ABSTRACT  During autumn 2003, record numbers of Little Gulls *Larus minutus* were present off the Yorkshire coast. This paper estimates the extent of this gathering and describes the birds’ behaviour, based on observations from both sea and land. The context of these sightings, with respect to previous Yorkshire records, is discussed. This analysis suggests that the western North Sea is becoming an increasingly important ‘stop-over’ area for adult and second-year Little Gulls in late summer and autumn, when a significant proportion of the Baltic breeding population can be found in the North Sea basin, undergoing their complete post-breeding moult before dispersing to wintering grounds.

During 11th-12th September 2003, an extraordinary gathering of Little Gulls *Larus minutus* was observed off the Yorkshire coast, in the sea area between Spurn Point in the south and Flamborough Head in the north, the magnitude of which far surpassed all previous records. The first signs of this gathering became apparent from mid morning on 11th September, when, during the course of a ship-based survey, the author and Peter Ullrich began to observe substantial numbers of Little Gulls and Kittiwakes *Rissa tridactyla* among mixed feeding flocks of seabirds some 15-25 km offshore between Withernsea and Aldbrough. These events were repeated the following day, when a survey of the sea area immediately to the north, offshore between Aldbrough and Skipsea, revealed further feeding flocks between 15 and 25 km out. These flocks took the form of dense clusters, containing up to 120 Little Gulls, which were located within a band some 5.5 km wide (on average), and stretching for about 32 km from north to south (from 53°58’00”N 00°05’90”E to 53°46’50”N 00°19’00”E; fig. 1).

In total, 615 Little Gulls and 1,655 Kittiwakes
were counted during four parallel transects on 11th September (with an additional 300+ Little Gulls and 1,000+ Kittiwakes estimated to be present beyond the seaward end of these transects), and 1,220 Little Gulls and 2,210 Kittiwakes were logged during four additional parallel transects on 12th September. Since these transects cut across the band of Little Gulls at approximately 5-km intervals, and as the sheer amount of activity precluded estimates of birds more than 500 m either side of the ship, it is possible that the total number of birds involved was up to five times these figures, which would estimate the total of Little Gulls to be in excess of 9,500.

Although we cannot rule out some degree of overlap or double-counting between the two days in question, this seems unlikely given the fact that our transect surveys were carried out in sequence from south to north against the run of the tide, whereas the centre of gravity of the bird activity appeared to be shifting gradually south during the same period. Confirmation that we were indeed dealing with extraordinary numbers of Little Gulls came on the evening of 12th September, when an unprecedented 10,000+ were recorded offshore from Spurn Bird Observatory on high-water spring tides, breaking all previous Yorkshire (and British) records of this species. Land-based observers of this remarkable gathering included P. Collins, A. A. Hutt, B. R. Spence, D. J. Standring and M. F. Stoyle. During the following three weeks, other exceptional counts in Yorkshire included 8,034 off Flamborough Head on 16th September (a Flamborough record), with 4,928 there on 28th September and 3,000 on 4th October. Farther afield, counts included 900 off Hartlepool, Cleveland, on 2nd October, with 3,893 passing there on 3rd and 1,500 off Tynemouth, Tyne & Wear, on 4th October.

The transect surveys which were carried out at sea, in conjunction with land-based observations from the Yorkshire coast, during and prior to 11th-12th September 2003, help to provide an insight into the occurrence and behaviour of these large gatherings of Little Gulls.

Observations at sea in September 2003

Our transect surveys were carried out at sea between 10.19 hrs and 16.23 hrs (all times in GMT) on 11th September, and 09.11 hrs and 17.17 hrs on 12th September. High water at Withernsea was 17.18 hrs and 17.49 hrs on 11th and 12th respectively, so that we started survey work each day around low water and finished as the tide was flooding. Our observations took place in relatively calm conditions, associated with a ridge of high pressure, with the breeze moving from force 4 to 0 on the Beaufort scale and shifting during the course of the two days from a northerly direction, through east, south and west, before ending in complete calm.

