

An Inner London Study of Birds on the River Thames at Westminster and Waterloo

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INTRODUCTION

Previous studies of birds on the River Thames in Inner London were made between Vauxhall and Lambeth Bridges (hereafter referred to as 'Lambeth') and from Waterloo to Blackfriars Bridges ('Waterloo') from 1951-53 (Cramp and Teagle 1955) and between Lambeth and Westminster Bridges ('Westminster') from 1968-70 (Strangeman 1971). A further three year study at Westminster and Waterloo from Jan. 1st 1979 to Dec. 31st 1981 provides the basis for this paper which is mainly devoted to comparing the birds recorded on both stretches of the river in this period and with highlighting the population changes with the earlier studies, cited above, to which all further references relate.

CHANGES IN THE STUDY AREA

Apart from the pontoon which was temporarily removed from Lambeth Pier in 1979 there have been no significant changes at Westminster during the last decade.

At Waterloo major changes have taken place on the southern bank during the last 30 years. In the early 1950s, except for a small extension to the South Bank promenade near Waterloo Bridge, the entire frontage was overlooked by wharves. Prior to the beginning of the current study the promenade had been extended to about 150 metres from the bridge in front of the National Theatre, while at the other end new development extending for 210 metres upstream from Blackfriars Bridge had reclaimed some foreshore land. In December 1979 work commenced on developing a site between the National Theatre and the modern Kent House. This new building programme caused considerable noise at times because of piling during the construction of the new river wall.

The extended promenade was finally opened to the public on Nov. 30th 1983. A barge adapted with a helicopter pad was reached through Stamford Wharf until it was removed in 1984. Under one-third of the old buildings fronting the river now remain, although most of these sites are gradually being demolished. Apart from boys who sometimes invade this foreshore other human disturbance to birds here, and at Westminster, is caused by the slow progress of a few treasure hunters.

A main attraction for gulls at Waterloo in the 1950s was the regular loading of refuse barges from one of the wharves, but this activity has now ceased. The increase in fish in the Thames during the last ten or so years has attracted fishermen on both stretches of river, although this recreation is intermittent in the study areas and disturbance of bird life is minimal.

METHOD AND AIM OF STUDY

As in previous studies the aim was to count all birds at least once a week on both stretches and to adopt the same method of recording to enable a direct comparison of the results.

177 and 243 visits, invariably made around mid-day, were carried out at Westminster and Waterloo respectively between 1979 and 1981 (see table below).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Westminster													
High Tide	7	9	8	10	6	9	12	8	8	8	9	10	104
Low Tide	7	8	5	4	6	5	7	7	9	7	4	4	73
Total	14	17	13	14	12	14	19	15	17	15	13	14	177
Waterloo													
High Tide	8	8	7	10	8	7	9	5	8	9	11	10	100
Low Tide	13	14	12	11	12	14	15	12	14	13	5	8	143
Total	21	22	19	21	20	21	24	17	22	22	16	18	243

Low tide counts were made on 73 (41%) days at Westminster and 143 (59%) days at Waterloo. Although 111 (84%) more counts were made at Waterloo from 1979-81 than from 1951-53 (largely as a result of more than one visit a week in 1979 when 106 counts were made compared with 67 in 1980 and 70 in 1981), it became evident that only five low tide counts had been made in November compared with nine in the earlier study. Cramp and Teagle considered that only their low tide counts, which they defined as 'when one-quarter or more of the shingle banks were exposed', should be used in comparing their monthly averages, too few counts having been made at high tide in the 1951-53 study, it was decided to make some extra visits. In 1982 14 counts were made, from July to December, seven of them in November of which four were at low tide. The inclusion of these records insignificantly changed the monthly averages of all species except the Feral Rock Dove. The results of these additional visits are excluded from the tables.

Since the 1968-70 Westminster study I have continued to make mid-day visits to this stretch, although not in every week, throughout the eight year period ending in 1978: 235 visits ranging from ten in 1974 to 49 in 1978 were made. Weekly visits totalling 254 were carried out from 1982-85.

The results of the counts are shown as monthly averages for the regularly recorded birds in tables, while comparison is made with the earlier studies in the form of histograms for selected species.

Gulls were aged as often as possible with the samples at Westminster and Waterloo being combined in Table 1. As it was impractical to age all Black-headed Gulls, sometimes Common and more rarely the three larger species, it is important to read the table from the standpoint that only samples of the total numbers present were aged. The September to December samples of Black-headed Gulls are particularly low.

The plumage of the Common Gull from juvenile to first-summer allows this age group to be distinguished from older birds at considerably longer range and at awkward angles. The separation of second-winter and summer from adult is less easy and on some occasions in this study the species was noted as 'not juvenile/first-winter/first-summer'. Some of the birds older than first-summer were specifically aged while the remainder were interpolated from the samples of second-winter/second-summer or adult.

At Westminster and Waterloo the abundance of the regular species followed a similar monthly pattern on both stretches, unlike the 1951-53 study when there was often a considerable difference between the number of birds present at Waterloo and Lambeth.

Table 1. Age classes of gulls on the River Thames at Westminster and Waterloo, Inner London, 1979-81.

