FOOTPRINT ECOLOGY

Purbeck seabird survey 2023

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Summary

This report presents data from the 2023 breeding seabird counts between Old Harry Rocks and St Aldhelm's Head. Counts have been carried out on the Purbeck coast since the mid-1960s and these data are presented in the context of local trends over the last 50 years and national trends (up to 2019) for this stretch of the Dorset Coast. Poor weather meant that it was not possible to carry out the count between Old Harry Rocks and White Nothe usually carried out in May.

Seabirds breeding on the Purbeck coast include Fulmar, Cormorant, Shag, Herring Gull, Great Black-backed Gull, Kittiwake, Guillemot, Razorbill and Puffin. None of the populations are large. The Guillemot population remains the largest, with over 1,100 individuals counted on the breeding ledges in 2023, and the Puffin population is the smallest with no birds observed during the survey (although up to 8 were reported on different occasions and 3 pairs may be breeding). Species such as Razorbill, Guillemot, and Puffin are thought to have been considerably more abundant in the first half of the 20th century, while Fulmar colonised, and Kittiwake increased markedly, during the second half of the 20th century before declining. For a full discussion of previous Purbeck trends please see Lake *et al.* (2011).

Results from the 2023 monitoring show that:

- The Guillemot population declined noticeably from the 2022 peak of 1,652 individual birds, but nonetheless remained high at 1,071 (similar to the 2021 count). All sub-populations declined except at Crab Hole, where there was an increase in the number of birds present on the ledges.
- The Razorbill population likewise declined from the 2022 peak of 194 birds, but remained higher than in 2021 with 155 individuals counted. There was an increase at Blackers Hole and Funnel/Reforn.
- 2023 saw a continued decline in number of Herring Gull, although the population fluctuates quite widely. The population is current at 37% of the peak count since systematic recording began, and 12% of the highest count in 1969.
- The very small Great Black-backed Gull population reached its lowest level since recording began 13 years ago, with just 4 apparently occupied sites.
- For Fulmar, 2023 saw a continuation of the increase seen in 2022, following the lowest count in 2021. Numbers are now at around 60% of the peak count since systematic recording began for this species in 2010. Breeding Fulmar is now present in just 3 of the 6 sites where it has regularly been recorded previously.
- The number of Cormorant nests at Ballard Down was the lowest since the expansion of the 1980s (possibly attributable in part to the late survey date) and nests were noticeably scattered.

- Shag numbers declined and are currently at the bottom end of recent fluctuations at less than 15% of the maximum count in 1992, with notable declines in the western section between Crab Hole and Buttery Corner (St. Aldhelm's)

- There was a decrease in Kittiwake nests to the lowest count (4), following a slight increase between 2019 and 2021. The population has declined by 99% since a high point in 1982 and is in a precarious state.

- Although no Puffin were counted during the survey, observations from the cliff suggest that the tiny Puffin population remains stable.

Challenging weather since 2021 has meant that counts of Cormorant nests at Gad Cliff in particular have been difficult. Counts of individuals were carried out at Ballard to help provide a future estimate by looking at the ratio of birds to nests. There are however significant limitations to this approach due to fluctuating productivity between years and sites.

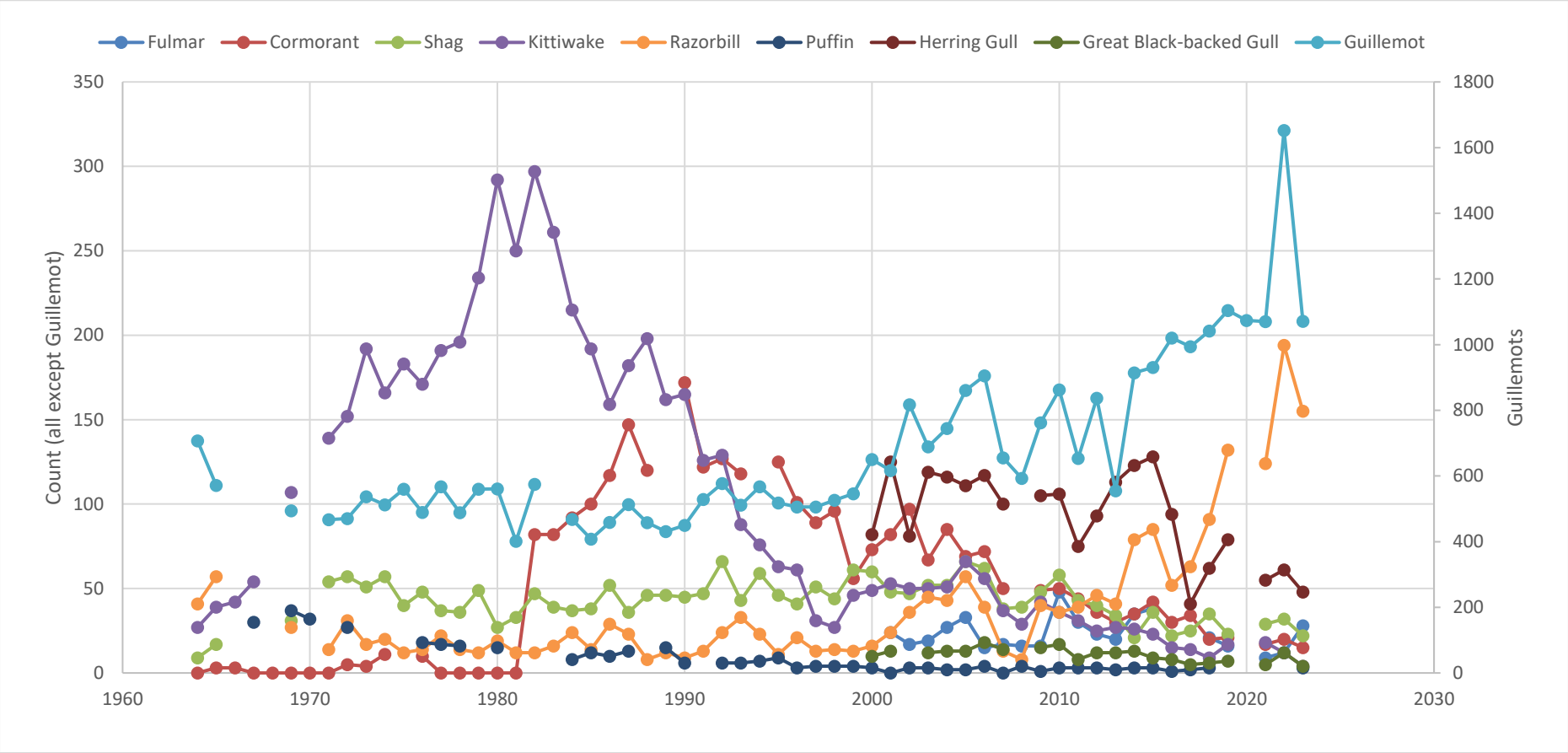

Figure 1: Summary of breeding seabird population changes between Old Harry and St. Aldhelm's Head in Dorset. Counts are of apparently occupied nests/sites for all species except auks, which are of all individuals on breeding ledges. (Note that Fulmar and Shag counts before 2000 may not be complete).

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Acknowledgements

1.1 This work builds on the remarkable legacy of seabird counts undertaken since the 1960s by the late Trev Haysom. 2023 survey work was carried out by Durwyn Liley, Emily Rush and Debbie Welham. An estimate of Puffin pairs was kindly provided by Richard Caldow. The work was funded by the National Trust and Durlston Country Park. Our thanks as always to Tom Greasty at Swanage Sea Fishing and the volunteer surveyors.

1. Introduction

1.1 This report summarises the latest in a series of surveys (see Haysom, 1993; Haysom, 1977; Haysom, 1967; Lake et al. 2011; Lake & Caals, 2022) of the breeding seabirds of the Dorset Coast. Surveys have been carried out annually, with the exception of 2020, when the survey was cancelled due to the Covid 19 pandemic. A count was nevertheless carried out between Durlston and St. Aldhelm's Head by Trev Haysom during this period (see Lake & Caals, 2022).

