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OBSERVATIONS ON THE DISPERSAL OF GULLS MARKED ON STEEP HOLM AND THE DENNY.

The three species of large gull that live around the Bristol Channel are the Herring Gull, *Larus argentatus*, the Lesser Black-backed Gull, *Larus fuscus*, and the Great Black-backed Gull, *Larus marinus*. Marking of these gulls on Steep Holm has been regularly carried out since 1946. After eight years Poulding (1955) concluded from recoveries and sightings of marked birds that, with certain exceptions, they were sedentary in a local dispersive zone of about 25 miles radius. A few Herring Gulls moved to the south coast, while the sub-adult Lesser Black-backed Gull often dispersed to the south-west coast of Europe; one Great Black-backed Gull was found in France.

Ringling and tagging continues and in recent years Great Black-backed Gulls and Herring Gulls have been marked on the Denny, off the mouth of the Avon. This report is concerned with those birds recovered since 1954.

Herring Gull

The distribution of movements of birds away from Steep Holm is given in Table 1; the directions are divided into eight approximately equal sectors. Three birds from the Denny moved only six miles to the nearby coastline and are not considered further.

Table 1: Movements of marked Herring Gulls away from Steep Holm.

Distance moved in miles	Sector								Totals
	1 N-NE	2 NE-E	3 E-SE	4 SE-S	5 S-SI	6 SW-W	7 W-NW	8 NW-W	
<10	-	12	19	3	1	-	7	10	52
10-20	5	1	3	6	-	1	1	7	24
20-30	1	11	-	1	-	1	1	1	16
30-40	-	1	-	-	-	-	2	2	5
>40	3	1	4	3	2	3	3	2	21
Totals	9	26	26	13	3	5	14	22	118

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Nearly half of the recoveries were less than 10 miles from Steep Holm, most of them on the Somerset coast from Weston-super-Mare to Burnham-on-Sea, and on the Welsh coast between Barry and Cardiff. From 10 to 20 miles, the recoveries were in and around Newport, Taunton and Bridgwater. From 20 to 30 miles most recoveries were in the Bristol area and from 30 to 40 miles two were near Port Talbot. Small numbers were also found in various other parts on, or near, the estuary and in the mining valleys between the coast and the Breconshire mountains.

Most of the remaining 21 birds were found at distances much greater than 40 miles. In sector 1 three birds were found in central Britain (76, 130 and 180 miles); in sector 2 one bird was reported at Northleach in the Cotswolds (60 miles); in sector 3 four birds were found on the Hampshire and Sussex coasts (85-125 miles); two in sector 4 were on the Dorset coast (45-55 miles) and one on the Dorset Downs (40 miles); one was recovered from the Exe (41 miles) and one from Bovey (58 miles) in sector 5; in sector 6 two were found on the North Devon coast (44 and 63 miles) and one on the North Cornish coast (91 miles); on the Welsh side in sector 7 one bird was at Swansea (40 miles), one bird had gone to the Pembrokeshire island of Skomer (97 miles) and one had crossed St. George's Channel to Courtown Harbour in Co. Wexford (160 miles); and to the north in sector 8 two birds had left the Bristol Channel for Cardigan Bay (78 and 85 miles).

Thus most birds stay in or near the Bristol Channel area while some move considerable distances, usually over high ground where large towns are infrequent, to new coast-lines and possibly integrating with the local populations. This observed distribution suggests that Poulding's (1955) dispersive zone can be modified, especially when account is also taken of the species' feeding habit, which includes scavenging on the seashore and off wastes from man's activities (Harris, 1965), sightings of marked birds and the occurrence of unmarked birds in the vicinity of the Bristol Channel and the lower River Severn.

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Small numbers of Herring Gulls are seen at the north-eastern end of the Severn estuary, and in and around the large towns of Stroud, Cheltenham and Gloucester (B. Bailey & H. Forrest, pers. comms.). Some of those seen at the Wildfowl Trust, Slimbridge, have been tagged and it is possible that this north-eastern group of birds are from Steep Holm. The bird found deeper in the Cotswolds at Northleach was a juvenile and may have been leaving the area. A line can therefore be drawn just north of these towns and then continued west, south of the mountains and along the heads of the mining valleys. In the region of Swansea there are several recoveries, but there are also colonies on the Gower Peninsular so it is possible that two groups of birds overlap in this area. Since Swansea is a major town where Steep Holm birds could find plenty of food, at this stage it will be best to take the line round to the west of the town but excluding the Gower Peninsular. The other recoveries in this sector are distant on Skomer and the Irish coast and the gulls on the western end of the coast-line are probably associated with the former and neighbouring colonies rather than Steep Holm.