On both days, during early morning traverses along the coast southwards from Bridlington, we found good numbers of Arctic Skua Stercorarius parasiticus, Kittiwakes and terns Sterna close inshore, but no Little Gulls. Little Gulls were first encountered at 10.26 hrs off Withernsea on 11th and last seen at 16.06 hrs off Skipsea on 12th. None was seen on the final transect of the second day to the northeast of Skipsea, nor were any seen within the innermost part of Bridlington Bay as we returned to the harbour on the evenings of 11th and 12th, suggesting that they were either roosting offshore, or to the south of our transect study area.

Feeding was observed throughout both days, often in a frenzy of activity with other seabird species, with the Little Gulls hovering above the waves and snatching items from the surface in a tern-like manner and also landing on the water
to pick up prey. Occasionally, some were observed ‘towering’ into the air in tight-knit flocks to avoid the attention of Arctic Skuas. Water depths where the birds were located feeding ranged from 18 to 39 m. There was no commercial fishing activity in the vicinity at the time, and the availability of discards was not considered to be a factor influencing the distribution of Little Gulls.

Kittiwakes and Common Guillemots *Uria aalge* outnumbered Little Gulls within feeding flocks by a ratio of 1.9:1 and 1.4:1, respectively. Other species observed in good numbers included Sandwich Terns *S. sandvicensis*, Razor-bills *Alca torda* and Puffins *Fratercula arctica*. Northern Gannets *Morus bassanus* and Arctic Skuas were also present, along with small numbers of Fulmars *Fulmarus glacialis*, Manx Shearwaters *Puffinus puffinus* and Sooty Shearwaters *P. griseus*, Great Black-backed Gulls *Larus marinus* and ‘commic terns’ *S. hirundo/paradisaea* (table 1).

The species composition of these flocks, with their predominance of fish-eaters (both surface-feeders and plunge-divers), and the manner in which the birds were concentrated in a series of discrete feeding flocks within a large but relatively narrow band that followed the line of the tidal currents south off Flamborough Head, suggests that the principle source of activity was the presence of surface-dwelling shoals of small fish (possibly first-year herring *Clupea*). In turn, the fish were presumably attracted by a temporary abundance of plankton, associated with the cold, well-mixed, nutrient-rich waters which penetrate southwards off the Yorkshire coast at this time of year to form a mid-shelf front with the warmer, stratified waters that occur closer inshore (Tasker *et al.* 1987). The ship’s radar confirmed the presence of substantial shoals of fish in those areas where the birds were most heavily concentrated on both days of our survey, and there were also reports from local fishermen of a large shoal of fish some 0.8 km wide and 12 km long off Spurn on 12th (L. Degnan pers. comm.) Further evidence was provided by the presence of a number of immature Northern Gannets on the second day of our survey, which had gorged on fish to such an extent that they had extreme difficulty in rising from the water when approached by the ship.

Owing to the frenzied activity and the fact that the ship was steaming at a steady 8.5 knots, it was not possible to establish an accurate ratio of first-calendar-year to adult/second-year Little Gulls, but we consider that adult/second-year birds predominated to a large extent, possibly by as much as 90-95%.

**Sightings of Little Gulls off the Yorkshire coast**

The first large gathering of Little Gulls recorded off the Yorkshire coast was in autumn 1982, when 724 were seen some 2.5-3 km off Flamborough Head, in a long line and apparently feeding, during the late afternoon of 24th September (Dunn & Lassey 1985). This was followed by day-totals of 1,000 and 2,072 off Flamborough on 25th and 27th September, respectively. These records coincided with strong southeasterly winds, which Dunn & Lassey believed had pushed the birds west of their more normal Baltic coast migration route. Since 1982, there have been other notable

