

# Notes on the distribution and feeding of Little Gulls at sea in Liverpool Bay

R. A. Eades

## INTRODUCTION

The status of the Little Gull *Larus minutus* in Liverpool Bay has changed dramatically since 1965. Lassey and Greenhalgh (1969), and Smith (1974) described the increase of Little Gulls seen from the land in South Lancashire, and the purpose of this paper is to compare their observations with those of Little Gulls seen at sea from ships within the Liverpool Pilotage District, principally Liverpool Bay.

TABLE 1. SIGHTINGS OF LITTLE GULLS AT SEA IN LIVERPOOL PILOTAGE DISTRICT.

Year	No. of days with sightings	Annual total	Peak count	Date of peak
1963	1	1	1	Sept. 16th
1964	0	0	0	—
1965	0	0	0	—
1966	2	7	6	Sept. 3rd
1967	7	12	3	Aug. 29th
1968	9	21	5	Oct. 1st
1969*	2	3	2	Nov. 11th
1970	9	36	11	Sept. 5th
1971	5	27	20	Oct. 16th
1972	17	226	35	Sept. 22nd
1973	25	291	35	Sept. 15th
1974	21	145	22	Aug. 29th
1975	34	449	78	Sept. 25th
1976	30	661	91	Oct. 3rd

\* Observations not continuous in 1969.

## THE INCREASE

My observations at sea started in July 1963 on joining the Pilot Service as an apprentice, and have been almost continuous, practically on a daily basis, to the end of 1976. Table 1 summarises the sightings of Little Gulls annually between 1963 and 1976. There has been a marked increase in the number seen, a similar trend being described by Hutchinson and Neath (1978) throughout Britain. In the early 1960s, the Little Gull was a scarce autumn passage migrant, none being seen in 1964 and 1965. Apart from a juvenile in 1963, it was not until September 1966 that I first saw small numbers of Little Gulls amongst thousands of Common Terns near Crosby Light Float. In 1967 and 1968 the influxes in August and September were larger and more prolonged. Observations were curtailed in 1969 as I was away from the Mersey until November and missed the main passage period, but 1970 showed a further increase. In February 1971 I started work as a pilot, bringing ships in and out of the Mersey, the Main Channel, and across Liverpool Bay to Point Lynas. As a pilot one spends proportionately more time in those parts of the district which are most productive for this species, i.e. the main channel, and one would expect sightings to increase. However, in 1971 I saw fewer birds than in 1970, indicating that no substantial increase had taken place. Sightings increased in 1972 with no change in the pattern of observations, and they have tended to increase since.



For this note the transect from Lynas to the Bar Light Float has been divided into five roughly equal units of seven nautical miles (Figure 1). In general there is a gradual trend from deep water at Lynas to shallower water in Liverpool Bay. The passage up the buoyed channel and River Mersey has likewise been divided into approximately equal lengths of seven nautical miles from the Bar to Q17 Light Float, and from Q17 to the Rock Light House. Q17 forms a reasonably natural boundary between sand banks which are not exposed at low water and sand banks which dry out at low tide. The River Mersey is highly industrialised, and observations cover the seven miles of navigable water between the Rock and an imaginary line joining Eastham Locks and Garston Locks.

