

# THE CHANGING STATUS OF THE LESSER BLACK-BACKED GULL *LARUS FUSCUS* IN IRELAND

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## ABSTRACT

Major changes in the status of the populations of the large gull species in Ireland have taken place over the past fifteen years. While marked declines have occurred in the numbers of breeding herring gulls *Larus argentatus*, over more or less the same period there has been a sharp increase in the population of lesser black-backed gulls *L. fuscus*. Moreover, this increase has not been confined to the numbers breeding but has also involved considerable changes to the size of the overwintering population. This paper describes the change in status of the lesser black-backed gull in Ireland with particular emphasis on the rate of increase of the breeding population and the geographical distribution and numerical strength of the overwintering flocks. The increase in breeding numbers of lesser black-backed gulls is most marked at coastal sites in the south and south-east of Ireland, where annual increases in excess of 14% have been recorded. A survey of overwintering lesser black-backed gulls carried out as part of this study has shown that the population has exceeded 12,000 birds. The overwintering flocks are again mostly confined to the south and south-east of Ireland.

## INTRODUCTION

Numbers of breeding *Larus* gulls have increased through this century in Britain and in Ireland (Cramp and Simmons 1983; Lloyd *et al.* 1991). Protective legislation probably led to the initial increase in the early 1900s (Mudge 1978; Furness and Monaghan 1987; Monaghan 1993), while a later increase, since the 1950s, is believed to have been favoured by increased feeding opportunities (Lloyd *et al.* 1991). These are mainly of man-made origin, including the establishment of large municipal landfill sites and the increased availability of fishing discards at sea (Spaans 1971; Hudson and Furness 1988; Pons 1992). Recently the status of these gulls has changed. Herring gull *L. argentatus* (Pont) populations have decreased considerably on all Irish coasts since the late 1970s and early 1980s (Sutcliffe 1986; Lloyd *et al.* 1991), while lesser black-backed gull *L. fuscus* L. numbers have increased dramatically in some parts of Ireland (Lloyd *et al.* 1991; Creme and Kelly 1994).

The wintering status of the lesser black-backed gull has also undergone change. Generally adult gulls of the subspecies *graellsii* migrate to southern France and northern Spain, while immature birds migrate further south to North Africa and southern Spain (Cramp and Simmons 1983). Since the early 1960s, increasing numbers of predominantly adult

birds have been recorded during the winter in Britain (Hickling 1984). The present paper documents the general increase of the lesser black-backed gull in Ireland, with particular reference to the rate of increase of the breeding population and the geographical distribution of the wintering flocks.

## METHODS

To provide long-term data on lesser black-backed gull populations, information has been collated from a range of published and unpublished sources and new surveys. As lesser black-backed gulls are highly colonial, with relatively discrete nesting habitat preferences, they are perhaps more easily censused than related species. An intensive breeding survey was carried out on Cape Clear Island, Co. Cork (51°26'N, 9°28'W), during 1991–3. Techniques recommended for the J.N.C.C./Seabird Group Seabird Colony Register were used (Lloyd *et al.* 1991) and involved counting apparently occupied nests. A survey was also carried out on Great Saltee Island, Co. Wexford (52°8'N, 6°41'W) (Creme and Kelly 1994), where the technique described by Aspinall (1993), involving counters walking parallel to one another and marking counted nests with pasta, was adopted.

The distribution of nest sites of lesser black-backed gulls on Cape Clear Island in 1993 was

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## RESULTS

## BREEDING STATUS

plotted on maps (Creme 1995). These data were then compared to the known distribution maps of herring gull nests (Sharrock 1964; Collins 1984).

More extensive data from the published literature and the Seabird Colony Register (SCR) (see Lloyd *et al.* 1991) were drawn together to give a national picture of the change in status of the lesser black-backed gull breeding population in Ireland. The available information does not, however, give full coverage for parts of the west coast in the late 1980s. Data were separated into five geographical areas including those counties with significant breeding sites: north coast (including counties Antrim, Donegal and Down), south coast (counties Cork, Kerry and Wexford), east coast (County Dublin), west coast (counties Galway, Mayo and Sligo) and inland sites (including all counties where significant breeding colonies were reported at inland sites).