Crossing the Channel a Steep Holm bird was seen by the author on a Campbell's steamer near Ilfracombe (Boyd, 1956). This bird had been first noted following the boat as far back as Bridgwater Bay. There is no evidence of any interchange between Lundy and Steep Holm populations although they may abut or overlap in this area. From Ilfracombe the line turns east following the coast, leaving out Lymoor which the gulls do not regularly frequent, to the Quantocks. Turning south the line is taken to Taunton where a population from the south meets birds from the north, probably from Steart Island and Steep Holm (J. Moreley, pers. comms.). Continuing north-east from Taunton to include the Somerset lowlands and the Bristol reservoirs, the line passes east of Bath and Bristol where large groups of birds are associated with the inter-connecting river Avon. From Bath the line is taken northwards along the edge of the Cotswolds to Stroud.

This local dispersive zone contains other important breeding colonies, besides those already mentioned, at Flat Holm and at the mouth of the R. Wyre, and a number of very small scattered groups in some of the industrial areas. All

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the colonies may have directly or indirectly been populated from Steep Holm and recoveries have been so far found on two, Flat Holm and Steart Island. The local dispersive zones of these colonies are likely to be within the one for Steep Holm thus forming a major breeding group.

The age composition of the recoveries is 30% first year birds, 40% one to four year old birds and 60% adults, one of which was at least sixteen years old. Movements within or beyond the local dispersive zone depends to some extent on the age of the bird. Of those birds that were ringed as pulii and recovered away from the island, by the time they were three months old three-quarters were found during July and August on the Somerset coast in sectors 2 and 3. Up to four years there was a marked tendency to be found well away from the island sometimes beyond the local dispersive zone. The latter may be emigration or roaming before returning to the parent colony. Adults were generally found within the local dispersive zone during the spring, but a sixth of the birds ringed as adults were outside the zone suggesting again emigration or a winter roaming. Some of these movements are perhaps the result of following other birds to new feeding grounds or finding new sources by chance during their roamings. Later some may well integrate with the local breeding population and not return to Steep Holm. They could also be birds that are younger than suggested by the plumage and who have not been able to establish a breeding territory. The population density on Steep Holm is high and even previously established birds might find that their site had been taken over by another pair. Although unlikely, there could be a lack of food in the local dispersive zone forcing birds to search elsewhere. For instance, in the winter 1962-3 food was often unavailable to gulls as it was frozen solid and many birds were seen in numbers in areas where they were normally scarce, as was the case on the Severn at Slimbridge. The numbers have since remained relatively high indicating that the area is becoming a new traditional feeding and wintering site.

In the case of the primary dispersal of juvenile birds other factors may play a part. The frequency of recoveries on the Somerset coast is higher than elsewhere - numerous holiday makers ensures that a high proportion of the rings on

birds washed ashore are found. The close proximity of Brean Down (3 miles) to the mainland makes it a convenient place for the birds to head to when they leave the island (Poulding, 1955). Young gulls congregate off the east and west ends of the island at the end of July and in early August, many of whom are in a thin and critical state being no longer fed by their parents. Often the carcasses of dead birds are their only source of food. They are probably too weak to fly to the mainland and, in any case having no knowledge of food sources elsewhere, are simply carried to the mainland by the fast currents helped by any suitable winds. Once on the mainland they can begin to search for food.

The importance of the currents was tested in two ways. Artificial markers were put in the sea around Steep Holm under different conditions of tide and wind and over half were reported, some within a matter of days, and most were on the Somerset coast (R.A. Pitman and M.J. Bywater, pers. comms.). Juvenile gulls found dead on the island were ringed and put in the sea. Again within a few days reports came in from the Somerset coast.

However, only 10% were recovered which is perhaps a reflection of how easily dead seabirds can be lost by the action of scavengers, decomposition or being washed up on remote shores. This is also pertinent to oiling incidents where we do not know what proportion of oiled birds ever reach the shore, alive or dead.

Lesser Black-backed Gull

Fewer of this species have been marked with only 17 recoveries. The youngest were found close-by in Somerset but four birds between about four and a half months and two and a half years were found in France and Spain, from 480 to 1100 miles away. In contrast a one and a half year old bird was found 125 miles to the NNE in England. Possibly some young birds remain in Britain or return after a short stay on the mainland of Europe. A three year old bird was reported from Weston-super-Mare and seven adult birds, one at least eleven years old, were found upstream of Steep Holm, mostly

on the east side of the estuary. The only winter records are of birds reported from the continent. One was an eight and a half year old bird in Portugal, which was either a resident or roaming from place to place. These movements are similar to those reported by Poulding (1955).