1.2 The stretch of coast is notable along the south coast of England in that it supports nine species of breeding seabird: Fulmar, Kittiwake, Cormorant, Shag, Great Black-backed Gull, Herring Gull, Guillemot, Razorbill, and Puffin. Eight of these species are Birds of Conservation Concern, the only exception being Cormorant. Kittiwake, Puffin, and Shag are now Red Listed, together with Herring Gull, while Guillemot, Razorbill, Great Black-backed Gull, and Fulmar are Amber Listed (Stanbury et al., 2021).

1.3 The South Dorset Coast is designated as a Site of Special Scientific Interest, Special Area of Conservation, and Jurassic Coast World Heritage Site for its wildlife and environmental interest, although breeding seabirds are not a designated feature.

2. Methods

Population census

2.1 It was only possible to carry out one of the two planned boat trips due to poor weather. The survey took place on 12th June 2023, between Old Harry and St. Aldhelm's Head, due to constraints related to the military Danger Area. Weather conditions were fair with reasonable visibility.

2.2 Methods generally follow those recommended by Walsh *et al.* (1995). All observations of apparently occupied sites (AOSs) or apparently occupied nests (AONs) of Fulmar, Cormorant, Shag, Kittiwake, Herring Gull, and Great Black-backed Gull were marked on enlarged photographs of the coast. Numbers of auks on known nesting ledges were counted and colonies were marked on enlarged photographs as above. The counts presented in the accompanying images and figures are from the May count, when numbers were higher, except for Guillemot and Razorbill, for which counts on 12th June were (unusually) notable higher.

2.3 The number of Puffins on the water and cliff ledges was also noted during the boat survey. However, the survey was undertaken during the day, when Puffin numbers tend to be at their lowest, as birds are either out at sea or out of sight within the breeding crevices. Records from the Birds of Poole Harbour evening bird boat trips staffed by Durlston Country Park have therefore been included in the dataset. The number of breeding pairs was in the past been estimated by Trev Haysom using a consistent

methodology (see Lake *et al*. 2011) – this was not possible in 2021 or 2022, but was undertaken by Richard Caldow in 2023.

3. Results

Results of boat surveys

3.1 All AOS/AON and colonies are marked on the series of photographs supplied in the accompanying photo Annex. Summary results are presented in Table 1. Survey sections follow those used historically and are given in Lake *et al.* 2011.

Estimate of number of breeding Puffins

3.2 No Puffin were observed on the breeding ledge or the water during the boat survey. The maximum number seen simultaneously from the weekly Birds of Poole Harbour seabird boat trips led by staff from Durlston Country Park was 8 on 14th June (D. Welham, pers. comm.). During 50 hours of observation between 24th May and 30th June, three breeding pairs were observed from the cliff (R. Caldow, pers. comm.).

Table 1. Breeding seabird records on the Dorset Coast, 2022. Counts are of apparently occupied nests or sites (AONs/AOSs) for all species except Guillemot and Razorbill (for which counts are of individuals at breeding sites) and Puffin (which is an estimate of pairs observed feeding chicks). *Cormorant counts are for Ballard Down only due to difficulties observing nests at Gad Cliff and White Nothe – see discussion for more details.

Species	2023 total	Change since peak count	Change since last survey	Peak year	Peak count	Systematic surveys since:	Comments
Fulmar	28	2010 (-41.7%)	16 (133.4%)	2010	48	2001	Colonised in 1940s, peaked in 1980s, current upturn within range of previous fluctuations.
Cormorant	15	1990 (-91.3%)	-5 (-33.4%)	1990	172	1964	Declined to 1960s, sharp increase in 1990s followed steady decline to lowest count since 1981 increase.
Shag	22	1992 (-66.7%)	-10 (-45.5%)	1992	66	1964, partial	Fairly steady despite fluctuations until 2011, subsequent apparent decline, particularly in the western sections.
Kittiwake	4	1982 (-98.7%)	-8 (-200%)	1982	297	1957	Rapidly increased throughout 1960s & 1970s, equally rapid decline, which slowed in the 2000s. 2023 count is the lowest since the expansion.
Guillemot	1071	2022 (-35.2%)	-581 (-54.3%)	2022	1652	1964	Large declines up to mid C20th, fluctuating then increasing notably from 2015 to a peak in 2022, remaining high despite decrease in 2023.
Razorbill	155	2022 (-20.2%)	-39 (-25.2%)	2022	194	1964	Large declines up to mid C20th, sharp increase from 2008 to current high point (despite downturn in 2023).
Puffin[1]	3	1969 (-91.9%)	1 (33.4%)	1969	37	1967	Large declines up to mid C20th which stabilised at current level around 1990.
Herring gull	48	2015 (-62.5%)	-13 (-27.1%)	2015	128	2001	Considerable decline 1960s - 1980s to low point in 2017, subsequent slight increase then decline to 2nd lowest count in 2023.
Great black-backed gull	4	2006 (-77.8%)	-8 (-200%)	2006	18	2001	Fluctuating decline since 2001 with slight upturn of one AON per year in 2018 and 2019 followed by decline to lowest count in 2023.

[1] Count from land supplied independently of boat survey.

4. Discussion – comparison with previous years and UK trends

4.1 Data from 1965 onwards were compiled and discussed in Lake *et al.* 2011. Here we update the dataset with the results of the 2023 survey between Old Harry and White Nothe.

4.2 The UK indices of abundance (JNCC, 2021)[2] show the relative change in population size, assigning a score of 100 to the population at the start date of the monitoring. These data were extracted from the Seabird Monitoring Programme (SMP) Database[3] Data and have been provided to the SMP by the generous contributions of nature conservation and research organisations, and many volunteers throughout Britain and Ireland. Further information can be found in the individual UK trend chapters of the online report[4]. These indices are used to compare with a similar Dorset-based index of change for each species, to examine whether local trends differ from the national picture. Data for 2020-23 are not yet available.

4.3 Contextual information on UK declines has been retained for readers who have not seen reports from previous years, but are indicated by the use of *grey italics,* enabling readers familiar with the text to skip information repeated between years. Please refer to Lake *et al.* 2011 for further context on each species and more information on historic records (including data constraints).

Fulmar

After colonising Dorset in the 1940s, the number of breeding Fulmar increased to a peak in the 1980s. Since then, numbers have declined overall, despite short-term increases. In 2023, the number of AOSs had increased for the second year running to 28 (2021 saw the lowest ever number of AOSs recorded in Purbeck), although the number of areas used remained at 3 out of 6 regularly used in the past. The decline in abundance has broadly reflected that of the UK although with wider fluctuations and a greater decline overall.

4.4 Fulmars breed between Ballard Down and St. Aldhelm's Head. Following the first record of Fulmars breeding on the Purbeck coast in 1943 (Haysom, 1977), numbers increased to a peak in the early 1980s. Comparable data are available from 2001, when the first complete surveys were undertaken (previous surveys did not include Ballard Down, and

[2] The UK indices of abundance (JNCC, 2011) are compiled as part of the JNCC seabirds monitoring programme and earlier surveys in 1969-70 (Operation Seafarer), 1985-88 (Seabird Colony Register) and 1998-2002 (Seabird 2000).
[3] https://app.bto.org/seabirds
[4] https://jncc.gov.uk/our-work/smp-report-1986-2019/

counts prior to 1985 were of individuals rather than AONs). Since 2001, the overall trend appears to have been a decline, with peaks and troughs from year to year, including a notable low point in 2021. However, numbers increased in 2022 and again, more substantially, in 2023 to 28 AOS, and are now at around 60% of the peak count since systematic recording began. Increases were observed at all three current locations (Ballard Down, Durlston and Buttery Corner), but there were no nests between Ragged Rocks and Buttery Corner (Ragged Rocks and Seacombe-Winspit were last used in 2015).