Rates of increase were calculated using Equation (1) (after Vermeer 1992):

$$r = \left( \frac{N_t}{N_0} \right)^{1/t} - 1, \quad (1)$$

where  $r$  is the average annual rate of increase up to and including year  $t$ ,  $N_0$  is the number of pairs recorded in the base year (i.e. the first year in the series), and  $N_t$  is the number of pairs  $t$  years later.

To assess the changes in distribution of breeding lesser black-backed gulls, census data were separated into two periods, 1969–83 and 1984–95. These periods were chosen to incorporate the two national breeding censuses that have been carried out. Analysis was carried out using only sites where counts were available for both the periods, and an overall estimate was made of inland and coastal proportions using available SCR data and estimates. The frequency of colony size and the distribution of colonies between inland and coastal sites were compared between these two periods using Chi-squared tests with Yates's correction where appropriate.

Overwintering figures were extracted from regional bird reports and a national survey of lesser black-backed gulls carried out in the winters of 1991/2 and 1992/3. The national survey, organised by the authors, was based on volunteers counting numbers of gulls present in their vicinity on specific weekends throughout the winter. This survey covered all of the Republic except for the north-west. Whilst it did not include Northern Ireland, information was made available from their data base (W. McDowell, pers. comm.). To exclude those birds on migration only, birds recorded in Ireland between 28 November and 31 January were taken as overwintering.

Documentation of lesser black-backed gulls breeding in Ireland in the nineteenth century was provided by Warren (1896) and Ussher and Warren (1900). Small numbers were recorded at a number of coastal sites, e.g. Rathlin Island, and inland sites, e.g. Loughs Meela, Erne, Key, Iron, Derg, Mask, Allen, Forbes and Ree, and on the River Shannon. One hundred pairs were recorded on a bog in County Kildare in the late nineteenth century, although turf developments later led to the disappearance of this colony (Kennedy *et al.* 1954). Detailed information is lacking for many areas from this period, but more precise data are available for a number of specific sites from later in this century. Table 1 summarises the national breeding surveys of coastal lesser black-backed gulls made in 1969–70 and 1985–8.

Each geographical area is considered separately below.

*North*

In 1978 300+ pairs were reported breeding on Copeland Island, Co. Down (Watson 1980). On Strangford Lough, Co. Down, five pairs bred in 1969. This number had increased to 131 pairs by 1994 (SCR). In 1892 a few pairs were noted on Rathlin Island, Co. Antrim. In 1947 and 1958 no birds were reported to breed there, though at least eight individuals were noted in 1954. The population was recorded as 50–100 pairs in 1969 (Watson 1980) and 155 pairs in 1985 (SCR). The population on Inishtrahull, Co. Donegal, increased from seven pairs in 1969 to 100 pairs in 1991 (SCR). Eight pairs were recorded nesting on Belfast city rooftops in 1994, a recent colonisation (Raven and Coulson 1997).

*South*

In 1943 41 pairs of lesser black-backed gulls were recorded on the Blasket Islands, Co. Kerry (Brazier and Merne 1989). This population had increased substantially to 338 pairs by 1969, after which a decline was observed (158 pairs in 1973, 60–80 pairs in 1980), before increasing again to 419–29 pairs in 1988 (Brazier and Merne 1989). On Great Saltee Island, Co. Wexford, 150 pairs were recorded in the 1920s but this colony had virtually disappeared by 1943 after the site was ploughed (Lloyd 1982). When farming ceased, breeding totals increased, with 75–80 pairs in 1978, 110 pairs in 1979 and 152 pairs in 1980 (Lloyd 1982). A 1994 census by Creme and Kelly (1994) recorded 620 pairs, which represents an average increase of 14% per annum using Equation (1). A brief visit to Little Saltee suggested that the

population there had also increased from the 150 pairs recorded in 1975 (Perry and Warburton 1976) to perhaps one order of magnitude greater in 1994, although this requires detailed confirmation (Creme and Kelly 1994). On Cape Clear Island 36 pairs were recorded in 1963 (Sharrock 1964). The population remained stable at around 45 pairs from 1969 (Green 1970) to 1983 (Collins 1984), before an increase occurred, with 103 pairs breeding in 1986 (Buckley 1986), 160 pairs in 1990 (Bird 1991) and 367 pairs in 1993 (this study—see methods).