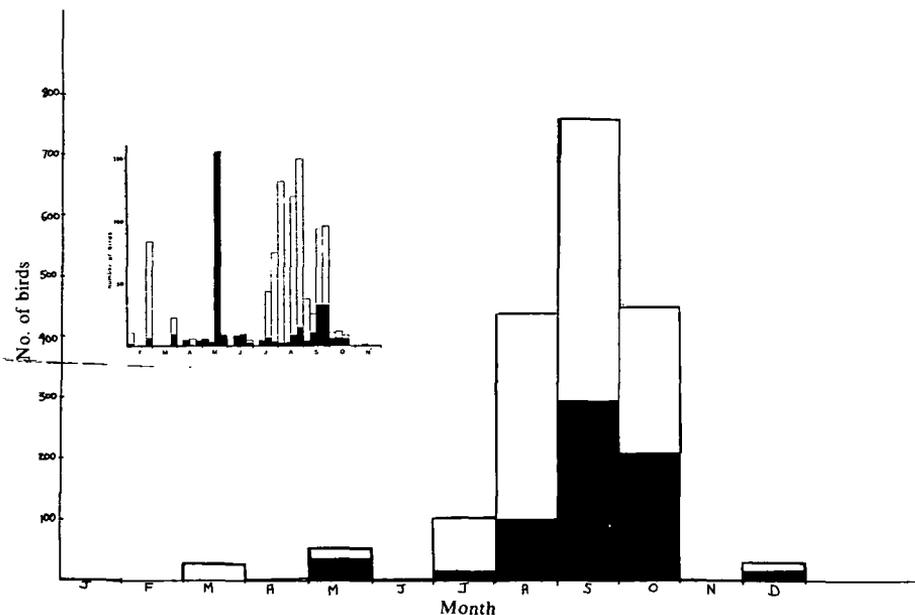


Figure 2. Monthly distribution of 1208 adult and 671 immature Little Gulls seen at sea in Liverpool Bay between July 1963 and December 1976. Shaded blocks indicate first year birds, unshaded blocks adults and second years. The main passage is observed in autumn with a peak in September, and there are indications of two peaks in spring, one of adults in March, and immatures in May. The insert shows weekly distribution of 1138 recorded on the land in the Alt Estuary area by Smith (1974) between February 1969 and February 1974. It is noticeable that the spring passages are more pronounced in Smith's study.

The totals of Little Gulls seen in each seven mile section of sea are given in Table 2. It can be seen that the species is scarce in the offshore zone of Liverpool Bay; over a thousand transects of the central section have yielded only one sighting. The number of observations increases in Queen's Channel, but undoubtedly the main area is Crosby Channel and Crosby Channel Bend. At this point the tidal flow is very strong, producing much disturbed water suitable for surface feeding (see later). This distribution pattern is similar to that reported by Smith (1974). The Alt Estuary, which Smith described as the focus of Little Gull activity in Lancashire, is situated immediately to landward of Crosby Channel.

## NUMBERS AND AGE RATIOS THROUGH THE YEAR

Figure 2 presents information on 1,879 sightings of Little Gulls seen by the author at sea between July 1963 and December 1976. As it was not always possible to identify second year birds, I have decided to pool information on them with adults, and to compare this group with the easily identified first summer and first winter birds. Little Gulls occur in every month of the year, but are mainly seen in the autumn. From an almost total absence in midsummer, return passage starts in July, builds up to a peak in September, and then declines. A few birds are seen in the winter and there is an indication of small peaks in March and May.

## BEHAVIOUR

I have not noted the wind and tidal state for all records, but some tentative conclusions can be drawn. There seems to be a tendency for Little Gulls to be seen during periods of fresh westerly winds, force 4 to 6 giving maximum numbers. During August and September, if the winds are westerly force 4 or above, a few birds are almost always present near Crosby Light Float, either keeping station by flying into the wind, or slowly beating their way to windward, sometimes as far as Fairway Buoy or even the Bar. Possibly these birds are part of the Alt Estuary flock which finds conditions too rough for roosting. In these conditions the presence of vessels is often ignored, the birds not taking the opportunity to feed in the ship's wake. Should the wind increase above force 7 westerly, the number of sightings decreases, possibly because of poorer viewing conditions. In severe storms, small numbers of Little Gulls occasionally accompany larger numbers of Guillemots and other seabirds in a flight to windward, presumably in an attempt to avoid a lee shore.