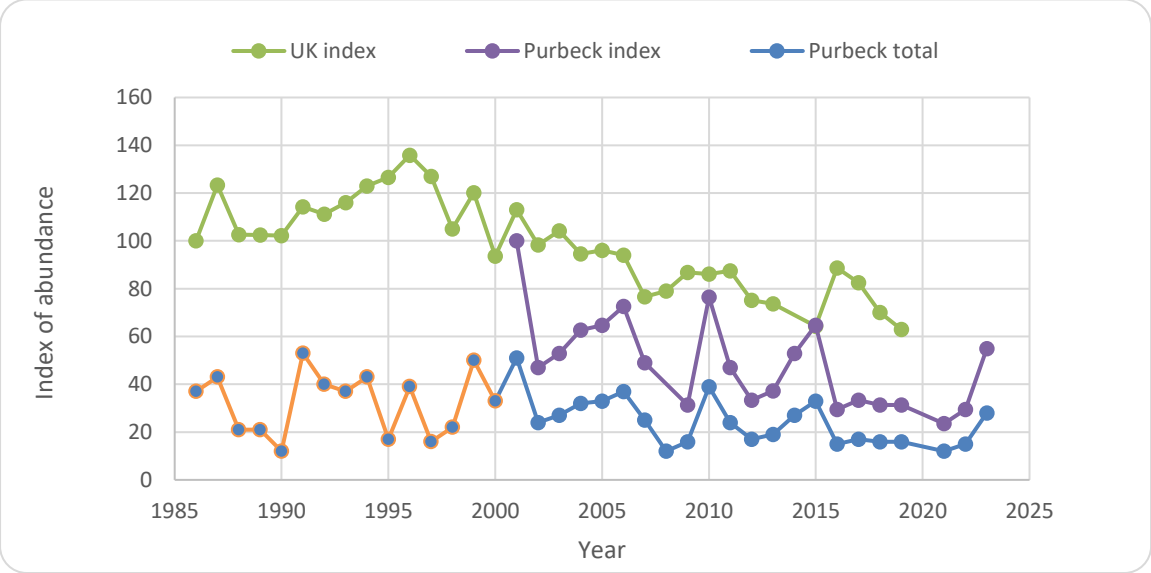

Figure 2. Changes in the numbers of apparently occupied breeding sites (AOSs) for Fulmar together with Purbeck and UK indices of abundance (counts before 1985 were of individuals rather than AOS). Counts before 2001 were only between Durlston and St Aldhelm's Head and have not been included in the Purbeck trend or minimum/maximum counts given in Table 1 (Ballard Down has held between 2 and 23 nests).

4.5 *Considering the available data (up to 2019), the local trend is similar to that of the UK as a whole to 2019 (see Figure 2), although more variable due to the low numbers. A spectacular increase in the number and distribution of Fulmars in the UK and north Atlantic throughout the 20th century (prior to the mid-18th century, they bred in only one or two colonies in Iceland and in St Kilda) ceased in the last 20 years, and numbers then declined, with the suggestion of a small recent upturn. The decline in Purbeck has been steeper.*

4.6 *The increase in Fulmar numbers in Europe is thought to have been driven by changes in food availability due to changes in temperature in the seas and to commercial fisheries, and to a reduction in human predation (Thompson, 2004). Subsequent declines in the UK have been attributed to changes in the North Sea whitefish industry, resulting in a decrease in offal; and declines in sand eel populations in the North Sea and zooplankton in the Atlantic, likely due to climate change. Large numbers are also caught and accidentally killed by long-line fishing in the Norwegian Sea and North Atlantic. The Fulmar is Amber Listed due to the decline and degree of localisation of the breeding population.*

Cormorant

The Handfast Point - Ballard Down population Cormorant population declined from a peak of 172 in 1990 to less than 10% of this figure in 2023, the lowest count recorded since the expansion in the 1980s. However, the low count may have been in part due to the relatively late survey date, by which time some nests may have disintegrated.

4.7 The number of Cormorants on the Dorset coast declined to the 1960 before increasing markedly in the 1980s. AONs at Ballard Down leapt from 10 in 1976 to 82 in 1982 and peaked at 172 in 1990. Since then, it has declined steadily, and numbers are now at the lowest recorded since the population expansion began, at just 15 AONs, despite a small increase in 2022. However, the Cormorant count is usually taken from the May survey, which could not be carried out in 2023 due to poor weather – by 12 June, some nests may have already have disintegrated and juveniles spread out meaning that the count may be an underestimate.

4.8 Nest locations typically vary between years, although a number of specific areas are often used on a rotational basis. In 2023, nest locations were notably scattered, rather than concentrated on the usually favoured sites.

4.9 Difficulties with visibility at Gad Cliff in the previous two years made it hard to count AONs, therefore it was intended to count the number of individuals on ledges in order to provide an approximate index of change over time. Although a survey at Gad Cliff was not possible, individuals at Ballard Down were counted in 2023, and totalled 33, including 9 chicks.

4.10 *Because of significant regional variation in the abundance index (declines are particularly severe in northern Scotland), Figure 3 shows the trend for the Purbeck population for the years in which these data are available compared to the English index of abundance for coastal Cormorants. The Purbeck index decreased while the English index was still increasing, and the Purbeck population has also decreased further. The upturn in numbers nationally after 2011 was reflected in Purbeck in 2014-5, but Purbeck numbers then dropped again in contrast to the national trend, which appears more or less stable at the moment.*

4.11 *Nationally, increases in abundance up to 1995 are likely to have been facilitated by increased legal protection instigated under the Wildlife and Countryside Act 1981. Factors responsible for recent declines are likely to include increased mortality from licensed and unlicensed shooting, as well as possible changes in food availability (JNCC, 2011). Poor weather during the breeding season in 2012 and early in the breeding season in 2013 may have impacted on the Purbeck population, particularly at Ballard Down.*

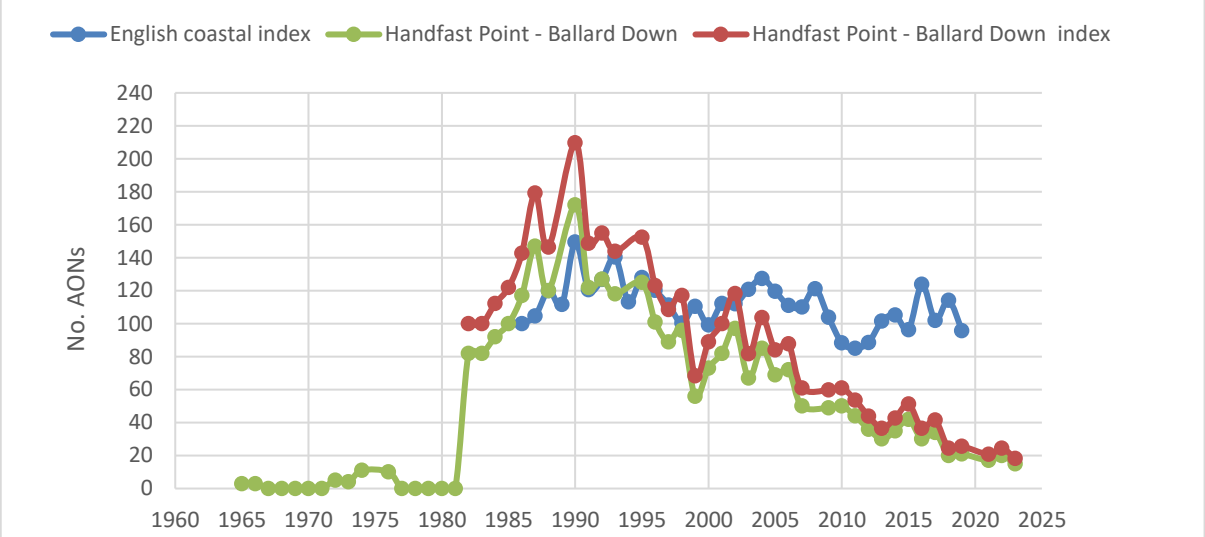

Figure 3. Cormorant AONs between Handfast Point and Ballard Down and the English indices of abundance (coastal populations only) and Purbeck indices of abundance.