Species	Age											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Black-headed												
1st-w.	12	16	18	87	100	97	97	97	5	12	7	12
2nd-w.	88	84	82	13	0	3	3	3	95	88	93	88
3rd-w./ad.												
Total aged	1,491	2,890	996	67	166	106	1,242	1,315	172	299	516	475
% aged	15	31	24	23	84	24	36	30	3	8	12	6
Total counted	9,860	9,290	4,217	292	196	446	3,469	4,446	5,485	3,433	4,430	7,890
Common												
1st-w.	17	23	46	85	90	97	67	27	21	31	23	14
2nd-w.	72	15	26	11	8	2	33	43	49	55	15	15
3rd-w./ad.												
Total aged	463	615	611	1,416	234	92	116	73	56	145	217	334
% aged	94	97	89	87	100	99	97	99	100	97	92	79
Total counted	491	635	690	1,635	254	93	119	74	56	150	235	423
Lesser Black-headed												
1st-w.	9	8	3	2	15	17	0	1	6	4	3	1
2nd-w.	6	8	5	2	23	42	11	6	5	3	3	3
3rd-w.	4	0	0	5	21	13	29	7	2	5	1	3
4th-w./ad.	81	84	92	91	41	28	60	86	87	88	91	91
Total aged	54	80	36	41	34	133	220	154	215	185	88	64
% aged	58	100	95	98	100	80	92	95	86	97	100	91
Total counted	55	50	38	42	34	167	240	162	249	191	88	70
Herring												
1st-w.	17	20	28	15	13	13	7	13	28	14	18	16
2nd-w.	13	11	20	10	21	20	1	10	6	10	10	12
3rd-w.	8	3	24	22	30	27	27	15	9	5	14	5
4th-w./ad.	62	56	28	55	36	30	65	62	57	71	58	67
Total aged	52	46	25	40	83	102	77	39	98	42	50	43
% aged	90	98	76	93	100	89	90	76	98	88	94	83
Total counted	58	47	33	43	83	114	86	51	48	48	53	52
Great Black-headed												
1st-w.	37	24	49	52	77	62	0	10	15	14	16	26
2nd-w.	7	8	16	11	8	33	25	19	2	0	6	6
3rd-w.	5	5	10	15	0	5	40	13	11	3	2	1
4th-w./ad.	51	63	25	22	15	0	35	58	72	83	76	72
Total aged	103	76	51	27	14	21	40	46	82	69	50	76
% aged	98	100	82	96	100	91	93	92	99	97	100	96
Total counted	105	76	62	28	14	23	43	52	83	71	50	79

The age classes are expressed in percentages.
 juv. = juvenile, 1st-w. = first-winter, 1st-s. = first-summer, ad. = adult.

The species' accounts discuss the variations that occurred from 1979-81 in the two study areas, the changes in status since the earlier studies and certain behavioural notes. A table preceding each species account shows average monthly counts. Differences between high and low water counts most notably affected the numbers of Black-headed Gulls, Feral Rock Doves and Starlings. The Black-headed Gull table shows the separate and combined high and low water averages and for the dove and Starling only the low tide figures are shown. The combined high and low tide figures are shown for all other species.

RESULTS AND DISCUSSION OF OBSERVATIONS

Table 2 shows the 28 species recorded from 1979-81 of which 18 occurred on both stretches, seven only at Westminster and three only at Waterloo. The species recorded at Waterloo from 1951-53 and at Westminster from 1968-70, 1971-78 and 1982-85 are also shown in Table 2. Only species recorded on the specific counts have been included, thus eliminating random records such as a Kittiwake at Waterloo in 1979.

Table 2. Birds on the River Thames, Inner London, at Waterloo, 1951-53 (after Cramp and Teagle 1955) and 1979-81(82) and at Westminster, 1968-85.

	Waterloo		Westminster			
	1951-53	79-81	68-70	71-78	79-81	82-85
Little Grebe	O			O		
Great Crested Grebe			O			
Cormorant		R		O	R	R
Shag		O		O	O	O
Grey Heron		O		O	O	O
Mute Swan	R	O	O	O		O
Canada Goose			O			O
Mallard	R	R	R		R	R
Pintail				O		
Pochard	O		O	O	O	O
Tufted Duck	O	O	O	O	O	O
Moorhen		O				O
Coot	O		O			
Oystercatcher					O	
Common Sandpiper	O	O			O	
Little Gull				O		
Black-headed Gull	R	R	R	R	R	R
Common Gull	R	R	R	R	R	R
Lesser Black-backed Gull	R	R	R	R	R	R
Herring Gull	R	R	R	R	R	R
Great Black-backed Gull	R	R	R	R	R	R
Kittiwake						O
Common Tern					O	O
Sterna sp.	O	O	O	O		
Feral Rock Dove	R	R	R	R	R	R
Woodpigeon	O		R	R	R	R
Turtle Dove					O	
Swift		R		R	R	R
House Martin	O					
Swallow*		O				
Meadow Pipit			O			
Grey Wagtail	O	O	O	O	O	O
Pied Wagtail		O	O		O	O
Black Redstart			O			
Blackbird				O		O
Carriion Crow	R	R	O	R	R	R
Starling		R	O	R	R	R
House Sparrow	R	R	R	R	R	R
Goldfinch						O

O = Occasional visitor, R = Regular visitor
 * 1982 record only

(a) Regular visitors

Cormorant

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Westminster												
High and Low tide	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1
Waterloo												
High and Low tide	0.1	0.1	0.0	0.1	0.0	0.0	<0.1	0.0	0.1	0.1	0.0	0.2

The Cormorant was recorded from September to February and in April and July (see table above) usually involving single birds flying up or down both stretches of the river. Only two observations, of one on the river at Westminster and one on a buoy at Waterloo, do not relate to birds in flight.

None was seen during either of the previous studies and although there are past records of casual sightings it was not until February 1977 that the first Cormorant was seen on a specific visit at Westminster. There were March observations from 1982-85. Records increased from 1983 and are reflected in the average winter (October to March) figures, involving sightings totalling 122 birds, from 1976/77 to 1984/85 as follows: 0.1, 0.2, 0.1, 0.2, 0.3, 0.2, 0.5, 0.8 and 1.3.