#### East

All breeding records refer to County Dublin. A few pairs of lesser black-backed gulls were noted breeding on Lambay Island in 1906. The number increased to between 40 and 100 pairs in 1969/70, and 150 in 1987 (Merne 1988), but fell to 63 pairs in 1991 (Cooney *et al.* 1990–2). Two pairs were recorded on Dalkey Island in 1981 (Coombes 1989), one pair was recorded on Dublin city rooftops in 1991 (Dalton 1992), and one pair was recorded on Ireland's Eye, Co. Dublin, in 1994 (SCR).

#### West

In the west of Ireland, inland colonies hold the majority of breeding lesser black-backed gulls

(Whilde 1978). Small numbers of breeding pairs have been recorded on a number of offshore islands. One pair was recorded on Inishark, Co. Galway, in 1968, while five pairs were recorded there in 1988 (SCR). Seven pairs were recorded on Inishbofin in 1968 and nine pairs there in 1990 (SCR). One pair was recorded on Inishturk, Co. Mayo, in both 1968 and 1969 and on Clare Island, Co. Mayo, in 1982 (SCR). On Inishmurray, Co. Sligo, sixteen pairs were recorded in 1970 increasing to 46 individuals (*c.* 23 pairs) in 1986 (SCR).

#### Inland

In 1978 750 individuals (*c.* 375 pairs) were recorded on Lough Gara, Co. Sligo, and a further 906 individuals on Lough Derg, Co. Donegal. No previous records were found of these two breeding sites (Whilde 1978). By 1992 the Lough Gara population had increased to 1150 individual birds while the Lough Derg population fell to 800 individual birds (Whilde *et al.* 1993). Twenty pairs were noted on Lough Mask, Co. Mayo, in 1924 and 60 pairs in 1928. In 1977 832 individuals were recorded there, rising to 1236 individuals in 1983, equivalent to an overall rate of increase of 4% per annum between 1928 and 1983. Counts fell to 610 individuals in 1990 but increased again to 722 in 1993 (Whilde 1977; 1978; 1983; Whilde *et al.* 1993; A. Whilde, pers. comm.). The breeding

**Table 1—Numbers of breeding pairs of lesser black-backed gulls in selected coastal colonies in counties and regions of Ireland for the periods 1969–70 and 1985–8. Data are from the Seabird Colony Register and only include sites censused in both surveys (see text for additional details on individual colonies or other years).**

Region	County	Number of breeding pairs		
		1969–70	1985–8	% change
North		233	454	+94.8
	Derry	0	0	0
	Antrim	64	160	+150
	Down	159	284	+78.6
East	Donegal	10	10	0
		45	158	+251.1
	Dublin	45	158	+251.1
	Wicklow	0	0	0
South		612	904	+47.7
	Waterford	25	0	–100
	Cork	116	346	+198.3
	Kerry	471	558	+18.5
	Clare	0	0	0
West		31	68	+119.4
	Galway	6	5	–16.7
	Mayo	9	40	+344.4
	Sligo	16	23	+43.7

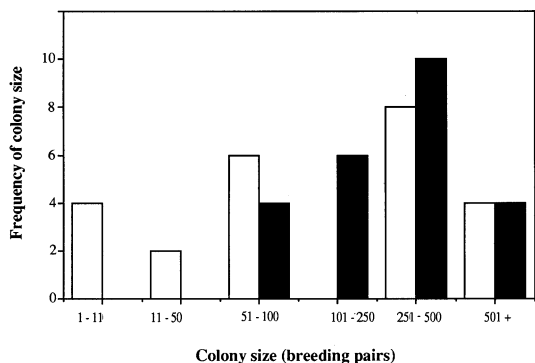


Fig. 1—Frequency of lesser black-backed gull colony size in the two periods 1969–83 (□) and 1984–95 (■).

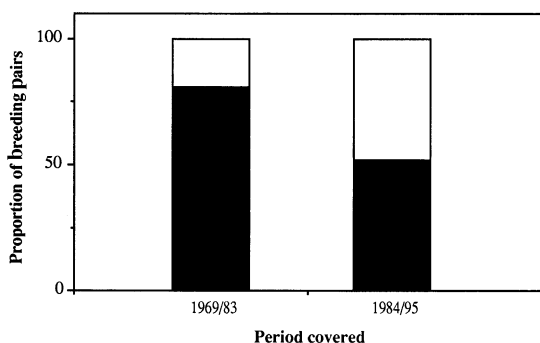


Fig. 2—Proportion of lesser black-backed gulls breeding at inland (■) and coastal sites (□) in the periods 1969–83 and 1984–95 ( $n = 12$ ).

