7, with a peak of 1014 in 2015). Numbers increased in November yet again, with birds regularly returning to their breeding territories and larger roosts again forming on occasion; although there were 12 daycounts of between ten and 78, five of more than 200 included highs of 300 on the 15th, 282 on the 16th and 413 on the 28th (when 365 roosted to the west of North Pond). A November bird-days total of 3562 was up on a 2013-2023 mean of 2847.4 (there were highs during this period of 4531 in 2015, 4454 in 2016 and 4287 in 2020), whilst the peak November daycount was the highest since 2017 (there were highs of 585 in 2015, 588 in 2016 and 612 in 2017). A daycount of 468 on 1st December included 110 roosting at North Pond, whilst 96 roosted on North Plain the following day.



Ringing recovery GV83187 (W:954)

Originally ringed as an adult, GREEN HEATH, SKOKHOLM 22nd May 2022

Last seen as an adult, GREEN HEATH, SKOKHOLM 5th May 2023

Recovered unknown species, PORTH CWYFAN, ABERFFRAW, ANGLESEY 28th July 2024

Finding condition Ring only on beach

Distance travelled 174km at 19 degrees (NNE)

Days since ringed 798

This would be the first post-2013 Skokholm ringed adult Herring Gull to be found away from Pembrokeshire, however the possibility that the ring drifted north following the death and decomposition of the bird cannot be ruled out.

Lesser Black-backed Gull *Larus fuscus*

Gwylan Gefnddu Leiaf

Common Breeder previously a Very Abundant Breeder

16 trapped (including 14 pulli), 1 retrapped, 6 resighted, 2 controls

1938-1976: 11,912 trapped, 2013-2023: 689 trapped, 34 retrapped, 119 resighted, 21 controls

Peak March daycounts of 824 on the 18th, 829 on the 20th and 775 on the 26th were down on those logged in all but one of the last 12 years, the peak down on a 2013-2023 mean March high of 1176.6 and a maximum during this period of 2091 in 2014. The number of birds within the colonies again fluctuated considerably during the day; for example the Pedestal colony contained 107 birds on the morning of 11th March but only 33 that afternoon, 96 on the morning of 12th March but six that afternoon and 12 on the morning of 23rd March but 65 that evening. The larger communal roosts recorded in previous years were again generally absent; the majority of early season counts were of birds on territory, with the largest roosts forming at North Pond where there were highs of 55 on 16th March, 76 (including only four apparent subadults) on 25th March and 62 on 6th April. A more detailed description of how the gulls prepare for the breeding season was available in 2015 and 2016 due to the GPS trackers fitted by the British Trust for Ornithology in 2014 (funded by the Department of Energy and Climate Change) which gave some idea as to when birds first returned to Skokholm (see the relevant Skokholm Seabird Reports for details of return dates and the range of over-wintering strategies used); the last of the functioning trackers and the base station were removed in 2017.



A strikingly dark individual with a distinctive wing pattern which frequented North Pond during the afternoon of 28th March was not a *L. f. graellsii* (above photographs). Although *L. f. intermedius* and *L. f. fuscus* can be separated from each other as first-summers owing to their different moult strategies

(perhaps so different as to suggest that the latter is a different species), older birds are seemingly indistinguishable; only the presence of a ring, added at a colony lacking hybrids, would have confirmed if the Skokholm bird was from a coastal area of mainland Europe (*L. f. intermedius*) or from northern Norway, the Baltic or northwest Russia (*L. f. fuscus*). Regardless of subspecies, this is the first non-*graellsii* Lesser Back-backed Gull to be encountered on Skokholm in 12 years. There are no Welsh records of the nominate (which are no doubt much rarer owing to their easterly migration to Ethiopia, Uganda and the Congo), whilst probable *L. f. intermedius* (which typically overwinter in northwest Africa) are documented only infrequently (due at least in part to the difficulties surrounding subspecific identification).

When the first egg was located in each year 2013-2024, along with the 2013-2023 first egg mean.

2013	2014	2015	2016	2017	2018	2019
3 rd May	24 th April	4 th May	25 th April	1 st May	26 th April	28 th April
2020	2021	2022	2023	2024	Mean	
25 th April	24 th April	24 th April	23 rd April	21 st April	27 th April	

April nest checks at Purple Cove, Middle Heath, Green Heath and the Neck located an egg at the former site on the 21st (another pair probably had an egg, whilst the other visible nests were empty); this was two days earlier than a nest found with two eggs last year and six days earlier than the 2013-2023 first egg mean, indeed it was the earliest of the last 12 years. Two eggs were at Steep Bay the following day. A notable count of 31 were feeding together on small fish off the Bluffs on 4th May, whilst May roosts between North Plain and the Bog peaked at 85 on the 15th, 104 (including seven apparent subadults) on the 23rd, 92 (including an unusually high 38 apparent subadults) on the 27th and 90 on the 28th.

A comparison of vantage point counts (of apparently incubating adults) and the number of nests (both empty and with eggs) located during walkthrough surveys of the same areas. The difference each year provided a correction factor to predict the number of nests (both empty and with eggs) which were actually present. The 2013-2019 means may be useful in years when walkthrough surveys are not possible/desirable.

Year	Vantage point count	Walk through count	Empty/ With egg(s)	Percentage of empty nests	Difference between counts (%)*	Correction (no empty nests)	Difference between counts (%)**	Correction (including empty nests)
2019	194aia	251	39 212	15.54	9.28	1.09	29.38	1.29
2018	266aia	321	16 305	4.98	14.66	1.15	20.68	1.21
2017	366aia	517	51 466	9.86	27.32	1.27	41.26	1.41
2016	550aia	789	139 650	17.62	18.18	1.18	43.45	1.43
2015	493aia	636	110 526	17.30	6.69	1.07	29.01	1.29
2014	613aia	827	135 692	16.32	12.89	1.13	34.91	1.35
2013	245aia	296	49 247	16.55	0.82	1.01	20.82	1.21
Mean				14.03	12.83	1.13	31.36	1.31

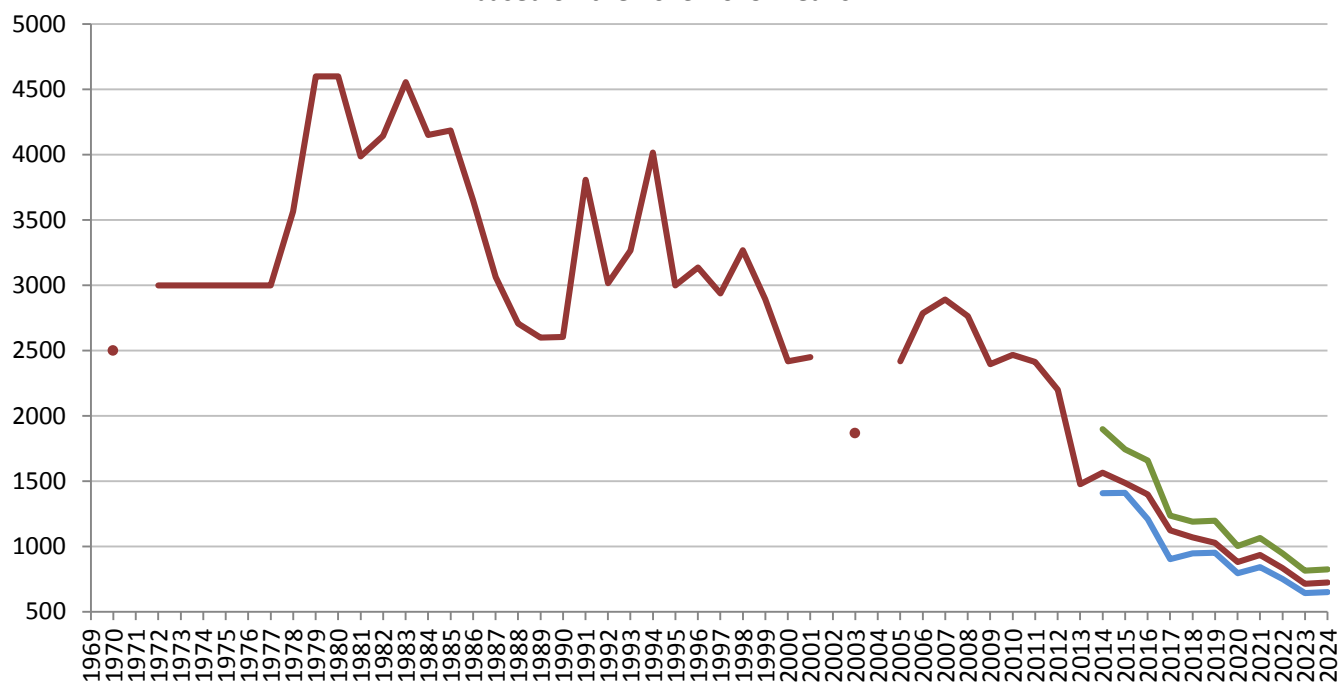
* How many more nests (containing eggs) were present than the number of apparently incubating birds seen (as a percentage).

** How many more nests (including empty nests) were present than the number of apparently incubating birds seen (as a percentage).

Vantage point counts of the inland breeding subcolonies and a full census of the coast nesting pairs were made between the 12th and 16th May, during which 651 apparently incubating adults were located; although up on the 643 of last year, this was otherwise the lowest count in over 50 years, a total 33.9% down on the 2014-2023 mean (985.6 $\pm$ sd 267.9). In an effort to reduce disturbance in the colony, the Islands Conservation Advisory Committee has suggested that the walkthrough

surveys, which have traditionally been used to check the accuracy of the point counts, are no longer performed annually; there was thus no walkthrough for a fifth year (the lack of a walkthrough in 2020 was due to a COVID-19 dictated lack of personnel). The number of apparently incubating adults (as assessed using the vantage point counts) and the number of nests containing eggs (as located during walkthrough surveys) invariably differ, primarily due to incubating birds being hidden by vegetation (particularly in areas where there are no raised vantage points). Between 2013 and 2019 there were on average 12.83% more nests containing eggs than apparently incubating adults (although this was as low as 0.82% in a year with a particularly short breeding season sward height and as high as 27.32% when vegetation was taller (see table above)). The walkthrough surveys also reveal a variable number of empty nests; over the period 1991-2002 the count of empty nests varied from 11-44% of the total number of nests (with a mean of 22.7% (Thompson, 2007)), although between 2013 and 2019 this dropped to between 4.98% and 17.62% (with a mean of 14.03%). It is unclear whether empty nests are second nests made by the pairs present, nests robbed of eggs or nests where adults are yet to lay. The breeding season is certainly a protracted one, with the first two 2024 chicks located on 17th May (the 2013-2023 mean is 24th May, with one on the 18th in 2021 the earliest and one on 6th June 2015 the latest) and the first flying fledgling at Green Heath on 27th June (the 2016-2023 first fledgling mean is 5th July, with the earliest on 30th June 2020), but with chicks still being fed at Purple Cove on 10th August. It would thus seem likely that some (but given their extremely close proximity to each other, not all), empty nests belong to additional pairs. Between 2013 and 2019 the total number of nests (including empty nests) was between 20.68% and 43.45% higher than the vantage point total (with a mean of 31.36%, see table above).

The total number of Lesser Black-backed Gull breeding pairs 1970-2024. Control measures started in 1984 (destruction of nests) and stopped in 1998. The green line is the population estimate if all empty nests are assumed to belong to additional pairs. The maroon line is the corrected population estimate based on a comparison of vantage point counts and the number of nests which contained eggs. The blue line is the uncorrected vantage point count total (of apparently incubating adults). A lack of walkthrough surveys means that the corrected 2020-2024 totals are based on the 2013-2019 means.



Of the 651 apparently incubating adults counted this year, 89 were in open (primarily coastal) areas where it was obvious that additional pairs were not present. A mean 2013-2019 correction factor of 1.13 (see table above) would suggest that the remaining 562 apparently incubating birds actually

represented a total of 635 nests with eggs (giving a 2024 breeding population estimate of 724); this is the second lowest estimate of the post-War era, 34.4% down on the 2014-2023 mean (1103.1 $\pm$ sd 289.7). A mean 2013-2019 correction factor of 1.31 would suggest that the remaining 562 apparently incubating birds actually represented a total of 736 nests (including empty nests); this gives a 2024 breeding population estimate of 825, a total 35.3% down on the equivalent 2014-2023 mean (1275.0 $\pm$ sd 366.3) and only the third such post-War estimate of less than four figures (following the 947 of 2022 and the 814 of last year). The actual number of breeding pairs probably lies somewhere between these two estimates (724-825). Recent years have seen comparatively high vegetation during the count period, as was the case in 2017 when a higher correction factor was established, however this was not the case this year (although plant cover was lower than of late, the Bracken grew quickly during the survey period).

Lesser Black-backed Gull productivity is typically assessed by entering various subcolonies to ring as many near-fledglings as possible, the BTO rings becoming marks for a mark/resighting population estimate. However it has lately proven difficult to resight sufficient ringed fledglings to allow for a meaningful evaluation. In an attempt to increase the number of resightings, recent years have seen staff and volunteers re-enter the subcolonies (rather than observing fledglings at a distance with a telescope). A simple calculation, '(number ringed on first visit x number checked for rings on second visit) / number of birds found to have rings on second visit', predicts the number of near-fledglings within an area (which can then be compared with the number of pairs thought to have been present). Whereas the walkthrough surveys allowed for an accurate assessment of how many nests were in an area, a lack of walkthroughs from 2020 onwards means that productivity estimates are less accurate (as they are based on corrected vantage point counts). Visits to the Middle Heath and Green Rocks area during early July suggested that 30 near-fledglings had been produced by 46 pairs (the uncorrected vantage point count for this area was 41 pairs); the resulting productivity figure of 0.65 fledglings per pair was the fourth highest inland estimate of the last 12 years. The coastal slopes of Purple Cove were investigated for an eighth year as this discreet subcolony, with very short sward or rocky substrate, is seemingly suitable for an accurate fledgling count using a telescope; here 37 pairs produced a minimum of 36 fledglings, giving a productivity figure of 0.97 fledglings per pair (the 2017-2023 Purple Cove mean is 0.82 $\pm$ se 0.10, with a high of 1.21 in 2018 and a low of 0.54 in 2022). Purple Cove productivity has proven to be higher than that observed inland in each of the last seven years (albeit only marginally so between 2021 and 2023).

Combining data from Purple Cove and Middle Heath suggests that 83 pairs fledged 66 young; a combined productivity figure of 0.80 is the second highest estimate of the last 12 years, this double the 2013-2023 mean of 0.40 $\pm$ se 0.08 (there was a high during this period of 0.89 in 2021, a low of 0.12 in 2020). It is unclear why productivity was again above average this year, but this becomes the first year of the 21st century in which productivity has exceeded the lower limit set in the Skokholm Island Management Plan (only two of the last five years have seen productivity below 0.60). Ad hoc observations broadly mirrored the estimate; although fledglings across North Pond and North Plain could potentially have come from anywhere on Skokholm (and possibly elsewhere), a maximum of 97 on 19th July was the second highest count of the last seven years (only down on the 136 present in 2021 when productivity was thought to be higher than in any other year this decade). Although it should be remembered that the breeding population has fallen considerably during the same period, the 2014-2023 mean maximum is 101.8, with a high of 141 in 2014.

Lesser Black-backed Gull productivity estimates 2011-2024.

2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
0.03	0.16	0.16	0.30	0.15	0.23	0.38	0.63	0.27	0.12	0.89	0.53	0.70	0.80

Although poor productivity seemingly helped drive the decline in the Skokholm breeding population, it also seems possible that disease may have taken its toll in some years. There were three dead

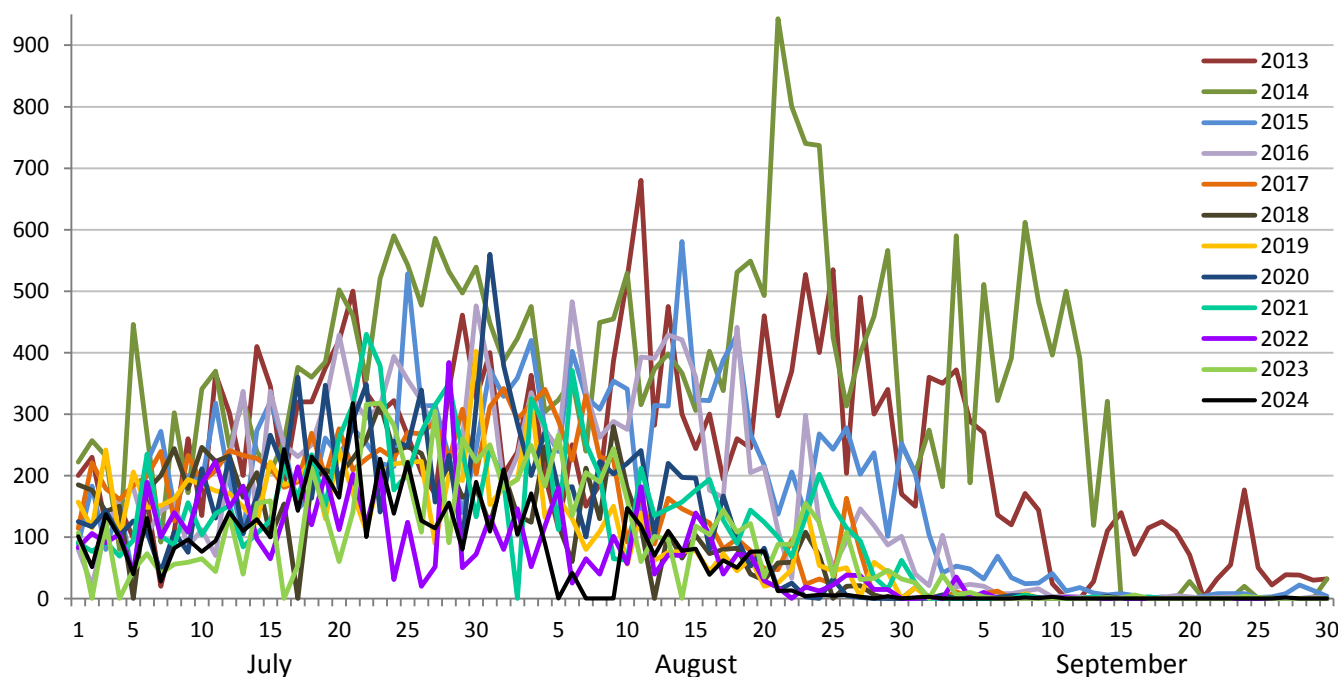
adults encountered this year, all with no indication as to what had happened; birds were found in the Bog on 30th May, in Peter's Bay on 12th June and at Frank's Point on 29th June. Additionally a dead first-summer was at North Pond on 22nd June. A juvenile with a fishing lure hooked through its foot was over Little Bay on 30th July and found dead at North Gully on 1st August; the lure would have severely impacted feeding and probably also made the youngster an easy target for a predator (photograph below). There were ten dead adults found last year (along with a third-summer with a bloody head injury, an adult and a first-summer both with bloody broken wings but which were not found dead, three adults with broken wings later found dead, a bloody adult missing both feet and found dead the following day, a second-summer with a broken leg and an adult with two broken legs), nine non-fledglings found dead in 2022 (including one shot using an air gun), 14 adults in 2021 (along with one which had recently lost a leg), 11 adults in 2020 (including an uncoordinated bird (with a clean vent) found dead two days later, but not including two live birds with broken wings, one with a broken leg and one missing a foot), two adults in 2019, 15 adults in 2018 (including a bird with a particularly dirty vent and a bird handed in live from a passing boat), three dead adults in 2017 and 21 dead adults in 2016 (which were thought to be diseased or poisoned, with the period before death characterised by very lethargic behaviour, fine shaking and an eventual loss of limb control (similar symptoms were seen in 2018 and 2021)). Although it is possible that aggressive interactions with other birds may have caused some deaths (indeed one body was inverted in much the same way as that of a Manx Shearwater), amputations likely result from human interaction (probably with the fishing industry), whilst disease or poisoning seem likely in many cases where intact bodies are found (although a Skokholm bird is yet to prove positive, HPAI may recently have had an impact).



As is typically the case, the number of birds using traditional roost sites increased during July; North Plain and the area around North Pond again proved to be the usual site for the largest post-breeding roost, with smaller numbers congregating at South Pond and on the Neck. This year saw the July roost reach 318 on the 21st; this matched that of last year as the third lowest July peak of the last 12 years, down on a 2013-2023 mean of 437.5 and a high during that period of 590 in 2014. A cumulative July total of 4181 roosting birds was also the third lowest of the last 12 years and well down on highs of 8353 in 2013 and 11,226 in 2014. Whereas roost counts between 2013 and 2017 peaked in August, the last seven years have seen a more rapid departure of birds from the Island. This year saw an August peak of 210 on the 1st, this up on a 2022 high of 182 but otherwise the lowest maximum of the last 12 years (the 2013-2023 mean high is 439.2, with a peak of 943 in 2014). An August total of 1580 roosting birds was the lowest of the last 12 years, down on a 2013-2023

mean of 5750.2 (between 2013 and 2015 the August total ranged between 8903 and 13,849, there were 7306 in 2016 and no more than 4364 since). The last three-figure roost count of the year was the 110 present on 13th August, this the earliest such count of the last 12 years; between 2013 and 2016 the last three-figure roost counts were logged in September, whilst the last of 2023 was on 26th August. September again proved to be quiet, with only 11 roosting birds noted during the month; although up on the eight of 2018, this was otherwise the lowest tally of the last 12 years, indeed the September roost total was in three-figures in 2015 and 2016, whilst in 2013 and 2014 it was in four (with a high of 5359 in 2014). Daycount highs of nine on the 3rd and 19 on the 9th contributed to an October bird-days total of 67, this down on a 2013-2023 bird-days mean of 142.4 (there was a 21st century October high of 658 in 2013). Sightings on all but four dates and highs of 26 on the 28th (including 24 roosting near North Pond), 31 on the 29th (28 at North Pond) and 32 at North Pond on the 30th took the November bird-days total to 201, this up on a 2013-2023 mean of 165.6 and the sixth highest November tally this century. A North Pond roost of 25 on 1st December took the daycount to 32, whilst 57 roosted on North Plain the following day, the latter the second highest December daycount to date, only down on the 80 present on the same date in 1992.

The number of Lesser Black-backed Gulls roosting on North Plain and in the vicinity of North Pond 2013-2024.



Ringling recovery Left leg mint green darvic with black 3NF, Right leg FH07803

Originally ringed as a juvenile, FLAT HOLM ISLAND, CARDIFF 2nd July 2006

Previously recovered as a juvenile, GLOUCESTER LANDFILL, GLOUCESTERSHIRE 17th July 2006

Previously recovered as an adult, GLOUCESTER LANDFILL, GLOUCESTERSHIRE 30th June 2010

Previously recovered as an adult, QUARTEIRA, FARO, PORTUGAL 6th and 8th October 2010

Previously recovered as an adult, FIGUEIRA DA FOZ, COIMBRA, PORTUGAL 10th November 2011

Previously recovered as an adult, EAST BOG, SKOKHOLM 31st July 2022

Previously recovered as an adult, EAST BOG, SKOKHOLM 17th March and 22nd, 23rd & 27th April 2023

Recovered as an adult, EAST BOG, SKOKHOLM 19th March 2024

Finding condition Darvic ring read in field

Distance travelled 154km at 283 degrees (WNW)

Days since ringed 6470

Given that this individual has now been seen six times in under two years, it would seem likely that it has recently switched nest site to an area closer to the Skokholm path network.

Ringing recovery GR77096

Originally ringed as an adult, HOME MEADOW GULL TRAP, SKOKHOLM 13th August 2013

Recovered as an adult, QUARTEIRA, ALGARVE, FARO, PORTUGAL 25th October 2024

Finding condition Metal ring read in field

Distance travelled 1641km at 188 degrees (S)

Days since ringed 4091

Ringing recovery GR98281

Originally ringed as an adult, HOME MEADOW GULL TRAP, SKOKHOLM 16th June 2014

Previously recovered as an adult, PRAIA DE MIRA, AVEIRO, COIMBRA, PORTUGAL 30th October 2022

Recovered as an adult, PRAIA DE MIRA, AVEIRO, COIMBRA, PORTUGAL 27th December 2023 (sic)

Finding condition Metal ring read in field

Distance travelled 1277km at 193 degrees (SSW)

Days since ringed 3481

The previous 2022 recovery was reported at the time to be GR98280 and recorded as such in the Annual Report 2022, however this was presumably revised by either the observer or the BTO when the 2023 resighting was made.

Ringing recovery GV83196

Originally ringed as a chick, GREEN HEATH, SKOKHOLM 14th July 2022

Recovered as a second-winter, MONTE GORDO, FARO, PORTUGAL 17th October 2023 (sic)

Finding condition Metal ring read in field

Distance travelled 1622km at 187 degrees (S)

Days since ringed 460

Ringing recovery GY21024

Originally ringed as a chick, EAST BOG, SKOKHOLM 14th July 2024

Recovered as a first-winter, MONTE GORDO, FARO, PORTUGAL 13th December 2024

Finding condition Metal ring read in field

Distance travelled 1622km at 187 degrees (S)

Days since ringed 152

Ringing recovery POL LV33347

Originally ringed as an adult, BRAÇO DE PRATA, LISBOA, PORTUGAL 24th January 2024

Recovered as an adult, NORTH POND WALL, SKOKHOLM 31st July 2024

Finding condition Metal ring read in field

Distance travelled 1470km at 10 degrees (N)

Days since ringed 189

This individual was admitted to CRAS-LX, Lisbon's wildlife rescue centre, on 15th December 2023 with paralysis syndrome (several biotic contaminants are among the potential causes of this syndrome, with marine biotoxins, *Clostridium botulinum*, cyanotoxins and a virus all linked). The gull recovered and was released on the date of ringing. Previous Skokholm Long-term Volunteer, now Portland Bird Observatory Assistant Warden, Jodie Henderson, managed to photograph most of the ring and Skokholm House Mouse researcher Alex Figueiredo was able to track it down with the help of Paula Figueiredo at the Central Nacional de Anilhagem, Portugal.

The birds previously carrying GPS tags, along with an additional 48 non-tagged controls, were all fitted with yellow darvic rings with a black alpha-numeric code (number/letter:W e.g. 5A:W) in 2014. The colour ring is on the left tarsus and a BTO metal ring on the right. Although the number of encounters logged each year is unsurprisingly declining, the darvic rings have yielded a fantastic number of field resightings; the 73 ringed birds have produced 188 separate resightings of 38 different individuals away from Skokholm. The table below summarises resightings received since

similar tables were published in the 2014-2023 Seabird Reports. As has been shown by the British Trust for Ornithology GPS tracking project on Skokholm, and at other British Trust for Ornithology tracking sites, Lesser Black-backed Gulls show a high degree of wintering site fidelity; this is reflected in the colour ringing data, with 19 birds having been resighted at the same location in more than one winter. Records of returning birds have come from several sites in Portugal and Spain, along with two in France, one in the Channel Islands and one in Morocco. This year saw 9J:W in Malaga for at least a ninth winter (it was there 2014-2015, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022, 2022-2023 and 2023-2024, along with this winter, whilst it was also recorded in Barbate Harbour, 51km to the south of Cadiz, in the winters of 2014-2015, 2015-2016, 2016-2017, 2020-2021 and 2022-2023). Five different individuals were seen on Skokholm this year, these including 8U:W (GR98259) and 9J:W (the Malaga regular), neither of which had been seen on the Island since 2014; it is tempting to think that, as with 3NF (FH07803, see above), these birds may have changed nest location, allowing them to be seen from the path network.