As Cormorants have shown a marked increase in the London Area in the last decade, it is not surprising to see them flying over the Thames in Inner London on their way to and from their preferred feeding areas. They regularly fish successfully in the Thames between Hammersmith and Putney Bridges and below the Woolwich Ferry, for example, so it is a little surprising that none was seen diving at Westminster or Waterloo from 1979-81 in view of the increase in fish in the river. However, at Westminster one was diving on Jan. 29th 1982 and in January 1985 one was watched successfully fishing there on three days and also twice at Lambeth. Andrews *et al.* (1982) have shown that there has been a further increase of macrofauna in the river since around 1977, which coincides with the increase in Cormorant records given above and must be one reason for their frequent occurrences nowadays.

Mallard

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Westminster												
High and Low tide	1.6	2.6	4.5	5.2	4.2	3.7	0.9	0.1	0.4	1.0	2.4	2.9
Waterloo												
High and Low tide	1.2	0.3	2.0	1.8	2.9	0.8	0.3	0.1	0.1	0.1	1.2	2.7

The table above shows that slightly higher numbers were recorded at Westminster than at Waterloo, where the respective maxima were 15 on Nov. 3rd 1981 and nine on Jan. 12th and Nov. 4th 1981.

There has been virtually no change in status since the 1950s at Waterloo and the only difference at Westminster, compared with 1968-70, is a tendency for birds to be more numerous in winter. This upward trend is reflected in the combined November to February averages for all counts of 2.6 from 1968-70, 9.5 from 1979-81 and 17.5 from 1982-84. A record 37 occurred on Jan. 9th 1985, the majority dabbling, as is usual, near the foreshore by Victoria Tower Gardens. As the tide ebbed on this date oil slicks were seen on the Lambeth 'half' of the river where a pair of Mallard were swimming. Twice the ducks swam rapidly away from the approaching oil and on the next occasion they escaped from the pollutant by flying off when it seemed that their plumage would be soiled.

Black-headed Gull

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Westminster												
High tide	204	230	138	7	7	9	57	138	95	110	177	187
Low tide	192	179	107	17	3	6	112	138	147	75	125	148
High and Low tide	198	206	126	10	5	8	77	138	123	94	161	176
Waterloo												
High tide	228	194	72	5	2	3	63	83	71	60	126	221
Low tide	412	303	173	10	10	22	95	164	202	115	190	403
High and Low tide	347	263	136	7	7	16	83	140	155	92	146	302

The average monthly figures for all counts along both stretches of river show a remarkable similarity from March to November, but in the three remaining months appreciably greater numbers occurred at Waterloo, where many of the highest winter counts were made at low tide: 600 or more on six occasions. The peak of 430 at Westminster occurred at high tide on Jan. 24th 1979.

At Waterloo the average monthly low tide counts were all greater than those at high tide whereas at Westminster the high water counts were higher in eight months and identical in one. At Westminster moored barges and river craft and the Houses of Parliament embankment wall generally accommodate the majority of gulls requiring such positions at high water, especially in winter, while at Waterloo a disused warehouse roof, the odd barge, mooring posts and permanently moored ships attracted fewer such birds. Although these resting places may be used in early autumn, the pale green concave Derbydene roof of the Royal Festival Hall has become a favourite diurnal roost from July to September which is occupied mainly, but not exclusively, at high tide. The roof is made of copper (G. L. C. 1976) and because this metal is a good conductor of heat the gulls are possibly attracted by its warmth at this time of the year.

Comparison with the 1951-53 results at Waterloo, in Fig. 1, reveals that the most striking difference is the early autumn peak which was not evident earlier. Also very small numbers were present throughout late spring/early summer whereas in 1951-53 there were no records for May and only one or two throughout June and July. The birds formerly returned after their breeding season in extremely low numbers in August before sharply rising in November, however, new arrivals now appear in July, including a very small proportion of juveniles (see Table 1) and continue to increase before falling by October before the main arrival of winter visitors. This pattern is repeated on a smaller scale at Westminster, although the variation with the more recent 1968-70 study is less marked.

The British breeding population rose sharply during the 1967-72 period (Sharrock 1976) and presumably is reflected in the increase in numbers from July to October compared to the earlier study. Flegg and Cox (1972) have shown from their analysis of Black-headed Gulls ringed in England and Wales, that the species moves inland from its coastal breeding colonies and that first-winters travel farther than adults. They found that 'The only apparently sizeable concentration, in the Greater London Area, was composed of both adult and first-winter birds from colonies in Essex and Kent'. The earliest birds arriving in Inner London, therefore, are probably from these Home Counties east of London as the majority disperse westwards, but gulls from Hampshire may be involved as they show a strong tendency to move northeast. As winter advances British birds move farther from their natal area which would explain the fall in numbers in October before the additional arrivals in November from the Continent, as revealed by ringing recoveries (Horton *et al.* 1984).

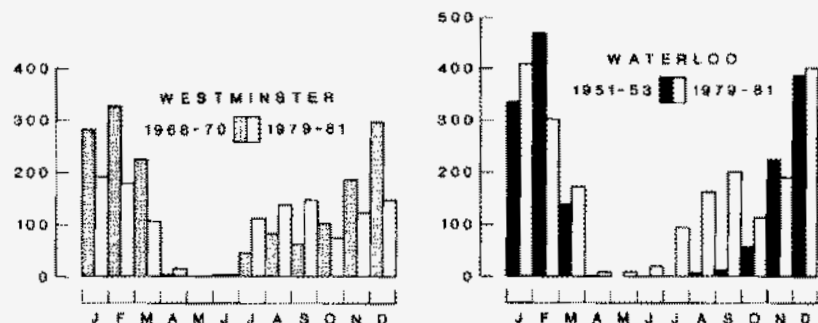


Fig. 1. Average monthly low tide counts of Black-headed Gulls.