Shag

The number of breeding Shags in Dorset is thought to have increased significantly from the early 20th century until the 1970s. Between the 1970s and 2010 the population remained fairly stable, although there were significant annual fluctuations. A clear decline until 2014 was followed by a stable but fluctuating count at a low level. The 2023 is the second lowest since 1965, with no nests at Ballard Down or Blackers Hole. UK trends indicate a long-term decline.

4.12 Breeding Shags are generally scattered along the Purbeck coast. Records indicate an increase to a high point of 66 AONs in 2006. Since, then, more regular recording has shown a rapid decline to a low point of 21 birds in 2014. Numbers subsequently fluctuated between 21 and 35 nests and are now at 22 (see Figure 5).

4.13 No nests were recorded at Ballard Down or between Anvil Point and Ragged Rocks. However, a nest was once again recorded at Blackers Hole (where no nests were recorded for the first time in 2022). The most notable decline was between Crab Hole and Buttery Corner (from 9 to 2 nests). The 2023 count is around a third of the peak count.

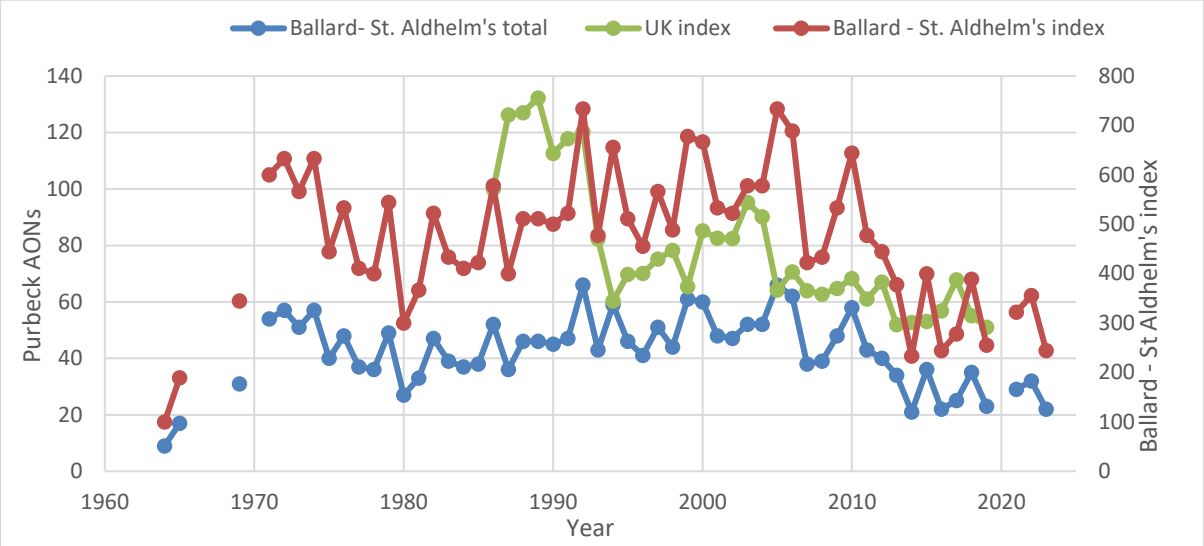

Figure 5: Changes in the numbers of AONs for Shag together with local and UK indices of abundance.

4.14 The change in numbers of nesting Shags in Dorset has not closely reflected national trends, but both show an overall decline with fluctuations. The tendency for adults not to breed every year may be one reason for this variability. The Shag is Red Listed due to declines in the breeding population, and the international importance of both breeding and non-breeding populations in the UK (Eaton et al. 2015).

4.15 *In the UK overall, the Shag population increased slightly from the late 1960s to the mid-1980s (possibly due to increased legal protection, e.g. under the Wildlife and Countryside Act 1981, and reduced persecution (JNCC 2011)). It then gradually decreased, with an abrupt crash in 1994 and again in 2005 due to a wreck (mass mortality event) caused by food scarcity during a period of prolonged onshore gales on the east coast (Harris & Wanless, 1996). Note the initial steep rise in the index up to 1987 shown in Figure 6 is due to many adults choosing not to breed in 1986, resulting in low numbers at colonies that year.*

Herring Gull

Since systematic surveys began in 2000, the Herring Gull population has fluctuated, with a particularly steep decline since 2015. ALthough 2022 saw a notable increase, with the return of nesting birds to stretches of the coast where they were absent in 2021, 2023 saw a further decline to the lowest count since 2000. Overall, there is thought to have been a marked decline in the Herring Gull population in Dorset in the second half of the twentieth century, which appears to be steeper than the national decline.

4.16 Records for Old Harry to St. Aldhelm's Head are only available from 2000 (see Figure 6). The patchy records available for Purbeck before this date suggest a decline (67%

between 1965 and 1989) that is considerably more severe than the national decline (43% between the late-1960s and mid-1980s). More systematic monitoring was introduced in 2000, by which time the population had recovered a little. However, a slow decline ensued, mirroring the overall UK trend (see Figure 6), until 2012 when numbers started increasing. In 2015, 128 nests were recorded, the most since 2000 (note that the total Dorset count in 2015 was still only around half of the number recorded in 1969). Numbers then reduced rapidly to a low of 55 AONs in 2021 and 48 in 2023, the second lowest level recorded since systematic recording began in 2001 (or any recording) (see Figure 6).

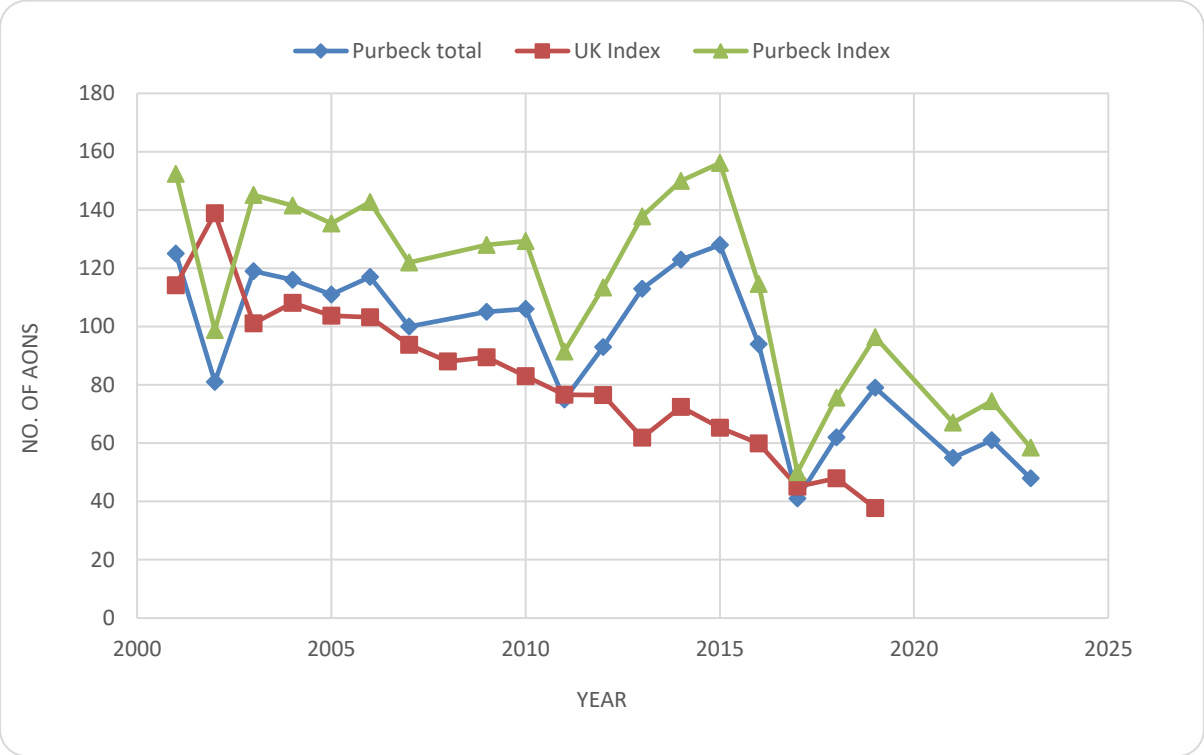

Figure 6: Number of AONs of Herring Gull and the Dorset and UK indices of abundance (UK monitoring started in 1986 and the UK index is based on coastal populations only).

