

**A report to Birds of Poole Harbour: census of breeding gulls on
Spartina islands in Wareham Channel, Poole Harbour, May 2015**

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Summary

First clutches of black-headed and Mediterranean gulls were largely destroyed in early May, probably by tidal flooding, causing the abandonment of survey at the preferred time.

A count of replacement clutches in mid-May found 6400 black-headed gull nests and 64 Mediterranean gull nests; respectively 28% and 26% lower than counts of first clutches in 2008.

Because an effective census was not possible at the time when first clutches were being incubated the counts are considered to be under-estimates, particularly of Mediterranean gull, but perhaps also to a lesser extent of black-headed gull. Despite this, the estimates exceed 1% of the UK populations of both species, so the colony remains a nationally important breeding site for both species.

A further survey is recommended soon in order to obtain high quality estimates at the time of peak incubation.

Issues potentially affecting the colony are discussed, including tidal flooding, illegal egg-collecting, erosion and predation.

1 Introduction

The objective of this census was to repeat the RSPB survey of 2008 (Chown 2008), obtaining high quality estimates of the breeding populations of black-headed and Mediterranean gulls breeding on the *Spartina* islands off Holton Heath.

The three islands are owned by the Crown Estate and comprise a relatively large central one (about 2.8ha in extent) and smaller ones to the north-west (1.1ha) and south-east (now 0.5ha). The islands are too distant from shore to permit a survey from land, so it is necessary to land on them to obtain good quality counts. As in 2008, experienced local skipper John Stevenson was hired to ferry the surveyors to and from the islands.

A team of surveyors was assembled, comprising Dave Chown, Nick Hopper, Marcus Lawson, Paul Morton, Rich Taylor, Rebecca Taylor and Tony Taylor. Three of the team (DC, RiT and TT) had experience of the survey method through their involvement in the 2008 survey. A licence to cover disturbance of Mediterranean gull (a Schedule 1 species) was acquired by DC and the appropriate access permissions were obtained by PM.

2 Methods

2.1 Census method

The method employed to count nests was identical to that used in 2008, and is essentially the same as that used by RSPB wardens to census saltmarsh gull colonies in Langstone Harbour and the Medway Estuary (Chris Cockburn pers. comm.). It is described again here for future reference.

Counters walked in a line, each counting to one side using tally counters to record black-headed gull nests, while memorising the number of Mediterranean gull nests. On each island, the first transect started along one shore. The observer furthest from shore marked the start of this 'boundary transect' with a cane (marked with a coloured flag), and placed further flags at intervals along the transect. Sometimes physical features (creeks) were also used to define the boundaries of areas covered.

The interval between observers depended on the distance at which they felt confident they were not missing nests; usually around 4m. Thus, on turning at the end of a transect, the observer covering the transect adjacent to the flags defining the boundary of the previous transect would walk about 4m from the line of flags, and would divert at intervals to collect the flags; meanwhile, the observer on the 'outer' transect would place flags along the transect s/he was walking.

For nests which were on the border between observers, either observer would point at the nest and confirm that they had counted it, or that their neighbour should count it, and await a response. This could be done very rapidly, while still walking.

Empty nests which were substantial and tidy were counted on the basis that they were likely to belong to pairs which would lay imminently. These formed a very small proportion of the nests counted. Flimsy or untidy empty nests were excluded,

as were displaced eggs. A recorder obtained counts from the other observers at the end of each transect.

The three observers who had been involved in the 2008 survey had some experience of identifying Mediterranean gull clutches. All observers viewed photographs of Mediterranean gull nests before the census. When the first Mediterranean gull nests were found, the whole team stopped to look at them. All observers soon felt quite confident about identifying Mediterranean gull clutches. However, there were indeterminate clutches, which were recorded as such.

2.2 Census timing and effort

Census dates were potentially constrained by three factors (in addition to surveyor availability):

- Timing of egg-laying. Censusing should coincide with the period when the maximum number of birds is incubating. Censusing earlier would risk missing relatively late clutches (especially Mediterranean gulls, which – at some sites at least – tend to lay a little later than black-headed gulls; Chris Cockburn pers. comm.). A later census would be problematic because more clutches would be hatching, making accurate counting more difficult as chicks become mobile, and also incurring the risk of trampling chicks.
- Weather. Disturbance to breeding gulls should be avoided in cold, wet conditions.
- Tides. It was thought that it was only possible to land on the islands for any length of time around spring high tides, and 2015 counts were undertaken at these times. However, for future reference, skipper John Stevenson advised that it is possible to land on any tides in excess of 1.6m.

Chris Cockburn's judgement that peak incubation would be in early May had proved correct in 2008, so spring tides around May 4th-5th were selected for the census. The team of five surveyors (DC, NH, RT, RT and TT) landing on the largest island at 07:30 on May 4th quickly realised that there were few intact nests, probably due to tidal flooding (see Discussion). Survey was abandoned and the team left the island.

DC contacted Chris Cockburn who advised that black-headed gulls will relay quite promptly. It was therefore decided to reschedule the census for the next set of spring tides from around May 17th, by which time many pairs should have re-laid.