In winter there has been very little change in numbers compared with the previous studies. The November to February period shows that the low tide figures at Waterloo were greatest in November and February from 1951-53 and in December and January from 1979-81, the combined average monthly figures for these four months being 1,420 from 1951-53 and 1,308 from 1979-81. In the shorter period between the two intensive studies at Westminster a more noticeable fall in the corresponding four months has occurred: 998 from 1968-70 compared with 644 from 1979-81. However, this trend has not been maintained as 860 were recorded in the same four months from 1982-84.

Common Gull

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Westminster High and Low tide	13.4	16.5	25.2	47.3	10.0	1.5	2.2	2.0	1.1	2.9	6.5	10.6
Waterloo High and Low tide	14.4	16.1	19.1	46.3	5.7	3.4	3.2	1.6	1.7	4.9	9.4	15.2

The average monthly counts were generally similar on both stretches, the main exception being a sharp rise at Waterloo in December as a result of an increase to 40-50 in the middle of that month in 1981, when very cold weather prevailed and coincided with peak numbers of Black-headed Gulls. Unfortunately, the dates of the Westminster counts missed this influx resulting in the smaller average low tide figure on this stretch.

Although spring passage was recorded in the earlier studies the large increase since then is dramatically illustrated in Fig. 2. In March the first obvious signs of movement are the increase of first-winter birds which during winter never exceeded 15. Peak passage occurs between late March and mid-April when maxima of 150 on Apr. 19th 1979 at Waterloo and 110 on Mar. 31st 1980 at Westminster were recorded. Not unexpectedly, the movement may cease abruptly as happened in 1981 when there was 100 at Waterloo on Apr. 8th, but just nine on the following day. In some years high numbers may occur at any time outside the main passage period e.g. 40 on Mar. 2nd and 30 on May 4th 1979 at Waterloo and 57 on May 1st 1979 at Westminster.

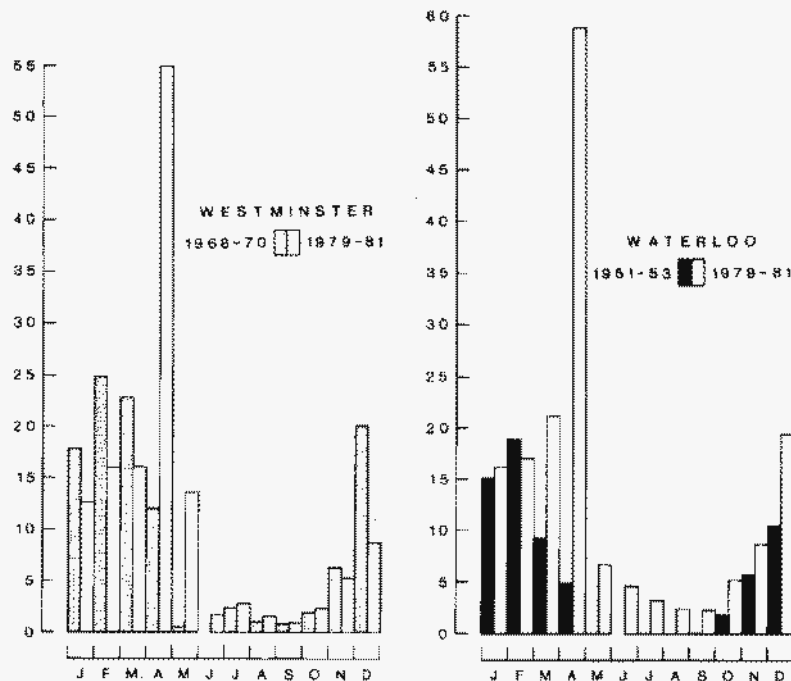


Fig. 2. Average monthly low tide counts of Common Gulls.

In spring Common Gulls are often seen circling and drifting in the air until food on the surface of the water is found which rapidly attracts birds from elsewhere along the river causing numbers to change within minutes. As this species is not mainly dependent on obtaining food from the foreshore at this time of year the water level does not obviously influence its numbers.

Lesser Black-backed Gull

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Westminster High and Low tide	1.1	1.0	0.6	1.3	0.8	6.5	7.3	6.9	7.8	5.8	2.3	2.1
Waterloo High and Low tide	1.9	1.5	1.6	1.1	1.2	3.6	4.3	3.4	5.3	4.7	3.6	2.2

Occurred in all months being found in similar numbers on both stretches (see table above). In June there is an increase involving mainly immatures (72%), but dominated by second-summer birds (42%) (see Table 1). The table above reveals that there is no great change between the June and July averages, but masks the increase in adults which rose by 14% to form 42% of the total, presumably as a result of early autumn passage. By August the proportion of adults approximately doubled as this age group continued to dominate the species until April. After the autumn peak numbers dwindled in November, comparatively few were seen until the rise in early summer.

Cramp and Teagle (1955) considered that Lesser Black-backed Gulls, while less shy than Great Black-backed Gulls, were attracted to feed by the rubbish barges at Waterloo, thus accounting for their larger numbers there than at Lambeth. The dramatic drop at Waterloo (see Fig. 3) since 1951-53 must largely be attributed to the reduction in available refuse. However, this cannot be the only reason for reduced numbers as indicated by the Westminster counts which show, although less dramatically than at Water-

100, a further decline in the last decade with average autumn (August to October) counts reaching extremely low figures after 1977, as shown in Fig. 4.