4.17 *The Herring Gull is Red Listed in the UK due to a long-term decline in the population (Eaton et al., 2009). There has been a long-term decline in the coastal, natural-nesting, population within the UK. Factors implicated in the decline are botulism (thought to have been a major factor in the decline in the 1970 and 1980s), a decrease in the availability of food scavenged from refuse tips, and reductions in the availability of discards from fishing vessels, while ground predators have had an effect at some colonies.*

Great Black-backed Gull

The 2023 total of 4 nests is the lowest recorded since systematic recording began in 2000. The tiny Great Black-backed Gull population had remained fairly steady between 2000 and 2011, with numbers generally fluctuating between about 10 and 18, before dipping to fluctuate between 5 and 12 until 2023.

4.18 The numbers of Great Black-backed Gull nests have fluctuated between 5 and 18 since 2000. 2022 saw an upturn to 11 nests following a steady decline since 2015, but this declined to 4, the lowest recorded, in 2023, with 3 nests at Ballard Down and one at Durlston.

4.19 The boat surveys provide comparable data each year, but not necessary a complete count (for example, where not all areas are visible from the sea). In 2023, surveys from the land carried out for Birds of Poole Harbour indicated that there may have been 1-2 additional nests present (N. Hopper, pers. comm.).

4.20 The UK trend shows a decline between 2000 and 2006 but a more recent upturn which was reflected in Dorset, where the decline had been steeper, in 2022 (note that the tiny population size means that small changes result in a large proportional change).

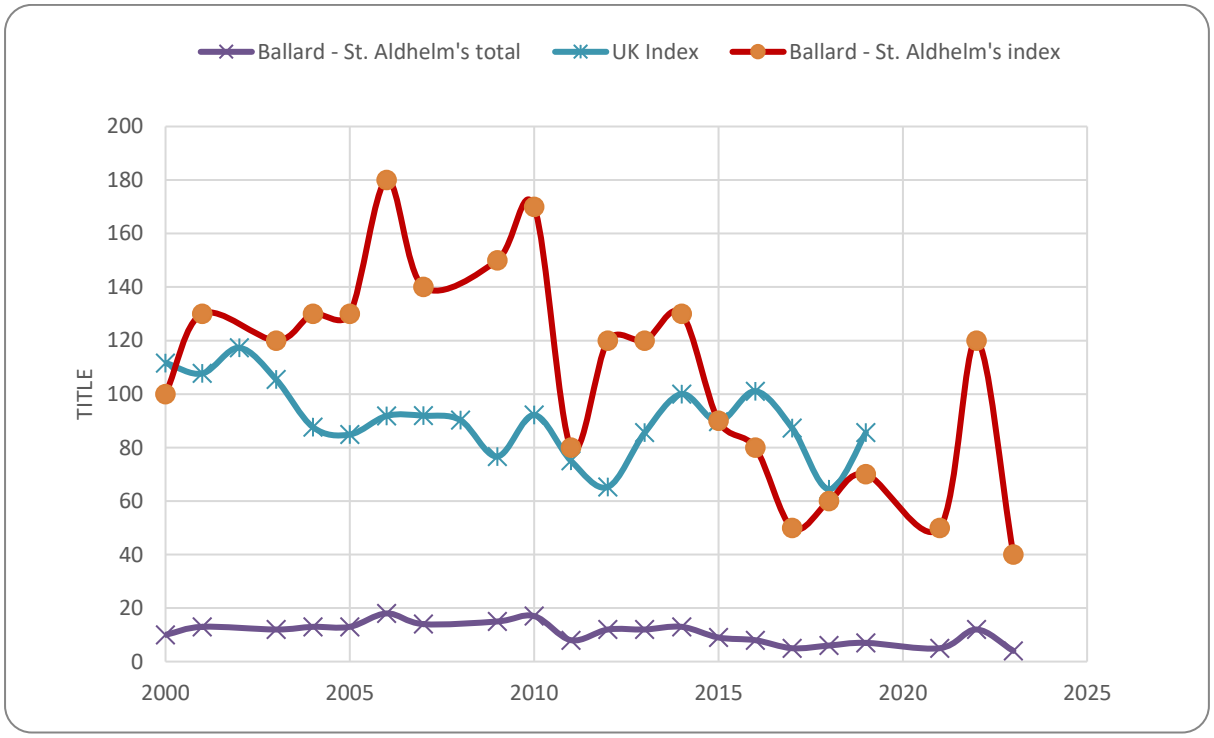

Figure 7: Changes numbers of Great Black-backed Gull AONs and the UK index of abundance.

4.21 The 20th century saw both a widespread expansion of the Great Black-backed Gull breeding range and an increase in numbers. The abundance of Great Black-backed Gulls decreased a little between the first census in 1969/70 and 2000. Between 1986 and

2010, abundance peaked in 1999 at 115% of the 1986 reference level, but has since decreased by around 20%. It is suggested that Great Black-backed Gulls have a competitive advantage over other scavenging seabirds, such as Fulmar and Herring Gull, and are more adaptable, also taking natural prey (such as Rabbits) and that this may explain why, until recently, they have not undergone the declines experienced by other scavengers.

4.22 *Great Black-backed Gull is currently an Amber Listed Bird of Conservation Concern due to a non-breeding population decline (Eaton et al 2015).*

Kittiwake

Following rapid expansion throughout the 1960s and 1970s, the Kittiwake population in Purbeck declined almost as rapidly and in 2023 the only remaining colony (at Blackers Hole) was again the smallest it has been since 1962 at just 4 AOS. It seems likely that breeding will cease at this location in the next year or so. There is some discussion as to whether the Blackers Hole birds may have moved to Portland Bill, where a colony has re-established itself after a 10-year gap. The decline in Purbeck is steeper than the UK trend.

4.23 Kittiwakes are known to have been present around Durlston in the 1880s (see Lake *et al.* 2011), but only two were recorded by 1957. This site remained the only colony until the late 1960s/early 1970s, when four more sites were colonised and by 1980 the overall population peaked at nearly 300 AONs. After this, all the colonies declined rapidly, and since the mid-1990s, only the Blackers Hole colony has persisted in Purbeck. Despite a brief increase in the mid-2000s and a slight upturn in 2019 and 2021), the Blackers Hole colony is declining and is now at its lowest level since the population expansion in the 1980s.

4.24 Changes in the Purbeck population mirror the UK trend (see Figure 8) although the population may have peaked earlier, and the decline occurred more rapidly until it slowed in the 21st century. The 2019 slight national upturn was reflected in Purbeck, although numbers dropped again in 2022.

4.25 There used to be a colony of breeding Kittiwakes on Portland Bill (about 33km west) but this similarly declined to the point where breeding ceased around 10 years ago and birds were no longer seen in the vicinity. However, in 2022, several dozen birds appeared around the cliffs and in 2023 it appeared that many pairs had settled on the cliff ledges below the QinetiQ compound (accurate counts are not possible as there is no access to the area). It is possible that some of the Blackers Hole birds may have moved to Portland, although a sighting of a colour-ringed bird ringed as a nestling at a colony in Brittany suggests that at least some are from further afield (M. Cade, pers. comm.).