Great Black-backed Gull

On Steep Holm this species has numbered up to 100 pairs in recent years and on The Denny about 30 pairs. Young birds in particular, from both islands, have been marked as part of a general study of the upper Bristol Channel populations.

The distribution of movements of birds away from Steep Holm is given in Table 2 as for the Herring Gull and the pattern of movement is similar, but the local dispersive zone is probably

Table 2: Movements of marked Great Black-backed Gull away from Steep Holm.

Distance moved in miles	Sector								Totals
	1 N-NE	2 NE-E	3 E-SE	4 SE-S	5 S-SW	6 SW-W	7 W-NW	8 NW-N	
<10	-	5	11	2	-	-	1	4	23
10-20	5	2	2	1	-	1	-	3	14
20-30				2	1				3
30-40									0
>40	1	1					1		3
Totals	6	8	13	5	1	1	2	7	43

smaller there being only three birds in the 20-30 mile group and none in the 30-40 mile group. This is consistent with the more marine and predatory feeding habits of this species (Harris, 1965), although they are to be found regularly on the reservoirs south of Bristol. Three birds moved outside the local dispersive zone; one was shot on Skomer (95 miles), the second was found at Burton-on-Trent (120 miles) while the third, ringed as a pullus, was recovered at Fredrickstad (820 miles) in southern Sweden, when five and a half years old. This last bird may have followed the

continental populations that winter in Britain.

Seven Denny birds moved downstream to Steart Island (25 miles), Sand Bay (14 miles) and Barry (27 miles) while two moved upstream to Chepstow (8 miles) and Awre (23 miles). Since Awre is on the opposite bank to where around 50 predominantly sub-adult birds winter and a few spend the summer it is possible that in part they come from The Denny. Despite considerable ringing on the two islands a ringed bird has yet to be seen in this flock and, at present, this suggests other origins, including continental.

References

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Lundy Field Soc. 10th. Ann. Rep. 1956.
 Harris M.P. (1965) The food of some Larus gulls
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 Steep Holm. Proc. Bristol Nat. Soc. 29 (1), 49-56.

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SYSTEMIC LIST

The island was manned by members of the Research Group and associates on 29 days in 1966, 38 days in 1967 and 27 days in 1968. Each autumn a party was in residence for a continuous period for the purpose of passerine ringing and diurnal migration watches - 16 days in 1966; 14 days in 1967 and 8 days in 1968. In addition, a party from Monmouth School kindly provided notes on their 5 day stay from August 1-5, 1968.

MANX SHEARWATER

- 1968 Party of ten moving up-river, July 15.

FULMAR

- 1966 Light-phase bird, Aug. 28 and two on 29th.
 1967 Single birds, July 2, Aug. 27, 28.

GANNET

- 1966 One, Sept. 28.
 1968 Two adults and one sub-adult, July 15.

CORMORANT

No satisfactory nest count made over past three years but numbers well maintained.

HERON

- 1967 Three flying down-channel together, Aug. 27.
 1968 Two over island, Sept. 26.

MALLARD

Only a few records; usually single birds, occasionally a pair.

COMMON SCOTER

Ad. male seen on crossing from island, Sept. 29.

SHELDUCK

Breeds annually. Up to 31 birds off island (June 10) in 1967 but few records in 1968.

BUZZARD

- 1967 One hunting over plateau, Sept. 23.

SPARROTHAWK

- 1967 One crossed channel to Brean, Aug. 26; noted daily, Sept. 17-23, possibly same bird but perhaps second bird on 20th; another following migrants, Sept. 27.
 1968 Single birds, Sept. 28, Oct. 5.

HEN HARRIER

- 1966 Juvenile female caught in mist-net set for migrant linnets, Oct. 9 (First record for island).

PEREGRINE

- 1967 Juv. Aug. 26. Possibly, same bird again present, Sept. 16-20.

KESTREL

- 1966 Two Aug. 26, Sept. 30; single birds, Aug. 29, Sept. 24, 27-29. Oct. 1, 2, 4; and female, possibly resident, Oct. 5-9; three Oct. 3.
 1967 Single birds, Aug. 26, 28, Sept. 16, 18, 19, 22, 27, Oct. 22; two, Aug. 27, Sept. 21; four or five, Sept. 17 and three, Sept. 23.
 1968 Peak passage missed. Two or three, Aug. 31; two, Sept. 25 and one, Oct. 19.