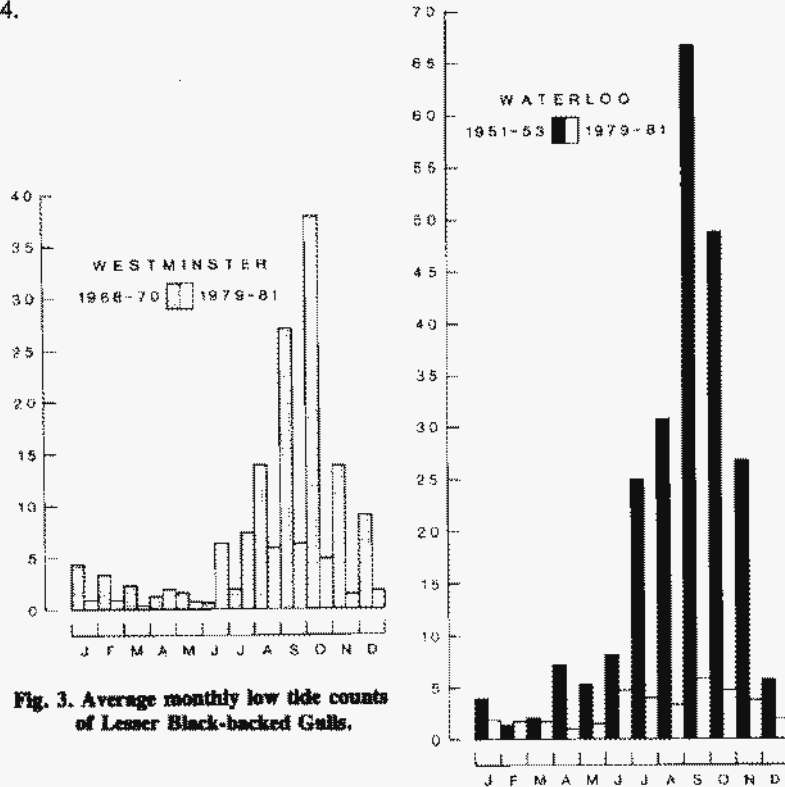


Fig. 3. Average monthly low tide counts of Lesser Black-backed Gulls.

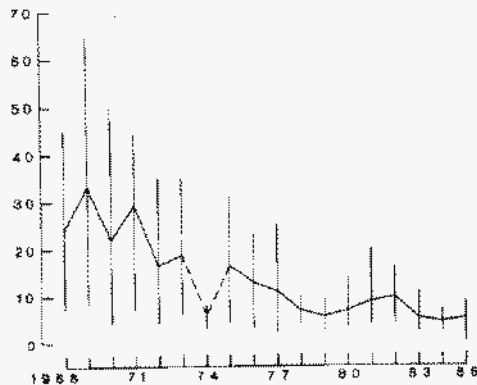


Fig. 4. Average and range of autumn (August to October) counts of Lesser Black-backed Gulls at Westminster, 1968-85.

Note: in 1974 only four counts were made, in August.

Andrews *et al.* (1982) have suggested that the Thames has become even cleaner since about 1977 which may have provided less food for the species than earlier and, possibly, contributed to its further decrease. This decline is assumed to be local or connected with the river as the survey of wintering gulls in January 1983 (Bowes *et al.* 1984) showed that Lesser Black-backed Gulls have increased by 20% since 1973 in southeast England. Some caution should be exercised with regard to this percentage increase because roost counts at four London Area reservoirs did not distinguish the species of gulls in 1973 and the proportions were assumed to be identical to those identified in 1983. Hickling (1984) and Horton *et al.* (1984) have also shown that this gull is most abundant, in autumn, when rubbish tips are favoured.

Herring Gull

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Westminster High and Low tide	2.1	1.2	1.1	1.1	1.2	3.0	2.7	2.7	2.4	2.2	2.0	1.6
Waterloo High and Low tide	1.3	1.2	1.0	1.3	3.5	3.4	1.4	0.6	0.4	0.7	1.7	1.7

Small numbers occurred in all months on both stretches, as shown in the table above with maxima of 16 on June 9th 1981 at Waterloo and 10 on July 17th 1980 at Westminster. A slight peak occurred in May and June at Waterloo and in June and July at Westminster.

From 1951-53 the species only occurred in winter (September to April) at Waterloo with large numbers appearing from December to February. As with Lesser Black-backed and Great Black-backed Gulls, the Herring's disappearance as an abundant winter visitor (see Fig. 5) coincided with the removal of rubbish barges and consequently a lack of a sufficient food supply.

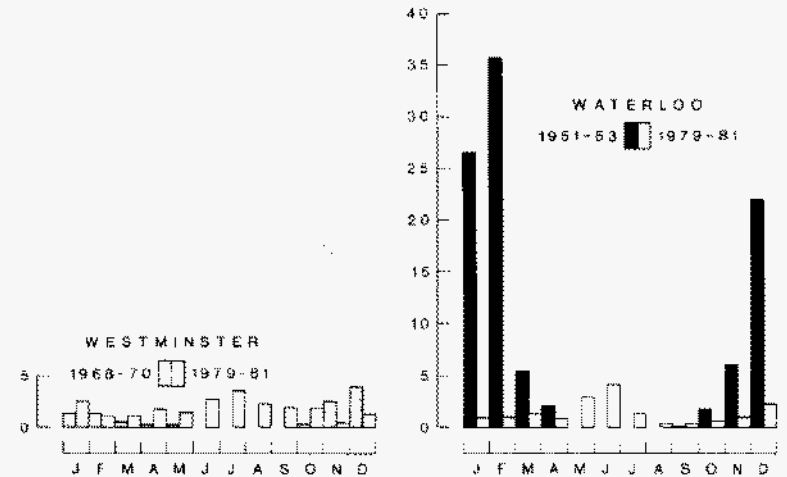


Fig. 5. Average monthly low tide counts of Herring Gulls.

At Westminster the only significant difference since 1968-70 is the appearance of birds from June to September, which is also reflected by the summer records at Waterloo.