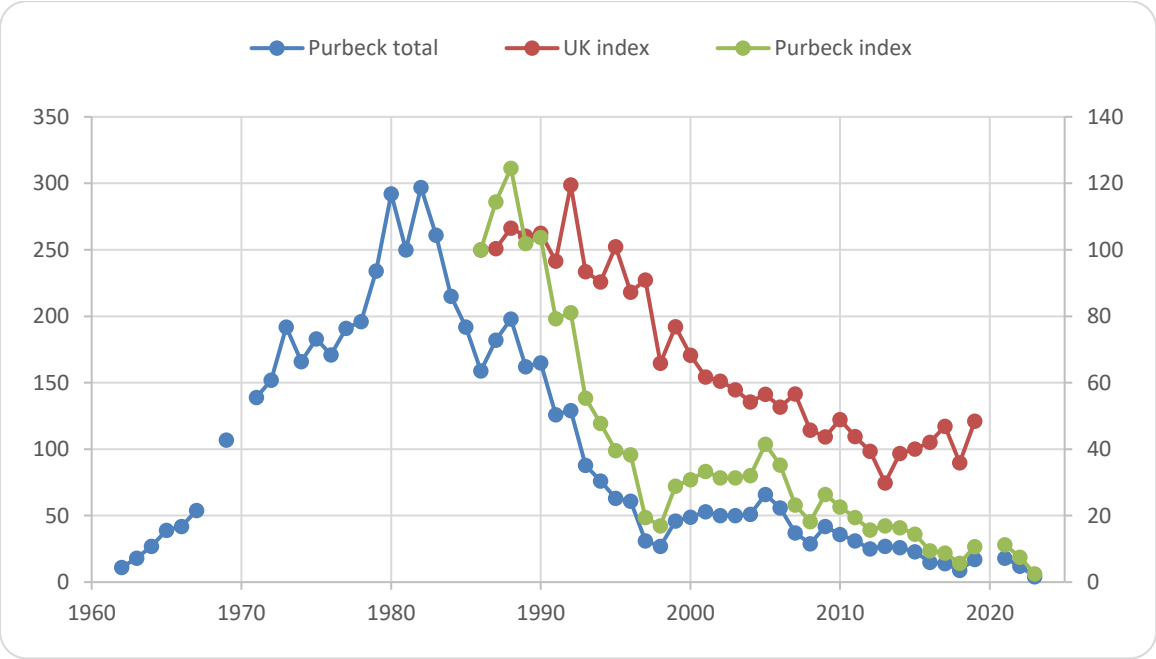

Figure 8: Changes in numbers of AONs of Kittiwakes in Purbeck and the Purbeck and UK indices of abundance from 1985.

4.26 *Nationally, declines in productivity have been related to declines in Sand Eel abundance and are, in some regions, negatively correlated with surface sea temperature (Frederiksen et al., 2004). Kittiwakes are particularly vulnerable to food shortages, as they are surface feeders, and are only able to reach prey on or near the surface. Kittiwakes are Red Listed (Eaton et al. 2015) due to the decline and degree of localisation of the breeding population.*

Guillemot

After large declines up to the mid-20th century, Guillemot numbers in Purbeck stabilised in the 1970s and increased overall throughout the 1990s and 2000s, then more rapidly from 2014 onwards. In 2023, the population dropped to 65% of the peak count in 2022 but nonetheless represented the second highest count since the mid-1960s (when systematic recording began). The decline was greatest at the eastern colonies. The Purbeck colonies have followed a similar trend to that shown by the UK index of abundance, although fluctuating more widely.

4.27 The Guillemot population is found between Durlston and St. Aldhelm's Head. The number of Guillemots in Purbeck declined from an estimated 2,500-3,500 in the 1930s to about one quarter of this (around 700) in the 1970s (see Lake *et al.* 2011 for more details). After this the overall population began to increase, mainly at the Durlston colony, but also between Crab Rock and Sutton Rock from the early 2000s. In 2022 the

count increased by over 50%, surpassing the previous peak of 1,074 individual birds in 2019 to reach 1,652. This dropped again to 1,071 in 2023.

4.28 Historically there has been variation between the trends at different colonies (see Figure 9). In 2023, the greatest proportional decline was at Anvil Point – Ragged Rock and Durlston, and least at Crab Hole – Sutton Rock. The largest reduction in numbers was at Durlston, where it dropped from 569 to 320.

4.29 Changes in the Purbeck population correlate broadly with changes in the national index of abundance, although showing more fluctuations (see Figure 10).

4.30 *The reasons for the national increase are not known, although the recent levelling out may be due to density-dependent effects on breeding success (with competition for space and food becoming critical). Observed low UK productivity, thought to be due to food shortages, combined with low return rates at sampled colonies, suggests that, should productivity decline further, future declines may be likely nationally (JNCC 2011). Guillemot is an Amber Listed Bird of Conservation Concern due to its degree of localisation (Eaton et al. 2015).*

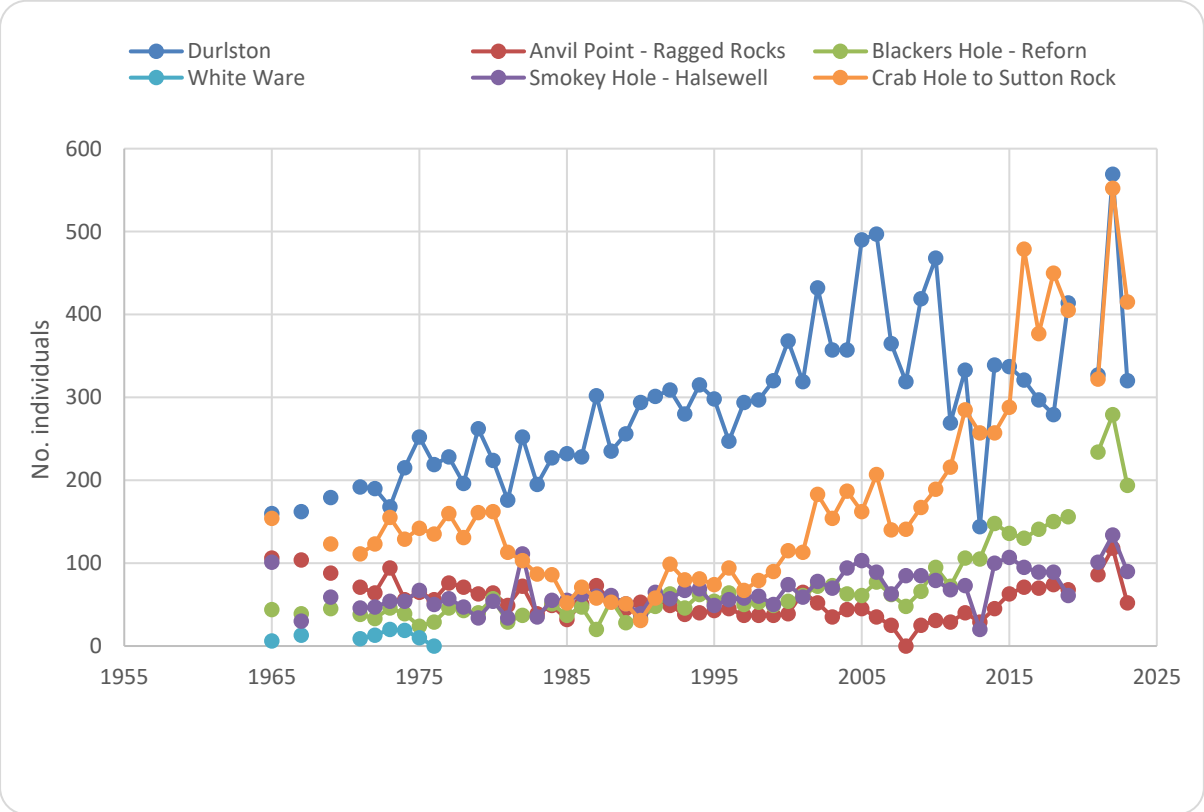

Figure 9: Changes in numbers of Guillemot individuals at breeding colonies in Purbeck since 1965.