The large island was surveyed on May 17th by a team of four (DC, NH, TT, PM) in three hours from 07:30. The remaining two islands were surveyed on May 21st, again by four surveyors (DC, NH, ML, PM) between 10:00 and 12:00. The smaller south-east island took 30 minutes to cover, and the north-west island an hour and a quarter.

3 Results

The situation at the time of the abandoned May 4th survey is described in section 5.2. The results of the re-scheduled survey in mid-May are shown below.

Table 1. Nest counts of black-headed gull and Mediterranean gull on May 17th and 21st 2015, and percentage change compared with 2008 counts.

		NW island	Central island	SE island	Total
Mediterranean gull	2015	21	43	0	64
	2008	22	62	3	87
	% change	-5%	-31%	-100%	-26%
Black-headed gull	2015	2117	4163	120	6400
	2008	2419	5152	1380	8951
	% change	-12%	-19%	-91%	-28%
Great black-back	2015	0	0	1	1
	2008	0	0	1	1
	% change	-	-	0%	0%

In addition to the confirmed Mediterranean gull nests in Table 1, 16 indeterminate nests on the central island and three on the north-west island were possibly of this species.

The majority of nests counted contained full clutches. A small number of broods were seen, exclusively on the south-eastern island.

4 Discussion

4.1 Population estimates

The counts in Table 1 are considered to be very good estimates of the numbers of black-headed and Mediterranean gulls nesting at that time. The totals are respectively 28% and 26% lower than those in 2008.

However, it is probable that fewer black-headed gulls had re-laid by mid-May than had laid first clutches, and there is no doubt that there were fewer Mediterranean gulls by the time of the successful count in mid-May. On May 4th Mediterranean gulls were present in substantial numbers. Groups were easily seen across the large island when the team arrived; 12 nests were found on the first transect before survey was abandoned (none confirmed in the same area on May 17th, although five indeterminate clutches were recorded); and a sample count of nearly 600 adult gulls settled on the water north of the island contained 44 Mediterranean gulls (8%). In contrast, by mid-May the species was much less obvious, in keeping with the low proportion of nests of this species (1%). This result accords with experience at Langstone Harbour and Lymington, where Mediterranean gulls tend not to re-lay after the failure of their first clutch (Chris Cockburn and Pete Durnell pers. comm.).

Therefore, the results under-estimate the number of Mediterranean gulls which attempted to breed, and probably do so in the case of black-headed gull too. Despite this, the totals of 6400 black-headed gull nests and 64 Mediterranean gulls

nests still exceed 1% of the most recent UK breeding population estimates of these species (Musgrove *et al* 2013). Wareham Channel therefore remains a nationally important breeding site for both species.

A further survey is needed to obtain good population estimates when incubation is at its peak. The 2008 counts are the highest recorded at this colony. Estimates were made by the RSPB in most years in the 1990s, and varied between 3500-4000 pairs in 1995 and 5000-6000 pairs in 1993 (Holt & Heathcote 1999, Pollard 1995). However, these estimates were based on halved counts from remote locations of birds during major flushes; this method is likely to under-estimate the population because some birds will be absent from the colony at a given time.

The decline of over 90% in the number of nests on the smallest, south-east island is striking. A possible cause is erosion (see section 5.3.2). The presence of a breeding pair of great black-backed gulls may also be a factor, although a pair were also present in 2008.

4.2 Failure of first clutches

On May 4th 158 black-headed gull nests and 12 Mediterranean gull clutches were counted on the first transect at the south end of the main island. About 60% of the black-headed gulls nests were tidy but empty, and very few contained full clutches. There were also many waterlogged empty nests (which were not included) and frequent displaced eggs, some of which had been damaged, presumably by predators. Walking a circuit into the centre of the island revealed a similar situation, with low numbers of nests throughout. At this point it was decided to abandon survey and leave the island.

The waterlogged condition of so many empty nests strongly suggests that tidal flooding is the most likely cause of this widespread failure of first clutches. If this is the case, observations from a tidal gauge at Bournemouth suggest that the flooding had occurred on the 3rd. Spring high tides – which had not yet peaked – were somewhat higher than forecast on the 3rd (higher than on the 4th); Figure 1 (© National Tidal and Sea Level Facility) at the end of this report. It is likely that a similar pattern would have affected Poole Harbour, although the difference between the predicted and observed tides would presumably have been less within the Harbour.

Further, more severe flooding is very likely to have occurred on the 5th, when strong south-west winds associated with a low pressure system resulted in tides at Bournemouth being nearly 0.5m higher than forecast and about 0.25m higher than those on the 3rd; see Figure 1 (© National Tidal and Sea Level Facility). This would have destroyed many of the remaining clutches, presumably including many Mediterranean gull clutches, which – the limited fieldwork on May 4th indicated – had survived the earlier flooding relatively well. The presence of black-headed gull broods at the north end of the south-eastern island on May 21st indicates that this area avoided the flooding of early May.