population on Lough Corrib, Co. Galway, showed similar trends to the population on Lough Mask. Four pairs were counted on Lough Corrib in 1905 while the next census in 1977 recorded 2587 individuals, equivalent to an increase of 8% per annum between 1905 and 1977. The population decreased to 2305 individuals in 1983, followed by a major decrease to only 198 individuals in 1988 and 194 in 1990 (Whilde 1977; 1978; 1983; A. Whilde, pers. comm.) before increasing again to 389 individuals in 1992 (Whilde *et al.* 1993). In County Fermanagh 60 pairs were noted breeding on the isles in north Lower Lough Erne in 1973. In 1983 341 pairs were recorded at this site (SCR). On Lough Neagh no birds were recorded in 1962, but Ruttledge (1966) noted the establishment of a colony there in 1964. The population then increased to 300 pairs in 1980 and 450 pairs in 1987 (Hutchinson 1989).

The total number of lesser black-backed gulls breeding in Ireland was most recently estimated at 5200 pairs (Lloyd *et al.* 1991).

#### COLONY SIZE AND PROPORTIONS NESTING INLAND

The frequency distribution of colony size was compared between the two periods, 1969–83 and

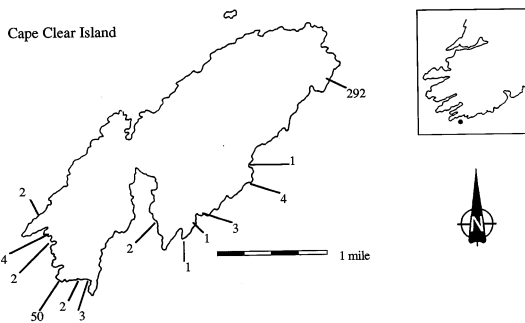


Fig. 3—Distribution of breeding pairs of lesser black-backed gulls on Cape Clear Island in 1993.

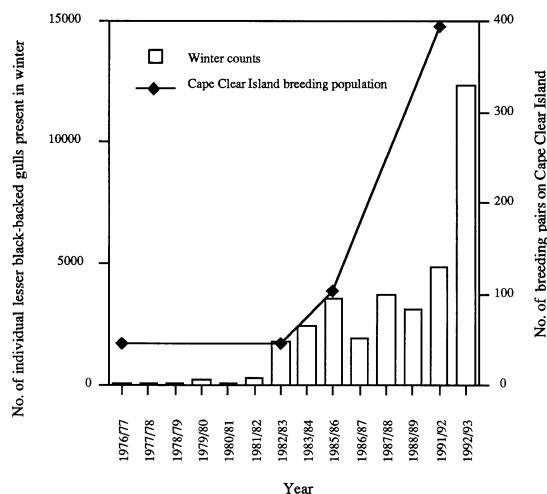


Fig. 4—The numbers of individual lesser black-backed gulls present in Ireland between 28 November and 31 January (bars) (data from Cork bird reports 1977–94, Irish east coast bird reports 1981–94, Irish bird reports 1977–94), and the number of breeding pairs on Cape Clear Island (Sharrock 1964; Sharrock and Wright 1968; Green 1970; Collins 1984; Buckley 1986; Bird 1991).

1984–95 (Fig. 1). Only sites represented in both periods were used to avoid bias created by lack of coverage in some areas (parts of the west coast) in recent years. In the later period, 1984–95, a higher frequency of larger colony sizes was recorded.

The relative numbers of lesser black-backed gulls breeding in inland and coastal sites were compared. Lloyd *et al.* (1991) estimated that *c.* 3000 pairs (58%) of an Irish population of *c.* 5200 pairs in 1984–8 nested inland. Inclusion of more recent figures for inland colonies (Whilde *et al.* 1993) and for Great Saltee (Creme and Kelly 1994) and Cape Clear Island provides a more up to date estimate of 54% of pairs nesting inland. Note that this figure may overestimate the actual proportion of birds breeding inland because recent coverage of