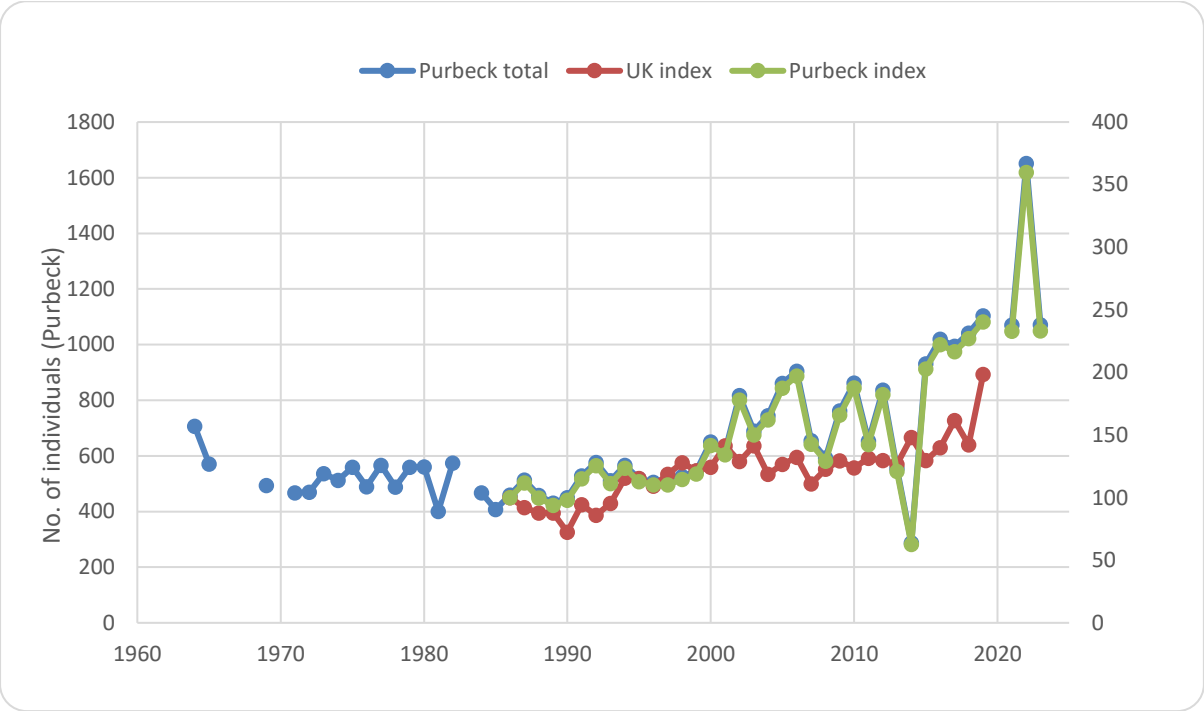

Figure 10: Changes in the total number of Guillemot individuals recorded at breeding ledges in Purbeck compared to the UK index of abundance.

Razorbill

Razorbills declined substantially in Purbeck between 1880 and the early 1960s (when systematic counts began). The overall population continued to decline before stabilising in the 1970s, then fluctuated widely until more steady increases were seen after 2008. By 2022, the number of individual birds (194) was the highest since systematic recording began; although this dropped to 155 in 2023, this is still the second highest count. The decrease varied notably between colonies. The trend generally reflects that of the UK as a whole, with larger fluctuations greater than those seen in the UK index of abundance.

4.31 Razorbills breed between Durlston and St. Aldhelm's Head in Purbeck. Razorbill was considered to breed on the Purbeck Coast in greater numbers than Guillemot in the 1880s (see Lake *et al.* 2011 for more details). However, by 1932, only 130 birds were recorded, and this total fell further to 58 by 1967, and to just 14 by 1970, by which time many colonies had disappeared altogether. The population then fluctuated, but remained steady overall, until the late 1980s, after which three crashes, each roughly a decade apart, were followed by recoveries to higher peaks. Substantial increases in 2014, 2018, 2019 and 2022 followed, and although numbers decline by a quarter in 2023, at 155 the count is still the second highest since systematic recording began in 1964.

4.32 In general, changes have been fairly consistent between the larger colonies (see Figure 11), except in 2021, when the number of individuals decreased at Durlston and Blackers Hole/Reforn but not at Crab Hole-Bird Rock, the third largest colony. In 2023, the

declines were most substantial at Durlston (50%) and Bird Cover (60%). In contrast, the numbers at Blackers Hole – Reform, remained stable. Two birds were counted at Ragged Rocks, where birds were first counted in 2017 but not since.

4.33 *The Purbeck population has shown large fluctuations since the 1950s (although note that the small size of the population means a small change in numbers results in a large percentage change) (see Figure 3). These fluctuations can obscure overall trends, but since 2008 there has been a clear overall upward trend which is steeper than the fluctuating upward trend in the UK as a whole.*

4.34 *As with Guillemots, it has been suggested that the levelling out seen in the UK index in the 2000s may be due to density dependent mechanisms (JNCC 2011). UK Razorbill productivity has declined steadily since 1993 (possibly due to food shortages), and unless this trend reverses, a continuing overall decline is predicted (JNCC 2011). Razorbill remains an Amber Listed Bird of Conservation Concern due to its degree of localisation (Eaton et al. 2015).*

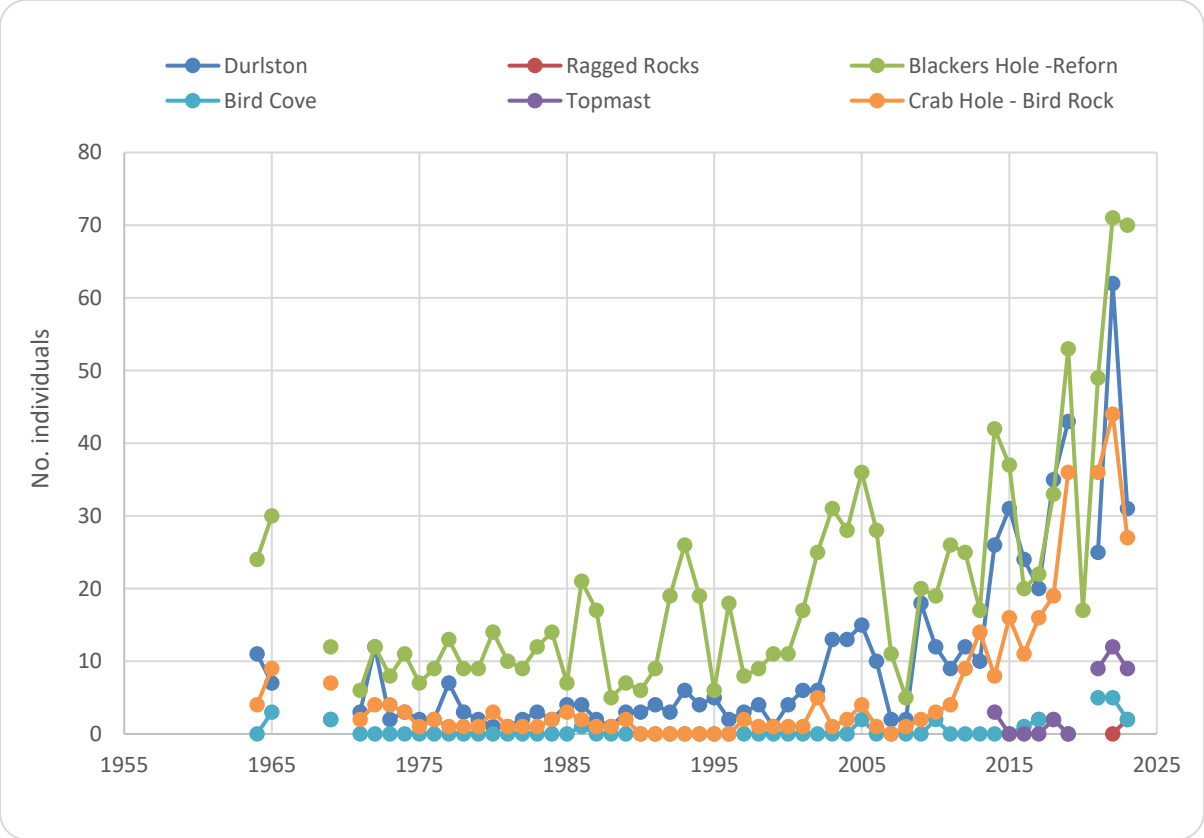

Figure 11: Changes in counts of individual Razorbills at main colonies between 1965 and 2023 (Durlston birds were not counted in 2020).