<table>
<thead>
<tr>
<th></th>
<th>11th September</th>
<th>12th September</th>
<th>Mean number per km (grand total)</th>
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</thead>
<tbody>
<tr>
<td>Fulmar <em>Fulmarus glacialis</em></td>
<td>0.2</td>
<td>0.3</td>
<td>0.2 (12)</td>
</tr>
<tr>
<td>Sooty Shearwater <em>Puffinus griseus</em></td>
<td>0.0</td>
<td>0.1</td>
<td>0.1 (4)</td>
</tr>
<tr>
<td>Manx Shearwater <em>Puffinus puffinus</em></td>
<td>0.1</td>
<td>0.3</td>
<td>0.2 (10)</td>
</tr>
<tr>
<td>Northern Gannet <em>Morus bassanus</em></td>
<td>1.4</td>
<td>0.9</td>
<td>1.1 (53)</td>
</tr>
<tr>
<td>Arctic Skua <em>Stercorarius parasiticus</em></td>
<td>0.3</td>
<td>0.5</td>
<td>0.4 (20)</td>
</tr>
<tr>
<td>Little Gull <em>Larus minutus</em></td>
<td>29.8</td>
<td>44.6</td>
<td>38.3 (1,837)</td>
</tr>
<tr>
<td>Great Black-backed Gull <em>Larus marinus</em></td>
<td>0.4</td>
<td>0.1</td>
<td>0.3 (13)</td>
</tr>
<tr>
<td>Kittiwake <em>Rissa tridactyla</em></td>
<td>80.2</td>
<td>72.3</td>
<td>75.7 (3,633)</td>
</tr>
<tr>
<td>Terns <em>Sterna</em></td>
<td>1.8</td>
<td>6.0</td>
<td>4.2 (202)</td>
</tr>
<tr>
<td>Common Guillemot <em>Uria aalge</em></td>
<td>54.2</td>
<td>80.7</td>
<td>69.3 (3,329)</td>
</tr>
<tr>
<td>Razorbill <em>Alca torda</em></td>
<td>21.9</td>
<td>12.4</td>
<td>16.5 (792)</td>
</tr>
<tr>
<td>Puffin <em>Fratercula arctica</em></td>
<td>2.5</td>
<td>4.0</td>
<td>3.3 (160)</td>
</tr>
</tbody>
</table>
sightings of Little Gulls by the Flamborough Ornithological Group. These include:

- 3,082 moving north off the Head on 26th October 1986, during a light northwesterly breeze;
- a heavy southerly movement between 16th and 19th October 1987, including a peak day-count of 4,002 on 17th, during a period of strong southwesterly winds that caused considerable storm damage across southern England;
- large numbers on various days between September and November 1989, with peak day-counts of over 1,000 on three occasions;
- an unusually large build-up of feeding birds in Bridlington Bay between late August and mid November 1995, including a peak day-count of 4,100 on 21st September;
- 3,619 off the Head on 25th October 1997 (and earlier that same year, over 3,000 were seen at Hornsea Mere between 31st August and 17th September).

The presence of these birds off the Yorkshire coast for increasingly protracted periods, the consistently high numbers involved, and the detection (in autumn 1995) of a diurnal pattern of movement in which birds were seen flying north off Flamborough Head for up to two and a half hours after dawn and back south during the last two hours of daylight, led to the conclusion that the gulls were roosting at sea some distance offshore and, consequently, some of the higher counts during late summer/autumn probably involved the same individuals (Lassey 1995). Counts during autumn 2003 of 8,034 off Flamborough Head on 16th September, 4,928 on 28th September and 3,000 on 4th October also suggested that birds were feeding and roosting offshore over a period of weeks, rather than actively migrating. This was backed up by the fact that all three of these peak counts occurred on days when only small numbers of Little Gulls were logged off Spurn Point (day-totals of four, 73 and nil, respectively), which is not consistent with a large migratory movement on the days in question.

Between 25th September and 2nd October 1982, a total of 993 Little Gulls seen off Flamborough and Filey were aged, of which 57.8% were classified as adult/second-year birds (Dunn & Lassey 1985). In 1995, the proportion of adults/second-years rose from 65% in September to a peak of 85% by the end of October (Lassey 1995). This compares with our estimates of 90-95% adults/second-years in the flocks observed on 11th-12th September 2003.