Darvic	Ring	Location	Country	Date
8A:W	GR98247	Pontevedra, Galicia	Spain	03/08/24
9J:W	GR98265	Malaga Harbour	Spain	21/11/23 (sic), 27/12/23 (sic), 13/12/24

Guillemot *Uria aalge*

Gwylog

Very Abundant Breeder Common during the period 1928-1996, numbers then increasing rapidly

1 pullus trapped

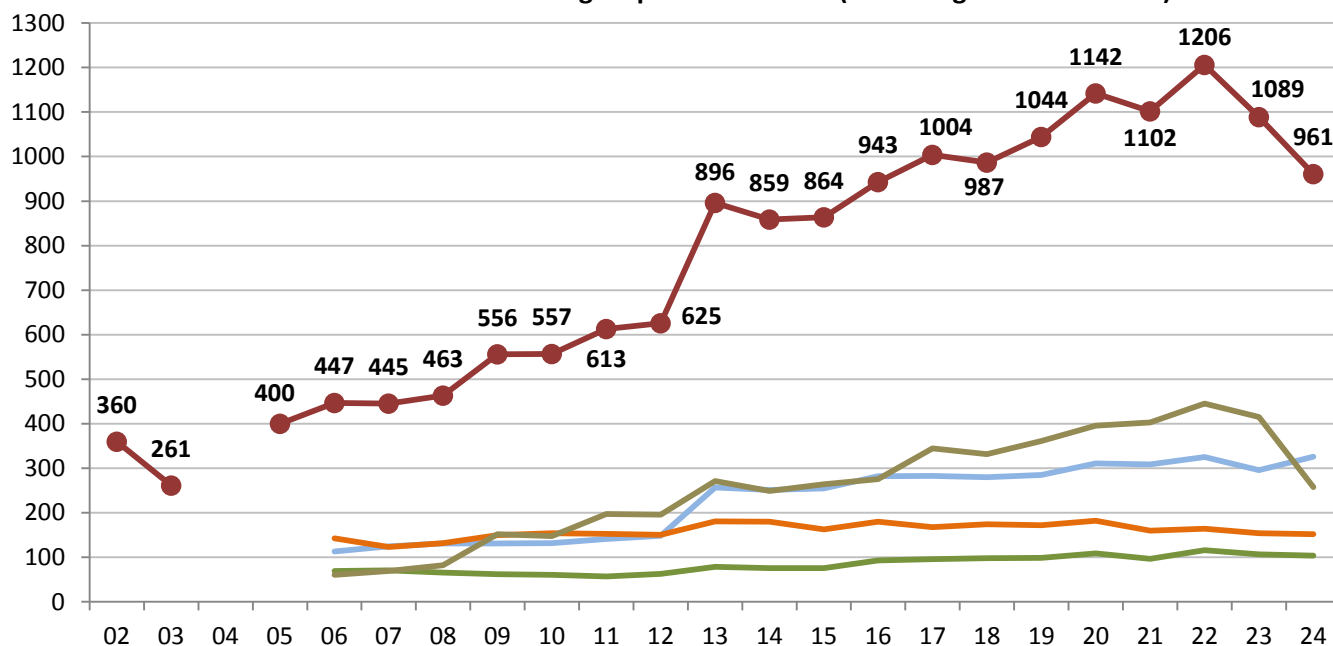
1936-1976: 1021 trapped, 2014-2022: 7 pulli trapped, 27 controls

Staff did not return for the 2024 season until 10th March, meaning that a mean March daycount of 104.7 is not directly comparable with recent years, however it was significantly down on a 2013-2023 mean of 601.1 and the lowest of the last 12 years. This was in part due to a March daycount high of 1540 on the 11th, this the lowest March peak of the last 11 years and down on a 2013-2023 mean high of 3002.4 (with all but two of the peak counts during these years occurring during the period staff occupied the Island this year). Although there were rough seas towards the end of the month and precipitation on 20 of 22 days, the March weather was generally unremarkable and probably did not explain the low counts, however six named storms between December 2023 and March 2024 was more than average and perhaps impacted pre-breeding fitness. Customary departures for the sea continued in April, with 18 dates when counts of less than 600 were logged (including two dates without a sighting and five dates with between one and 19 birds present); there were 20 similar mass April departures last year, nine during an unprecedentedly early 2019 breeding season and an average of 15.6 between 2013 and 2023 (with a high of 25 in 2013). The first egg to be found was at North Gully on 26th April, a day which saw only 109 birds logged; the first 2019 egg (which was believed to be the earliest yet recorded in Wales (Birkhead, *pers. comm.*)) was found on 18th April and was perhaps the result of unusually high sea surface temperatures (Burton, M., 2019), however no other year has seen an egg earlier than that of 2024 (the 2013-2023 first egg date mean is 1st May, with the latest during this period found on 15th May 2014 following a winter of prolonged storms and significant auk wrecks).

The whole Island totals (adults on ledges suitable for breeding), mean plot totals, the range of totals over ten study plot visits, the standard deviation observed over the ten visits and the percentage of the Island total made up of study plot birds 2015-2024.

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Island	3603	3949	4038	4316	4654	5101	5065	5515	4992	4989
Plots	864	943	1004	987	1044	1142	1102	1206	1089	961
Range	756-939	887-1003	939-1144	937-1060	982-1140	1069-1213	1012-1209	1144-1318	1035-1150	904-1011
±SD	58.30	40.25	57.45	37.38	54.40	50.57	68.55	55.19	39.88	36.29
Plot %	24.0	23.9	24.9	22.9	22.4	22.4	21.8	21.9	21.8	19.3

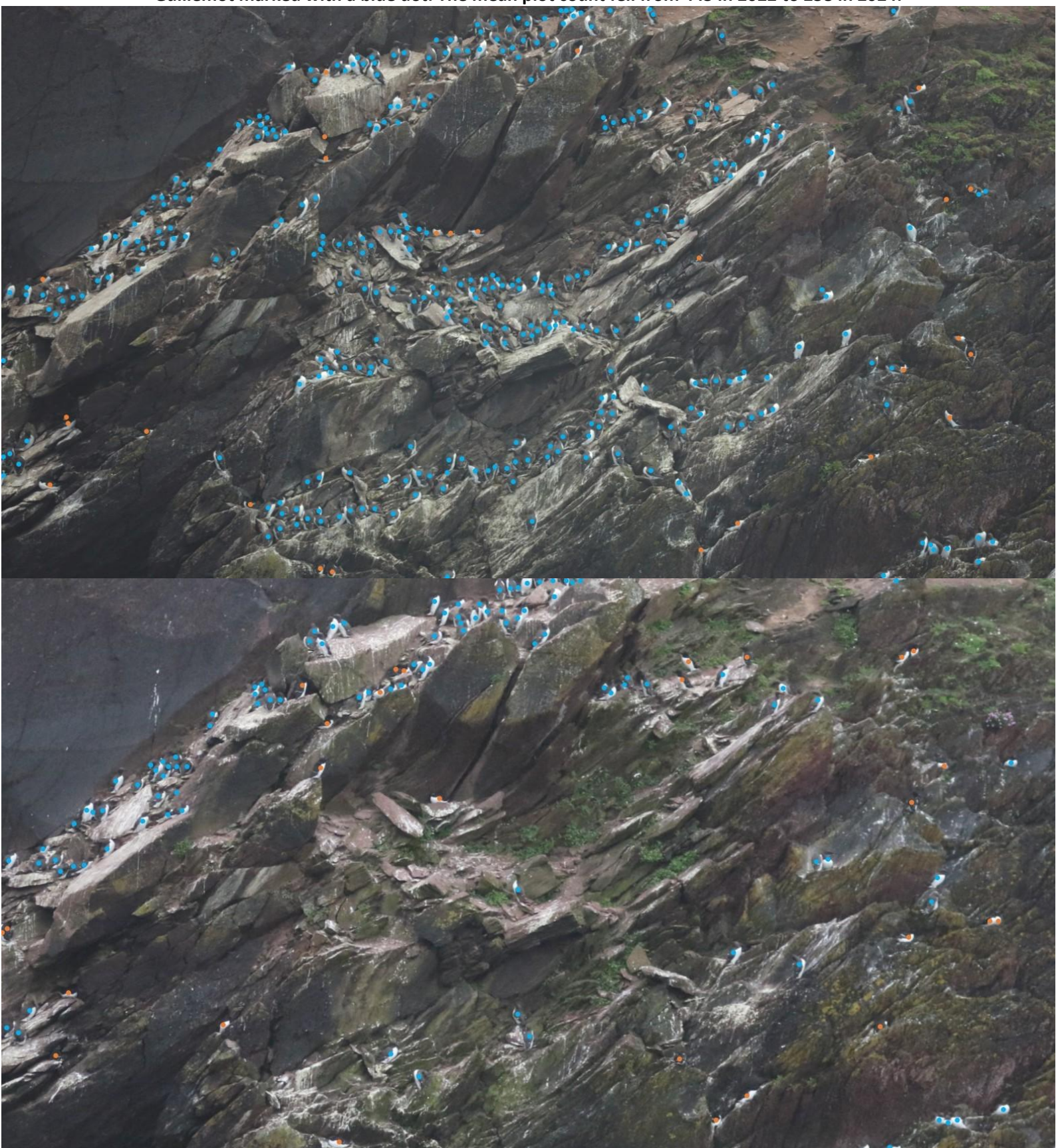
The total number of adult Guillemot in all six study plots 2002-2024 (an average from ten visits) and the totals from the four largest plots since 2006 (an average from ten visits).



The six study plots were counted on ten dates between 29th May and 12th June. The mean total from all plots was 961 adults on ledges; this was 11.8% down on that logged last year and 5.1% down on the 2013-2023 mean (1012.3 $\pm$ sd 115.6), albeit the eighth highest total yet recorded. This substantial decline was driven by a mean loss of 157 adults at North Gully (a drop of 37.8%); these birds were almost wholly missing from the two central ledges of the plot (see photographs below), this the area on which a dead adult was present from 3rd July last year (although the dead bird was not accessible for Highly Pathogenic Avian Influenza (HPAI) testing, it would seem likely that bird flu spread through this area last July). There were 1060 dead Guillemot collected from beaches by the Pembrokeshire local authorities during three weeks from 8th July 2023, with 500 reported in Carmarthenshire during the same period and the H5N1 strain of HPAI found in tested birds (PCC, 2023). However these significant losses were seemingly very localised; the Middlerock, Guillemot Cliff and Steep Bay plots were very similar to last year, with a mean loss of two or three birds at each site, whilst a mean of eight additional birds was recorded on the slope to Purple Cove (this despite regular Great Black-backed Gull attacks which certainly flushed birds prior to counts) and a mean of 29 additional birds at Little Bay led to the highest total yet recorded at this plot.



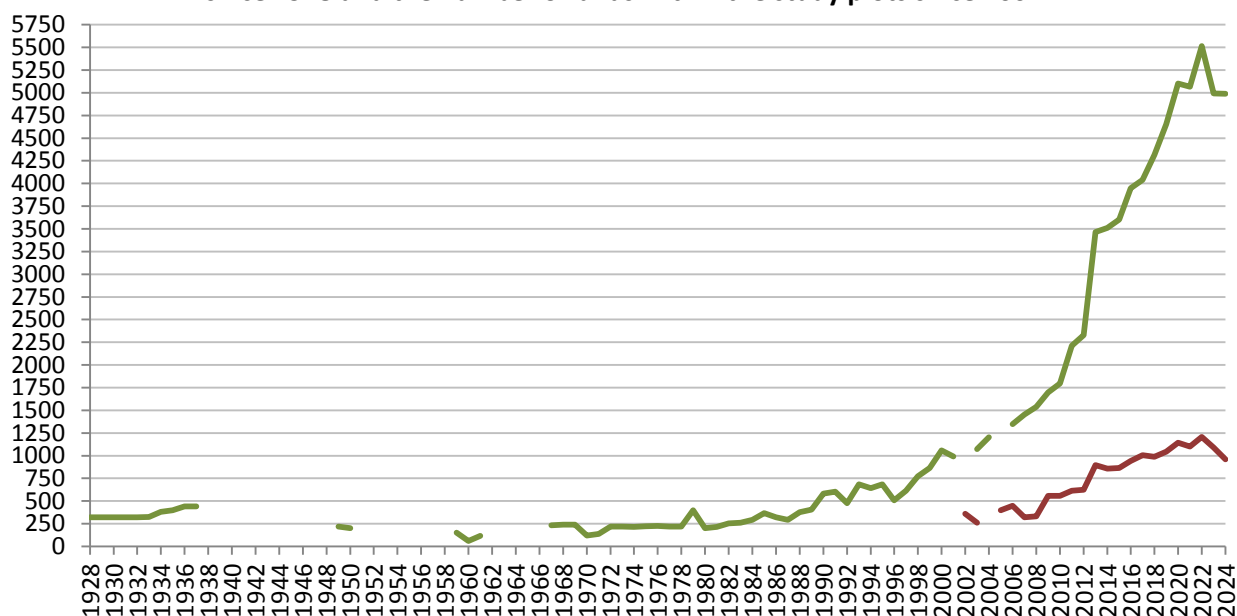
The North Gully auk colony in 2022 (upper photograph) and 2024 (lower photograph), with each Guillemot marked with a blue dot. The mean plot count fell from 445 in 2022 to 258 in 2024.



Whole Island counts were made from the land between the 1st and 11th June and calm seas allowed

for a boat-based survey on 7th June. Boat-based surveys allow some areas to be monitored which cannot be viewed from on the Island and enable closer access to some areas which can normally only be viewed at a distance; they have not always been available, with 2012 the last year in which there was not at least one boat survey. A mean total of 4989 adults in suitable breeding habitat was 0.06% down on a 2023 count of 4992, but the fifth highest tally yet recorded on Skokholm (also down on the 5101 of 2020, the 5065 of 2021 and the 5515 of 2022). This was only the third time since 2001 in which the mean whole Island total has declined, with the only large drop during this period being the 9.5% decline observed between 2022 and 2023 (a loss of 523 birds); the only other three-figure declines witnessed since 1928 are the 120 birds lost between 1969 and 1970 (a 50% decline), the 200 lost between 1979 and 1980 (a 50% decline), the 124 lost between 1991 and 1992 (a 20.6% decline) and the 175 lost between 1995 and 1996 (a 25.6% decline). The proportion of the whole Island total made up of study plot birds dropped to 19.3%, this down on a 2006-2023 mean of 25.1%, the lowest proportion on record and no doubt due to the big loss of birds at North Gully. The plots at Twinlet and North Gully were again counted on nearly every day of the season (see chart below), with the mean May total for 2024 (427.57 adults on ledges) being 16.2% down on a 2023 mean of 510.23 (this less than the 26.7% decline seen during the plot count period).

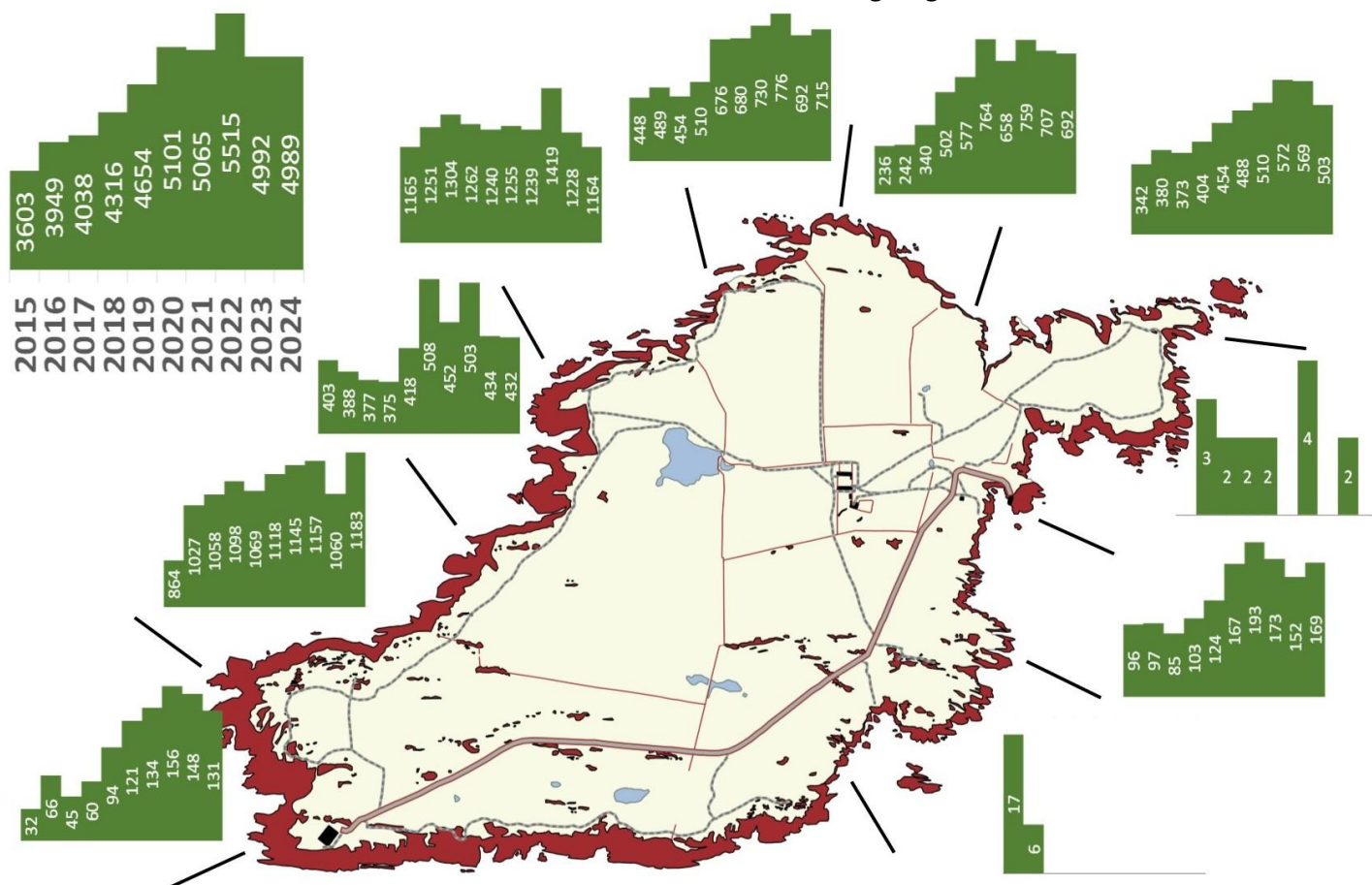
The total number of Guillemots (adults on ledges suitable for breeding) recorded on Skokholm since 1928 and the number of birds within the study plots since 2002.



As can be seen from the map below, there were numerical declines in six areas. The largest declines were seen along the north coast of the Neck and on the Stack, where there were 66 fewer individuals on average (an 11.6% decline), and in the area between the Jogs and the Dents where there were 64 fewer (a 5.2% decline); the latter area includes North Gully where there was a mean loss of 157 individuals, this implying a gain of 93 birds elsewhere. There were further losses of 17 birds around the Quarry (an 11.5% decline), two birds between Twinlet and Purple Cove (a 0.5% decline), 15 birds between Smith's and Far Bays (a 2.1% decline) and two birds in Peter's Bay (a 100% decline, with birds absent from this area for a fifth time in 11 years). A mean increase of 123 individuals was recorded between Wardens' Rest and Fossil Bay (an 11.6% increase to a new high for this area), whilst there were 23 more birds around Little Bay (a 3.3% increase) and 17 more birds in Hog Bay (an 11.2% increase). The area around Crab Bay was again free of Guillemots (they last occupied ledges in 2016). It would thus seem clear that the effects of avian influenza were rather localised, with some areas seemingly not impacted (or with any small scale losses more than compensated for by the arrival of others). These counts of individuals on ledges potentially include incubating adults, some of their partners, failed breeders, non-breeding adults and younger birds yet

to pair; a correction factor is thus sometimes adopted to convert the count to an estimate of breeding pairs (Harris *et al.*, 2015). A 2015 survey on Skokholm found the correction factor to be 0.64, a figure close to the 0.67 widely adopted in previous studies (see the Skokholm Seabird Report 2015); the latter correction predicts the Skokholm breeding population to be in the region of 3343 pairs, this two fewer than last year.

The distribution of Guillemots on suitable breeding ledges 2015-2024.

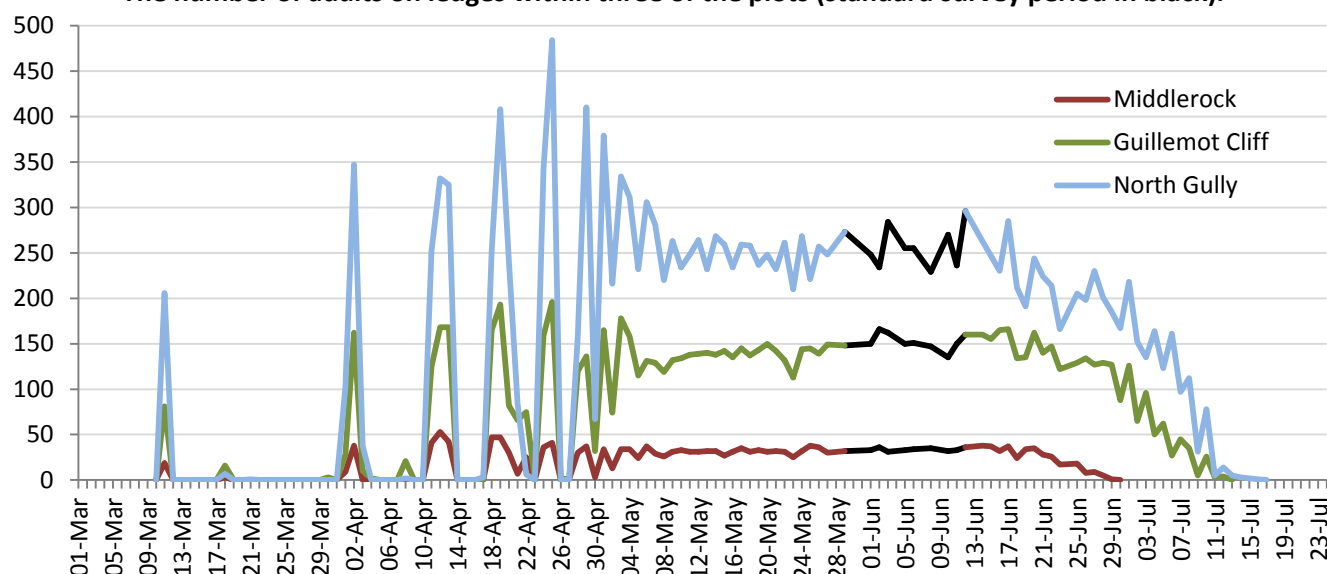


The first chick to be seen this year was at North Gully on 3rd June; this was later than the first chick recorded in five of the last seven years, but one day earlier than the first to be seen last year and on the same date as the 2013-2023 mean (the earliest chick during this period was logged on 23rd May in 2019, whilst the first chick of 2014, the year following the severe winter auk wrecks, was on 13th June). Productivity, calculated at between 0.55 and 0.61 jumplings per pair in 2013 and at 0.6 in 2007, was again not assessed in 2024 following recommendations from the Islands Conservation Advisory Committee. Chicks were watched jumping from the fourth week of June and the number of adults recorded in the three regularly monitored plots dropped from 366 on the 27th to 313 on the 29th, 217 on 2nd July and 185 on the 5th (see chart below). There were an additional 38 birds at Guillemot Cliff and 51 birds at North Gully on 1st July, whilst on the 10th there were an additional 21 at Guillemot Cliff and 47 at North Gully; previous seabird reports document similar late and synchronised spikes in numbers in the majority of years.

Between the 29th and 30th June, the number of adults in the Middlerock plot dropped from one to zero, this the earliest departure from this plot in 11 years of monitoring and probably a reflection of poor productivity; between 2014 and 2023, the last day with birds in the Middlerock plot averaged 10th July, with the latest still present on the 17th in 2021 and the earliest on the 1st in 2022. The four birds present at Guillemot Cliff on 12th July were the last to be seen in this plot, this three days later

than the 2014-2023 mean. Counts at North Gully dropped from 14 on the 12th to five on the 13th and to two on the 15th, with the last on the 16th matching the 2014-2023 last bird mean (the latest bird in this plot was still present on the 22nd in 2014, the earliest last seen on the 13th in 2022). Whole Island counts mirrored those made at the plots, with 37 ashore on the 18th, 22 on the 19th, 12 on the 21st, five on the 23rd, three on the 24th and two at the same Little Bay site on the 25th; the latter were present on the same date as the last of 2023 and were three days later than the 2013-2023 last bird mean (the earliest last was seen on 16th July in 2019 and the latest on the 27th in 2013 and 2021). Singles at sea on the 26th and 29th were the only other July records. There were sightings on just eight August dates (five fewer than last year), with a bird-days total of 17 being massively down on a 2013-2023 mean of 666.8 and the lowest since 2014 (this a period which included all-time highs of 3841 in 2018, 1129 in 2019 and 1138 in 2020). There were no August records of birds ashore for the first time in three years.

The number of adults on ledges within three of the plots (standard survey period in black).



Sightings on 14 September dates were all of nine or less bar 18 on the 16th, 21 on the 18th and 17 on the 26th, a bird-days total of 82 being down on a 2013-2023 mean of 269.3 but up on five of the years during that period (there were all-time highs of 287 in 2012, 563 in 2014 and 1419 in 2018). An

additional 1219 distant, unidentified auks were logged during September, this up on a 2013-2023 mean of 894.9 (there were all-time highs of 2613 in 2018, 1261 in 2021 and 2814 in 2022). Sightings of up to 40 Guillemot on eight October dates totalled 84 bird-days, this down on a 2013-2023 mean of 107.0 (there was a high of 519 in 2021 when, as was the case this year, there was an early return to the cliffs). An additional 2231 unidentified auks were logged during October, this up on a 2013-2023 mean of 1622.1 and on all but one year during that period (there was an all-time high of 7951 in 2021). There was again a staff presence throughout November, with sightings on 14 dates and highs of 202 on the 1st, 302 on the 16th and 207 on the 26th taking the bird-days total to 1283; the peak November daycount was just up on a 2013-2023 mean of 284.5 (there was a high of 790 in 2015), the total up on a mean of 1129.0 logged during the same period (a high of 3441 was tallied in 2019). An additional 3983 distant auks were noted during the month, with highs of 590 on the 10th and 560 on the 30th which were the fifth and sixth highest November daycounts to date (there was a peak of 1520 on the 24th in 2023). Although no doubt in part a reflection of the usual staff absence, December Guillemot daycounts of 213 on the 1st and 365 on the 2nd were new highs, whilst there were additional distant auk counts of 840 on the 1st and 130 on the 2nd (the former also a new high).

Although a return of Guillemots to the breeding ledges in late autumn is to be expected, there was no record of this behaviour on Skokholm between 2000 and 2014, despite the fact that staff did not depart until 16th November in 2013 and 24th November in 2014. However birds were seen ashore in eight of nine subsequent Novembers, with 2017 the only year without a record (when staff departed on the 9th); the 2013-2023 mean first winter return date is 6th November (this not including the three years without a record), with the earliest ashore on 23rd October 2021 and 1st November 2019, the latest on 11th November 2015 and 26th November 2023 (a landfall on 27th October 1999 is the only other to be documented prior to 3rd November). This year saw three birds ashore at the Jogs on 24th October (with droppings at North Gully and the Dents suggesting that others had been present earlier in the day), this the second earliest autumn landfall to date. Birds were ashore on 12 further dates until 2nd December, with November highs of 195 on the 1st, 177 on the 16th and 200 on the 26th and a December high of 350 on the 2nd. Such a return to the colony outside of the breeding season, with the risk of being attacked, must have a substantial benefit; it has been suggested that the return may be to secure the best ledge and thus attract the best mate (Harris *et al.*, 2006), but birds ashore may also use less energy than those at sea (Humphreys *et al.*, 2007). The vast majority of late autumn returnees take to the ledges above the Jogs; this site holds the largest breeding season aggregation, perhaps suggesting that the need to come to land is greater in birds which occupy areas with more neighbours, however birds were at Twinlet on five dates and at Purple Cove on two dates, this despite the much larger numbers breeding at the latter site. There were no returns to the central North Gully ledges decimated by HPAI, this area already well vegetated by September.