Up to four pairs have bred in Inner London from 1961-84 (Montier 1977 and London Natural History Society 1975-78 and 1980-85), with the exception of 1983 when there were nine pairs, five of which were in the

vicinity of Westminster. There was a further increase on this stretch from 1982-85 with peak numbers coinciding with the increased breeding.

Summer flocks of over 20 have been recorded in Regent's Park where the first and longest established London breeding has occurred at the Zoo (Montier 1977). The summer records on the river are comprised of all age groups, as shown in Table 1, where at Westminster and Waterloo immatures outnumbered adults from May to July with second- and third-summer types forming the largest proportion of younger birds. In August as a few juvenile/first-winters appear the older immatures dwindle and adults then form the majority of birds throughout the winter.

Yellow-legged Herring Gulls have occurred at Westminster since 1976 and the 15 records up to 1981 have been summarised by Grant (1983). Since 1982 others were seen on this stretch, usually in the second half of the year, similar to the earlier records.

Great Black-backed Gull

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Westminster												
High and Low tide	2.5	1.5	1.6	0.5	0.3	0.4	0.6	1.5	2.4	1.5	1.5	2.1
Waterloo												
High and Low tide	3.3	2.3	2.2	1.0	0.6	0.8	1.3	1.8	2.0	2.2	1.9	2.8

On both stretches small numbers occurred in all months being slightly more numerous and frequent in winter, but showing no appreciable differences between high and low counts. Apart from 14 on Jan. 12th 1981 at Waterloo the maximum was seven there and six at Westminster.

Although one or two were found more often in summer at Westminster from 1979-81 than between 1968-70 its status can be considered to have remained unchanged during the last decade. Cramp and Teagle (1955) remarked that this gull had probably reached its peak in numbers along the river in the early 1950s. Their statement is further enhanced by the current low numbers. At Waterloo a dramatic decrease has taken place in winter during the last 30 years (see Fig. 6). The removal of rubbish barges has reduced the main food source of this essentially scavenging gull which, like the Lesser Black-backed and Herring Gulls, attracted large numbers earlier. As the Great Black-backed Gull is the shyest of the gulls frequenting the river Cramp and Teagle (1955) considered that the southern foreshore which was not directly overlooked by the public enabled the species to feed and rest relatively undisturbed.

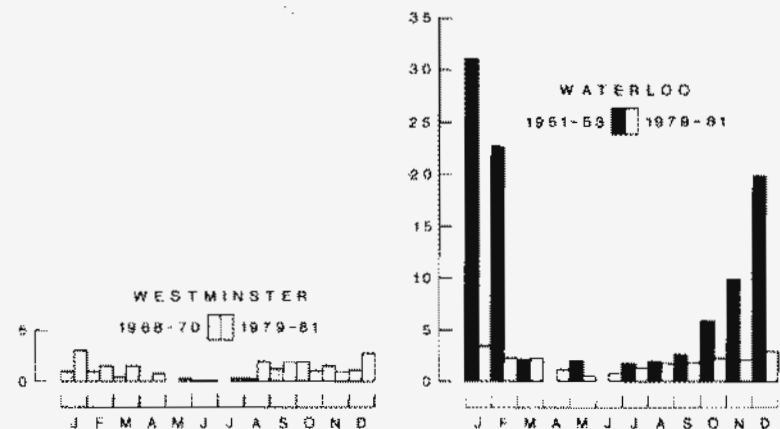


Fig. 6. Average monthly low tide counts of Great Black-backed Gulls.

Although public promenades have been constructed at both ends of the southern side, as mentioned previously, there was still, during this study period, a considerable expanse of foreshore exposed at low tide where gulls could feed and rest. Even allowing for the fact that small boys and treasure seekers are found sometimes along the foreshore, it is clearly the lack of available food to entice Great Black-backed Gulls along the Thames which has reduced their numbers rather than the lack of an undisturbed habitat.

Swift

The largest numbers were usually in the vicinity of the study areas and there were frequent records of hundreds which included birds feeding over the river, sometimes within a metre of the water, in June and July.

None was recorded in either of the previous studies, but the trend for feeding parties to appear in the area has now become well established. The Swift's increase (and the House Martin's further penetration as a breeding species) into Inner London warrants a closer examination of these aerial feeders which is beyond the scope of this paper.

Woodpigeon

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High and Low tide	0.4	0.8	0.8	0.6	0.5	1.0	1.1	0.8	0.8	0.2	0.5	0.7

Woodpigeons were not seen at Waterloo. Although up to four occurred in all months at Westminster there were often days when none was recorded as reflected in the monthly averages in the table. Apart from the usual feeding and resting on river craft and rare exploitation of the foreshore, where drinking was observed, the searching for food amongst gull droppings on pleasure boats was noted in February 1981.

This species' status can be considered as unchanged because there was only one record at Waterloo in 1952 and the pattern of records at Westminster remains similar.

Feral Rock Dove

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Westminster												
Low tide	30.3	24.5	49.2	30.3	47.7	48.2	39.4	34.0	30.7	19.0	20.0	43.3
Waterloo												
Low tide	9.6	7.1	7.7	7.4	7.3	8.1	7.8	11.6	13.0	12.4	12.6	12.9

Numerous at all times of the year, especially at Westminster where the monthly low tide averages totalled 416.6 compared with 117.5 at Waterloo. The maximum at Westminster was 136 on May 31st 1979. On this stretch the average low tide counts (see table above) exceeded 30 in all but three months and ranged from 47 to 50 in March, May and June while the lowest figures were between 19 and 25 in February, October and November. Comparative data at Waterloo, with a maximum of 35 on Dec. 14th 1979, show that the lowest average was in February (7.1) followed by five months of almost even figures before reaching a small peak of 13.0 in September. The inclusion of additional counts in 1982, mentioned earlier, with those made from 1979-81 resulted in increasing the November low tide average by 5.8, to 18.4. Other single visits from August to October and in December also raised the averages by up to 2.5 except in September which fell by 0.8.