Although westerly breezes seem to be optimal for seeing Little Gulls near Crosby Light Float, calm conditions also provide sightings. However, the birds tend to sit on the water in calm sea conditions and are easily overlooked from a ship. Occasionally, large flocks are seen resting on the water in calm conditions, but it is a matter of chance whether a ship passes close enough to detect them. Thus, on 25 September 1975, I observed an unusually compact flock of 75 near Crosby Light Float. If they had been 200 metres further inshore, they would not have been noticed. Flat calm conditions, and light easterly anticyclonic weather are undoubtedly the least favourable conditions for observing Little Gulls from ships, and this introduces an important bias which will be discussed later. Usually, Little Gulls react positively to the presence of a passing ship by flying towards it and past it, then turning round and dropping to feed in the ship's wake. They hover and fly with great agility above the surface of the turbulence, pecking at the surface, landing on the water and pecking sometimes with the head submerged, then taking to the air again, and eventually landing on the sea astern of the ship where the wash has died away. Here they seem to await the passing of the next ship. Large numbers of Common Gulls *Larus canus* feed in a similar manner.

Feeding behaviour is also influenced by the state of the tide. Little Gulls are seldom seen from ships during the high water period when tidal streams are weak. At this time they are at their roosts on the Alt or Seaforth Pools. However, when the tide is flowing or ebbing strongly, they are frequently seen hovering over turbulent water downstream of buoys, anchored ships, and dock walls. The turbulence as the flooding tide covers the stone revetment walls behind the buoy line in Crosby Channel is much favoured as a feeding site. They hover over this line of broken water, feeding in the way already described. I have rarely been able to establish what they are eating, once seeing an adult carrying a small fish sideways in its bill. A flock of twenty adults and fifteen juveniles feeding excitedly in a very



Figure 3. Little Gulls feeding in the turbulence downstream of a buoy. The flock shows a cyclical pattern, birds landing on the water are carried downstream and have to fly back to maintain their position. Despite their attempts to keep up with the tide, most are carried downstream eventually.

compact flock at the Bar on 22 September 1972, was apparently taking small fry.

A Little Gull which lands on the surface of the water is, of course, rapidly carried downstream from the source of turbulence. It then takes to the air and flies upstream to its feeding site. A flock feeding in a strong tideway shows a cyclical feeding pattern (see Figure 3).

However, there is a general tendency to follow a tidal stream, and from about three hours to high water on a spring tide small numbers of Little Gulls enter the Mersey. An individual bird is usually seen flying against the strongly flowing tide, but its net direction of movement is with the tidal stream, because each time it lands on the water it is carried along rapidly by the current. Further flying to seaward fails to make up the lost ground. By one hour to high water Little Gulls become scarce in the Mersey, having settled at their roosts outside the estuary. There is no evidence for a regular roost within the upper estuary, a flock which summered at Hale Point in 1973 being exceptional. As the tide ebbs, they leave their roosts and start feeding. They follow the ebb tide out into Liverpool Bay, so that by low water scattered birds can be seen feeding as far out as the Bar. Sometimes large flocks feed well out to seaward at low water. Thus, on 20 September 1975, a flock of 40 was seen feeding over the turbulence as the last of the ebb tide drained over the end of the revetment at Q4. In Ireland, Ruttledge (1974) described Little Gulls feeding in surf conditions during onshore storms.

#### COMPARISON WITH OTHER STUDIES

Figure 4 shows the percentage first year birds recorded each month, with data from Lassey and Greenhalgh (1969) and Smith (1974) also plotted. In general, the monthly distribution of records and the percentage of first year birds accord with their results. The greatest difference is in the size of the spring passage. Their observations from the land show a marked spring passage with two peaks, one in late February with a majority of adults, and the second in the third week of May consisting almost entirely of first year birds.

My data show little indication of this, and it is difficult to understand why the spring passage should not be visible in the shipping lanes, when the autumn passage is so conspicuous. Weather conditions may be responsible for the difference, because spring passage observed at the Alt estuary seems to be associated with calm, often misty, weather conditions with an east wind. Such conditions are the least favourable for observing Little Gulls from ships. Observers on land have counted much larger numbers of Little Gulls at roosts (max. 229, Smith 1974) than I have seen in Liverpool Bay (max. 91). This is probably because a shipborne observer will only pass through a proportion of the foraging area, whilst birds from the whole of Liverpool Bay gather at roosts.