Razorbill *Alca torda*

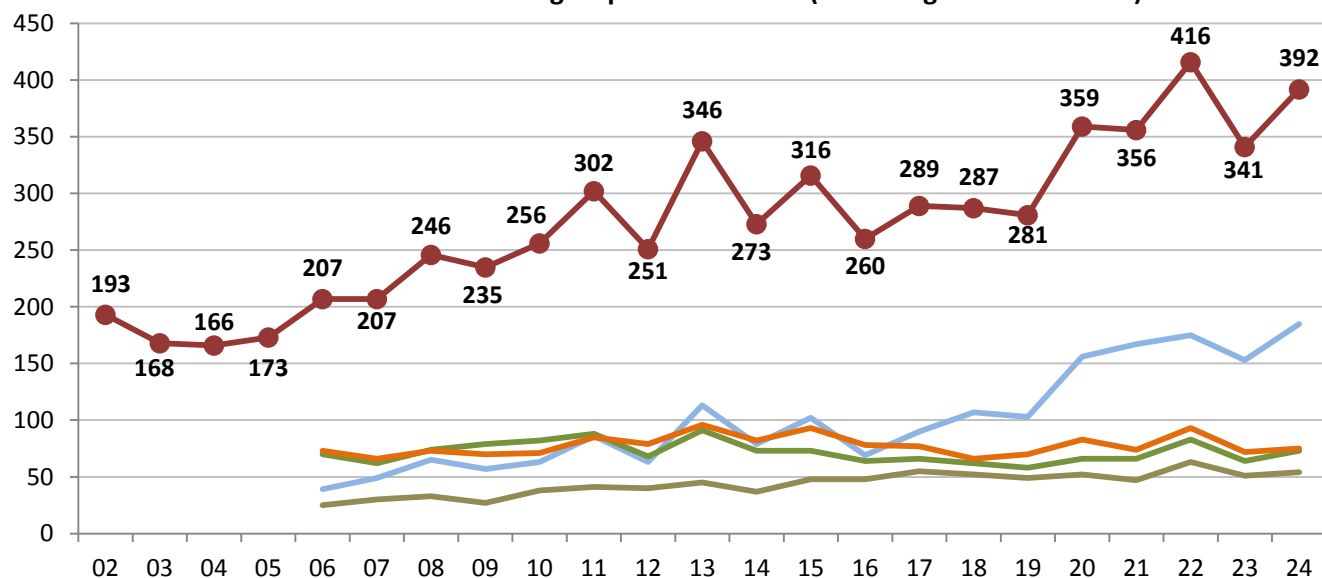
Llurs

Very Abundant Breeder Common or Abundant until 2007, numbers then increasing rapidly
43 trapped (including 41 pulli), 2 retrapped/resighted, 1 control
1931-1976: 9705 trapped, 2013-2023: 387 trapped, 13 retrapped/resighted, 5 controls

There were sightings on 18 March dates from the 10th (16 from the 1st last year), with highs of 1608 on the 11th, 1103 on the 18th and 1249 on the 30th, the peak down on a 2013-2023 mean high of 2246.1 and the second lowest high to be logged during this period. The majority of March birds were again at sea, with 648 on the 11th, 604 on the 18th and 542 on the 21st the highest counts of birds ashore. The only Razorbills to come ashore on 28th March were those occupying crevices in the Anticline, the Oystercatcher roost perhaps again offering sufficient safety in numbers to allow for a landfall (see previous Seabird Reports). Daycounts continued to fluctuate during April, with highs of 1691 on the 18th and 1600 on the 25th and 28th, but lows of between three and 31 on seven dates to the 16th; the peak was down on a 2013-2023 mean high of 1843.2 and the fifth lowest to be logged during this period. Despite the low numbers seen in March and April, it would go on to be a record

year. The first egg to be seen was at North Gully on 26th April, this one day earlier than the 2013-2023 first egg mean; the earliest egg yet recorded on Skokholm was found on 15th April 2022, whilst the latest on 13th May 2014 was no doubt a consequence of the prolonged winter storms preceding that breeding season. A Raven was carrying a different Razorbill egg the following day. The majority of eggs were produced during early May, with 50% of North Gully plot pairs having eggs by the 8th and 65% of Neck plot pairs having eggs by the 9th.

The total number of adult Razorbill in all six study plots 2002-2024 (an average from ten visits) and the totals from the four largest plots since 2006 (an average from ten visits).



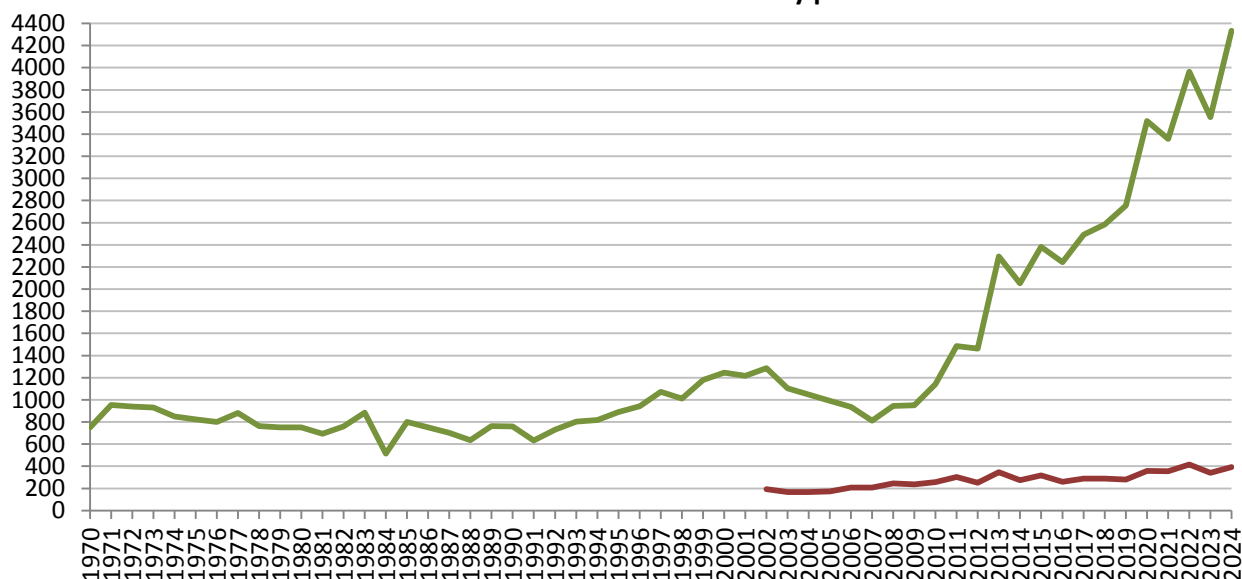
The six study plots, established in 2002, were visited on ten dates between 29th May and 12th June when every adult in suitable breeding habitat was counted. The mean single visit total of 392 adults on ledges was 51 (14.9%) up on that logged last year, 22.4% up on the 2013-2023 mean (320.3 $\pm$ sd 47.6) and the second highest yet recorded (only down on the 416 of 2022). There were numerical gains in all plots, with the largest at Little Bay where the mean increased by 32 birds (20.6%) to a new high. Nine additional birds at Middlerock (a 13.4% increase) took the total to 73, this matching those of 2014 and 2015 and only down on 2013 and 2022. The other Twinlet plot at Guillemot Cliff increased by a mean of three birds (3.9%), although the total was down on that logged in seven of

the last 11 years. Recent years have seen a decline in the number of Razorbill occupying the two Twinlet plots, drops tentatively linked to an increasing Fulmar population (which has no doubt led to competition for space within the confines of the plot boundaries), whilst the activities of a pair of egg stealing Crow have impacted the plots in the last two years. A mean increase of three birds (5.7%) at North Gully occurred despite the huge losses seen in the Guillemot population at this plot (see photographs in the Guillemot section above, the Razorbills marked with orange dots); there have only been more birds present in 2017 and 2022. There were two birds on the slope to Purple Cove, this matching the all-time high logged in 2020 and 2022, whilst a mean of five birds in the Steep Bay plot was a new high, up on the two recorded in 2014 and 2021.

The whole Island totals (adults on ledges suitable for breeding), mean plot totals, the range of totals over ten study plot visits, the standard deviation observed over the ten visits and the percentage of the Island total made up of study plot birds 2015-2024.

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Island	2382	2242	2491	2585	2755	3517	3356	3965	3552	4333
Plots	316	260	289	287	281	359	356	416	341	392
Range	291-346	236-324	253-334	263-309	230-351	312-395	312-411	376-446	299-409	369-434
±SD	15.78	26.58	25.61	13.25	40.82	30.72	34.06	23.15	31.74	20.53
Plot %	13.3	11.6	11.6	11.1	10.2	10.2	10.6	10.5	9.6	9.0

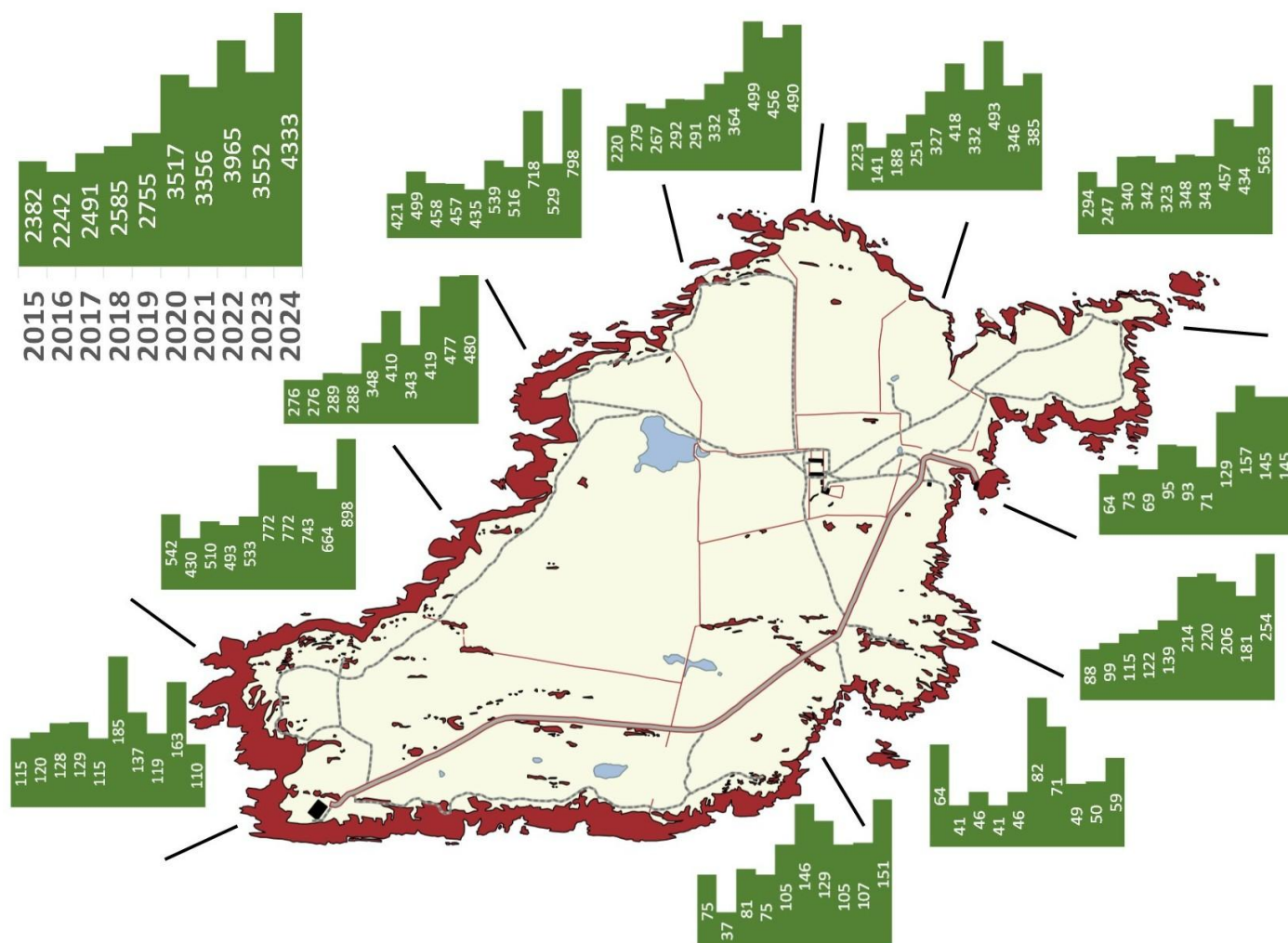
The total number of Razorbills (adults on ledges suitable for breeding) recorded on Skokholm since 1970 and the number of birds within the study plots since 2002.



Both 2020 and 2021 saw severe May weather impact the Razorbills nesting in the productivity plots (and no doubt elsewhere); a 2020 storm, with multiple waves of at least 11 metres, resulted in 60% of Neck pairs losing their eggs (but just one or two of the North Gully eggs being lost), whilst a 2021 storm, with winds gusting at up to 69mph and several waves of at least 16 metres, led to 59% of Neck pairs and 7% of North Gully pairs losing their eggs. May seas peaked at eight metres in 2022 (as measured by the Mid Channel Rock Lighthouse Beacon off St Ann's Head), conditions probably responsible for an egg loss at the Neck (elsewhere there was a loss of Herring Gull eggs and chicks and some low nesting North Coast Razorbills lost eggs), whilst four May Neck plot egg losses were perhaps due to heavy showers. The 2023 and 2024 breeding seasons were by comparison clement, with no productivity plot losses directly attributable to weather events, however this year did see the wettest April since 1999, with heavy rain on the 30th adding to a North Gully stream already in spate, this impacting the expanding Razorbill population on the cliffs below (above photographs). Extreme May weather influences the number of adults on ledges during the usual whole Island and

study plot count period; in the unsettled June of 2012, plot counts fluctuated between 164 and 338, whereas the 2018 counts, made during a prolonged period of high pressure, fluctuated between 263 and 309 (with the lowest standard deviation of the last 12 years). The generally pleasant 2024 survey season weather coincided with a range of just 65 birds over the ten visits and a standard deviation of 20.5, both these values the lowest since 2018 (see table above).

The distribution of Razorbills on suitable breeding ledges 2015-2024.



Whole Island counts were made from the land between 30th May and 13th June, whilst a boat-based count was possible on 7th June. This was the 12th year running in which access to a boat had been available, inevitably leading to higher but more accurate whole Island counts; in 2012 rough seas meant that there was no opportunity for a boat-based count and it was concluded that 'there remains a section of North Coast that was missed, while other parts of the North Coast and Bluffs were counted less accurately at a distance' (Gillham and Yates, 2012). A 2024 whole Island mean of 4333 adults in suitable breeding habitat was 22.0% up on the 3552 logged in 2023 and a new high, 49.9% up on the 2014-2023 mean of 2889.7 $\pm$ sd 654.5. Although the whole Island total is based on fewer visits, the tight range in study plot counts suggests that the 2024 estimate is relatively accurate. As can be seen from the map above, the number of adults present did not increase everywhere, indeed there was a mean loss of 53 birds in the vicinity of the Quarry and the mean for the southerly portion of the Neck remained the same. The largest gains occurred between Wardens' Rest and Fossil Bay, with a mean increase of 234 birds, between the Jogs and the Dents, with an increase of 269, and to the north of the Neck, with an increase of 129, these all leading to totals which were new highs for these areas. An additional 34 birds in the vicinity of Little Bay and Little

Bay Point led to the second highest tally for this area and 39 more birds between Far and Smith's Bays led to the third highest tally, whilst 73 more between South Haven and Hog Bay and 44 more along the South Coast resulted in new highs. A mean increase of just three between Purple Cove and Twinlet nevertheless produced a new high for this area, whilst nine more birds between Wreck Cove and Crab Bay led to a total down on three previous years.



Productivity monitoring was undertaken for a 12th consecutive year. There were previously concerns among ICAC members that some Pembrokeshire productivity estimates have been quite low (on Skokholm ranging between 0.23 in 2015 and 0.69 in 2018), perhaps lower than what actually occurred given the continued growth of the population and certainly too low to maintain the expansion; one explanation for continued population growth despite low productivity estimates could be that the plots do not represent the Island as a whole. This is potentially the case at the exposed Neck plot where predation levels are often quite high and where, in recent years, extreme weather events have had a greater impact. Although Razorbills nest in similarly exposed places elsewhere on Skokholm, an additional plot looking at cliff nesting pairs was established at North Gully in 2017 in an attempt to study birds in a somewhat more sheltered setting. There were thus three survey areas this year, one a cliff below the Neck Razorbill Hide where 34 incubating pairs were mapped between 29th April and 29th May, one the ledges around North Gully where 40 pairs were mapped between the 1st and 16th May and one an area among the Bluffs boulders where 53 egg sites were marked between the 12th and 25th May.

The first three chicks to be encountered anywhere on Skokholm were at the Neck on 31st May (the oldest of which was seemingly two days old); this was one day later than the first of last year and on the same date as the 2013-2023 mean (the earliest was found on 18th May 2019 and the latest on 15th June 2013). At the Neck there were 12 egg stage failures, five failures at either egg or small chick stage (ledges were found empty, with no indication as to what had happened), three chick losses and 14 pairs produced jumping age chicks at the first attempt; of the pairs which failed with their first egg, two re-laid, one of which lost a chick between the 17th and 19th July and one of which produced a jumpling. The resulting productivity figure of 0.44 almost matched a 2013-2023 mean of 0.43 ± 0.09 (productivity at this site is very variable, with highs of 0.77 in 2013 and 0.86 in 2018, but lows of 0.03 in 2016 and 0.14 in 2017). The North Gully plot saw 23 pairs successful at the first attempt, five egg stage failures (one pair re-laid, again failing with an egg) and four chick stage failures. The resulting North Gully productivity value of 0.58 jumpings per pair matched the lowest

of the last eight years, this down a 2017-2023 mean of $0.68 \pm se\ 0.02$ (there was a high of 0.76 in 2020, another low of 0.58 in 2017). The combined productivity estimate for cliff nesting pairs was 0.51; this was down on a 2017-2023 mean of $0.58 \pm se\ 0.06$ and the lowest of the last three years (there were lows of 0.36 in 2017 and 0.44 in 2021, when Neck productivity was particularly poor, and highs of 0.74 in 2018 and 0.71 last year).



Among the Bluffs boulders, four pairs failed at egg stage, 13 pairs failed with eggs or small chicks (crevices were found empty, with no indication as to what had happened) and 11 pairs failed with chicks (one of which was found dead as opposed to going missing). A productivity figure of 0.47 was up on the 0.23 of last year (when an unprecedented 23 pairs failed with chicks (44.2%), one of two located bodies proving HPAI negative) but down on a 2013-2023 mean of $0.52 \pm se\ 0.05$ (there were further lows of 0.44 in 2014 and 0.29 in 2015, highs of 0.74 in 2016, 0.60 in 2018 and 0.71 in 2020). Combining the productivity figures for the cliff plots and the boulder plot to give an indication of overall productivity on Skokholm can be achieved in two ways, either by averaging the final values obtained for the three sites, as recommended in the Seabird Monitoring Handbook (Walsh *et al.*, 1995), or by combining all of the data from the three plots (that is to say by dividing the total number of jumplings at all sites by the total number of monitored sites). The former, preferred, technique produces a productivity estimate of 0.50 jumplings per pair, as does the latter. The 2024 estimate is up on that recorded in five of the last 11 years and close to a 2013-2023 mean of $0.51 \pm se\ 0.04$, albeit well down on highs of 0.66 in 2013, 0.69 in 2018 and 0.64 in 2022 (the lows during this period were of 0.23 in 2015 and 0.39 in 2016, both calculated prior to the establishment of the less variable and more sheltered North Gully plot).

In an effort to ascertain the pattern of colony attendance, near daily counts were made at three of the plots throughout the breeding season (see chart below). There were again fluctuating numbers in all three subcolonies following the usual count period and regular peaks when the totals were augmented by the return of partners, failed adults, successful females or non-breeding birds; interestingly these peaks were again broadly consistent between subcolonies, suggesting that returning auks respond to the same environmental cues (as is often the case, the peaks also coincided with increases in Guillemot numbers). The first jumpling had departed the productivity plots by 17th June, this one day earlier than the first of last year, but one day later than the 2015-2023 mean (during this period the first productivity plot chick jumped between the 8th and 26th

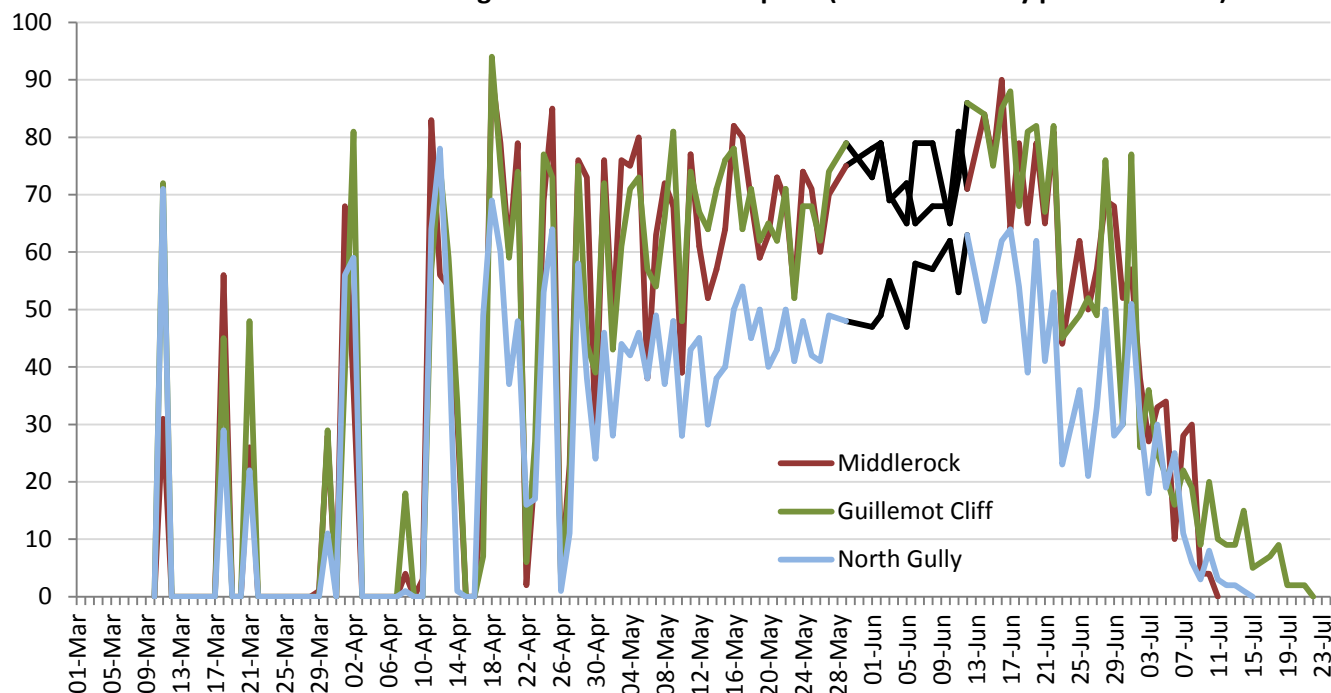
June). The number of adults within the three plots declined during late June, with only double-figure totals logged from 2nd July (the 2014-2023 mean is 4th July, ranging between 30th June in 2019 and 10th July in 2018) and single-figure counts from 15th July (the 2014-2023 mean is 14th July, ranging between 9th July in 2019 and 2022 and 18th July in 2014, 2018 and 2023). For a 12th year running, the last of the breeding attempts within the boulders were concluded before the last of the attempts on the cliffs; all of the study chicks at the Bluffs had departed by 2nd July, whilst five of 34 attempts were still active at the Neck plot on 4th July and five of 40 attempts were still active at North Gully on the 5th. The last seemingly successful North Gully chick jumped between the 9th and 10th July and the last at the Neck jumped by the 21st. Across the Island there were 15 adults ashore on 21st July and single-figure counts from the 23rd until the 26th, with three in Little Bay on the latter date the last to be seen on land; the 2013-2023 mean last adult ashore date is 27th July, with the earliest lasts logged on 24th July in 2015, 2016 and 2017 and the latest on 2nd August in 2018.



There were sightings of Razorbill at sea on seven August dates, with all counts being of six or less bar the 52 logged on the 20th; although an August bird-days total of 73 was down on a 2013-2023 mean of 138.9, the peak daycount was only down on that logged in two previous years (a record August daycount of 159 took the 2020 tally to a record 575). Counts on 12 September dates, with highs of 26 on the 12th, 185 on the 19th and 32 on the 26th, led to a bird-days total of 305, this the sixth highest September tally to date; six of the seven highest September bird-day totals have been recorded in the last eight years, with a peak of 1708 logged in 2017. October counts were low for a third straight year, with birds noted on 11 dates and highs of only 20 on the 17th and 77 on the 23rd taking the bird-days total to 143; the peak October daycount was down on a 2013-2023 mean of 139.1, the bird-days total down on a mean of 342.6 recorded during the same period (there was an all-time high of 1224 in 2019). November counts were well below average, with sightings on seven dates including a high of just six on the 28th which took the total to 17; the 2013-2023 peak November daycount mean is 39.2, the mean bird-days total for the same period being 96.2. There were no Razorbill seen ashore for a 12th successive November, this seemingly an auk behaviour confined to Guillemot during the early winter period. Further large auks were present at sea during the autumn, but they remained unidentified due to their distance from the Island; there were 1219 in September (36.2% up on a 2013-2023 mean of 894.9), 2231 in October (37.5% up on a 2013-2023

mean of 1622.1), 3983 in November (this only down on the 3985 of 2019 and the 4674 of 2022) and 970 in the first two days of December (with an all-time December daycount high of 840 on the 1st).

The number of adults on ledges within three of the plots (standard survey period in black).



Ringling recovery M93635

Originally ringed as a pullus, SKOMER ISLAND, PEMBROKESHIRE 24th June 1999

Previously Recovered as an adult, THE DENTS, SKOKHOLM 27th April 2018

Previously Recovered as an adult, THE DENTS, SKOKHOLM 19th May 2023

Recovered as an adult, THE DENTS, SKOKHOLM 22nd April 2024

Finding condition Metal ring read in field

Distance travelled 4km at 163 degrees (SSE)

Days since ringed 9069

The only other Razorbills to be retrapped or resighted this year were K30857, ringed as an adult on 20th June 2015 and not retrapped until 11th June this year, and K41909, ringed as a pullus on 3rd June 2019 and not resighted until 11th June this year.

Puffin *Fratercula arctica*

Pâl

Very Abundant Breeder

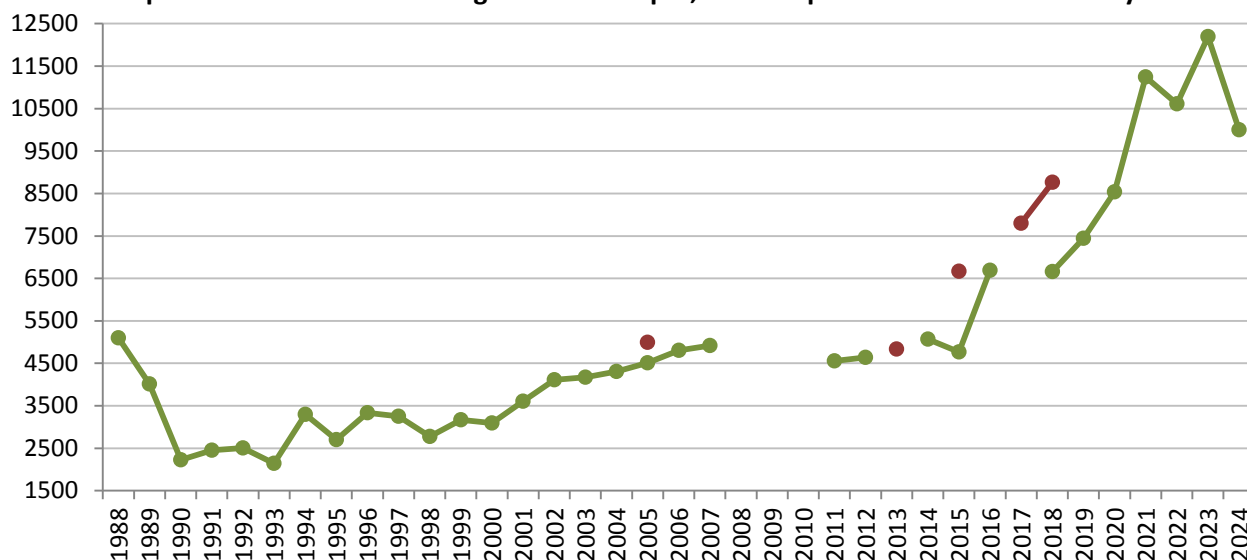
160 trapped (including 43 pulli), 4 retrapped, 207 resighted

1936-1976: 5412 trapped, 2011-2023: 840 trapped, 37 retrapped, 2286 resighted, 2 controls

A late return of staff meant that the 316 logged on 11th March was the first count of the year; there have nevertheless only been 474 earlier March bird-days, with 204 on the 9th in 2021 the highest daycount during this period (the 2013-2023 first three-figure daycount mean date is 16th March, with the earliest on the 3rd last year, the latest on the 31st in 2014). There were sightings on all but three subsequent March days, with 2322 on the 16th matching the third earliest four-figure daycount (the 2013-2023 first four-figure daycount mean date is 21st March, with a count of 1730 on the 12th last year the earliest, a count of 3491 on 4th April 2014 the latest). The first small landfall also occurred on 16th March, with four seen leaving South Haven burrows; this was the second earliest landfall to date, one day later than the first of 2022 and eight days earlier than the 2013-2023 first landfall mean (the latest during this period landed on 6th April 2013). A March bird-days total of 35,964 was only down on the 43,349 of 2022; the six highest March bird-day totals have occurred in

the last six years, with further highs of 29,098 in 2021 and 29,915 in 2023. Daily counts were made from the Neck during each spring evening between 2013 and 2019, this to record the pattern of colony attendance and to help select suitable times for whole Island surveys (see the 2013-2019 Seabird Reports for charts showing attendance around the Neck), whilst the impetus for subsequent whole Island surveys has been an assessment of the number rafting in and around South Haven.