Tables 2 & 3 contain an analysis of the numbers of Little Gulls observed off Spurn Point on a monthly and weekly basis respectively, while fig. 2 combines maximum day-counts for Spurn during 2000-2003 to show the overall pattern of seasonal occurrence. Until
In 2000, the highest count of Little Gulls on record was 1,400+ which came in off the sea during the late evening of 8th October, mostly in groups of 50 to 100, but with some groups in the low hundreds. They spent about an hour bathing and resting on the mudflats in the Humber estuary before flying back out to sea at dusk, as mysteriously as they had arrived. This same pattern was repeated on a number of occasions during October 2000, with much smaller numbers involved (Bell & Degnan 2001; L. Degnan, pers. comm.). The 8th October 2000 record, which at the time was considerably larger than all previous counts off Spurn Point, was broken on several occasions during 2003, with the maximum day-counts during five separate weeks in August and September 2003 each surpassing the October 2000 figure, including the remarkable gathering of 10,000+ during calm conditions on the evening of 12th September.

Observers at Spurn have confirmed that the large counts in August 2003 involved birds coming in at dusk to roost offshore, before flying back out to sea in a northeasterly direction early the following morning, within an hour or so of sunrise. The gulls involved in the huge gathering on 12th September 2003 came straight in off the sea in the late afternoon on flooding spring tides, typically in groups of 20-100, but soon merging to form larger parties. As they approached land, some settled and others generally milled about, the whole mass stretching along the coast. They gradually came closer inshore and were still present as darkness fell, off the northern limit of the Observatory. Next morning, none was to be seen, though large feeding flocks could be seen out towards the horizon with the aid of a telescope (L. Degnan, pers. comm.).

### Wider context

Passage Little Gulls in Britain originate primarily from the Baltic and northwest Russia, the westernmost of three discrete breeding populations in the Western Palearctic. Ringing recoveries in Britain are limited, but support...
this assumption, with seven recoveries from Finland, one from Norway and three from the Baltic States (Toms 2002). The total European breeding population is currently thought to be 23,000-32,000 pairs, almost half of which breed in Russia (Viksne & Bourne 1997). Hutchinson & Neath (1978) first postulated a stepped movement of birds away from their Baltic breeding grounds, with initial post-breeding dispersal to late-summer quarters in the Baltic Sea, the North Sea and (to a lesser extent) the Irish Sea in order to complete their moult, followed by a late-autumn movement to regular winter quarters from Britain south as far as the western Mediterranean and west African coast. This general pattern is consistent with the observed influx of Little Gulls along the eastern seaboard of Britain during late July and early August, with the majority leaving the North Sea, via the English Channel, in October and November (Oliver & Davenport 1971; Hutchinson & Neath 1978; Taylor et al. 1981).

The timing of this exodus in 2003 is shown in table 4 by shore-based counts from Dungeness Bird Observatory, Kent, and le Clipon, Dunkirk, northern France; as usual, peak numbers were observed in October. A proportion of these birds make their way down the Atlantic Coast, but do not reach the western Mediterranean until December (Finlayson 1992). The size of this passage movement through British waters has increased dramatically since the early 1970s (Hutchinson & Neath 1978; Dunn & Lassey 1985; Smith 1987; Lassey 1995), which may be related to an expansion in the Finnish breeding population by more than 50% between 1970 and 1990 (Viksne & Bourne 1997).

Discussion

The pattern of occurrence in fig. 2 suggests that two waves of arrivals reach the Yorkshire coast, the first in late July/early August and a second, larger one, from mid September to late October. This overall pattern, which has been observed previously (Bruun 1968; Taylor et al. 1981; Smith 1987), was interpreted by Hutchinson & Neath (1978) to represent an initial post-breeding movement to sheltered sea areas for moult, followed by a more concerted dispersal to wintering quarters. The data presented here suggest a slightly more stepped movement through the North Sea, with the influx from the

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**Table 4.** The movement of Little Gulls *Larus minutus* through the English Channel, showing numbers recorded at Dungeness, Kent, and at le Clipon, Dunkirk, northern France, during autumn 2003. Data are monthly totals. Source: Dungeness Bird Observatory Trust and Association le Clipon.