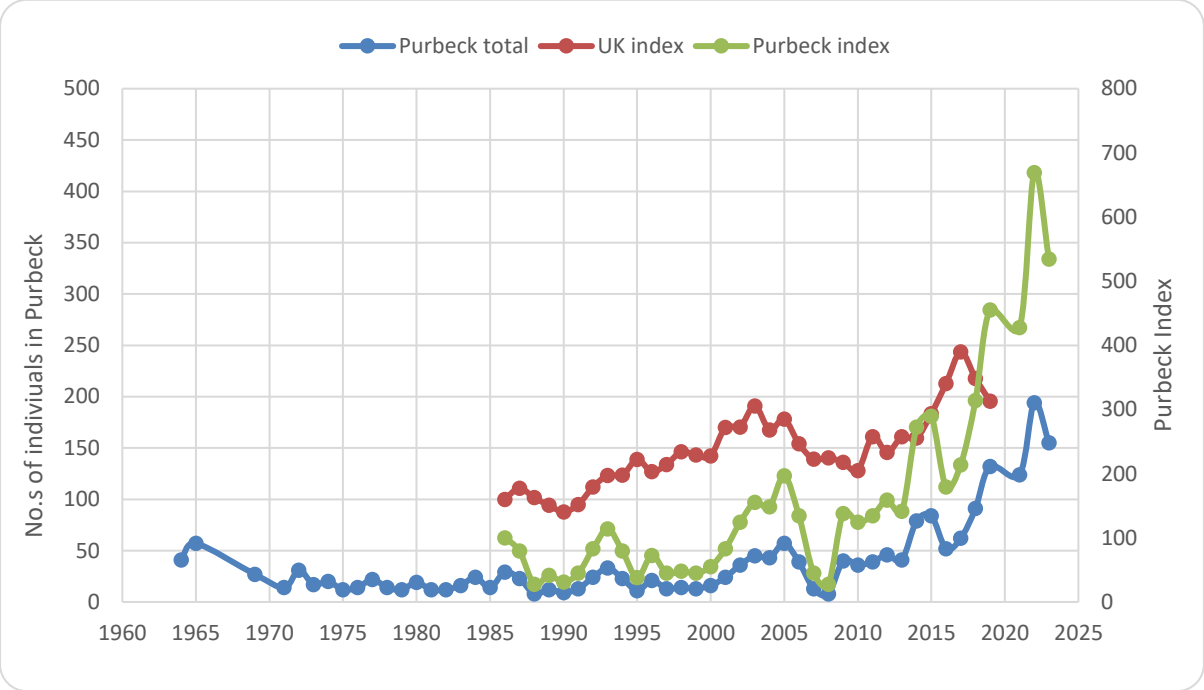

Figure 12: Changes in the counts of individual Razorbills and the UK and Purbeck indices of abundance.

Puffin

The tiny Puffin population may be stable, although no birds were recorded on the boat survey. The Purbeck population declined severely in the 20th century. By the time the population steadied in the 1990s, the estimated number of breeding pairs was about 3 and is thought to have fluctuated between 1 and 3 since then. In contrast to Purbeck, the national trend was of a significant increase in the last quarter of the 20th century, but more recent monitoring at a small number of large colonies has shown declines in numbers, survival, and productivity.

4.35 Puffins were thought to be abundant in Purbeck at least until 1939 (see Lake et al. 2011) but by 1958 there were only 85 individuals recorded, dropping to 23 in 1975. The population subsequently declined much more slowly until the mid-1990s, after which it stabilised at around 2-3 breeding pairs (see Figure 13) – a 92% decline since 1958.

4.36 No birds were recorded during the 2023 boat survey. The maximum number of individuals counted by Durlston Country Park staff/volunteers on the Birds of Poole Harbour boat trips in 2023 was 8. Birds were observed arriving with fish during 50 hours of observations from the cliff (R. Caldow, pers. comm.). However, the period of time over which birds were seen with fish was shorter than the Puffin fledging period, suggesting that all chicks may have been predated. It was estimated that 3 pairs were present (R. Caldow, pers. comm.). No sub-adults were reported.

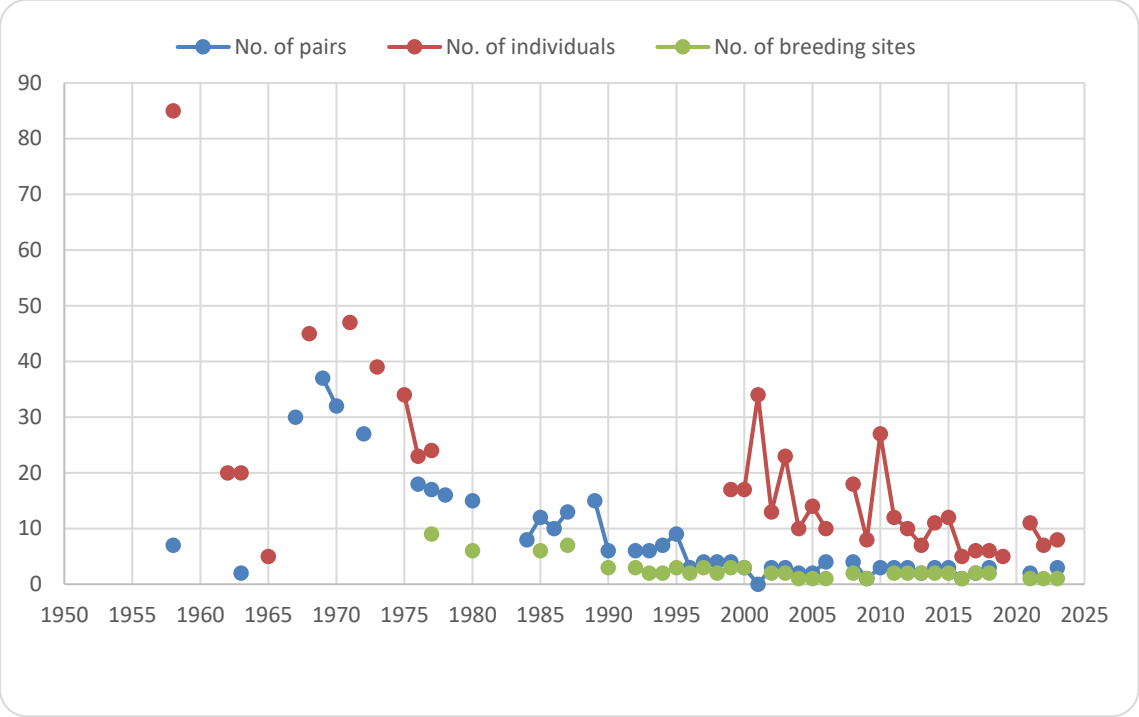

Figure 13: Numbers of individual Puffins recorded and estimated number of breeding pairs between 1958 and 2022 (no estimates of pairs were made in 2021 and 2022). Note that the 2023 count was not from the boat survey.

4.37 *The downward trend in Puffin numbers in Purbeck does not reflect the overall increase suggested by UK census returns between 1969 and 2002. However, although UK-wide data are not available for more recent years, monitoring results from two large colonies show subsequent declines. Productivity has fluctuated but appears to have been lower since the 1990s. Caution should be used in drawing wider geographical conclusions from these data. On Lundy Island, where conditions for Puffins have improved through the eradication of rats, numbers have increased from just five individuals in 2006 to over 300 in 2016. Puffins are Amber Listed due to their degree of localisation and categorisation as a species of European Conservation Concern (Easton* et al. *2009).*

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