The maximum Puffin daycount recorded each spring during the period 1988-2024. Green points represent counts made during March and April, maroon points counts made in May.



Although whole Island counts would certainly have been in five figures on both occasions, surveys on the 25th and 30th March were abandoned due to rough seas and rain rendering counts inaccurate; a minimum of 2463 were around the Neck on the latter date, this the lowest total of the last five years, with 2270 in 2019 the most recent lower tally for this area. An unfortunate combination of rough seas, inclement weather and the sporadic attendance of birds meant that subsequent evenings were also unsuitable. Apparent range expansions this year included three amongst coastal rocks to the south of Winter Pond on 8th June and a minimum of three fish provisioned burrows on

the slope above the southeast corner of the Quarry in early July, whilst one east over South Pond on 29th June was a very rare over Island sighting. Puffins again nested in the new Crab Bay Hide; for the first time an egg was visible in one of the one-way glass boxes, with laying witnessed on 7th April and hatching on 16th May, the youngster departing by 25th June. Every group of guests had the opportunity to join staff in the dark room and witness events at the nest (photograph below). Nine active Puffin sites and a successful Manx Shearwater nest were recorded in the fabric of the new building, this including a burrow excavated by Puffins in the roof last year; two burrows were destroyed during the construction process (see the introduction to the 2022 Annual Report for information on the construction and the 2023 Seabird Report for notes on the initial occupation).

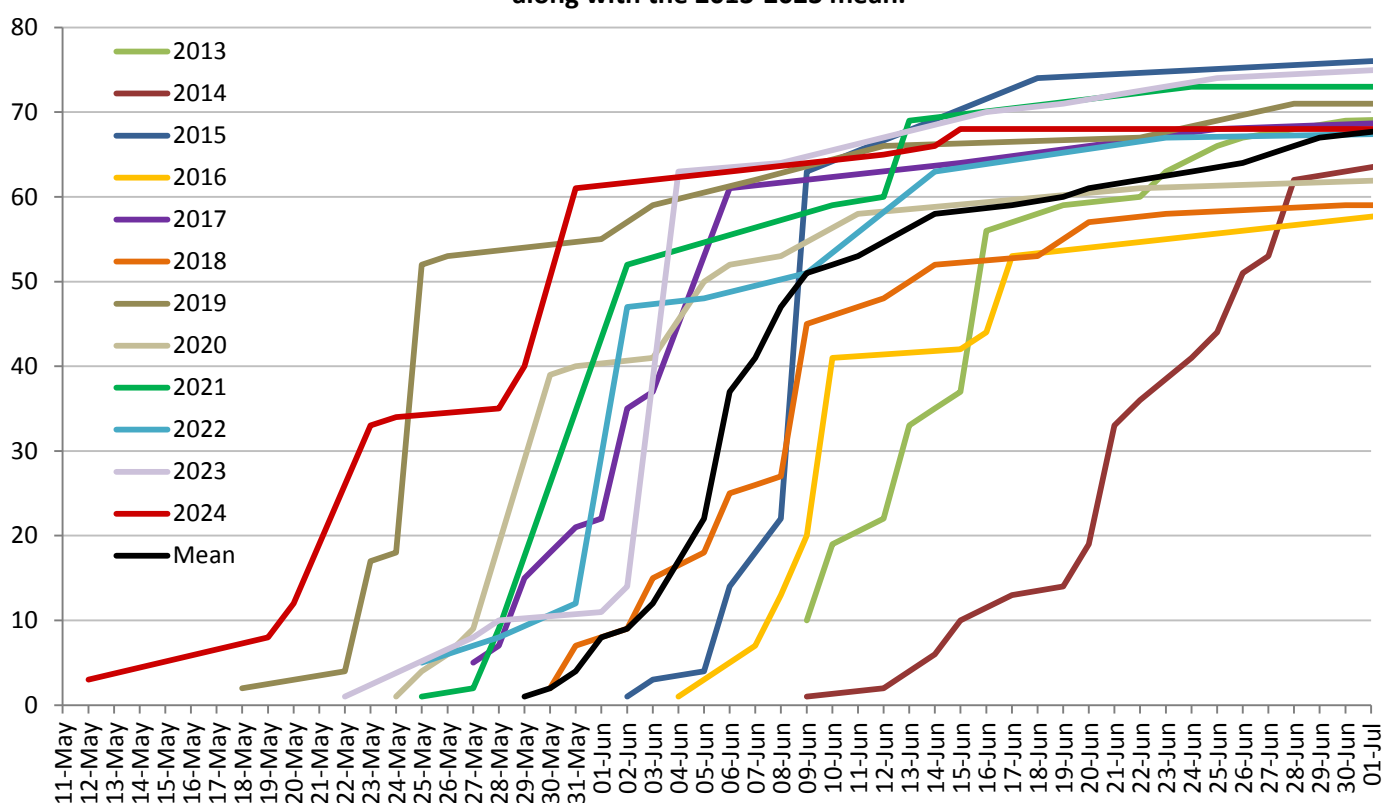


A productivity plot established at Crab Bay in 2013 was used for a 12th season. Of 90 marked non-bifurcating burrows, 76 were seen to be occupied and were visible throughout the season (71 in 2023); productivity estimates are based on observations of these burrows. Chick provisioning was first witnessed on 11th May, these the earliest fish deliveries ever recorded on Skokholm; the 2013-2023 mean first delivery date is 24th May, with the earliest during this period logged on the 14th in 2019, the latest on 3rd June in a post-wreck 2014. There were 25 Crab Bay deliveries recorded on the 12th, these including three to different plot burrows; the date of the 2013-2023 mean first Crab Bay plot fish delivery is 29th May, this five days after the whole Island mean (in 2020 the first plot delivery was on the same date as the first delivery anywhere, whereas in 2013 it was ten days later, the graph below giving the first plot delivery dates logged in previous years). The first daylight hours watch showed that 49% of study burrows had been provisioned by 23rd May, the 2024 chick feeding period approximately four weeks earlier than in 2014 (the breeding season which followed the most severe winter storms recorded during this study). The breeding season is seemingly getting earlier; six of the seven earliest chick provisioning periods between 2013 and 2023 have occurred in the last seven years. There were 11 active burrows (14.47%) not seen to be provisioned with fish and it is assumed that these failed at egg stage (the 2013-2023 mean is 6.54%, with a low of 2.82% in 2021 and a high of 14.71% in 2022).

Although the study plot was visited regularly following the first recorded fish delivery, it certainly cannot be assumed that the first and last fish provisioning was seen for each burrow. Indeed the daylight hours Puffin watches highlight how some burrows are provisioned infrequently (see table below). Additionally it proves difficult to standardise ad hoc recording effort between years. It was

thus decided in 2016 that a three visit method would be used to calculate productivity on Skokholm, but that five visits and ad hoc records would still be amassed to allow further comparisons to be made in the future (see the 2016 Seabird Report for more details). This is more in line with the Seabird Monitoring Handbook (Walsh *et al.*, 1995) which states that, when monitoring Puffin productivity in colonies where the nest is inaccessible and the colony is shared with Manx Shearwaters, the most appropriate technique is ‘When birds are feeding large chicks, make a few watches to determine which burrows/crevices have fish taken down them’. Establishing when burrows contain large chicks is inevitably the main issue with this technique, necessitating earlier watches to detect chick hatching dates (which since 2013 have varied by nearly a month). Whereas five daylight hours watches were performed in each year between 2014 and 2019 and between 2021 and 2023, a COVID-19 dictated staffing shortage meant that the five 2020 watches each lasted from 0430-1700hrs only; this year the watches again lasted all of the hours of daylight.

The number of study burrows which had been provisioned with fish by a particular date each year, along with the 2013-2023 mean.



The number of fish deliveries to known active burrows seen during five daylight watches.

No. of deliveries	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
No. of burrows 23 May	5	3			5	4	8	4	1	1	1					
No. of burrows 31 May	8	2	8	8	9	7	6	3	4	3	2					
No. of burrows 15 June	3	2	6	6	2	4	8	12	10	4	3	2	1	2		
No. of burrows 28 June	6	5	7	7	8	4	6	2	4	3	1	3		1	1	
No. of burrows 10 July	10	9	2	2	2	1	1						1			

Puffins can fledge having spent 34 days as a burrow-bound chick, although this is more typically 38 days and can be anything up to 60 days (Ferguson-Lees *et al.*, 2011). A flaw with the three visit technique is that some chicks were counted as fledged when they had reached as little as 24 days old (see table below). However it would be incorrect to assume that only those provisioned on all three watches went on to fledge; early hatchers could potentially have departed by the third watch, whilst others may have hatched after the first watch. Although this three visit technique is more

standardised than ad hoc recording, the 2013 to 2023 productivity estimates of between 0.72 and 0.80 fledglings per pair include birds which did not fledge; there have been examples most years of chicks already counted as having fledged which were either eaten or found dead, although this was not the case this year. This technique also misses fledglings in some years, with apparently successful chicks known to hatch after the second watch (which were thus recorded on only one of three watches and assumed to have failed). Nevertheless this more standardised monitoring suggests that a 2024 productivity figure of 0.75 was similar to that seen in recent years (the 2013-2023 mean is 0.76 ± 0.01). If the ad hoc records are included and it is assumed that a chick seen to be provisioned for 31 days or more was of fledging size, then the 2024 data suggests that, of the 76 monitored attempts, perhaps only 50 were successful (0.66 fledglings per pair); the 2013-2023 mean ad hoc productivity figure is 0.56 ± 0.02 , with a previous high of 0.64 in 2016 and 2020 and a low of 0.49 in 2013. At least 57 attempts saw a chick reach a minimum of 26 days (75.0% or 0.75 chicks per pair, see second table below), this up on the 0.62 of last year.

Calculating productivity using three daylight watches. The first watch was between 23rd May and 28th June (dependent on the date of first fish delivery that year), the second between 11th June and 8th July and the third between 28th June and 24th July. Chicks are assumed to have fledged if fed on a minimum of two watches. Ad hoc productivity is based on a chick reaching 31 days and the mean is that from 2013-2023.

	First fish in plot	Last fish in plot	Fed watch 1 & 2	Min. chick age	Fed watch 2 & 3	Min. chick age	Fed all 3 watches	Min. chick age	Prod. based on 3 watches	Ad hoc prod.
2024	12 May	19 Jul	29	24 (23/5 - 15/6)	25	26 (15/6 - 10/7)	3	49 (23/5 - 10/7)	0.75 (57 of 76)	0.66
2023	22 May	26 Jul	39	22 (4/6 - 25/6)	5	22 (25/6 - 16/7)	12	43 (4/6 - 16/7)	0.79 (56 of 71)	0.52
2022	25 May	25 Jul	31	22 (2/6 - 23/6)	7	21 (23/6 - 13/7)	11	42 (2/6 - 13/7)	0.72 (49 of 68)	0.53
2021	25 May	24 Jul	38	23 (2/6 - 24/6)	11	20 (24/6 - 13/7)	8	42 (2/6 - 13/7)	0.80 (57 of 71)	0.62
2020	24 May	14 Jul	3	13 (30/5 - 11/6)	16	22 (11/6 - 2/7)	33	34 (30/5 - 2/7)	0.78 (52 of 67)	0.64
2019	18 May	24 Jul	19	19 (25/5 - 12/6)	9	17 (12/6 - 28/6)	29	35 (25/5 - 28/6)	0.76 (57 of 75)	0.55
2018	30 May	30 Jul	20	22 (9/6 - 30/6)	11	18 (30/6 - 17/7)	15	39 (9/6 - 17/7)	0.75 (46 of 61)	0.56
2017	27 May	30 Jul	33	20 (6/6 - 25/6)	6	18 (25/6 - 12/7)	16	37 (6/6 - 12/7)	0.80 (55 of 69)	0.57
2016	04 Jun	13 Aug	7	16 (17/6 - 2/7)	3	13 (2/7 - 14/7)	38	28 (17/6 - 14/7)	0.73 (48 of 66)	0.64
2015	02 Jun	05 Aug	16	14 (18/6 - 1/7)	2	12 (1/7 - 12/7)	42	25 (18/6 - 12/7)	0.75 (60 of 80)	0.55
Mean	29 May	30 Jul							0.76	0.56

The number of days between the first and last observed chick feeding based on ad hoc recording and five daylight watches.

Days	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-52
No. of burrows	3		1	2	2	7	1	20	22	7

The five daylight watches were also used to monitor kleptoparasitism. The study plot was confined to the area of the 90 numbered burrow stakes at Crab Bay. On 23rd May 471 Puffins arrived to the study area with fish and of these just two (0.42%) were successfully robbed. On 31st May 958 arrived

and 41 (4.28%) were robbed. On 15th June 1435 arrived and 23 (1.60%) were robbed. On 28th June 994 arrived and 27 (2.72%) were robbed. On 10th July 181 arrived and 11 (6.08%) were robbed. These figures do not take into account the number of fish lost to gulls at sea or on the approach to the colony. The total number of deliveries witnessed over the five watches was 4039, this down on the 4499 of last year but the second highest tally to date. In terms of the percentage of deliveries lost over the study plot, a five visit mean of 2.57% was the fourth lowest of the last 12 years, down on a 2013-2023 mean of 3.50%. Over the five 2024 watches, 0.35% of deliveries were taken by Lesser Black-backed Gull (the lowest proportion of the last 11 years), 0.62% were taken by Great Black-backed Gull (the fifth lowest) and 0.17% were taken by Herring Gull (the second highest, only down on the 0.91% of last year). Jackdaw were not seen to take fish during plot watches between 2013 and 2017 and only took between 0.03% and 0.09% of deliveries between 2018 and 2021, however they have since taken more, with a high of 1.44% recorded this year.

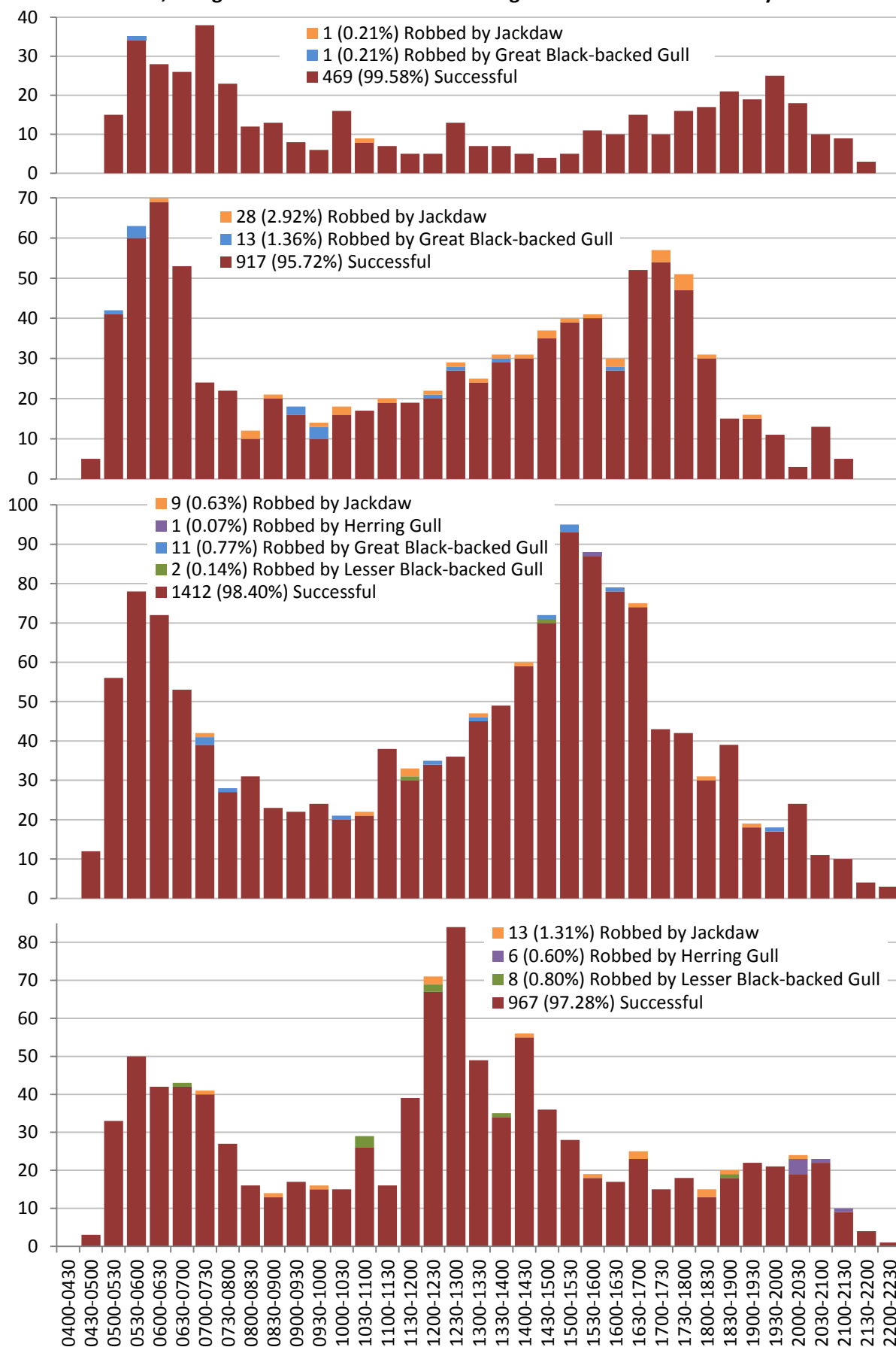


The total number of fish deliveries recorded over five watches of the Crab Bay Puffin Plot 2014-2024 and the total number stolen by gulls and corvids (the latter also given as the proportion of the total taken by each species). The mean is that for 2014-2023.

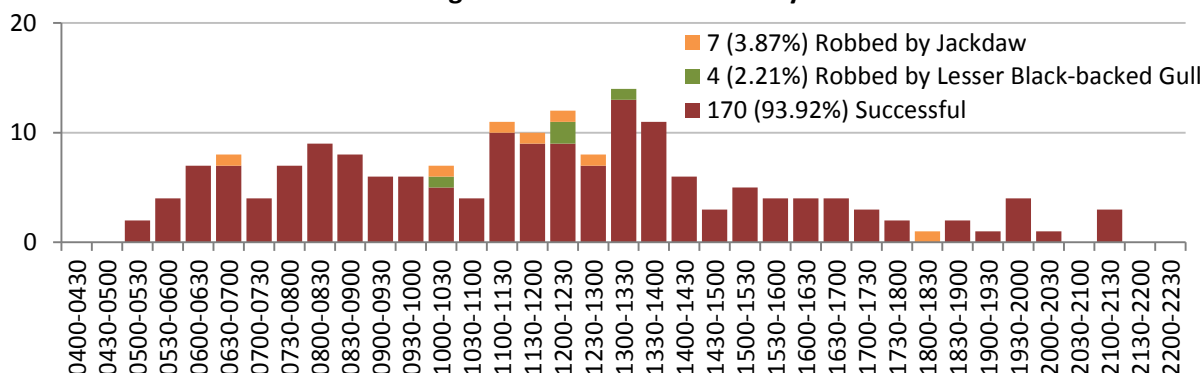
	Total Deliveries	Number Parasitised	Parasitised (%)	By LBBGU	By GBBGU	By HERGU	By JACKD	By CROW	By RAVEN
2024	4039	104	2.57	0.35	0.62	0.17	1.44		
2023	4499	169	3.76	0.93	1.44	0.91	0.42	0.04	
2022	3292	57	1.73	1.03	0.39		0.30		
2021	3824	49	1.28	0.78	0.42	0.03	0.05		
2020*	2339	77	3.29	2.09	1.11		0.09		
2019	2669	80	3.00	2.25	0.67		0.04		0.04
2018	2950	80	2.71	2.17	0.51		0.03		
2017	3639	56	1.54	1.13	0.38			0.03	
2016	3057	138	4.51	3.63	0.82	0.07			
2015	3186	114	3.58	2.57	0.91	0.09			
2014	2267	98	4.32	2.60	1.72				
Mean	3172.2	91.8	2.97	1.92	0.84	0.11	0.09	0.01	0.00

*watches stopped at 1700hrs.

The number of chick provisioning attempts during daylight on the 23rd and 31st May and on the 15th and 28th June 2024, along with the number of times that gulls and corvids successfully robbed the fish.



The number of chick provisioning attempts during daylight on 10th July 2024, along with the number of times that gulls and corvids successfully robbed the fish.



A colour ringing project was begun at Crab Bay in 2011 to allow an estimate of adult survival to be made each year. There were 128 ringed in the first year, 166 between 2012 and 2014, 106 between 2016 and 2019 and 91 between 2021 and 2023; a further 27 adults were marked this year. The table below summarises the resighting data collected so far. What is apparent is that some birds are not seen every year, perhaps because they have not returned to the plot or probably because their rings have been missed. Indeed 26 were not seen for two years (including three which went missing for two years twice), 14 were not seen for three years, two were not seen for four years and two were not confirmed for five years. Additionally two were missing for nine years, with one due to ring loss (making it look like another bird) and one surprisingly photographed in 2023. We now know that when 220 were seen last year, at least 234 were alive; between 2013 and 2023 a mean of 90.47% of known live birds were seen each year. A 2023-2024 survival figure of 78.82% is thus likely to increase in the future. With 13 years of resighting data now available, we can start to look at fluctuations in survival over time. The percentage of birds surviving the winter during the period 2011 to 2023 has varied between 80.18% (2013-2014) and 96.51% (2012-2013), with only the 2014 and 2023 return rates being below 89% and a 2012-2023 mean of 91.60% $\pm$ sd 5.50. A flaw with this survival estimate is that colour marks were added to Puffins caught in flight, birds potentially resident in areas not visible to researchers; a better estimation of survival may therefore come from looking for birds previously seen in the field (thus discounting individuals in the year after ringing). The resulting survival estimates range from 80.12% (2013-2014) to 97.37% (2012-2013), with a 2013-2023 mean of 92.11% $\pm$ sd 5.78. One of the most striking features of these estimates is the substantial drop in survival noted after the severe 2013 to 2014 winter wrecks, however similarly poor survival has been observed in the last two years; it is tempting to suggest that HPAI may have impacted survival of late, although another year of resighting data will provide more confidence in recent estimates.



Survival in adult Puffins. An average survival figure for each year is based on the number of birds ringed in the preceding year plus the number of previously ringed birds known to be still alive, for example 217 birds (93.94%) are now known to have been alive in 2015, of a 2014 total of 231 (57 ringed in 2014 plus 174 (93+40+41) ringed previously and known to be alive). Survival after a one year establishment period means that birds have been seen within the study area before (and are therefore assumed to be located in visible positions); birds ringed in the preceding year are therefore excluded from the calculations as they may be occupying hidden areas of the colony.

	2011	2012	2013	2014	2016	2017	2018	2019	2021	2022	2023	Total	Survival after a year
Ringed	128	58	51	57	23	24	31	28	40	30	21	491	
Seen 2012	72											72	
Alive 2012	114											114	
% survival	89.06											89.06	-
Seen 2013	102	52										154	
Alive 2013	111	55										166	
% survival	97.37	94.83										96.51	97.37
Seen 2014	86	36	37									159	
Alive 2014	93	40	41									174	
% survival	83.78	72.73	80.39									80.18	80.12
Seen 2015	78	37	35	50								200	
Alive 2015	86	39	38	54								217	
% survival	92.47	97.50	92.68	94.74								93.94	93.68
Seen 2016	67	34	32	43								176	
Alive 2016	79	38	36	48								201	
% survival	91.86	97.44	94.74	88.89								92.63	92.63
Seen 2017	71	35	31	44	19							200	
Alive 2017	79	38	33	45	20							215	
% survival	100.00	100.00	91.67	93.75	86.96							95.98	97.01
Seen 2018	69	34	28	40	19	20						210	
Alive 2018	75	37	31	41	20	23						227	
% survival	94.94	97.37	93.94	91.11	100.00	95.83						94.98	94.88
Seen 2019	65	33	27	36	17	20	21					219	
Alive 2019	68	36	29	39	19	23	30					244	
% survival	90.67	97.30	93.55	95.12	95.00	100.00	96.77					94.57	94.27
Seen 2020	60	31	23	33	15	18	22	17				219	
Alive 2020	63	34	26	38	17	22	29	26				255	
% survival	92.65	94.44	89.66	97.44	89.47	95.65	96.67	92.86				93.75	93.85
Seen 2021	57	30	23	28	16	16	25	22				217	
Alive 2021	59	32	25	34	17	20	28	26				241	
% survival	93.65	94.12	96.15	89.47	100.00	90.91	96.55	100.00				94.51	94.51
Seen 2022	47	29	21	29	13	19	21	18	26			223	
Alive 2022	53	29	24	32	16	19	26	26	34			259	
% survival	89.83	90.63	96.00	94.12	94.12	95.00	92.86	100.00	85.00			92.17	93.36
Seen 2023	38	21	20	27	11	14	22	20	28	19		220	
Alive 2023	40	21	20	28	12	14	23	23	30	23		234	
% survival	75.47	72.41	83.33	87.50	75.00	73.68	88.46	88.46	88.24	76.67		80.97	81.47
Seen 2024	35	16	12	25	10	12	20	19	21	16	15	201	
% survival	87.50	76.19	60.00	89.29	83.33	85.71	86.96	82.61	70.00	69.57	71.43	78.82	79.49

Puffins were again taken regularly by Great Black-backed Gulls during the breeding season and checks of the Buzzard nest revealed fresh carcasses. Adult losses became rarer during the Puffling feeding period, dropped fish seemingly a sufficient deterrent. An adult Puffin shook a Puffling to death at Crab Bay on 26th May, the youngster then eaten by a Lesser Black-backed Gull. Exceptional numbers were ashore on the 8th and 9th July, with a minimum of 10,000 logged on the latter date, whilst the 16th was the first notably quiet day, with an almost empty Crab Bay. The last four-figure

daycount was logged on 24th July, two days later than the last of 2023, and raft counts remained in the hundreds until 29th July (between 2013 and 2023 the last three-figure daycount averaged 2nd August, with the earliest on 29th July 2020 and the latest on 6th August 2014). Daily August sightings to the 10th peaked at 39 on the 2nd and daycounts were in single figures from the 4th. The last fish delivery to be seen this year was made to a burrow above Dumbell Bay on 10th August, this two days later than the last of 2023, but one day earlier than the 2013-2023 mean; the latest last delivery recorded during this period was on 23rd August 2014, whilst one on 4th August 2019 was the earliest. One heading west off South Haven at 1230hrs on 10th October was the only autumn sighting, this becoming just the 14th year with a record in this month.



Storm Petrel *Hydrobates pelagicus*

Pedryn Drycin

Abundant Breeder a 2016 whole Island survey predicted 2383 occupied sites

637 trapped (including 43 pulli), 55 retrapped, 34 controls

1933-1976: 18,473 trapped, 2011-2023: 7162 trapped, 674 retrapped, 299 controls

Despite the sizable Skokholm breeding population and the significant amount of time dedicated to seawatching, Storm Petrels typically prove a rare sight at sea. Indeed the only 2024 at sea sighting was of one heading west off the Lighthouse, this during a moderate southerly at 0720hrs on 25th August. With the exception of a small number of incubating adults visible in shallow crevices or in nest boxes, all other sightings came at night, although birds occasionally called from holes during the day and vocal responses were elicited for monitoring purposes. The first record of the year was of one in Petrel Station box 11 at just after midnight on 20th April (recorded on camera), whilst the first field observation was of seven in flight at the Quarry on the night of the 24th. The Petrel Station cameras revealed that birds were absent during the day, with the first diurnal observation being of one in Quarry box B4 on 29th April; this was four days later than the first of last year, but five days earlier than the 2013-2023 mean (the earliest during this period was heard on 23rd April 2017 and the latest on 25th May 2013). One singing in flight over Migration Rocks on 25th May mirrored the 2023 observations; there were no records included for this area during the 2016 whole Island survey. The infrared viewing equipment again proved popular, producing peak nocturnal counts from the Quarry of at least 150 on 2nd June and 120 on 19th June and 3rd July.