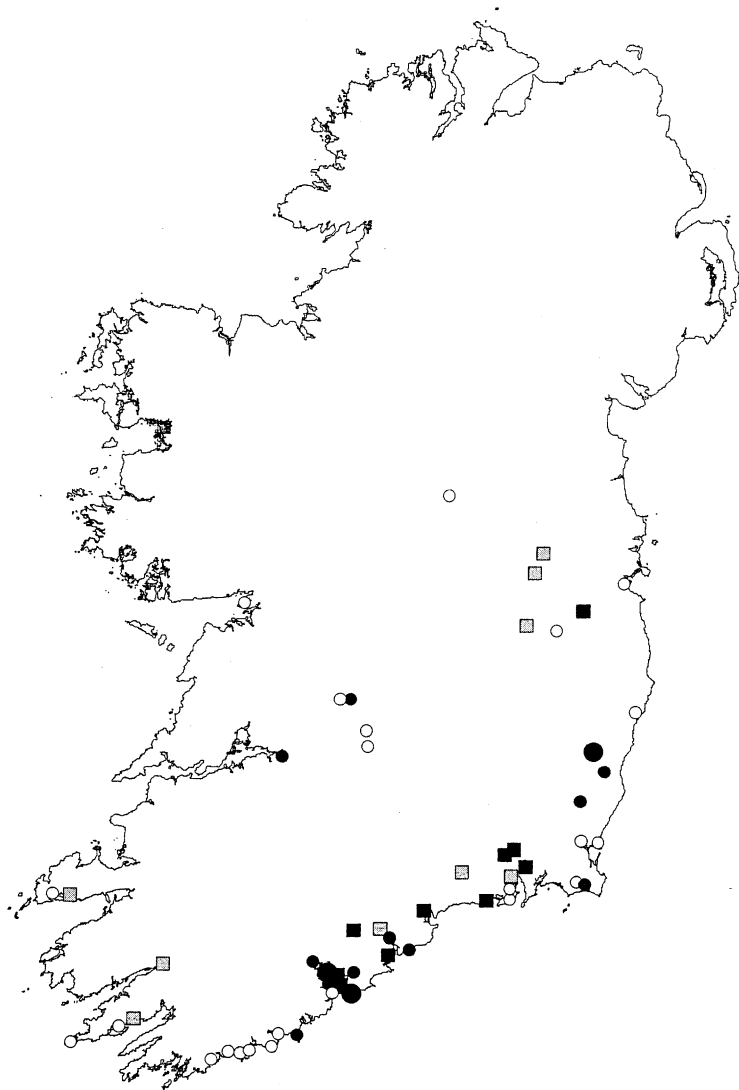


Fig. 5—Winter (28 November to 31 January) distribution of lesser black-backed gulls using maximum counts recorded in two national winter surveys 1991/2 and 1992/3. 0 birds (○), 1–50 (○), 51–500 (●), 501–1500 (■), >1501 (●).

coastal colonies has been less complete than coverage of inland sites.

Based on sites where census counts were available for both periods, approximately 81% of breeding pairs of lesser black-backed gulls nested inland in the period 1969–83, compared with approximately 52% in the period 1984–95 (Fig. 2). This represents a highly significant change in distribution ( $\chi^2_{(1)} = 863$ ,  $P < 0.001$ ).

#### DISTRIBUTION OF BREEDING SITES ON CAPE CLEAR ISLAND

Figure 3 shows the distribution of breeding lesser black-backed gulls on Cape Clear Island in

1993. In 1963 (Sharrock 1964) pairs were scattered around the southern end of the island. By 1983 (Collins 1984) the two areas now used most extensively had become established. In 1993 some scattered nest sites still existed but the numbers in the two areas established by 1983 had increased considerably. The land on which the largest colony is now present became available for nesting in the early 1980s, when it ceased to be farmed.

Over the period that the lesser black-backed gull breeding population increased, a dramatic decrease occurred in the herring gull breeding population, from 648 pairs in 1963 (Sharrock 1964) to 568 pairs in 1983 (Collins 1984) and to only 89 pairs in 1993. However, the nesting areas vacated by the declining herring gull population were generally not taken over by lesser black-backed gulls.