‘Harvesting’ black-headed gull eggs is still licensed at a few UK sites, but has not been licensed in Poole Harbour since the 1980s (Slack 1991). However, illegal

egg-collecting has occurred at times in Poole Harbour, at least in the early years after licensed collecting was stopped (e.g. Amies 1992).

It is possible that illegal egg-collecting was a factor in the loss of first clutches in 2015. Boot-prints were noted at one site during the limited coverage on May 4th, probably evidence of an unauthorized landing. There were more nests with one egg than two, and more with two than three; a pattern which could be interpreted as evidence of current re-laying following losses before the spring tides, potentially from egg-collecting. However, this is highly speculative, and as already noted, the abundance of waterlogged nests and presence of many displaced eggs suggests that flooding was the overwhelming cause of failure. Nevertheless, efforts to check whether illegal egg-collecting is occurring would be worthwhile.

4.3 Other issues

4.3.1 Predation

On all three dates eggs which appeared to have been predated, or at least damaged, were seen frequently. Many of these had ‘slashes’ in the shell, more compatible with avian predators than mammals. Often these eggs had been displaced from nests, and the contents were often intact, perhaps suggesting that the predator had been put off by mobbing. No evidence of predation was noted in 2008.

A raven was seen ‘quartering’ over the main island on May 21st, drawing a very strong response from gulls. Presumably the same individual was seen again later, heading towards the island from the Arne peninsula. A carrion crow was also seen visiting one of the islands on this date. It is likely that corvids were responsible for at least some of the predation observed. Another possible predator is Mediterranean gull: failed breeders will linger around colonies taking eggs and chicks (Chris Cockburn pers. comm.).

Predation by carrion crows was evidently frequent at times in the 1990s; in 1992 “one pair was effectively resident on the gull islands with another pair visiting regularly” (Amies 1992). Predation by corvids was assumed to have a negligible impact at this time, but in the absence of any nest monitoring or other data on breeding success this conclusion may not be justified. The 2015 observations suggest that predation was much more frequent than in 2008 and that far more eggs may be damaged by predators than are eaten, exacerbating the impact. Predation may have the greatest impact on Mediterranean gull, given the species reluctance to relay if the first clutch fails (Chris Cockburn and Pete Durnell pers. comm.).

Dedicated observations from a remote vantage point may enable the extent of predation by avian predators to be better understood; predation by corvids is likely to be much easier to observe than that by gulls. It is possible that predators are able to take advantage of disturbance to the colony, such as that caused by the survey or by unauthorised landings. Ideally, an observer should record evidence of predator activity while surveyors are on the island; these observations could be made from the boat.

4.3.2 Erosion

It is well known that the colony islands have been shrinking through erosion for decades. Erosion is clearly evident from satellite imagery. Examination of images dated January 1st 2009 (soon after the 2008 survey) and April 15th 2014 (© Google Earth) suggests rapid erosion of the south-eastern island: a reduction in extent of about 25% in this period of five years or so. Erosion may be a factor in the 90% decline in black-headed gull numbers on this island since 2008, and is a serious threat to the entire colony in the medium and longer term. It may be impossible to halt or reverse this process; nevertheless, it would be worthwhile seeking expert opinion about this issue.

4.3.3 Breeding productivity

There is a lack of data on the breeding productivity of both black-headed and Mediterranean gulls in Wareham Channel. As recommended by Chown (2008), efforts to assess breeding success would be worthwhile following the next accurate census.

4.3.4 Disturbance caused by the census

On May 17th and 21st the response of gulls to the presence of the observers was as described by Chown (2008): all gulls within about 50m of the observers were airborne; beyond this, birds readily returned to their nests. During the curtailed survey on the main island on May 4th, gulls were disturbed over a much wider radius, probably reflecting heightened sensitivity following the recent flooding and/or reduced 'attachment' to failed nests.

Efforts should always be made to minimise disturbance. In future censuses, especially if inexperienced counters are used, the two smaller islands should be covered on the first day, allowing the observers to familiarize themselves with the method. They will then be able to progress more rapidly when the larger island is surveyed, enabling coverage in a maximum of three hours. After the surveyors have been dropped off, the boat should be moored at least 100m from shore. At least one counter with previous experience should be involved in any future censuses.

5. Recommendations

Another survey is required to obtain high quality estimates of breeding populations of black-headed and Mediterranean gulls. Weather permitting, this would take place on tides in exceeding 1.6m, immediately before spring tides in early May. Measures to minimise disturbance are suggested in section 4.3.4.

Systematic observations to assess productivity are recommended following the next accurate census.

Efforts to check whether illegal egg-collecting is occurring would be worthwhile.

Dedicated observations from a remote vantage point may enable the extent of predation by avian predators to be assessed. Ideally, evidence of predator activity should also be recorded during survey (by an additional observer positioned off-island) to assess the possibility that predators exploit disturbance.

In the medium to long-term, erosion of the islands is the greatest threat to this gull colony. While it is assumed to be impossible to halt or reverse this process, it is nevertheless recommended that expert opinion is sought about this issue.

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