Four playback transects established at the Quarry in 2010, along with plots in North Haven Gully and along two of the walls which radiate from the Farm, potentially provide a sound method for monitoring changes in the Skokholm population (see the 2013-2019 and 2021-2023 Seabird Reports

for full details). Unfortunately the COVID-19 dictated Island closure meant that there were insufficient staff to safely survey the boulder areas in 2020, however a check of the accessible crevices used for productivity monitoring found incubating adults at the vast majority of traditional sites. We were joined by two Long-term Volunteers for the full survey period this year, this allowing work to be completed in the usual period; ten visits were made to the study areas between 12th June and 16th July. An MP3 recording of male song was played into every crevice encountered along the transects, both numbered (and therefore used previously) and unmarked, with each active crevice being recorded and marked if new. It was first noted in 2013 how some marked crevices no longer fell within the two metre wide transects, an observation which prompted regular checks to assess the drift caused by (typically) small scale rock movements (and almost certainly in a small number of cases by erroneous measurements early in the project); it should be noted in future surveys that some marked crevices which were once within the two metre transects now lie outside of the survey area. The playback census this year again focused on the area delineated by marked burrows, although the results were then divided into those which fell within the two metre transects and those which fell just outside (see table below).

The total number of apparently occupied crevices (located over ten visits) responding to a recording of male song at each of the seven study sites. Numbers in parentheses are the totals from the 2m wide Quarry transects (as stipulated in the project guidelines) as opposed to the more wayward crevices monitored since the project's inception. There was no 2020 survey, the mean that for the period 2010-2019 and 2021-2023.

Year	North Pond Wall	Little Bay Wall	North Haven Gully	Quarry Transect 1	Quarry Transect 2	Quarry Transect 3	Quarry Transect 4	Quarry total	Total						
2024	7	19	17	14 (6)	16 [†] (9) [†]	11¥ (6)¥	47 (30)	88 (51)	131 (94)						
2023	9	13	17	15 (6)	15 [†] (8) [†]	12 (7)	61 (32)	103 (53)	142 (92)						
2022	9	18	19	16 (5)	18 [†] (9) [†]	17 (10)	57 (32)	108 (56)	154 (102)						
2021	9	17	16	17 (5)	15 [†] (7) [†]	14 (10)	43 (22)	89 (44)	131 (86)						
2019	10	23	12	18 (7)	18 [†] (9) [†]	13 (8)	44 (20)	93 (44)	138 (89)						
2018	6	13	11‡	15 (5)	15 [†] (10) [†]	12 (8)	49 (30)	91 (53)	121 (83)						
2017	7	20	15‡	15 (5)	13 [†] (7) [†]	10 (9)	47 (27)	85 (48)	127 (90)						
2016	6	15	17	9* (4)*	** **	11 (8)	41 (26)	61 (38)	99 (76)						
2015	7	17	17	14 (5)	21 (9)	12 (7)	42 (25)	89 (46)	130 (87)						
2014	9	12	13‡	14 (5)	18 (9)	18 (12)	37 (22)	87 (48)	121 (82)						
2013	8	15	22	14 (4)	15 (8)	10 (7)	46 (27)	85 (46)	130 (91)						
2012	5	9	21	12 (5)	8 (4)	10 (5)	33 (17)	63 (31)	98 (66)						
2011	7	5	19	11 (5)	13 (8)	10 (7)	25 (14)	59 (34)	90 (65)						
2010	4	9	18	8 (5)	15 (12)	11 (8)	30 (17)	64 (42)	95 (73)						
Mean	7.4	14.3	16.7	13.7	5.1	15.3	8.3	12.3	8.2	42.7	23.9	82.8	44.8	121.2	83.2

* Transect 1 was only visited on four occasions in 2016 due to safety concerns.

** Transect 2 was not visited in 2016 due to a rock fall.

† Transect 2 was shortened in 2017 due to the 2016 rock fall.

‡ There was substantial scouring in the winters of 2013-14 and 2016-17 and in October 2017.

¥ A small area of Transect 3, which held one site in 2023, was missed due to safety concerns.

Between 31 and 56 responses were elicited along the Quarry transects using MP3 playback in each of the years between 2010 and 2019 and between 2021 and 2023, although a substantial rock slide in 2016 significantly reduced the area which could be surveyed that year; Quarry Transect Two, which held between four and 12 responding birds, was almost entirely destroyed in 2016 and Quarry Transect One was undercut on its southern edge, rendering both transects too dangerous to survey (see the 2016 Seabird Report for photographs and further details). It would seem from the records that the 2016 Quarry rock fall was by far the largest such event for over 35 years. Visits to the Quarry

in 2017 established that there had been no further significant slides on any of the transects; the decision was made to reinstate Transect One entirely and to use the upper section of Transect Two, a situation which has remained the same since. It was decided in 2017 that all of the data previously collected for Transects One and Two would be compared directly with future years; no adjustments have thus been made for the fact that Transect Two was shorter from 2017 onwards and that Transects One and Two were missed in 2016. It was again apparent that there had been some very small winter rock slides, mainly along Transect Four, whilst a small overhanging area of Transect Three, which held one apparently occupied site in both 2022 and 2023, was avoided this year.



There is a general consensus that the number of pairs utilising the 18th century herringbone walls on Skokholm has declined (Vaughan and Gibbons, 1996; Vaughan, 2001; Thompson, 2003; Sutcliffe, 2010), perhaps due to a loss of suitable nest sites as vegetation and soil fills gaps in the collapsing walls. However standardised survey work over 14 of the last 15 years suggests that there have been no further declines, although clearly there is some variation in the number of responses elicited each year (perhaps in part due to fluctuations in the number of transient, non-breeding birds, rather than significant changes in the number of breeding pairs (Brown and Eagle, 2017)). This year saw four more wall responses than in 2023, with a combined North Pond Wall and Little Bay Wall total of 26 being up on the 2010-2023 mean ($21.7 \pm \text{sd } 6.1$); there were highs of 33 in 2019 and 27 in 2017 and 2022, lows of 13 in 2010 and 12 in 2011. Sadly a response was not elicited at North Pond Wall 9, this a crevice found to be active in each of the previous 13 years. Nevertheless it would seem that the Walls population can still be cautiously regarded as stable. The six holes excavated by hand in 2021 and 2022 were again not used.

The huge swell generated by Storm Ophelia in October 2017, the remnants of the easternmost major Atlantic hurricane on record, caused yet another scouring event in North Haven Gully. Nest boxes installed in 2014, the access ladder to the lower portion of the slope and the central section of boulder scree which traditionally held many active crevices were all destroyed, whilst the painted marker stones were again moved from their original locations. This was the third major change to the North Haven landscape in five years, a series of events which almost certainly contributed to a 38.9% decline in the number of occupied crevices located between 2010 and 2018. No further significant changes to the North Haven landscape have been observed since, although a small rock fall above the upper east portion of the gully has created additional sites. Nevertheless, recent

weather events releasing soil from further up the gully have seemingly reduced the overall number of open fissures suitable for nesting. How such a loss of available nest sites impacts the Skokholm population as a whole is unclear; it would seem likely that nest sites are available away from North Haven and that the birds were not impacted directly (as they were predominantly absent during the scouring events), however the impact of looking for new nest sites on adult survival and productivity is something of an unknown. There were 17 active sites discovered in North Haven Gully this year, this matching a 2010-2023 mean of $16.7 \pm \text{sd } 3.3$ and the 2015, 2016 and 2023 totals (the 19 of 2022 is the only higher tally since the 22 of 2013 (the first big scouring event during this study was in the winter of 2013-2014)).

The ephemeral nature of Storm Petrel nest sites was also evident at the Quarry where there were further small scale movements, particularly along Transect Four. A Transect One total of six matched that of last year as the second highest to date, only down on the seven of 2019. A Transect Two total of nine was one up on that of 2023 and close to a 2010-2023 mean of $8.3 \pm \text{sd } 1.9$, this despite the fact that the transect was shortened in 2017. A Transect Three total of six was one down on that of last year and the lowest since the five of 2012 (the 2010-2023 mean is $8.2 \pm \text{sd } 1.8$); an expanding Jackdaw population may be in part responsible for a drop from the ten active sites recorded in 2021 and 2022, whilst a small area was missed this year (see above). The 30 occupied crevices found along Transect Four over ten visits was two down on the high recorded in 2022 and 2023, albeit well up on a 2010-2023 mean of $23.9 \pm \text{sd } 5.8$. The overall Quarry total of 51 was two down on that of last year, but the fourth highest to date and 13.8% up on the 2010-2023 mean ($44.8 \pm \text{sd } 7.3$).

The number of crevices which have at some point been occupied over the 14 study years (a total of 412), subdivided to show how many years the crevices have been apparently occupied for and the percentage of crevices occupied for a particular number of years. Crevices in the lower half of Transect Two, not visited after the 2016 rock fall, are not included in this table.

	Quarry Transects	The Walls	North Haven Gully	Total	% of total
1 year of apparent occupancy	51	44	27	122	29.61
2 years of apparent occupancy	37	9	21	67	16.26
3 years of apparent occupancy	24	7	6	37	8.98
4 years of apparent occupancy	22	6	14	42	10.19
5 years of apparent occupancy	22	6	4	32	7.77
6 years of apparent occupancy	18	7	4	29	7.04
7 years of apparent occupancy	10	4	2	16	3.88
8 years of apparent occupancy	14	3	1	18	4.37
9 years of apparent occupancy	14	1		15	3.64
10 years of apparent occupancy	7	2	1	10	2.43
11 years of apparent occupancy	6	1		7	1.70
12 years of apparent occupancy	8	2		10	2.43
13 years of apparent occupancy	2	1		3	0.73
14 years of apparent occupancy	3		1	4	0.97
Total	238	93	81	412	

Overall there were 94 responses elicited this year, this the second highest tally to date, two more than last year and well up on a 2010-2023 mean of $83.2 \pm \text{sd } 10.7$; the total was eight down on a record 2022 (when there were two more active sites in North Haven, one more in the Walls and five more in the Quarry). It still seems likely that, over the last decade at least, the Skokholm study population has been stable at worst, a conclusion which is probably applicable to the Island population as a whole. This is positive news following what may have been a significant population decline between 1996 and 2010 (Sutcliffe and Vaughan, 2011; Wood *et al.*, 2017). One of the most important variables highlighted in recent years is nest site availability within the study areas; birds

can only react to the changing landscape and maintain a stable population if further nest sites open up as others are lost. It is clear that some Storm Petrel nest crevices are short lived (as shown in the table above, nearly a third of those found over the course of this study have only been occupied during a single year), however stable sites are also in existence; over 20% of the active crevices located during 14 years of study have shown signs of occupancy in seven or more years and 8.26% of crevices have contained a calling bird in ten or more years. Although changes in the positioning of rocks will mean that some crevices were only available for a single year, it is tempting to suggest that some of the crevices occupied only once are perhaps unsuitable nest sites (although they contained a calling bird, such sites may have never actually supported a breeding attempt).

The proportion of known active crevices which respond to a recording of male song during any single visit unsurprisingly fluctuates; there are several reasons for this, including the chance presence of birds of different sexes, individual variation in response rate, nest site positioning (which will influence how occupants hear the stimulus) and breeding status (non-breeders are perhaps more likely to leave a crevice unattended, to occupy multiple crevices during the study period or to respond at a different rate to breeding birds, whilst breeding status could also change during the survey period). The Walls saw an average of 9.1 (35.0%) of the 26 active sites respond per visit, although between five and 15 responded on a single visit. At North Haven a mean of 5.5 (32.4%) of 17 active sites responded, although between three and eight responded on a single visit. At the Quarry a mean of 22.5 (25.6%) of 88 active sites responded, but this was between 15 and 28 on any particular date. Despite this significant variation between dates, the mean response rates at the Walls, North Haven and the Quarry fell within the ranges observed between 2014 and 2023 (see table below). An average response rate for all sites of 28.3% was the fourth lowest to be observed in ten years and halted a recent increase; although it is unclear why, the three highest average response rates occurred between 2021 and 2023, the five highest between 2018 and 2023. The use of these response rates to produce a correction factor remains the best way to predict the number of birds present in a large area when ten visits are not logistically feasible (for example during the whole Island census). Based on data collected over ten years, the number of active sites present in an area is likely to be in the region of 3.25 times more than the number encountered on a single visit. However the variation seen in this year's figures is a reminder of how difficult it is to assess the population of a species which usually cannot be seen.

The percentage of known active crevices which responded to male song during any single visit, averaged across all ten visits, and the 2014-2024 mean (the resulting correction factors are given in parentheses). The extremes are in bold.

Year	The Walls	North Haven	Quarry	Rock fall	Average
2024	35.0 (2.86)	32.4 (3.09)	25.6 (3.91)	26.7 (3.75)	28.3 (3.53)
2023	31.4 (3.19)	37.1 (2.70)	34.5 (2.90)	34.8 (2.87)	34.3 (2.92)
2022	29.6 (3.38)	40.0 (2.50)	37.9 (2.64)	38.2 (2.62)	36.7 (2.73)
2021	34.2 (2.92)	36.9 (2.71)	32.1 (3.11)	32.9 (3.04)	33.1 (3.02)
2019	31.2 (3.20)	35.8 (2.79)	30.1 (3.23)	30.8 (3.24)	30.9 (3.24)
2018	22.6 (4.42)	31.8 (3.14)	32.6 (3.06)	32.5 (3.07)	31.0 (3.23)
2017	21.9 (4.58)	30.9 (3.23)	28.1 (3.55)	28.5 (3.51)	27.1 (3.69)
2016	40.0 (2.50)	25.9 (3.86)	23.3 (4.30)	23.9 (4.18)	27.7 (3.61)
2015	28.7 (3.48)	37.4 (2.68)	28.9 (3.46)	30.4 (3.29)	30.1 (3.33)
2014	36.2 (2.76)	40.0 (2.50)	26.2 (3.82)	26.4 (3.79)	28.1 (3.56)
Mean	31.1 (3.22)	34.8 (2.87)	29.9 (3.34)	30.5 (3.28)	30.7 (3.25)

There is a clear need to discover what the birds which respond to playback during the annual monitoring are actually doing; due to the fact that the majority of responding birds are hidden, it is unclear how many of these (and indeed how many of the 2383 occupied sites predicted during the

2016 whole Island census (Wood *et al.*, 2022)) are actually breeding (as opposed to non-breeders moving around potential nest sites or diurnal refuges unsuitable for nesting). Previous attempts to use an endoscope in natural sites have failed to locate a sufficiently large sample size for monitoring purposes. One way to improve our knowledge is to encourage petrels to occupy accessible artificial sites. With this in mind a study wall containing 119 nest holes was created in 2016 (with the final inspection hatches and endoscope holes added in April 2017). Ten visits were made to this 'Petrel Station' between 26th June and 11th July 2020 when an MP3 playback census was conducted (this within the standard period used for the transect survey). The ten visits elicited calls from three boxes, with a mean of 1.1 responses per visit and a mean apparent response rate of 36.67%. Confirmatory checks during the chick provisioning period revealed discrepancies between the playback results and the box contents; two of the boxes found to be active during the survey contained chicks, but one only contained a nest scrape, whilst a further three boxes from which responses were not elicited contained scrapes and six additional boxes contained egg stage failures by silent pairs. This has obvious implications for the whole Island census as evidently some active sites were not detected over ten visits (which would perhaps suggest that the Skokholm population is larger than estimated in 2016). It should be remembered that the Petrel Station was probably not then representative of the Island as a whole, primarily as the majority of occupants were likely to be younger, inexperienced birds. This theory is supported by the 2018-2020 productivity estimates (see table below), these figures well down on those seen elsewhere on the Island.



Visits to the Petrel Station during the 2024 chick provisioning period revealed that at least 44 boxes had contained a Storm Petrel at some point this year. Only nest scrapes were present in 32 of these

boxes, with 12 pairs having produced eggs (a new high). Eggs were abandoned in boxes 7, 69, 74 and 105, these all sites containing an egg for the first time. A chick in box 64 died during or close to hatching, a well formed skull and some feathers later visible through the cracked egg; a pair using this site had fledged a chick in each year between 2019 and 2023 and failed at egg stage in 2018. Chicks fledged from box 11 for a sixth straight year, box 12 for a fourth straight year and boxes 63 and 112 for a second consecutive year, whilst a fledgling from box 21 followed an egg stage failure last year. A pair fledged a chick from box 87 at the first attempt, this a site home to an empty scrape in 2022 and 2023, whilst a fledgling in box 115 was at a site seemingly not occupied in any previous year. Assuming that no eggs had been removed from the Petrel Station by the petrels or scavengers (a difficult task as there is a lip between the nest chamber and the access tunnel to each box), then productivity was 0.58 fledglings per pair, this down on that observed in the last three years and on that observed elsewhere (perhaps owing to the large increase in pairs producing eggs, some of which were no doubt less experienced). Sound recording equipment and eight cameras were again installed in the Petrel Station this year, these in boxes 11, 12, 21, 63, 64 (which quickly broke), 84, 106 and 112; courtship and mating, egg laying, incubation and chick feeding were again captured, as was some fascinating pebble tossing behaviour (the latter seen in both adults and chicks). The camera in box 112 recorded an intruder on three occasions between 0135hrs and 0247hrs on 8th July, a skirmish seeing the egg pushed to one side of the chamber and subsequently unincubated for over a week; amazingly the egg was eventually retrieved, hatched and the chick went on to fledge, albeit very late in the season (a near-fledgling was still present on 11th November).

A summary of Petrel Station contents 2018-2024.

	2018	2019	2020	2021	2022	2023	2024
Number of pairs that produced eggs	4	9	8	5	6	7	12
Number of pairs that fledged young	0	2	2	3	4	5	7
Productivity	0.00	0.22	0.25	0.60	0.67	0.71	0.58
Boxes with signs of occupancy	8	13	12	19	57	64	44



An increasing number of Petrel Station fledglings was sufficient inspiration for a Petrel Station II which was built near the Farm in autumn 2023, this containing 148 accessible nest chambers (see the introduction to the Skokholm Annual Report 2023 and the Skokholm Seabird Report 2023 for more details); the recycled plastic rear frame and access doors were added this April (photographs

above). An MP3 recording of a singing bird was regularly played from boxes 35 and 71, this no doubt in part responsible for sightings of up to five flying birds in the vicinity of the wall and records of birds calling from within the wall during 13 nights between 16th May and 26th June (from when the MP3 was abandoned). A 28th August check of Petrel Station II revealed ten nest scrapes in empty boxes and an abandoned egg in box 80; the latter had been destroyed by 14th September, with a sloughed Slow-worm skin lying next to the fragments.

There were 28 sites discovered this season where an incubating bird was evident early enough in the nesting period to allow for a productivity estimate, these including five Petrel Station boxes (the largest sample this decade was 25, with a 2014-2023 mean of 18.3). Although some very early egg stage failures may have been missed, the study is biased towards birds in shallow crevices or boxes and the sample size is far from great, these visible birds provide a rare opportunity to estimate productivity on Skokholm. The first eggshell fragments indicative of a hatched chick were discovered along Quarry Transect Four on 3rd July, this four days earlier than the 2015-2023 mean (the earliest chick during this period was discovered on 29th June 2019 and the latest on 26th July 2021). Seven of the monitored nest attempts failed; attempts in the Cottage Wall, in two old Quarry boxes and on Quarry Transect Three failed at egg stage, a chick died during hatching in Quarry box A8 and attempts in the Knoll Wall and the Well Wall failed at either egg or very small chick stage (the nest contents were not found, whilst a Manx Shearwater chick appeared in the latter site). The remaining 21 attempts were successful, the 2024 productivity estimate thus being 0.75 fledglings per pair; although down on that recorded between 2021 and 2023, this was up on a 2014-2023 mean of 0.65 $\pm$ 0.04 (there was a low of 0.45 in 2020, a high of 0.85 in 2022). Recent years have seen predominantly dry conditions which have no doubt benefitted small chicks left alone in relatively exposed sites. A late July visit by RSPB researchers discovered two new sites suitable for productivity monitoring in the future, but failed to find sufficient accessible nests to make a future tracking project viable.



Although only small numbers of accessible chicks are ringed each year on Skokholm, the tape luring of adult birds in South Haven is giving some indication as to their post-fledging survival (this coupled with a small number of controls from elsewhere). Of four birds ringed as chicks in 2013, one has been found subsequently, whilst three of 11 2014 chicks remains the highest return rate to date (see table below). Youngsters controlled elsewhere are a 2015 chick retrapped in Cornwall in 2018 and again in France in 2021, a 2016 chick retrapped on the nearby mainland in 2019, a 2018 chick

retrapped in Cornwall and then Wexford in 2021, a 2021 chick retrapped in Gwynedd in 2023 and a 2021 chick retrapped in Donegal in 2023. Of the 139 Storm Petrel ringed as chicks between 2013 and 2021, 20.1% have been seen again. Of the 32 youngsters now encountered subsequently, 19 were first found two summers after fledging (including one also seen three summers after), 11 were first found three summers after fledging (including one also seen six summers after and one also seen four, seven and ten summers after) and singles were first found in their fourth and fifth summers. Of the 11 ringed in the Petrel Station between 2019 and 2022, four have been seen again, this including the chicks ringed in box 11 in 2019, 2020 and 2021, all potentially siblings and all encountered in 2023. A further 68 youngsters were ringed in 2023, birds which we would not expect to encounter in their first summer, and 46 were ringed this year (43 as pulli, three as Skokholm fledglings).

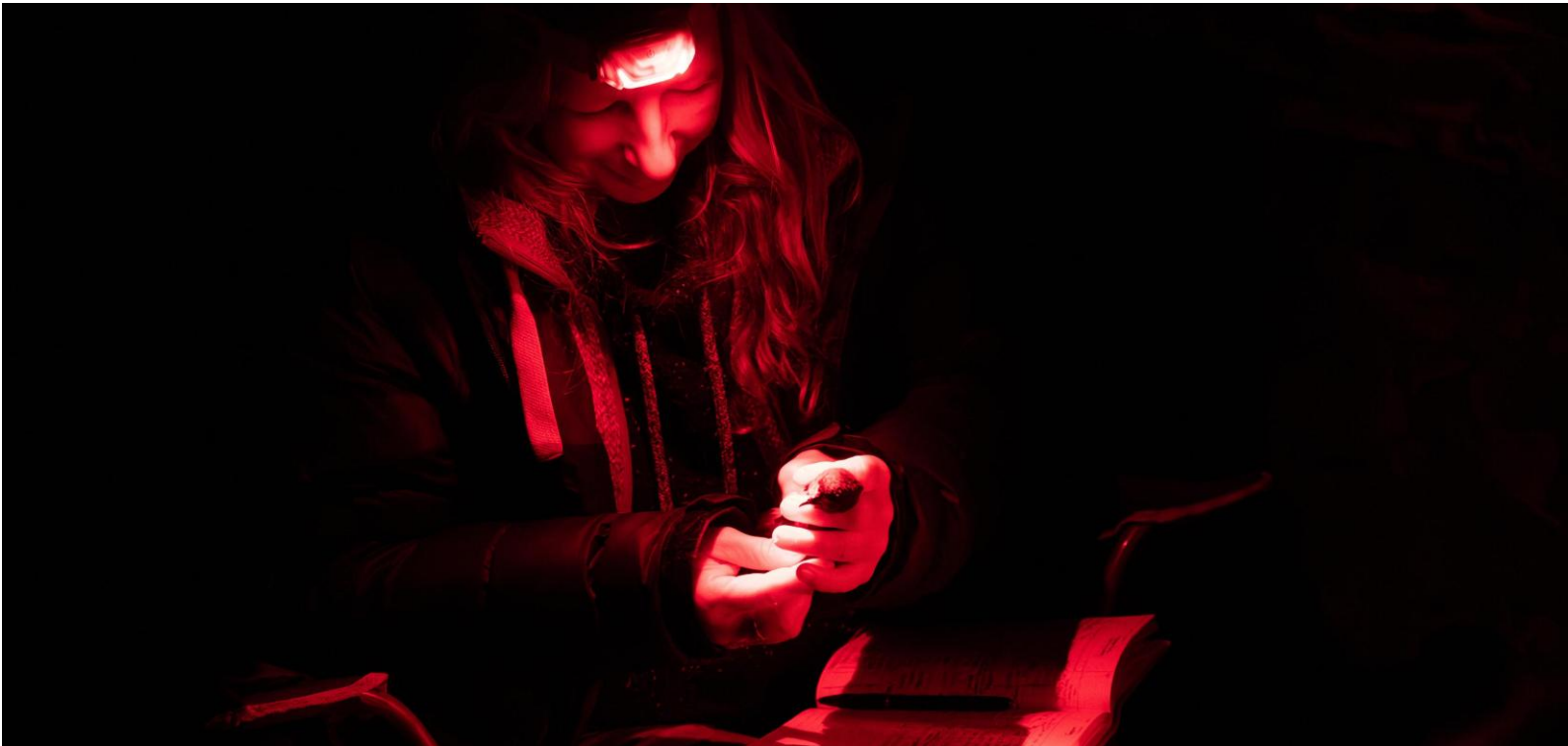
The ringed Storm Petrel chicks subsequently reencountered as adults.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Number of chicks ringed	4	11	17	6	6	15	24	15	41	33
First reencountered after 2 years	1	1	2		1		4	1	5	4
First reencountered after 3 years		2	2	1		2		2	2	
First reencountered after 4 years							1			
First reencountered after 5 years							1			
Total reencountered	1	3	4	1	1	2	6	3	7	4
% of ringed chicks reencountered	25.0	27.3	23.5	16.7	16.7	13.3	25.0	20.0	17.1	12.1



In 2013 a thermal imaging camera recorded a Short-eared Owl hunting Storm Petrels in the Quarry, an event which has subsequently been shown to be quite regular. The remains of six petrels were found that year, with 16 in 2014, 18 in 2015, 51 in 2016, 98 in 2017 (the only year on record in which Short-eared Owls have been proven to breed), 31 in 2018, five in 2019, three in 2020, 39 in 2021, five in 2022 and eight last year; the majority of these were thought to be the victims of Short-eared Owls, usually due to the presence of feathers or pellets. There were 22 Short-eared Owl bird-days logged this season, this down on a 2013-2023 mean of 32.4 (there was a high of 76 in 2017 and a low of 16 in 2020). The remains of three adult Storm Petrel were located this year, with one below a Quarry Jackdaw nest on 12th June, a wing near the Table on 15th September and a fresh pellet

containing 2722741, also on 15th September (a bird ringed here as an adult on 11th August 2017); between 2013 and 2023 there was an annual mean of 25.4 $\pm$ sd 28.8 dead birds logged (see above). There were again no Little Owl records (the last was seen on 17th March 2018); this introduced species is a well-documented Storm Petrel predator, for example the 1936 Skokholm Bird Observatory Report includes details of a Little Owl nest containing the remains of nearly 200 petrels. In 2019 a House Mouse was watched via a live infrared camera feed as it entered Petrel Station burrow 64; it was seen to walk to the end of the entrance tunnel but did not drop down into the chamber or interact with the resident Storm Petrel chick, indeed neither seemingly reacted to the other's presence. There is as yet no evidence that the Skokholm mice take eggs or chicks, even those abandoned following failed nest attempts.



Adult Storm Petrels were lured to the traditional South Haven netting site on 11 nights between 10th July and 19th August, whilst there was a single night of ringing in Crab Bay on 4th August; this was four fewer ringing nights than conducted last year (the 2013-2023 mean is 11.1 nights, with a high of 16 last year and a low of seven in 2020 and 2022 (these impacted by COVID-19 and Avian Influenza)). The largest catch was of 128 birds in Crab Bay, with 22 trapped in South Haven on the same night, whilst the largest South Haven catch was of 125 birds on the night of 10th July; this was the third lowest peak South Haven catch of the last 12 years, down on a 2021 high of 267 and on a mean of 179.6 $\pm$ sd 64.7. Subsequent catches peaked at 87 on the night of 12th July, 69 on the nights of the 13th and 23rd and 98 on the night of the 27th. There were 680 adults handled across the Island this year, this down on a 2013-2023 mean of 715.5 and on six of the years during this period (there were highs of 937 in 2015, 1065 in 2018 and 1286 in 2021). Of those handled, 13.1% were already wearing a ring (the mean during the period 2013-2023 was 11.2%, with a high of 21.5% in 2021 and a low of 6.7% in 2014); these included two ringed as adults in 2017, 2018 and 2020, singles ringed as adults in 2021 and 2022, eight ringed as adults in 2023, 31 ringed as adults this year and eight ringed as chicks (one in 2014, one in 2019, two in 2021 and four in 2022), whilst 34 (5.00%) had been ringed elsewhere (the 2013-2023 mean is 3.94%, with a high of 5.54% last year and a low of 2.58% in 2022). Since ringing fully recommenced in 2013 we have now received news of 597 Storm Petrels either ringed on Skokholm and found elsewhere or ringed elsewhere and controlled on Skokholm; of these 399 have been exchanged with sites more than 10km away from the Island (see map below).