#### WINTERING POPULATION

Although breeding lesser black-backed gulls have increased gradually at many sites in Ireland throughout this century, the dramatic increase recorded in recent years was preceded by a change in its wintering status. Up to the late 1960s lesser black-backed gulls were considered a rarity in Ireland in the winter months, with only one or two records per year. The numbers then slowly increased over the following decade with up to 300 individuals being regularly recorded throughout the winter in Ireland (Fig. 4) in the late 1970s and early 1980s. In 1982/3 1745 individuals were recorded during the winter, and between 1983 and 1989 wintering figures ranged from 2000 to 4000 (Fig. 4). The national survey of wintering lesser black-backed gulls recorded in excess of 12,300 individuals for the winter of 1992/3. This large increase in numbers is partly due to the increased recording effort during this winter. Some duplication between sites recorded by surveyors may have occurred, but these are likely to have been offset by underestimation and lack of coverage in some other areas. Figure 5 shows the distribution of count sites and includes those areas where no lesser black-backed gulls were found. This map is based on maximum counts from all information available at the time of going to press and includes the 1991/2 and 1992/3 national winter survey results. It is presumed that some small wintering flocks may have been missed, particularly in areas of low coverage. From Fig. 5 it would appear that wintering lesser black-backed gulls are concentrated in the south and south-east of the country, mainly on the coast but with some inland sites also being used. Notably, there are few sightings recorded of this gull on the northern and western coastlines and this is confirmed by regional bird reports for these areas.

## DISCUSSION

In compiling an account of the breeding status of gulls, based on census data from a range of sources over a 30-year period, errors will undoubtedly be involved. Accuracy of census data can vary greatly according to timing of counts, method and effort (Wanless and Harris 1984; 1985; Green and Hirons 1988). As it is generally not possible to assess the accuracy of counts and adjust the data accordingly, census counts generally have to be looked on as rough estimates. It is clear, however, from the available data, that the lesser black-backed gull population breeding in Ireland has increased considerably through this century. The rate of increase has varied greatly between regions. On the inland lakes of the west the change in population appears to represent a slow annual increase over most of this century (Whilde 1978). However, since the early 1980s the populations at Lough Corrib and Lough Mask have decreased. Most other Irish colonies for which there is sufficient information to interpret trends have shown a steady increase over the last twenty years, while on the south coast the population growth has been more dramatic.

Available data since 1969 indicate that the increase in numbers of breeding lesser black-backed gulls has resulted in an expansion of existing colonies and not the establishment of new colonies. Although most coastal regions have shown an increase in colony size, overall numbers breeding in inland areas have decreased, resulting in a very significant change in the distribution between inland and coastal sites. Overall, the coastal breeding population of lesser black-backed gulls in Ireland increased by an estimated 23% to *c.* 2000 pairs between 1969–70 and 1985–8 (Lloyd *et al.* 1991). More recent counts suggest that the overall coastal population is now higher than this.

The decline of the Irish herring gull population since the early 1980s (Lloyd *et al.* 1991) would have left a large amount of coastal breeding habitat vacant. Yet the distribution of lesser black-backed gull nesting areas on the intensively studied Cape Clear Island, at least, did not correspond to areas previously used by herring gulls (Creme 1995). This suggests that the increase in numbers of lesser black-backed gulls at coastal locations was not prompted directly by the availability of disused herring gull breeding habitat. Differences in nesting site preferences between the two species have been recorded previously (Monaghan 1993; Spaans *et al.* 1994). The relaxation of interspecific competition for nesting sites does not therefore appear to be a major factor in the sudden increase in lesser black-backed gulls.

The wintering status of the lesser black-backed gull in Ireland has also undergone substantial

changes. The numbers wintering in Ireland began to increase in the late 1960s/early 1970s, with a slow but steady increase over the next decade. A relatively sudden increase occurred in the early 1980s, when the numbers present during the winter months reached several thousand individuals for the first time (Hutchinson 1989). In the absence of a detailed ringing programme of adult birds, it is impossible to establish the extent to which there is a turnover in the wintering population of this gull. It is also difficult to discover the relationship between increase in the overwintering and the numbers of breeders. Counts of wintering lesser black-backed gulls presumably include some transient birds, though the major migration of this species through the country appears to have occurred by late November each year (see Cork bird reports, Irish east coast bird reports and Irish bird reports between 1977 and 1994). High October and November counts, but low December and January counts, along the east coast (Irish east coast bird reports 1981–94) suggest that this is a major migratory route of this bird in Ireland. It is probable that the birds generally feed along the south coast before continuing their migration and that an increased proportion now remain to winter. The greatest density of wintering lesser black-backed gulls is to be found in the south and south-east of the country. A combination of milder winters and increased food availability has possibly encouraged these gulls to remain longer in Ireland or to discontinue their migration (Creme and Kelly, in prep.).

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