Fig. 7 shows that at Waterloo the averages during the two study periods are very similar. At Westminster the counts from 1979-81 show an increase since 1968-70 in all months except October when there was a tiny decrease of 2.6. Some of the increases are considerable, notably in January, from May to July and in December.

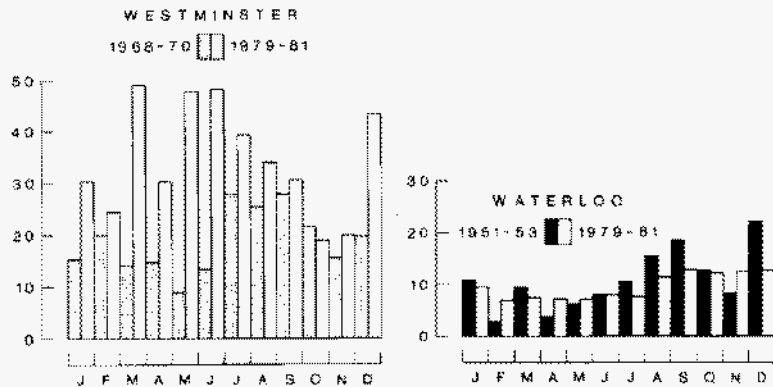


Fig. 7. Average monthly low tide counts of Feral Rock Doves.

These comparisons should be treated with caution as Cramp and Teagle (1955) found that numbers fluctuated violently from 1951-53 and considered that 'a much larger series of counts would be necessary to provide accurate averages'. Similar variations were found in the earlier study at Westminster.

From 1968-70 there were two records of a Great Black-backed Gull eating a Feral Rock Dove. This behaviour was also observed from 1971-83, at Waterloo and Westminster, when a total of five dead doves provided the gull with food.

Carrion Crow

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Westminster												
High and Low tide	0.5	0.2	0.1	0.2	0.2	0.2	0.0	0.2	0.8	0.4	0.4	0.6
Waterloo												
High and Low tide	1.1	1.7	1.5	1.2	0.7	0.7	0.6	1.3	1.0	1.2	0.7	0.8

Recorded throughout the year being slightly more frequent at Waterloo (see table above) where the maxima were seven on Mar. 2nd 1979 and five on Dec. 30th 1980 and July 23rd 1981. No other records exceeded four on either stretch and there were often days when none was seen.

The Carrion Crow's volatile occurrences have shown virtually no change since the previous studies being fractionally more frequent at Waterloo nowadays. Further upstream, near Vauxhall Bridge, gatherings of 30 or so have occurred on the foreshore as recently as Oct. 30th 1985 but the numbers at Westminster still remain low. Indeed, it is not unusual for crows to reach double figures in the adjacent area and alight on the tall buildings, but it remains a regular, although erratic, visitor in small numbers at Westminster and Waterloo.

Starling

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Westminster												
Low tide	4.4	3.8	2.4	2.5	3.0	5.4	0.6	0.3	1.3	7.0	1.3	8.5
Waterloo												
Low tide	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	1.0	2.5

The table above shows that Starlings were recorded at low tide in all months at Westminster with peak averages in October and December. The only high tide record concerns one on May 14th 1980 which probably drowned in the river.

There were a few Waterloo records from April to June and from October to December with birds feeding amongst barges at high tide in four months and on the foreshore in three months. None was seen on this stretch from 1951-53.

From 1968-70, at Westminster, there were occasional low tide records including one bird which was seen feeding on *Tubifex tubifex*. The large red areas created by these worms when the mud was exposed at low water have disappeared. Wheeler (1979) has pointed out that this species thrived when 'the tideway was severely polluted'. The *Tubifex* was able to survive because 'most of the dissolved oxygen that these worms consume comes directly from the atmosphere, not from the river'. An apparently different or previously exploited source of food is now available as Starlings frequently search for invertebrates by pushing over stones to capture their prey. The table below shows that peak numbers were recorded in 1973, 1975 and from 1978-85.

	1968	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85
Max.	4	3	4	3	6	13	1	20	2	8	15	22	13	14	26	12	27	40

An indication of the changing fauna on the Thames foreshore is provided by samples of the *Tubifex* population taken in the area of London Bridge in 1971 and 1975 which showed a great reduction (Harrison and Grant 1976).

House Sparrow

A maximum of eight were seen at Waterloo in all months and up to nine at Westminster from February to May and in September, usually on river craft.

There has been no change in status since either of the earlier studies.

(b) Irregular and occasional visitors

Up to three first-winter Shags were present at Waterloo from Jan. 31st to May 31st 1979. Diving was observed on this stretch on a number of occasions, but they could usually be found roosting, at day or night, on one of the Waterloo Bridge buttresses. There were also sightings at Westminster during the period.

There were first-winter birds on a buoy at Westminster in 1984: one on Jan. 6th and Feb. 27th, two on Mar. 2nd and one on June 18th.

In 1985 a similar occurrence to the 1979 wintering was recorded. The first appeared on Jan. 28th, the second on 29th and a third by mid-February, then up to two were present from Apr. 10th until the final sighting of one on May 15th. The focal point was a pair of buttresses on the upstream and downstream sides of Hungerford Bridge (situated between the 1,000 metres stretch of river between Westminster and Waterloo Bridges) where diurnal and nocturnal roosting took place. The first-winters were often seen successfully fishing between Lambeth and Waterloo Bridges.

One flew upstream at Westminster on Dec. 24th 1985.