Long-term Volunteer Judith Kay compared a list of every Skokholm ringed seabird encountered elsewhere (as given in the Seabird Reports between 2013 and 2023), with a list of those seen on Skokholm (excluding colour ring resightings); the only bird to have been ringed on Skokholm, encountered elsewhere and then retrapped back on Skokholm was Storm Petrel 2740951, ringed as an adult in South Haven on 23rd July 2019, controlled on Bardsey Island, Gwynedd on 24th July 2020 and retrapped in South Haven on 22nd July 2021. Unless stated otherwise, all of the following recoveries were of birds deliberately mist netted.

Ringing recovery 2547860

Originally ringed as an adult, GREAT SALTEE ISLAND, WEXFORD, IRELAND 14th June 2023

Recovered as an adult, SOUTH HAVEN, SKOKHOLM 13th July 2024

Distance travelled 102km at 119 degrees (ESE)

Days since ringed 395

2547890, ringed as an adult on 16th June 2023, made the same journey, reaching Skokholm on 11th July after 391 days. There have now been four Great Saltee ringed birds found in two years (along with another in 2014).

Ringing recovery 2637378

Originally ringed as an adult, WOOLTACK POINT, MARLOES, PEMBROKESHIRE 5th July 2017

Recovered as an adult, NORTH POND WALL, SKOKHOLM 1st August 2024

Distance travelled 6km at 203 degrees (SSW)

Days since ringed 2584

Ringing recovery 2685475

Originally ringed as an adult, SOUTH HAVEN, SKOKHOLM 20th July 2014

Previously recovered as an adult, LUNDY ISLAND, DEVON 19th July 2023

Recovered as an adult, LUNDY ISLAND, DEVON 13th July 2024

Distance travelled 69km at 142 degrees (SE)

Days since ringed 3646

Additionally 2705568, ringed as an adult in South Haven on 31st July 2015, was controlled at Lundy on 13th July after 3270 days. 2740097, ringed as an adult in South Haven on 15th July 2018, was controlled at Lundy on 31st July after 2208 days. 2785351, ringed as an adult in South Haven on 13th July, was controlled at Lundy on 19th July after six days. 2775462 and 2775469, ringed as adults on Lundy on the 7th and 8th July 2024, made the reverse journey, reaching Crab Bay on 4th August and South Haven on 12th August after 28 and 35 days respectively.

Ringing recovery 2685691

Originally ringed as an adult, SOUTH HAVEN, SKOKHOLM 23rd July 2014

Recovered as an adult, ILLAUNTANNIG, OILEÁNT SEANAIGH, KERRY, IRELAND 14th August 2024

Distance travelled 331km at 283 degrees (WNW)

Days since ringed 3675

This was the oldest Skokholm Storm Petrel to be confirmed elsewhere this season. Additionally 2774732 and 2785471, ringed as adults in South Haven on 7th August 2023 and 23rd July 2024, were retrapped on Illauntannig on 5th July and 11th August after 333 and 19 days respectively. There were no Storm Petrel exchanges with County Kerry between 2013 and 2023, but four this year (see below for one found in a Great Skellig gull pellet).

Ringing recovery 2699257

Originally ringed as an adult, PORTLAND BILL, DORSET 24th July 2023

Recovered as an adult, CRAB BAY, SKOKHOLM 4th August 2024

Distance travelled 237km at 304 degrees (NW)

Days since ringed 377

Additionally 2699290, 2699291 and 2699293, all ringed at Portland as adults on 3rd July 2024, made the same journey, the former reaching South Haven on 28th July after 25 days and the latter two reaching South Haven on 13th July after ten days (2699291 and 2699293 were both processed at 0130hrs at Portland, whilst the former was processed on Skokholm at 0130hrs and the latter at 0150hrs; it is tempting to imagine them travelling around the coast of Britain together).

Ringing recovery 2706064

Originally ringed as an adult, SOUTH HAVEN, SKOKHOLM 23rd July 2016

Previously recovered as an adult, SKOMER ISLAND, PEMBROKESHIRE 22nd July 2021

Previously recovered as an adult, SKOMER ISLAND, PEMBROKESHIRE 17th July 2022

Recovered as an adult, SKOMER ISLAND, PEMBROKESHIRE 18th July 2023 (sic)

Distance travelled 4km at 343 degrees (NNW)

Days since ringed 2551

Additionally 2722885, ringed as an adult in South Haven on 22nd July 2018, was retrapped on Skomer on 17th July 2023 (sic) after 1821 days. 2746166, ringed as an adult in South Haven on 17th July 2019, was retrapped on Skomer on 20th July 2023 (sic) after 1464 days. 2758584, ringed as an adult in South Haven on 17th July 2021, was retrapped on Skomer on 18th July 2023 (sic) after 731 days. 2774240, ringed as an adult in South Haven on 23rd July 2022, was retrapped on Skomer on 22nd July 2023 (sic) after 364 days. 2774451, ringed as an adult in South Haven on 17th July 2022, was retrapped on Skomer on the 18th, 20th and 26th July 2023 (sic) after 366, 368 and 374 days. The 2023 Seabird Report stated that there was only one exchange with Skomer that year; it is now apparent that this was not the case, rather the records were not submitted to the BTO (the lack of any 2024 records may also reflect unsubmitted data). Between 2013 and 2023 there were 26 encounters with Skomer ringed birds on Skokholm and 63 encounters with Skokholm ringed birds on Skomer.



Ringing recovery 2720285

Originally ringed as an adult, GALLEY HEAD, CORK, IRELAND 12th July 2024

Recovered as an adult, CRAB BAY, SKOKHOLM 4th August 2024

Distance travelled 252km at 87 degrees (E)

Days since ringed 23

Additionally 2754100 and 2754202, ringed as adults at Galley Head on the 13th and 18th July 2024, were retrapped in South Haven and Crab Bay on 30th July and 4th August respectively (both after 17 days).

Ringing recovery 2739421

Originally ringed as an adult, STRUMBLE HEAD, PEMBROKESHIRE 18th July 2023

Recovered as an adult, SOUTH HAVEN, SKOKHOLM 10th and 13th July 2024

Distance travelled 40km at 202 degrees (SSW)

Days since ringed 358 and 361

Additionally 2739449 and 2787212, ringed as adults at Strumble Head on 26th July 2023 and 13th June, were retrapped in South Haven on the 14th and 28th July after 354 and 45 days respectively. 2787231, ringed as an adult at Strumble on 1st July, was retrapped in South Haven on the 11th and 28th July after ten and 27 days. 2787240, ringed as an adult at Strumble on 10th July, was retrapped in Crab Bay on 4th August after 25 days. 2787249 and 2787257, ringed as adults at Strumble on 11th July, were retrapped in South Haven on 12th July and in Crab Bay on 4th August after 46 hours and 24 days respectively. 2787270 and 2787275, ringed as adults at Strumble on 13th July, were retrapped in Crab Bay on 4th August and in South Haven on 28th July after 22 days and 15 days respectively. 2787300 and 2787322, ringed as adults at Strumble on the 15th and 29th July, were both retrapped in Crab Bay on 4th August after 20 days and six days respectively. 2788714, ringed as an adult at Strumble on 8th July, was retrapped in South Haven on 28th July after 20 days. 2774902, ringed as an adult in South Haven on 20th July 2023, made the reverse journey, reaching Strumble on 13th July after 359 days.

Ringing recovery 2758940

Originally ringed as an adult, SOUTH HAVEN, SKOKHOLM 27th July 2021

Recovered as an adult, COPELAND ISLAND, DOWN, NORTHERN IRELAND 18th June 2023 (sic)

Distance travelled 334km at 358 degrees (N)

Days since ringed 691

Ringing recovery 2758989

Originally ringed as an adult, SOUTH HAVEN, SKOKHOLM 28th July 2021

Recovered as an adult, GREAT SKELLIG, KERRY, IRELAND 9th July 2024

Finding condition Ring found in a fresh gull pellet

Distance travelled 361km at 272 degrees (W)

Days since ringed 1077

Ringing recovery 2774971

Originally ringed as an adult, SOUTH HAVEN, SKOKHOLM 26th July 2023

Recovered as an adult, BARDSEY ISLAND, GWYNEDD 27th July 2024

Distance travelled 125km at 16 degrees (NNE)

Days since ringed 367

Additionally 2785341, ringed as an adult in South Haven on 13th July, was controlled at Bardsey on 27th July after 14 days. 2788611 made the reverse journey; having been ringed as an adult at Bardsey on 15th August 2023, it was controlled in South Haven on 28th July after 348 days. Whilst the majority of Storm Petrels controlled on Skokholm have been ringed to our south, primarily in Cornwall, Devon and Dorset, the majority of birds ringed on Skokholm are controlled to our north. Skokholm ringed birds have now been controlled at Bardsey Island on 42 occasions since 2013, with the next highest tallies being of 30 at Lundy, ten at both Little Saltee and Gwennap Head and nine at both Porth Iago and the Calf of Man.

Ringing recovery 2780599

Originally ringed as an adult, GWENNAP HEAD, PORTHWARRA, CORNWALL 4th July 2022

Previously recovered as an adult, SOUTH HAVEN, SKOKHOLM 7th August 2023

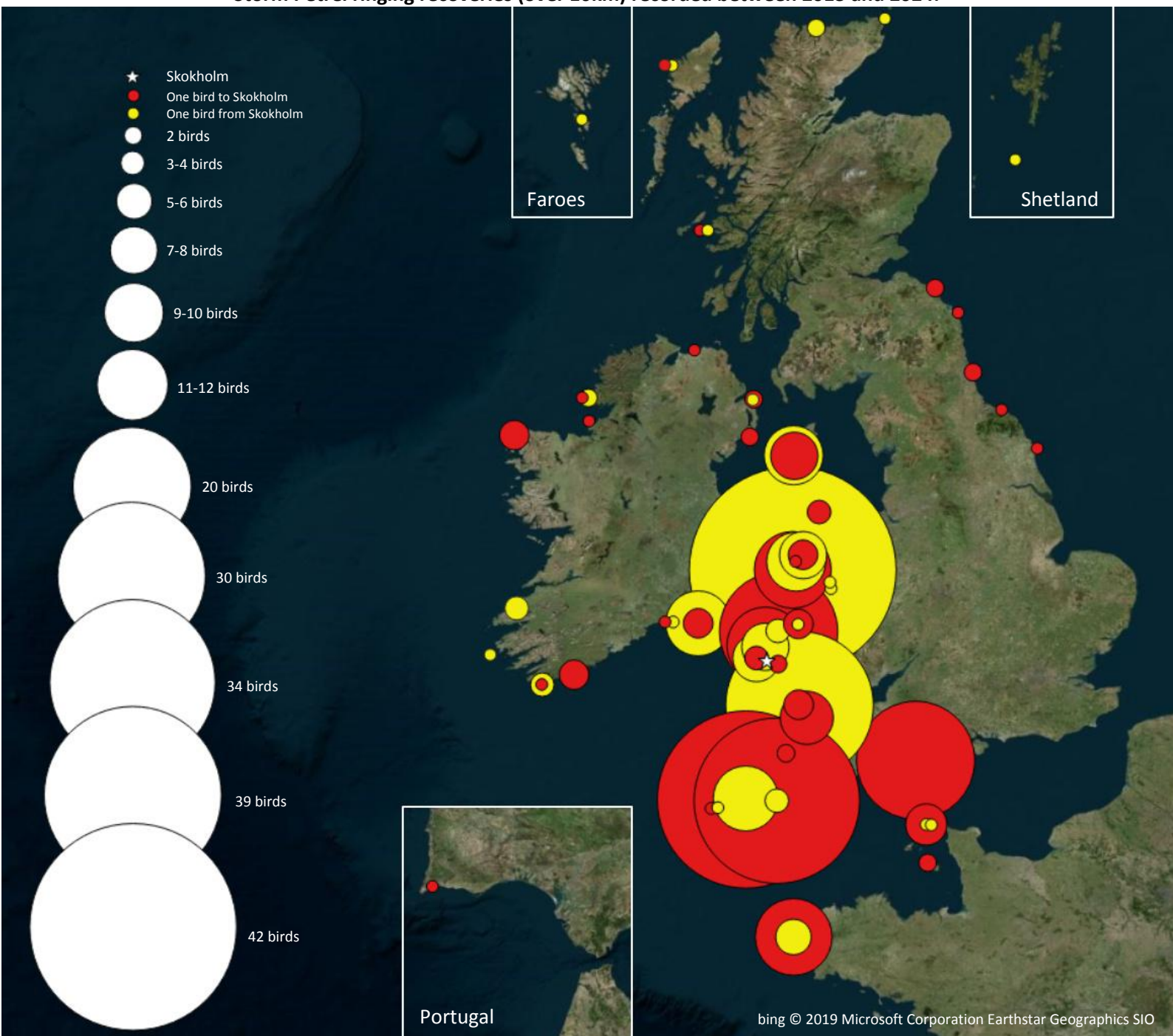
Recovered as an adult, SOUTH HAVEN, SKOKHOLM 28th July 2024

Distance travelled 185km at 9 degrees (N)

Days since ringed 755

Additionally 2780743, ringed as an adult at Gwennap Head on 16th June 2023, was in South Haven on 23rd July after 403 days. 2780817, ringed as an adult at Gwennap Head on 18th July 2023, was in South Haven on 28th July and in Crab Bay on 4th August after 376 and 383 days respectively.

Storm Petrel ringing recoveries (over 10km) recorded between 2013 and 2024.



Ringing recovery 2784106

Originally ringed as an adult, MANGARSTADH, LEWIS, WESTERN ISLES 16th July 2024

Recovered as an adult, CRAB BAY, SKOKHOLM 4th August 2024

Distance travelled 731km at 171 degrees (S)

Days since ringed 19

This is the first to be ringed at this spectacular Scottish site and controlled on Skokholm, however a Skokholm ringed bird made the reverse journey between 2018 and 2021.

Ringling recovery 2785073

Originally ringed as an adult, SOUTH HAVEN, SKOKHOLM 22nd August 2023

Recovered as an adult, MALIN BEG, GLEANN CHOLM CILLE, DONEGAL, IRELAND 7th July 2024

Distance travelled 404km at 325 degrees (NW)

Days since ringed 320

This is the second Skokholm ringed bird to reach Malin Beg following one ringed as a 2021 chick and controlled in Ireland on 5th August 2023. An Irish ringed bird made the reverse journey in 13 days in 2019.

Ringling recovery CIJ P13082

Originally ringed as an adult, BURHOU ISLAND, ALDERNEY, CHANNEL ISLANDS 15th June 2008

Recovered as an adult, SOUTH HAVEN, SKOKHOLM 30th July 2024

Distance travelled 305km at 316 degrees (NW)

Days since ringed 5889

This was the oldest Storm Petrel ring found this season; the oldest ring encountered last year was applied to an adult at Gwennap Head, Cornwall in July 2002 and the oldest of 2022 applied to an adult at Sheepland Harbour, Down in August 2009.



Ringling recovery FRP SE44734

Originally ringed as an adult, ILE DE BANNeg, LE CONQUET, FINISTÈRE, FRANCE 6th July 2022

Recovered as an adult, SOUTH HAVEN, SKOKHOLM 24th July 2024

Distance travelled 363km at 358 degrees (N)

Days since ringed 749

The commune of Le Conquet is home to Banneg, the largest Storm Petrel colony in France, an island believed to support just under 1000 pairs which primarily nest in abandoned Rabbit burrows. Interestingly this nesting habitat was not found to be in use on Skokholm during the 2016 whole Island census (although in 2019 birds were found calling from a small area of burrows to the west of Dip Gully). There have now been 12 Banneg ringed individuals found on Skokholm since 2013, whilst five Skokholm ringed birds have been found there.

Fulmar *Fulmarus glacialis*

Fairly Common Breeder first bred in 1967

1 pullus trapped

1968-1976: 19 trapped, 2017-2023: 9 pulli trapped

Aderyn-drycin y Graig

Birds were ashore on every March date from the return of staff on the 10th; Fulmar were absent from the cliffs on an average of 2.5 March dates between 2016 and 2023, with some ashore on every date in 2021 but absent on six dates in 2022 and on two dates last year (staff were present for the whole month in these years). A 16th to 31st March daycount mean of 74.7 was up on a 2013-2023 mean of 61.2 (indeed it was only down on the 85.0 of 2018 and the 78.7 of 2021), however a peak March daycount of 125 on the 15th was the lowest since the 111 of 2020. There were 16 April daycounts of 70 or less (eight last year), including lows of 22 on the 1st, 30 on the 9th (when only ten were ashore) and 36 on the 30th, whilst seven three-figure daycounts (eight last year) took the bird-days total to 2112 (this down on a 2013-2023 mean of 2525.5 and the lowest since 2013). Counts remained low in early May, with no more than 42 logged each day between the 1st and 12th, this pre-laying exodus mirroring that seen in recent years (there were lows of 12 on the 6th and 8th and 14 on the 10th, with daycounts increasing to 58 on the 14th, 76 on the 15th and 102 on the 17th). The first egg to be seen was on Little Bay Point on 11th May, this seven days earlier than the 2013-2023 first egg mean and the earliest on record (the latest first egg during this period, found on 28th May 2014, followed prolonged and severe storms during the preceding winter, whilst the last six years have been the six earliest of the last 12 years, with an egg on 14th May 2022 the earliest prior to 2024).



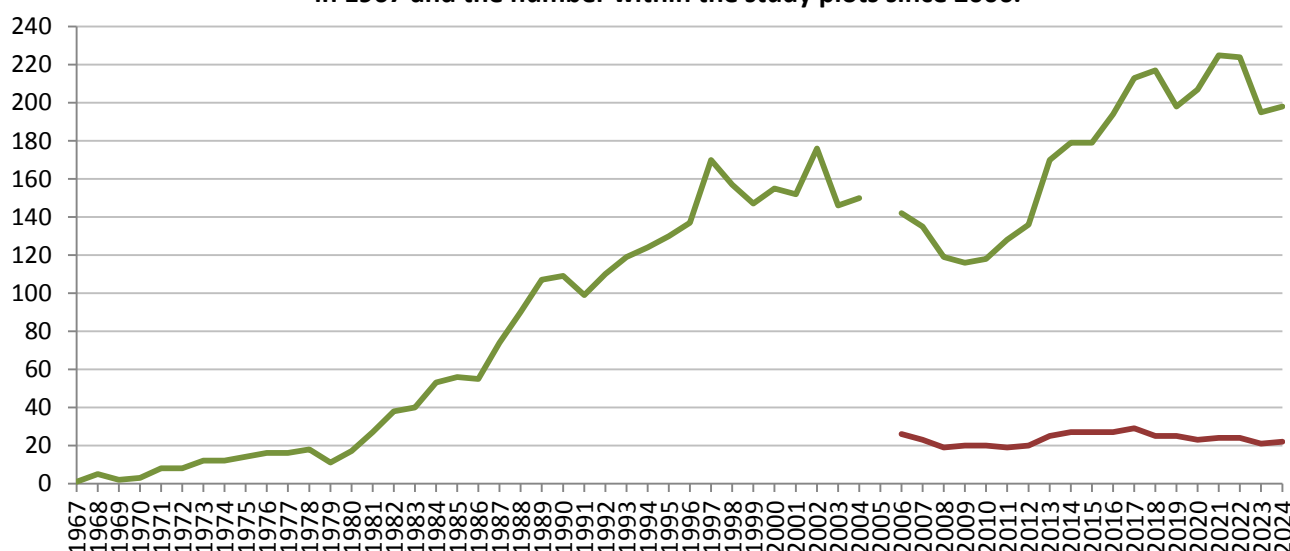
The six study plots counted annually since 2006 were visited on ten dates between 29th May and 12th June, this a relatively dry period during which predominantly light winds blew almost entirely from the northwesterly quarter; some survey periods are far less clement, for example the 2020 and 2021 seasons saw May storms and huge seas which inevitably influenced Fulmar ledge attendance (the standard deviation recorded across ten visits usually being higher in rougher years (see below)). A 2024 average of 22 apparently occupied sites was one up on last year, albeit seven down on the 2017 record and down on both a 2014-2023 mean of 25.20 $\pm$ sd 2.35 and a 2006-2023 mean of 23.56 $\pm$ sd 3.11. The mean total at Little Bay dropped to 11, this a new low; the number of occupied ledges has declined from a high of 19 in 2013 to 18 in 2014 and 2017, 17 in 2015, 16 in 2016, 14 between 2018 and 2020, 13 in 2021 and 12 in 2022 and 2023; although 2019 saw one of the lowest plot averages, it was the year in which the area which contains this plot saw the highest number of

apparently occupied sites (see map below), whilst this year the count for this area mirrored the plot (with the lowest total of the last decade). The Middlerock mean remained at five, this matching the 2015, 2017, 2020 and 2023 totals as the lowest since the four of 2014. The Guillemot Cliff mean increased to six, this a new high up on the five logged in nine of the last ten years. Up until the 2017 season, only these three plots had contained birds, however a hollow in the top third of the North Gully auk colony was occasionally occupied in three of the years between 2017 and 2020 (the overall mean was only changed in 2017); a Fulmar was again in the North Gully plot on 5th June this year.

The whole Island totals (apparently occupied sites), mean plot totals, the range of totals over ten study plot visits, the standard deviation observed over the ten visits and the percentage of the Island total made up of study plot birds 2013-2024.

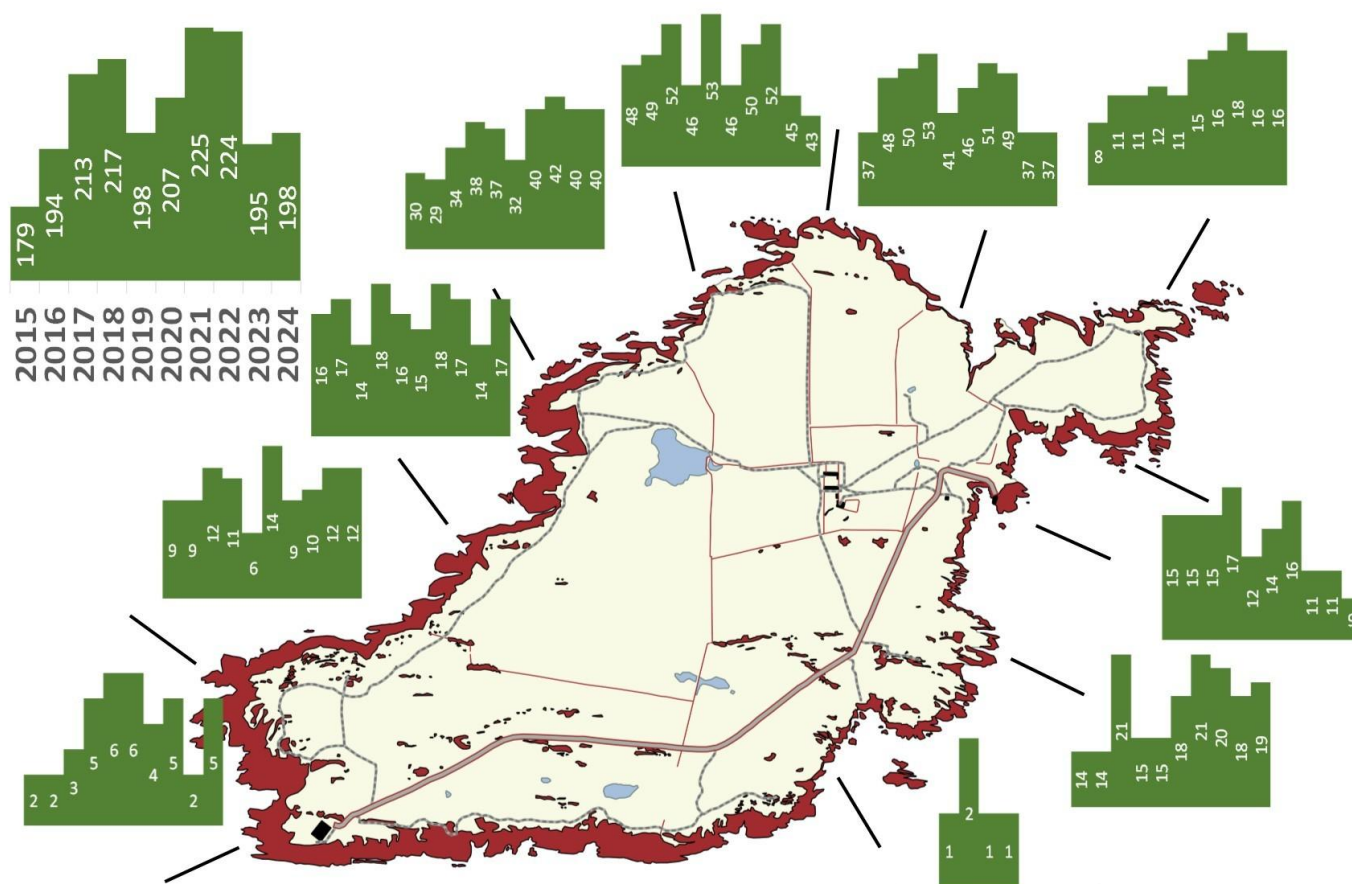
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Island	170	179	179	194	213	217	198	207	225	224	195	198
Plots	25	27	27	27	29	25	25	23	24	24	21	22
Range	22-28	23-29	26-29	25-29	26-31	23-27	23-27	19-27	21-27	20-27	20-24	20-25
±SD	2.07	1.79	1.14	1.26	2.00	1.26	1.35	2.27	1.90	2.10	1.26	1.69
Plot %	14.7	15.1	15.1	13.9	13.6	11.5	12.6	11.1	10.7	10.7	10.8	11.1

The total number of apparently occupied Fulmar sites recorded on Skokholm since breeding began in 1967 and the number within the study plots since 2006.



The whole Island counts undertaken between 30th May and 13th June yielded an average of 198 apparently occupied sites, this three up on last year's mean and matching that of 2019 as the sixth highest total to date. Nevertheless, the 2024 total was 2.5% down on a 2014-2023 mean of 203.10 $\pm$ sd 16.86, this only the tenth time on record in which the total has been down on the mean of the preceding decade, with the same occurring in 2003, annually between 2006 and 2012 and last year. There was a decline in numbers in two of the occupied coastal sections, with the means for both the area between Little Bay and Little Bay Point and Peter's Bay dropping by two to new lows (the latter perhaps in some way connected to the poor productivity commonly recorded in this area (see below)). The mean in four areas was the same as that recorded last year, whilst there were increases of three in both the vicinity of the Quarry and between Purple Cove and Twinlet (where the totals both matched the third highest to date) and of one in Hog Bay (where the total was the fourth highest to date). The 2024 whole Island count includes approximately 30 pairs which would be difficult or impossible to see from the Island itself (birds seen from a boat to the west of North Gully, in Little Bay, on the Little Neck and in hidden crevices between Smith's Bay and Little Bay Point); the drop in numbers observed between 2006 and 2012 may perhaps thus be linked to a lack of boat access, although the study plots broadly mirrored the dip in the Island total. The proportion of the Island total made up of study plot pairs was 11.1% this year; although up on that recorded in each of the last three years, this was still 21.8% down on the 2006-2023 mean (14.2% $\pm$ sd 2.5), matched the fourth lowest proportion to date and was probably an indication that the plots are not representative of the Island as a whole (perhaps due to a lack of space for expansion, although up to eight more pairs have been resident in the Little Bay plot previously). The plots are nevertheless useful as they give an indication as to how the number of occupied ledges varies during the whole Island count period; they thus serve as a reminder that the population could be somewhat different to that deduced during a comparatively low number of visits.

The distribution of apparently occupied Fulmar sites 2015-2024.