<table>
<thead>
<tr>
<th></th>
<th>Dungeness</th>
<th>le Clipon</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>38</td>
<td>18</td>
</tr>
<tr>
<td>August</td>
<td>24</td>
<td>35</td>
</tr>
<tr>
<td>September</td>
<td>111</td>
<td>871</td>
</tr>
<tr>
<td>October</td>
<td>135</td>
<td>2,548</td>
</tr>
<tr>
<td>November</td>
<td>6</td>
<td>1,070</td>
</tr>
<tr>
<td>December</td>
<td>2</td>
<td>731</td>
</tr>
</tbody>
</table>

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**Fig. 2.** Weekly maximum day-totals of Little Gulls *Larus minutus* off Spurn Point, East Yorkshire, between July and November, 2000-2003 (seven-day periods as defined in table 3). Source: Spurn Bird Observatory Trust.
breeding colonies first apparent in July and early August, gradually augmented by further arrivals through to October, by which time a substantial proportion of the Baltic/Scandinavian breeding population is likely to be moving around the North Sea in search of food, sometimes in large gatherings, while post-breeding moult is completed. There appears to be a small overland movement to the Irish Sea, particularly among the first wave of arrivals (Smith 1987) but, in general, the majority appear to remain in the North Sea until late October/early November, when all except a small number of over-wintering birds leave the North Sea basin through the English Channel.

Some sources (e.g. Hutchinson & Neath 1978, Cramp & Simmons 1983) contend that Little Gull is not a truly pelagic seabird. Although Little Gulls may not wander the oceans to the extent of species such as Kittiwake or Sabine’s Gull L. sabini, they are nevertheless well adapted to life offshore, and feed and roost at sea for a substantial part of the year. Little Gulls appear ‘en-masse’ within sight of the British coast relatively infrequently and usually stay close inshore for short periods only before returning to the open sea. Although these land-based sightings are often attributed to ‘passage migrants’, observations off the Yorkshire coast would suggest that many, particularly in the period between late July and early October, are probably involved in a general diurnal movement within the confines of the North Sea. These are birds which have temporarily interrupted their migration in order to moult, rather than birds which are actively migrating. The nature and location of these diurnal movements is clearly influenced by weather, tides and food availability, but the precise inter-relationships among these factors is not fully understood. While there are examples of large numbers of Little Gulls being pushed onshore by inclement weather, the unprecedented numbers off Spurn on 12th September 2003 appeared in completely calm weather. This was also the case with some of the large counts in the autumn of 1995 (Lassey 1995), and also with a ‘feeding frenzy’ of shearwaters reported off northwest Devon between 24th August and 10th September 2002 in similar circumstances (Darleston 2003). It is suggested that the combination of calm weather and flooding spring tides on the evening of 12th September helped to move Little Gulls, which had previously been foraging out at sea closer inshore to roost.

Birds foraging at sea often move in and out of sight from land, both during the course of a single day and from one day to the next,
thereby introducing a strong possibility of double-counting by shore-based observers. Counts at sea can also be extremely difficult when dealing with feeding flocks of the size and extent that we encountered on 11th-12th September 2003. Nonetheless, by combining sea- and shore-based observations, as in this instance, it is possible to achieve a greater insight into the behaviour of these birds than by either one alone, and this has important implications for future surveys of other sensitive offshore sites.

Acknowledgments

Thanks are due to Peter Ullrich who partnered me on these surveys at sea, to Dr Steve Percival who supervised them, and to Powergen who funded them. I also gratefully acknowledge the assistance given by Spurn Bird Observatory, Dungeness Bird Observatory and Association le Clipon, and in particular that of Lance Degnan, Geoff Dobbs, Verbanck Koen, Brett Richards and David Walker, for their comments and help in accessing unpublished data relating to recent occurrences of Little Gulls in the North Sea and the English Channel.

References


Clive Hartley, Marsh Cottage, Burgh-by-Sands, Carlisle, Cumbria CA5 6AX