As these 1979 and 1985 records coincided with very cold winters it is interesting to note that Shags survived in the Thames for lengthy periods thereafter, particularly as Moon's (1984) figures show that over 16% reaching the London Area from 1900-1981 subsequently died.

Mute Swans were not seen at Westminster from 1979-81, but there were records in 1976 (4), 1978 (1), 1982 (1) and 1983 (2) of one to six. At Waterloo swans occurred in all months, except May, although not in every month of each year from 1979-81. Apart from nine on Nov. 12th 1979 the maximum was four.

The species was abundant at Waterloo from 1951-53 reaching average monthly low tide counts of 15 to 37 in all months, except March and April. They were most often to be found resting or preening on the extensive stretches of shingle and feeding was usually carried out on the south bank. Even though the loading of rubbish barges from the open jetty ceased in early

1953 the lack of food supply from this source was partly compensated by that obtained from, and near, a Thames-side restaurant as evidently there was no reduction in numbers. The less suitable conditions at Lambeth accounted for their infrequent occurrences during the same period and indicated the uneven distribution of the species on the Thames.

The decline of the Mute Swan in Britain has received considerable attention since the 1970s which has pointed to lead poisoning as the major cause (Ogilvie 1981). The causes of the dramatic decline at Waterloo between the two studies are, however, not necessarily due to lead poisoning alone as Oliver (1982) suggested that another environmental factor, without specifying which, was also possible for the decline in the London Area.

Grey Herons were recorded on five occasions at Waterloo in 1979/80 and twice at Westminster in 1981, also once there in 1971 and 1978 and thrice in 1983. The 12 records were from March to August and in October, of which ten relate to single birds flying upstream or downstream.

On Apr. 6th 1979 a heron that flew upstream over Blackfriars Bridge was pursued by a Herring Gull, then by Common Gulls and Carrion Crows before landing on top of a moored river craft. Most of the gulls at Waterloo (c.40) joined in their disapproval of the heron's presence by mobbing. At high tide on Apr. 30th 1980 one rested on the water for a few seconds close to the National Theatre before flying off.

Tufted Ducks were seen in all of the years from 1979-81 at Westminster and Waterloo where the largest counts of 31 and 41+, respectively, were both made on Dec. 24th 1981. These records and others, including those outside the 1979-81 period, was often associated with cold weather. The 33 records from 1971-85 show that none was in April and September, but almost half (16) were in January with the eight involving over ten birds occurring from December to February. Ten of the observations involved Tufteds flying along the river, but amongst the others diving was frequent, suggesting that food was available although not sufficiently to attract the species regularly. The earlier studies on both stretches also revealed this diving duck as an occasional visitor.

There were three May records of Common Sandpipers: one at Waterloo on 2nd in 1979 and on 23rd in 1980 and two at Westminster on 13th in 1980.

Common/Arctic Terns were seen on four occasions at Waterloo in 1979 and 11 times at Westminster in 1977, 1979 and from 1982-85. All records except for two in June 1984, were in August and September, usually involving one or two migrants following the course of the river, although a maximum of 13 moved downstream on Sept. 6th 1982. However, the Waterloo records included terns diving and picking from the water surface. On Aug. 14th 1979 at Westminster a first-summer Common Tern fed whilst standing in shallow water and by plunging into the river from an estimated height of one to two metres.

A Grey Wagtail was at Waterloo on Oct. 15th 1980 and Feb. 11th 1981. At Westminster there were 20 records (18 of one and two of two) from October to January in 1971, 1972, 1980, 1981 and 1983-85.

Pied Wagtails occurred singly at Waterloo on Oct. 10th and Nov. 20th 1979. From 1979-81 there were 12 records of one or two from October to March at Westminster. Other records from 1971-73, 1975-78 and 1982-85 follow the same winter pattern. In June 1973 three juveniles of a family, which presumably nested nearby, were fed by adults with food obtained on a barge where they gathered. There were also isolated records in August and September 1973 and in June and September 1975.

A Moorhen was swimming at Waterloo on Feb. 6th 1979 and at Westminster on Jan. 16th 1982.

One Swallow was feeding around a moored barge at Waterloo on July 20th 1982 and may have been one of a pair reported at Bankside Power Station,

just downstream from Blackfriars Bridge, earlier that summer (London Natural History Society 1983).

On June 7th 1979 a Black Redstart visited the foreshore near the National Theatre. This was not unexpected because the species frequents the adjacent south side at Waterloo.

The following 11 species were recorded at Westminster:

Little Grebe: one on Feb. 15th 1978.

Great Crested Grebe: one on Feb. 7th 1979, three on Jan. 16th and one on 19th 1982 and Mar. 26th and Oct. 15th 1984.

Canada Goose: on May 4th 1984 one flew upstream and settled on the foreshore at Lambeth.

Pochard: three of the four records involve one to four flying on June 27th 1978, Oct. 13th 1980, Dec. 21st 1981 and Jan. 16th 1982.

Pintail: a pair, probably from St. James's Park collection, flew downstream on May 5th and 15th 1978.

Oystercatcher: one flew downstream on Sept. 2nd 1981.

Little Gull: a first-winter on Aug. 28th 1974.

Kittiwake: one on Apr. 24th 1980, Jan. 14th and June 6th 1983 and May 2nd 1985.

Turtle Dove: following a morning of heavy rain one on the foreshore on Oct. 16th 1980.

Blackbird: two foreshore records of one on May 30th 1978 and two on Jan. 11th 1985.

Goldfinch: five on Dec. 12th 1984, two on Jan. 9th and one on Mar. 28th 1985 visited the foreshore adjoining Victoria Tower Gardens. Their behaviour, apart from drinking, suggested that food was being obtained, the most likely source being the fallen seeds from the overhanging London planes.

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