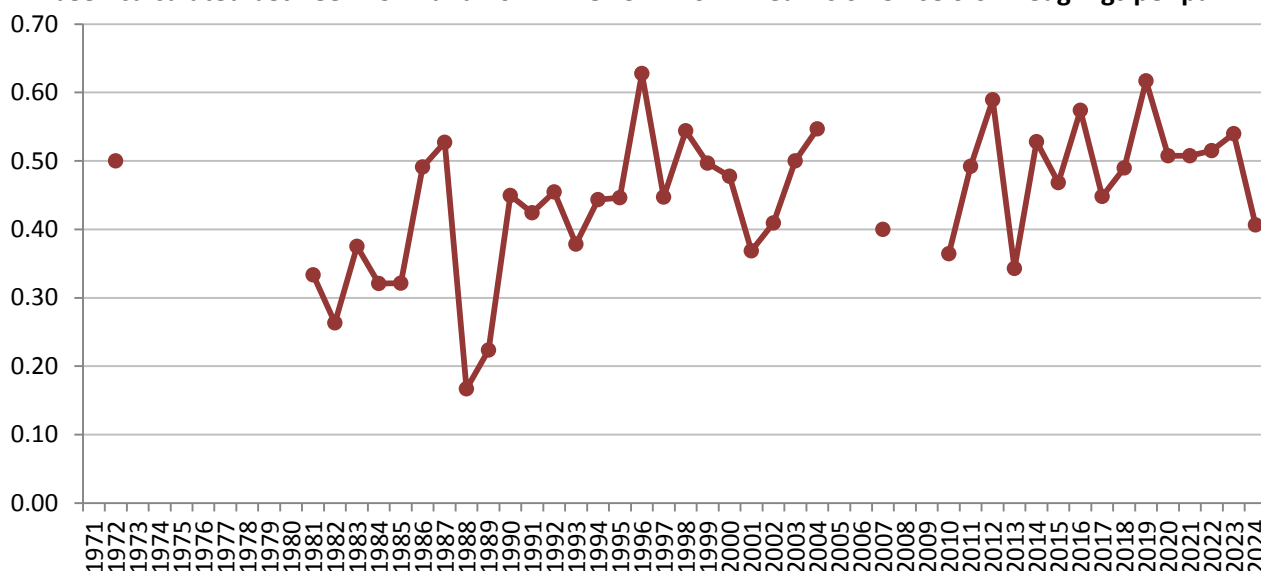
From 11th May, 64 incubating pairs were selected for productivity monitoring (ten at Twinlet, 13 at North Gully and the Dents, 15 in Little Bay, 11 on Little Bay Point, seven at Rat Bay, one in Hump Bay and seven in Peter's Bay); birds seen with eggs or those apparently incubating for ten consecutive days were included in the sample (thus more birds were initially monitored but were soon discovered not to be incubating). There were six early egg stage failures (an adult with a bloody face and closed eye was present at one of these sites on 27th May and 4th June), seven failed over two weeks before the first eggs hatched, five failed within a week of the first eggs hatching and one egg was abandoned after the majority of neighbouring pairs had chicks; there were thus 19 definite egg stage failures. An additional 17 failures became apparent at the time when the eggs of neighbouring pairs were hatching, however the nest sites were found to be empty; none of these sites were seen to contain abandoned eggs, hatched eggshell or dead chicks (the contents were thus removed by either the parents, by other Fulmars visiting abandoned ledges, by predators or by scavengers). A chick on Middlerock went missing within 12 days of it first being seen and the earliest known 2024 chick, first seen at Little Bay Point on 27th June, was missing by 9th July. No large chicks died in the productivity plots this year.



Of the 64 monitored breeding attempts, just 26 (40.63%) were successful; a productivity estimate of 0.41 fledglings per pair is 8.9% down on the post-1972 average of $0.45 \pm se 0.02$, 21.2% down on a 2014-2023 average of $0.52 \pm se 0.02$ and the lowest since the 0.34 of 2013. Although the whole Island total of apparently occupied sites matched the sixth highest to date, this below average productivity leads to a predicted 80 Skokholm fledglings in 2024; this is the lowest predicted total since the 58 of 2013, down on a 2013-2023 mean of 101.1 and highs of 122 in 2019 (when there were also 198 apparently occupied sites but monitored productivity was 0.62) and 115 in 2022 (when there were 224 apparently occupied sites and productivity was 0.52). Poor productivity at Peter's Bay in nine of the years between 2013 and 2023 influenced the overall estimates; Peter's Bay productivity in 2013 was 0.06 (compared with 0.34 overall), in 2014 it was 0.40 (0.53 overall), in 2015 it was 0.18 (0.47 overall), in 2017 it was 0.31 (0.45 overall), in 2018 it was 0.36 (0.49 overall), in 2020 it was 0.33 (0.51 overall), in 2021 it was 0.30 (0.51 overall), in 2022 it was 0.44 (0.52 overall) and in 2023 it was 0.25 (0.54 overall). The 2016 season saw 0.54 fledglings per pair, a total virtually identical to the overall value of 0.57, and 2019 saw 0.60 fledglings per pair, a total virtually identical to the overall value of 0.62. The reason for this near annual discrepancy is unclear, as is what linked the more successful 2016 and 2019 seasons; neither environmental factors, predation pressure nor the behaviour of the birds themselves have been obviously different at this site. Five of the seven pairs monitored at Peter's Bay failed this year, all at or after the time that neighbouring eggs were

hatching; a productivity value of 0.29 fledglings per pair was up on the 0.23 recorded at North Gully and the 0.27 recorded at Little Bay Point, but was down on 0.40 at Twinlet, 0.57 at Rat Bay, 0.60 at Little Bay and 1.00 at Hump Bay (where there was just one attempt). Poor North Gully productivity was at least in part due to Great Black-backed Gull W:401 which was eating a chick on 13th July.

Fulmar productivity (total number of fledged young per monitored pair) in each year that it has been calculated between 1972 and 2024. The 1972-2024 mean is 0.45 $\pm$ 0.02 fledglings per pair.



It is likely that the larger Fulmar population of recent years will have affected other species; observations during the last few years have included both adult and young Herring Gulls oiled by nesting Fulmars, adult Fulmars sat on Herring Gull nests, Razorbill adults and chicks evicted from ledges by prospecting birds, an oiled juvenile Peregrine and a Raven oiled so extensively that it probably led to the failure of a nest attempt. Intraspecific interactions have also been witnessed; heavily oiled adults are noted on occasion, whilst two chick stage failures and at least two egg stage failures have been attributed to aggressive neighbours (the eggs were lost prior to the whole Island census). There were no similar observations this year. One was feeding alongside an adult Great Black-backed Gull on 27th April, an eviscerated Manx Shearwater the meal (below photograph). A dead adult was off Little Bay Point on 8th June; an accessible carcass was not found for HPAI testing.



The first fledgling of the year had departed its natal ledge at Hump Bay by 24th August, this three days later than the 2013-2023 first fledgling mean (the earliest during this period had departed on

the 18th in 2019 and the latest on the 25th in 2013). All of the remaining 25 productivity plot fledglings departed over the following ten days; the first 25% had fledged by 28th August (two days later than the 2014-2023 mean), 50% had departed by 29th August (one day later than the 2014-2023 mean) and 75% had departed by 1st September (matching the 2014-2023 mean). The last had left its Little Bay nest by 3rd September, this four days earlier than the 2014-2023 mean; the earliest last plot fledgling during this period had also departed by the 3rd (in 2017), whilst the latest had gone by the 22nd in 2021 (interestingly the late 2021 fledgling was not wholly the result of a late hatching, indeed it had first been seen as a hatchling on 20th July meaning that it was on its natal ledge for 64 days, this a period typically closer to 51 days). The last two chicks to be seen ashore were above the Jogs on 4th September, with at least three fledglings returning to the cliffs on the same date; the former were the earliest last chicks ashore of the last 11 years (the latest chick to be seen ashore between 2014 and 2023 was present on 21st September 2021, the earliest were present on the 6th in 2017 and 2022, whilst the 2014-2023 mean is 11th September). There were daily September sightings of birds at sea until a blank on the 17th, with highs of 45 on the 3rd, 60 on the 4th and 46 on the 10th, whilst one was low on the Peter's Bay cliffs on the 13th and further singles were seen at sea on the 19th, 23rd and 25th.

There were no October records for the first time in 12 years; the 2013-2023 October bird-days mean is 39.8, the all-time highs 185 in 2013 and 79 in 2020. November was also surprisingly quiet, with one off the Lighthouse on the 6th, four on the 10th, three on the 11th and then sightings on 14 dates from the 15th, with highs of 61 on the 16th, 33 on the 25th and 99 on the 26th which took the bird-days total to 371; the peak November daycount was the lowest of the last 12 years, down on a 2013-2023 mean of 176.5 and on all-time highs of 227 in 2016, 283 in 2019 and 226 in 2021 (the low during this period was of 116 in 2017), whilst the bird-days total was massively down on recent highs of 2006 in 2019, 2222 in 2020 and 2683 in 2021 (when staff were also present throughout the month). Singles were ashore at North Gully and above the Jogs on 15th November, this the latest return to the cliffs of the last 12 years; the 2013-2023 mean first return date is 6th November, with the earliest during this period present on 27th October last year and the latest on 11th November 2015. Nevertheless, birds were ashore on each of the next four days, with 20 having been ashore by the 17th; this was one day earlier than the first 20 of last year (despite the very early first landfall), albeit seven days later than the 2013-2023 mean (20 had been ashore by the 6th in 2017, but not until the 20th in 2015). In total there were birds ashore on nine November dates (two fewer than last year), including highs of just 27 on the 18th, 70 on the 26th and 13 on the 30th; although up on last year's November peak of 69, the number of birds ashore was well down on all-time highs of 189 on the 28th in 2019 and 180 on the 19th in 2021. Daily sightings during the first three days of December peaked at 66 on the 1st (including 32 ashore) and 26 on the 2nd (including 17 ashore).

Manx Shearwater *Puffinus puffinus*

Aderyn Drycin Manaw

Very Abundant Breeder a 2018 census estimated 88,945 pairs (95% CI: 21,892). 2012-13 est. 63,980
2800 trapped (including 121 pulli), 1533 retrapped, 1 control
1928-1976: 171,509 trapped, 2012-2023: 17,522 trapped, 8273 retrapped, 35 controls

There were already streaks of faeces extending from burrows near Petrel Station II when staff returned to Skokholm on 10th March; one calling after dark on 9th March was the first of last year, this three days later than the first two of 2022. Faecal streaks were in several places the following day, the first eaten bird was found on the 17th (five days later than the first two of last year) and a single on the 25th was the first to be seen at sea. Hundreds of burrows were flooded on 29th March and at least four adults flew from flooding burrows during daylight on 30th April, whilst a remarkable number of birds were on the surface on the night of 26th April when the area between Spy Rock and the South Pond Lower Drain was seemingly at its busiest for at least 12 years. Adults were seen to be ousted diurnally by Crab Bay Puffins on two dates during April, whilst seawatching produced peak daycounts of 12,000 in one hour during the evening of the 12th and 11,000 on the 29th (the former

up on a 2013-2023 mean April high of 8044.8). One exited a flooded burrow during daylight on 2nd May, whilst daycounts during the month were down on most recent years; a peak May count of 3980 on the 26th was down on a 2013-2023 mean high of 13,291.5 (a high of 28,200 was counted during a southwesterly gale in 2018). June daycounts peaked at 10,080 on the 15th and 15,640 on the 27th; the 2013-2023 mean maximum is 16,840.1, with highs of 24,750 in 2020 and 72,000 during heavy rain and a near gale in 2019. Seawatching effort intensifies in July, however a calm month failed to produce the large counts seen in some years; there were highs of 26,000 on the 18th and 18,000 on the 30th, the former up on a 2013-2023 mean of 24,564.2, but well down on the 50,400 recorded last year. A somewhat rougher August saw highs of 27,400 on the 2nd and 34,212 on the 7th, both down on a 2013-2023 mean high of 42,908.2 (there were all-time August daycount highs of 87,520 in 2020 and 72,550 last year).

The number of Manx Shearwaters breeding in the study plots encountered the following year and the number to have been found by 2024 (which were actually alive the following year).

	Birds found the next year			Birds found by 2024	
Birds breeding in 2023				265 of 318	83.33%
Birds breeding in 2022	279 of 345	80.87%		295 of 345	85.51%
Birds breeding in 2021	283 of 316	89.56%		289 of 316	91.46%
Birds breeding in 2020	253 of 328	77.13%		277 of 328	84.45%
Birds breeding in 2019	245 of 308	79.55%		260 of 308	84.42%
Birds breeding in 2018	247 of 296	83.45%		276 of 296	93.24%
Birds breeding in 2017	236 of 309	76.38%		256 of 309	82.85%
Birds breeding in 2016	238 of 287	82.93%		268 of 287	93.38%
Birds breeding in 2015	230 of 283	81.27%		250 of 283	88.34%
Birds breeding in 2014	215 of 278	77.34%		241 of 278	86.69%
Birds breeding in 2013	116 of 141	82.27%		127 of 141	90.07%
2014-2023 mean		81.07%			88.04%

Three areas of study burrows, that is to say natural burrows where a paving slab covers a manmade access point to the nest chamber, were established in 2012 and 2013 (see map below); all birds encountered within the burrows are ringed. Of 318 breeding adults bearing rings in 2023, 265 were found this year (83.33%); this was up on a 2014-2023 next-year return mean of 81.07% (only 76.38% of 2017 birds were found in 2018, this following the ravages of Storm Ophelia which destroyed several study burrows, whilst a high of 89.56% of 2021 breeders were found in 2022). The next-year return rate is not an accurate estimate of survival as there is no searching for marked birds in neighbouring, non-study burrows; the number of birds known to be alive will thus be revised upwards as they are discovered in future years. For example 82.27% of 2013 adults were encountered in 2014, but we now know that at least 90.07% of birds were alive, these including one not seen again until this year (see table above). Additionally this year saw 16 2022 breeders which were not found last year, two not seen since 2021, four not seen since 2020, four not seen since 2018, two not seen since 2017 and two not seen since 2015. Given that we are still encountering birds not logged for up to ten years, it is likely that many of the figures given above will again be revised upwards in the future, the current 2014-2023 corrected annual survival rate mean of 88.04% undoubtedly an underestimate.

There is typically a discrepancy in return rates dependent on the breeding success of the previous year; of 225 birds successful with their 2023 breeding attempt, 198 were found in 2024 (88.0%), whereas only 67 of 93 unsuccessful birds returned (72.0%). Of 53 2023 breeders which went missing in 2024, 26 (49.1%) had failed with their attempt. Assuming that not all of the failures were due to the death of a bird, it could be concluded that some of the missing birds have rather opted for more suitable nesting sites. It was noted in 2017 that Storm Ophelia had caused considerable damage to the Lighthouse Study Plot, a destruction of burrows which no doubt led, at least in part, to the

reduced number of recaptures in 2018; although 20 of the missing birds have been found subsequently, the return rate of 2017 breeders remains the lowest to date (82.85%). Ultimately the study burrows give a better insight into burrow fidelity and show an interesting correlation with the stability of the colony; in the fragile Lighthouse colony nine of 82 marked birds were in the same burrow this year as that in which they bred in 2013 (11.0%), whereas in the more stable Quarry Track and Crab Bay colonies four of 18 birds (22.2%) and 14 of 41 birds (34.1%) were still in their 2013 burrows respectively. The fragile nature of the Lighthouse colony, along with the high density of burrowing birds and occasional storm events, sees the structure of many breeding tunnels change annually; clearly some lose their suitability as nest sites. Of the 14 birds known to breed in all 12 years between 2013 and 2024, two fledged a chick on 91.7% of occasions, eight on 83.3% of occasions and four on 75.0% of occasions; that these birds are exhibiting above average productivity is no doubt reflected in their continued use of the same stable burrows.



There were 14 adults in the Lighthouse Plot which had been ringed as chicks, along with another which had been ringed as a juvenile on the surface, this taking the total number of known age birds encountered in the plots to 28. There were seven additions to this list, three of which certainly bred (all successfully). Of the 28 returning birds ringed as chicks, 17 have been found to be breeding at some point, with one first found breeding after nine years, seven after seven years, five after six years and three after five years, whilst FB46145 bred successfully in 2021 at just four years of age (two metres from its natal burrow). Eight of the 13 birds found prior to 2024 were missing in the year following their first breeding attempt, only one of which has been found since. Of the six encountered breeding more than once, overall productivity values of 0.75 (two individuals both over four years), 0.67 (over three years), 0.60 (over five years) and 0.00 (two individuals both over two years) have been observed.

The study burrows facilitate an accurate assessment of breeding success on Skokholm. There were 138 burrows at the Lighthouse occupied by a pair which produced an egg, seven burrows contained an egg along the Quarry Track and 22 pairs produced an egg inland of Crab Bay. There were thus 167 burrows this year from which productivity could be assessed (this up on a 2014-2023 mean of 160.3 and only down on the 168 of 2020 and the 185 of 2022). At the Lighthouse 11 definitely failed at egg stage, whilst 23 pairs failed at egg or very small chick stage (but no eggs, down or dead chicks were found); one of these burrows had been dug into. There were three small chick stage failures and a chick with a wing chord in excess of 137mm was taken from the burrow entrance. There were four failures along the Quarry Track, two at egg stage, one at egg or small chick stage and one with a

small chick. Near Crab Bay there were three failures at egg stage and two failed at egg or very small chick stage. A chick is typically assumed to be of fledging size when its wing length is in excess of 200mm; although not ready to fledge, we have previously shown that chicks larger than this may swap to a different burrow and therefore go undetected (see the 2023 Seabird Report for an example of a returning adult which departed its natal burrow when even smaller than this). In total 120 were believed to have attained fledging size this year.

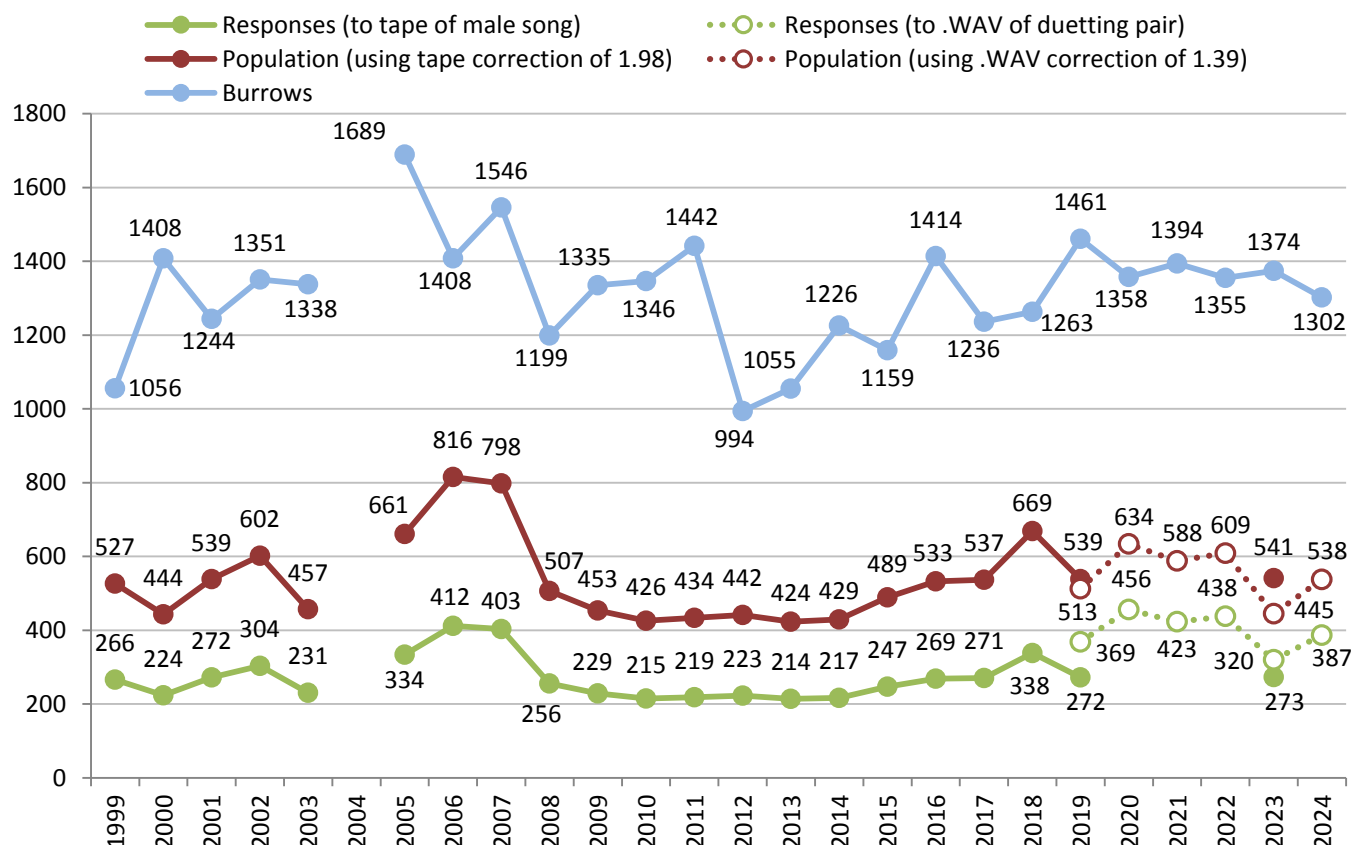


Productivity was thus 0.72 near-fledging-sized chicks per breeding pair (71.86% of pairs produced a near-fledging-sized chick); productivity at the Lighthouse was 0.72, along the Quarry Track it was 0.43 and near Crab Bay it was 0.77. Poor Quarry Track productivity was at least in part due to Great Black-backed Gull predation; four breeding adults were known to be taken at this plot, including both birds of a well-established pair, with one of these kills directly responsible for the failure of a breeding attempt. The combined 2024 productivity estimate was fractionally up on a 2013-2023 mean of $0.71 \pm se\ 0.02$, indeed it matched that of 2019 as the fourth highest of the last 12 years (there were lows of 0.63 in 2014 and 0.68 in 2015, 2016, 2020 and 2023, highs of 0.80 in 2017 and 0.79 in 2021). It should be noted that this is the number of chicks which attained near-fledging size and does not reflect the number of fledglings which are lost to Great Black-backed Gulls (and to a lesser extent corvids) as they exercise their flight muscles and make their first flights. Having said this, only one of the 120 chicks ringed in the study plots was found eaten after it fledged this year; one of 113 was found in 2023, none of 127 were found in either 2022 or 2021, one of 115 was found in both 2020 and 2019, none of 114 were found in 2018 and two of 135 were found eaten in 2017.

A Manx Shearwater ringing transect was established in 2013. It was defined as the track between the Observatory and the Lighthouse and the length of a landing net to either side; ringers were not to deviate from the track. The aim was to see whether, by ringing birds on the surface in this defined area, the retrap data could be interpreted to provide large sample size estimates of adult survival and the recruitment of juveniles to the breeding population. This project is producing a substantial amount of data, data which is currently difficult to examine in any detail as the British Trust for

Ornithology changes its recording system from IPMR to DemOn (the latter of which still lacks the reporting capabilities of the former). Of the 12,078 birds ringed along the transect between 2013 and 2023 (4727 of which were ringed as fledglings), 3096 have been retrapped or found dead on the transect subsequently (with these recaptured individuals accounting for 5300 separate handlings).

The total number of burrows, responses (to tape 1999-2019 and in 2023 and to .WAV 2019-2024) and the corrected population estimates for the 7000m² sampled annually since 1999.



In 1999 nine study areas, each a circle of 1000 square metres, were established to allow a reasonable subset of the Skokholm Manx Shearwater population to be monitored from year to year. Two of these plots were discontinued, one in 2006 and one in 2007, as the survey work was disturbing the Lesser Black-backed Gull colonies. New plots were established in 2006 and 2015 to maintain a good sample size, however only seven plots have been studied for a full 25 years. On each annual visit the number of burrows within each area is counted, as is the number of burrows from which a response is elicited when a recording is played down them. Between 1999 and 2019 the recording was of a singing male made on a cassette tape, the standard correction factor of 1.98 then being used to estimate the population within an area (see the 2013 and 2014 Seabird Reports for checking of the correction factor). The latest whole Island census utilised a .WAV recording of a duetting pair (as opposed to the male only cassette) as it has been shown that a dual-sex recording achieves a higher and less variable response rate, the correction factor thus dropping to 1.39 (Brown and Eagle, 2018; Perkins *et al.*, 2017). Bearing this in mind, along with the fact that the cassettes and playback devices are becoming harder to maintain and replace, it was decided in 2019 that it was time to begin the process of changing the annual plot methodology from the use of cassettes to the use of .WAV playback. This changeover will occur over the course of several years to ensure that the data collected over the previous 20 years remains comparable with that collected in the future.

Each of the nine plots were visited once between the 1st and 9th June, with only the .WAV recording of a duetting pair being used this year. The seven plots visited since 1999 contained 1302 burrows,

this 72 fewer than last year and 1.3% down on the 1999-2023 mean ($1318.79 \pm \text{sd } 157.59$), albeit the seventh highest count of the last 13 years. There was another substantial decline in the plot started in 2006, the burrow count dropping from 315 in 2023 to 261 this year; this is a relatively stable plot inland from Purple Cove, the decline in apparent burrows perhaps in part due to a thick carpet of Sea Campion covering unused holes. There were 18 fewer burrows in the plot on The Head started in 2015, a total of 122 being the lowest to date; this is an exposed area of very short sward with no Sea Campion, the decline in burrows likely a genuine one. It is not only digging by Manx Shearwaters which alters the number of burrows present; the weather may both close burrows and cause additional entrance holes to open (with both very dry and very wet periods shaping the landscape), whilst digging by Rabbits, Great Black-backed Gulls and in some areas by Puffins will also influence burrow numbers.



The estimated number of pairs in the 8000 square metres sampled 2006-2024, based on responses to a cassette of male song 2006-2019 and on responses to a .WAV of a duetting pair since 2020.

2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
869	954	620	525	499	495	501	521	476	533
2016	2017	2018	2019	2020	2021	2022	2023	2024	
588	584	739	655	730	670	710	521	639	

There were 387 responses elicited in the original 7000m² using the .WAV recording, this 67 more than last year but the third lowest total recorded during the six years of using this method, 3.5% down on the 2019-2023 mean ($401.20 \pm \text{sd } 55.82$). The number of responses rose in five plots, with the largest increases being of 47 along the Quarry Track and of 24 above the Dip, whilst there were four fewer at Peter's Bay and 11 fewer near Spy Rock. The two of the last six years with the lowest number of responses to the .WAV recording are the two in which both cassette tapes and .WAV were used, a second visit perhaps influencing response rate (both visits were made on the same day). Using the .WAV correction of 1.39 predicts that there were 538 occupied burrows across the seven plots in 2024 (see chart above), this down on a 2019-2023 mean of $557.80 \pm \text{sd } 77.57$. Any comparison between the population predicted using the .WAV recording of the duetting pair and the male only cassette recording should clearly be a cautious one, although given that both the 2019 and 2023 .WAV estimates are below the cassette estimates, it is likely that we are not overestimating the population when using the .WAV correction any more than when using the tape correction. The combined data for the 7000m² surveyed since 1999 shows a 2024 population up on 15 previous

years and almost matching a 1999-2023 mean of $540.67 \pm \text{sd } 112.43$. There was a 2023-2024 population increase of 25 sites in the 1000m² plot visited since 2006; adding this data to that from the other 7000m² suggests that the combined population is up on that seen between 2008 and 2017, albeit down on five of the last six years (see table above). There were 20 more responses than elicited last year at the 1000m² plot visited since 2015, the total the highest since 2019. Although it must be remembered that the proportion of birds which respond to the playback on any given date varies considerably (leading to a high degree of error in these numbers (see Brown and Eagle, 2013, 2014 and 2019)), these figures again seem to suggest that the population in the plots is stable. That the number of pairs producing eggs in the accessible study burrows is stable supports this conclusion, this good news following the dip in responses observed last year.

In the period between 1957 and 1997 the number of dead Manx Shearwaters located on Skokholm was recorded in the daily census log. The corpses were either stored or thrown into the sea to ensure that birds were not counted more than once. The practice was stopped in 1997 as it was felt that the removal of carcasses would be impacting the species reliant on this food source. However, with a Great Black-backed Gull population more than twice the size it was when the counting was stopped, the study was begun again in 2014. The corpses are left in situ but marked by neatly slicing the flight feathers of both wings with a pair of scissors (using scissors has the added advantage that it makes it easier to check for rings in tightly inverted bodies). Although the vast majority of Manx Shearwater kills are made by Great Black-backed Gulls, a small number are also taken by Peregrines and Ravens, whilst a Sparrowhawk eating the head of a puffinised youngster in 2019 had perhaps also made the kill and three Crow were seen tackling a live bird on 19th May 2022.

The number of Manx Shearwater corpses found between 1957 and 1983 from Gynn (1984) plus data from 1984 to 1991 and 2014 to 2024. The number of Great Black-backed Gull breeding pairs is also included for each year.