#### DISCUSSION

Hutchinson and Neath (1978) postulate that the presence of Little Gulls in inshore areas like Liverpool Bay permits them to undergo their autumn moult in relatively sheltered

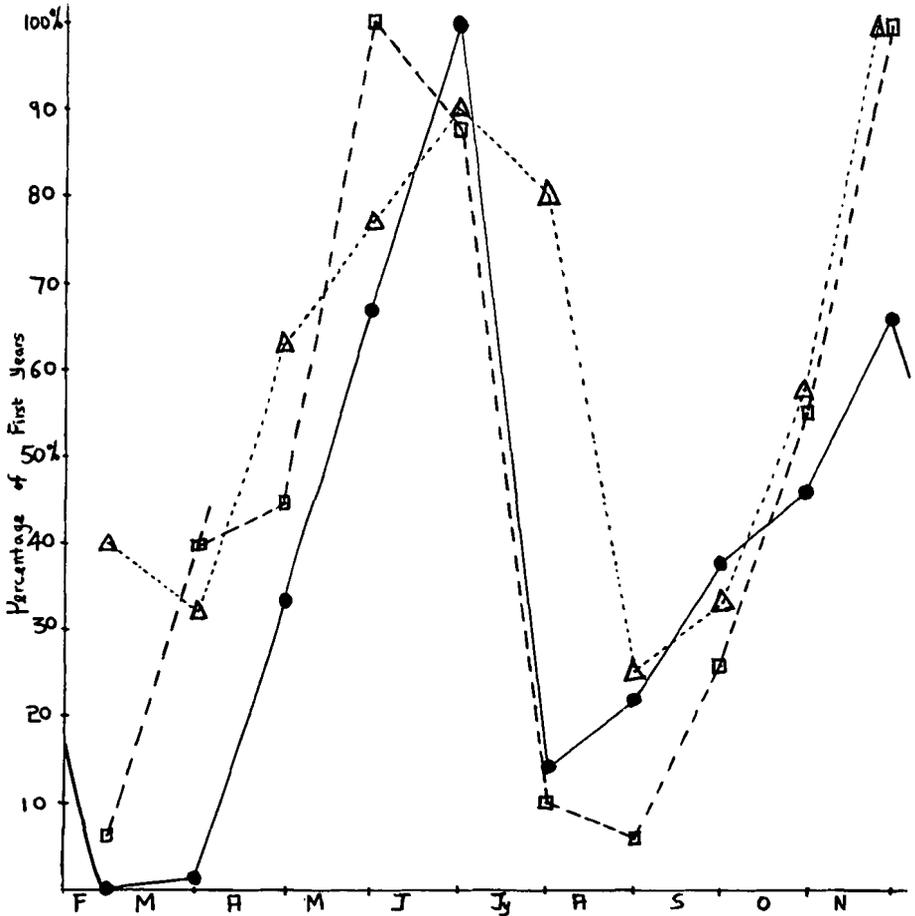


Figure 4. Percentages of first year Little Gulls per month from February to November. The results of the present study (solid circles) are compared to those of Smith (1974) (squares) and Lassey and Greenhalgh (1969). There is good agreement between the three sets of observations.

conditions. Whilst many adults in autumn can easily be seen to be in heavy wing moult, there are also a large proportion of first year birds in the autumn, and these birds do not appear to be using the area for primary moult. Possibly their presence in Liverpool Bay in spring and autumn is partly to provide a transitional period between a Little Gull's pelagic winter life and a fresh water breeding life, as Densley (1979) suggests takes place in Alaska for Ross's Gull and Sabine's Gull.

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## SUMMARY

Sightings of Little Gulls at sea in Liverpool Bay, between 1963 and 1976 are discussed. An increase began in 1965, and continued throughout the period. The distribution of Little Gulls at sea is discussed in relation to tide and weather. Little Gulls feed in turbulent water and follow ships. This study is compared with land based studies of the species in the same area. The main difference is the relative absence of a spring passage at sea, in comparison with a heavy spring passage ashore.

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*R. A. Eades, 1 West Way, Heswall Village, Wirral, Merseyside.*