	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968
Corpses	2465	1886	924	1354	1089	640	688	1059	857	946	816	841
GBBGU	27	30	30	10	12	5	7	12	8	10	10	3
	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
Corpses	829	304	606	1350	1082	869	1051	1266	1913	1820	1153	1024
GBBGU	14	11	16	12	12	7	7	7	6	10	10	10
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	2014
Corpses	1080	1479	1373	1316	1571	1068	1759	1760	1694	1915	2703	4271
GBBGU	11	16	11	14	11	10	11	12	15	16	20	84
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024		
Corpses	4123	3782	3449	3270	2707	4091	3237	2902	2724	2744		
GBBGU	83	93	93	93	86	83	80	78	66	64		

The number of adult and juvenile Manx Shearwater corpses found each year since 2014, along with the number of untouched puffinised bodies.

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Adults	2931	2702	2299	2071	2228	1618	3008	2132	2104	1859	2060
Juveniles	1287	1324	1398	1289	971	1043	970	967	728	756	629
Puffinosis	53	97	85	89	71	46	113	138	70	109	55
Total	4271	4123	3782	3449	3270	2707	4091	3237	2902	2724	2744

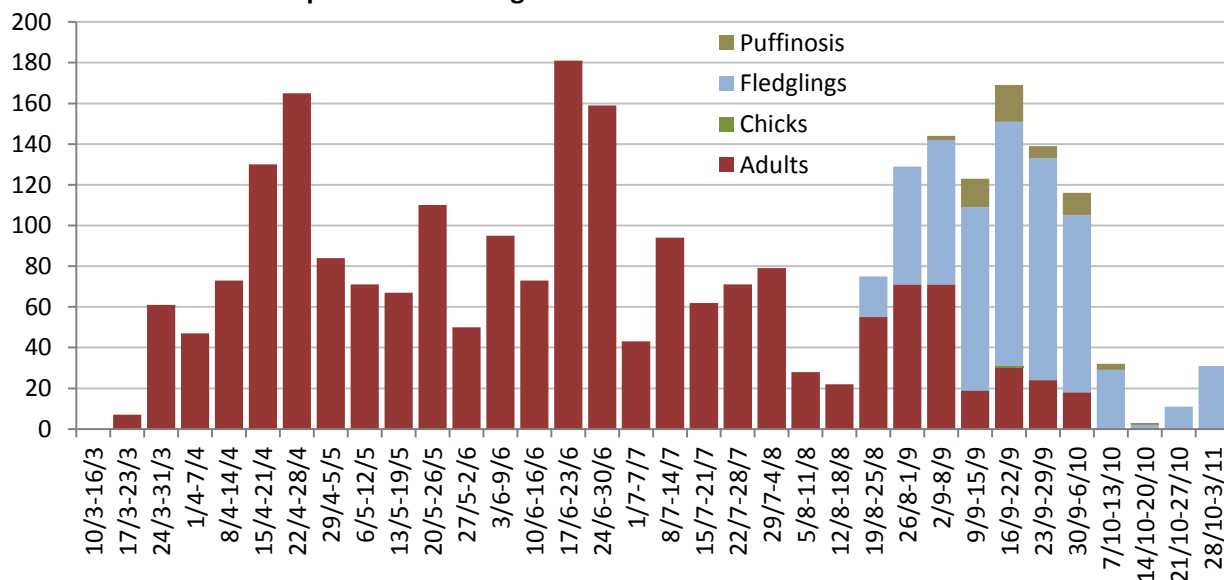
As might be expected with a larger Great Black-backed Gull breeding population, the number of corpses marked over the last 11 years has been the most ever. However the average number of corpses per Great Black-backed Gull pair was only 42.9 in 2024; this has only been lower in ten previous years (including seven of the last eight), with all-time lows of 30.8 in 1959 and 27.6 in 1970 (there were highs of 280.3 in 1968, 318.8 in 1977 and 182.0 in 1978). One possible explanation for

this reduction in kills per pair is that the gulls were routinely disturbed between 1949 and 1985 which, whilst reducing the number of breeding pairs, probably inflated the non-breeding flock (which would still be taking shearwaters). The number of adults found dead was the third lowest of the last 11 years, with a total of 2060 10.2% down on the 2014-2023 mean ($2295.20 \pm sd 452.73$) and only up on the 1618 of 2019 and the 1859 of last year. Factors which may impact predation rates are the number of Great Black-backed Gulls present (and the number specialising in shearwaters (Westerberg *et al.*, 2018)), vegetation heights, the complexities of the weather and moon cycle influencing hunting, the availability of food away from the Island and perhaps the size of the Rabbit population (Rabbits being the other main prey item on the Island). The prevalence of puffinosis may well be influencing juvenile losses (see recent Skokholm Seabird Reports). It is often suggested that the majority of eaten shearwaters are younger, less experienced non-breeders, those which spend longer on the surface as they prospect for burrows and mates. However the 122 ringed birds found predated in 2024 again do little to support this theory (see below table and the 2018-2023 Seabird Reports); although several more years of ringing data would be helpful and there is usually no information on the breeding status of those eaten (so they could perhaps still have been unpaired or burrowless birds spending longer on the surface), at least 60 of 109 eaten adults were at least eight years old (55.0%). Indeed four of the eaten adults had previously bred in the Quarry Track plot, two of which were paired together (two were eaten in March, one was eaten in June following the loss of its partner in March and one was eaten in June leading to an inevitable egg stage failure).

When the 122 ringed shearwaters found eaten in 2024 were marked. Note that intensive ringing recommenced in 2013 and that there were no dead controls from elsewhere this year.

Adult 2013	Adult 2014	Fledgling 2014	Adult 2015	Adult 2016	Fledgling 2016	Adult 2017	Fledgling 2017	Adult 2018
18	17	1	8	5	1	5	1	5
Fledgling 2018	Adult 2019	Fledgling 2019	Adult 2020	Adult 2021	Adult 2022	Adult 2023	Adult 2024	Fledgling 2024
5	5	5	2	4	9	16	2	13

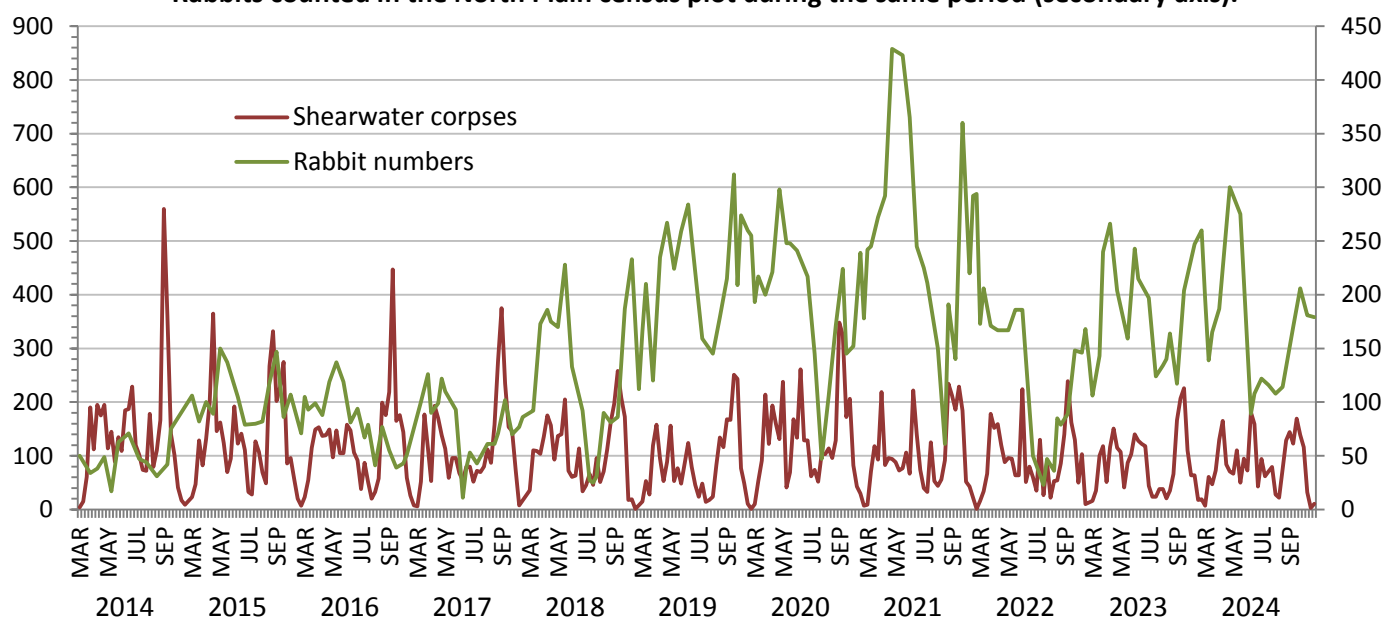
The number of corpses found during each week from 10th March until 3rd November 2024.



The data from the last 11 years lends some support to the theory that Rabbit numbers influence Manx Shearwater predation (by providing an alternative food source for the gulls). The North Plain Rabbit count was lowest in 2014, when shearwater mortality and the number of corpses per Great Black-backed Gull pair were at their highest. The Rabbit counts were at their highest in 2019 and 2021, the former the year with the fewest shearwater corpses and the lowest number of corpses per

pair, the latter the year with the fifth fewest corpses found. The 2020 data did not fit this pattern, with the highest number of adult Manx Shearwater corpses being found in a year with a high Rabbit population (although a COVID-19 dictated reduction in disturbance may have given the gulls longer to hunt). This year saw the fifth highest mean Rabbit count and the fourth highest number of corpses per Great Black-backed Gull pair (albeit the third lowest corpse total of the last 11 years). One potential issue with this comparison is that North Plain Rabbit counts are probably not representative of the whole Island, with the effects of Viral Haemorrhagic Disease seemingly differing in different parts of the Island at the same time. Nevertheless it will be interesting to see if the next crash in Rabbit numbers coincides with an increase in Manx Shearwater carcasses.

The total number of Manx Shearwater carcasses found each week 2014-2024 and the number of Rabbits counted in the North Plain census plot during the same period (secondary axis).



The first fledgling to be encountered was along the Lighthouse Track at 2330hrs on 23rd August, this three days later than the 2013-2023 mean (birds departed on the 17th in 2021 and 2023, whilst two on the 27th in 2018 are the latest first known fledglings during this period). The first fledgling showing signs of puffinosis was above Crab Bay during the night of the 25th, this three days earlier

than the 2013-2023 first bird mean (the earliest first puffinosised bird during this period was logged on 24th August 2017, the latest on 4th September 2014). Puffinosis is a mysterious affliction which had been linked to the actions of a coronavirus, this leading to the development of conjunctivitis and blistered feet, further bacterial infection and problems with limb control (Nuttall and Harrap, 1982); it is typically fatal. A December 2022 paper concluded that, rather than being the result of a virus, the bacterial infection may actually occur following prolonged exposure to caustic faecal ammonia which causes foot dermatitis, this similar to the Foot Pad Dermatitis seen in chickens (Esmonde *et al.*, 2022). Foot Pad Dermatitis occurs in chickens kept in poorly ventilated conditions, where respiration and excretion lead to high moisture levels which exacerbate the impact of faecal ammonia burns (Esmonde *et al.*, 2022). Puffinosis has long been associated with the damper areas of Skokholm, conditions which may lead to a similar build-up of moist ammonia. In an attempt to achieve a better understanding of how puffinosised birds are distributed across the Island during the course of the autumn and of how the number of infected individuals changes from year to year, a transect walked by Island staff over eight September nights was established in 2015 (the 2015 Seabird Report gives details of the route). The position of each fledgling is recorded using a GPS unit before they are inspected for signs of puffinosis.

The number of fledgling Manx Shearwaters encountered along the transect between 2018 and 2024, along with the number which showed signs of puffinosis (also given as a proportion of the total). Restrictions put in place to limit the spread of any potential HPAI outbreak meant that birds could not be adequately inspected in 2022, the puffinosis survey being suspended for that year.

2024	1st-2nd	4th-5th	7th-8th	9th-10th	12th-13th	14th-15th	17th-18th	19th-20th	Total
Birds	110	165	222	160	73	66	31	42	869
Puffinosised	4	8	11	15	3	6	4	8	59
% Puffinosised	3.6	4.8	5.0	9.4	4.1	9.1	12.9	19.0	6.8
2023	1st-2nd	4th-5th	7th-8th	12th-13th	13th-14th	14th-15th	18th-19th	20th-21st	Total
Birds	56	127	174	196	140	126	76	48	943
Puffinosised	1	5	11	29	17	11	7	2	83
% Puffinosised	1.8	3.9	6.3	14.8	12.1	8.7	9.2	4.2	8.8
2021	1st-2nd	4th-5th	7th-8th	11th-12th	13th-14th	16th-17th	18th-19th	20th-21st	Total
Birds	147	143	228	152	111	75	29	16	901
Puffinosised	9	10	16	14	11	9	10	4	83
% Puffinosised	6.1	7.0	7.0	9.2	9.9	12.0	34.5	25.0	9.2
2020	1st-2nd	4th-5th	7th-8th	11th-12th	13th-14th	16th-17th	18th-19th	20th-21st	Total
Birds	52	101	201	235	118	111	68	55	941
Puffinosised	1	5	2	23	14	14	15	10	84
% Puffinosised	1.9	5.0	1.0	9.8	11.9	12.6	22.1	18.2	8.9
2019	1st-2nd	4th-5th	7th-8th	11th-12th	13th-14th	16th-17th	18th-19th	20th-21st	Total
Birds	120	182	100	70	55	81	34	49	691
Puffinosised	6	2	11	16	9	9	6	6	65
% Puffinosised	5.0	1.1	11.0	22.9	16.4	11.1	17.6	12.2	9.4
2018	1st-2nd	4th-5th	7th-8th	9th-10th	12th-13th	15th-16th	18th-19th	21st-22nd	Total
Birds	72	142	139	197	155	167	88	48	1008
Puffinosised	2	3	11	16	23	21	10	2	88
% Puffinosised	2.8	2.1	7.9	8.1	14.8	12.6	11.4	4.2	8.7

The number of shearwater fledglings located along the transect is likely to be different between years, not just because of fluctuations in productivity, but more critically due to differences in the weather and moon cycle which influence their surface behaviour. Over the eight visits there were 74 fewer fledglings encountered this year than in 2023, although the total of 869 was 4.3% up on the 2015-2023 mean (833.25 $\pm$ sd 174.11). An eight visit total of 59 apparently infected birds was the lowest yet recorded, down on a previous low of 65 logged in 2019 and a mean of 107.00 $\pm$ sd 69.68

(the highest total to date is the 278 of 2015). The proportion of birds showing signs was also the lowest to date (there was a high of 29.1% in 2015 and a previous low of 8.7% in 2018, the 2015-2023 mean being 12.9%). As in previous years, puffinosised birds were primarily distributed in the wetter areas of Skokholm, away from more exposed aspects which also typically lack Bracken. Indeed a drier northerly route, which held 270 fledglings over eight 2020 nights, only produced one bird showing signs of puffinosis (0.4%); the infected bird was along North Pond Wall, close to the Farm where a small number of similar birds have been seen previously (see lower map below).

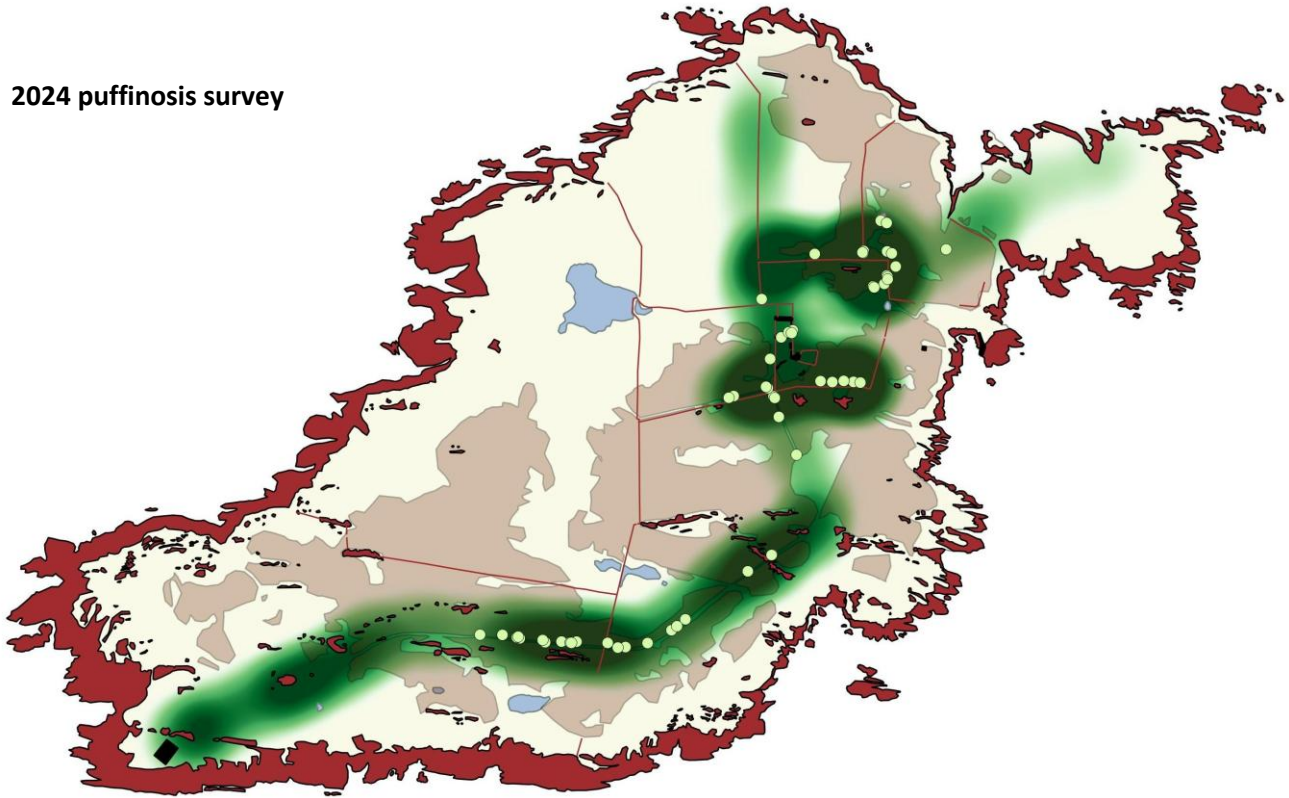
Given that there is seemingly a link between wetter, poorly drained areas and diseased birds, we might expect that the low number of puffinosised birds found this year means that it was dry, however this was not the case; the January rainfall total was the highest since 2017, the February total the highest since 2020, the March total the highest since 2010, the April total the highest since 1999, the May total the highest since 2021 and the July total the second highest this decade (although the June total was the second lowest this decade and the August total the fourth lowest (Natural Resources Wales' Wooltack Point weather station data)). Many burrows were entirely flooded when the adults returned, perhaps rendering them unsuitable to pairs which would have gone on to produce a puffinosised youngster. Although a declining Great Black-backed Gull population clouds the picture, it is intriguing that the proportion of puffinosised birds is generally lower in years with lower totals of predated juveniles (see above); it is quite probable that puffinosised birds are easier for Great Black-backed Gulls to catch, potentially leading to higher mortality in high puffinosis years (it would often be difficult to tell if an eaten bird had been diseased). However the number of juvenile corpses located in 2015, the worst puffinosis year of this nine year study, was not significantly higher than in 2016 and 2017 when the proportion of puffinosised birds was lower.



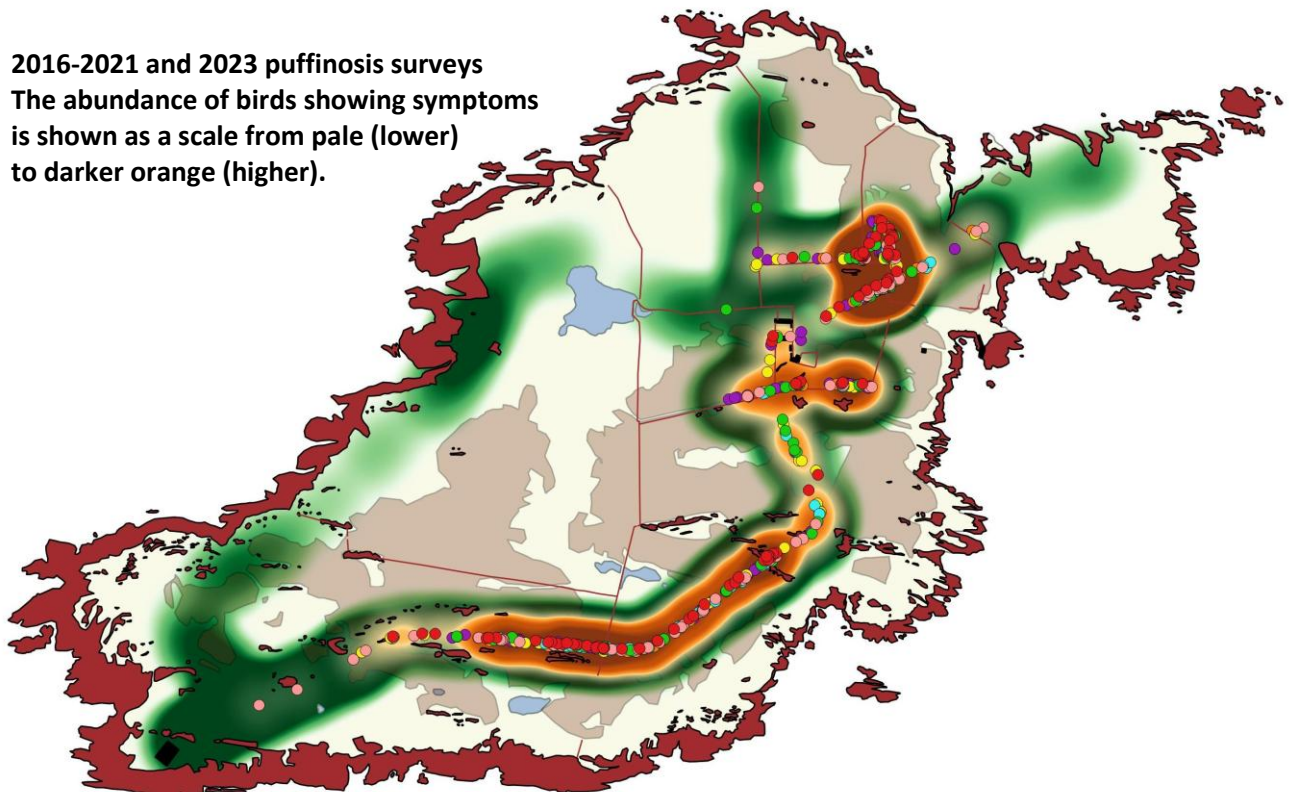
One off the Lighthouse on 2nd August had a white patch in at least one wing, whilst the above fledgling was encountered on the night of 19th September. A minimum of 16,000 off the Lighthouse on the 1st matched the 2023 peak as the second highest September daycount, only down on the 20,115 logged on the 8th in 2018, however no more than 562 were noted on any date after the 3rd and 335 on the 21st was the high during the last ten days of the month.

The 2024 and 2016-2023 puffinosis surveys (there was no 2022 survey). Manx Shearwater fledgling density is shown in green, with the darker areas holding more birds (the northern footpath between Middle Heath and the Table was only surveyed in 2020). Each puffinosised bird encountered over the eight visits is marked by a circle, mint in 2024, red in 2023, pink in 2021, lime in 2020, blue in 2019, yellow in 2018, orange in 2017 and purple in 2016. The 2018 Bracken distribution is also shown.

2024 puffinosis survey



2016-2021 and 2023 puffinosis surveys
The abundance of birds showing symptoms is shown as a scale from pale (lower) to darker orange (higher).



The last grounded adult to be encountered along the transect was recorded on 23rd September (a bird ringed in April 2022 and retrapped in May 2023); this was six days later than the 2014-2023 last ringed adult mean. Up to six were seen at sea on three October dates to the 13th, whilst 28 west in 50 minutes on the evening of the 20th was the highest daycount to be recorded this late in the year (the 83 logged on 5th October 2014 is the latest higher count). Juveniles were either seen after dark or found freshly eaten on 14 October dates, with the high of five unsurprisingly logged on the 1st, whilst presumed adults were calling overhead on the nights of the 3rd, 28th (two), 29th and 31st. There were November records for a tenth time in 11 years and for the 15th time to date, with presumed adults calling on the nights of the 1st, 3rd, 5th and 29th, the latter of which was the latest on record. A fledgling at its Dip burrow entrance on the night of 3rd November was ten days later than the last of 2023, albeit earlier than youngsters found on the 14th in 2014 and on the 22nd in 2021 (the latter of which was eaten by a Raven). Four were close in at the Lighthouse on the morning of 18th November, two of which were diving, whilst there were late singles in Broad Sound on the 24th, off the Lighthouse on the 25th and again in Broad Sound on the 30th; the only later record is of one west through Broad Sound on 1st December 2021. One of the 1448 ringed birds to fledge Skokholm this year was found on the mainland (0.07%), this down on a 2014-2023 mean of 0.11% (see below for details).

Ringling recovery EA33990

Originally ringed as a juvenile, MANX SHEARWATER TRANSECT, SKOKHOLM 28th August 2019

Recovered as an adult, COPELAND ISLAND, DOWN, NORTHERN IRELAND 15th May 2024

Finding condition Fresh dead

Distance travelled 334km at 358 degrees (N)

Days since ringed 1722

Ringling recovery EM26263

Originally ringed as an adult, LUNDY ISLAND, DEVON 9th July 2023

Recovered as an adult, MANX SHEARWATER TRANSECT, SKOKHOLM 28th May 2024

Finding condition On surface

Distance travelled 69km at 322 degrees (NW)

Days since ringed 324

Ringling recovery EM28434

Originally ringed as a juvenile, MANX SHEARWATER TRANSECT, SKOKHOLM 23rd September 2024

Recovered as a juvenile, FRESHWATER WEST, PEMBROKESHIRE 25th September 2024

Finding condition Released from this site having been collected in Pembrokeshire

Distance travelled 17km at 110 degrees (ESE)

Days since ringed 2

As documented in the recoveries sections of previous reports, shearwaters released back to sea have subsequently been found breeding on Skokholm.

Ringling recovery EM54390

Originally ringed as a juvenile, MANX SHEARWATER TRANSECT, SKOKHOLM 15th September 2023

Recovered as an adult, PRAIA ARROIO DO SAL, RIO GRANDE DO SUL, BRAZIL 8th January 2025

Finding condition Fresh dead

Distance travelled 10,027km at 206 degrees (SSW)

Days since ringed 481

Ringling recovery EM82816

Originally ringed as a chick, CRAB BAY STUDY PLOT BURROW 26, SKOKHOLM 3rd August 2024

Previously recovered as a chick, CRAB BAY STUDY PLOT BURROW 26, SKOKHOLM 26th August 2024

Recovered as a juvenile, SACO DO SOMBRIO, ILHABELA, SÃO PAULO, BRAZIL 8th October 2024

Finding condition Found thin, weak and floating, fate unknown

Distance travelled 9274km at 206 degrees (SSW)

Days since ringed 66

When last encountered in the study burrow this youngster had a wing chord of 231mm, this roughly 10mm shorter than typical fledglings; it is thus likely that it crossed the Atlantic in under 50 days.

Ringling recovery EM83272

Originally ringed as a juvenile, SOUTH HAVEN, SKOKHOLM 3rd September 2024

Recovered as a juvenile, PERUÍBE, SÃO PAULO, BRAZIL 21st October 2024

Finding condition Unknown species fresh dead on beach

Distance travelled 9382km at 206 degrees (SSW)

Days since ringed 48

In addition to the three Brazilian recoveries listed above, there have been 18 further Skokholm ringed Manx Shearwater found dead or moribund in South America since 2013; there was one in September 2014, two in November 2015, two in September and one in October 2016, singles in September and October 2017, one in November 2018, singles in March and November 2019, two in September 2020, one in September 2021, singles in February, August and September 2022 and one in April last year. Assuming that birds ringed as adults have already survived at least two winters, six have now been found in their first winter, four in their second winter, two in at least their third winter, four in at least their fourth winter, one in at least its fifth winter, one in at least its sixth winter, one in at least its seventh winter, one in its tenth winter and one in at least its tenth winter. They have all been found in Brazil, bar the November 2018 casualty found in Uruguay and birds in February 2022 and April 2023 found in Argentina; as of October 2024, there have been 293 British Manx Shearwater found in Brazil, with 38 in Argentina and 27 in Uruguay (Robinson *et al.*, 2024).

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Report by Richard Brown and Giselle Eagle

