The Species Composition and Age Structure of Gulls wintering in Wladyslawowo*

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The increase in the numbers of gulls during the present century has, among other things, become a threat to other species of birds breeding on sea coasts. Hence this appeals for studies on the role in biocenoses of the large gull species in order to determine whether and when action to check excessive growth in their populations should be undertaken (GROMADZKA et al 1981, VAUK and PRÜTER 1987). Analysis of age structure and changes in numbers at wintering grounds may be helpful in this respect. In the present paper, the authors attempt to assess the age structure of gull flocks at Wladyslawowo. The population dynamics of the various species involved are also analysed.

1. Study area

Gulls were observed at Wladyslawowo (54°47'N, 18°25'E) a small port of some 9.5 thousand inhabitants. Fish processing is the leading industry here, and besides the harbour facilities, there are several fish smokehouses and a fish meal factory. These provide more than ample food resources for large numbers of gulls wintering here. The bird consume the fish processing refuse and also follow the cutters to the fishing grounds. The gulls congregate mostly in the vicinity of the harbour. Resting flocks can be seen on the beaches either side of the harbour, on the meadow between the railway line and the highway, and on the roofs of the harbour buildings. Only the flock gathering near the Bay of Puck appeared to show little interest in the harbour activities.

Observation areas (Fig. 1):

Area 1 - the beach on the open seaside: East of the harbour, this is a 30-metrewide strip of sand separated from the dune by a low fence, and ending at the high wall of the harbour breakwater. Resting gulls occupied at most a 400-metrelong stretch of this beach. Gulls were present here during all 47 watches. West of the harbour, the beach is much wider (about 50 metres) and merges into the dune on the landward side: like its eastern counter-part, it ends abruptly at the harbour breakwater. The gulls on this roughly 300-metre-long beach were quite often disturbed by anglers and were present during only 29 watches.



Fig. 1 Study area. The areas where gulls counted are shown hatched, built-up areas are dotted. A – fishing port; B – fish smokehouses; C – fish meal factory.

Beobachtungsgebiet. Die Gebiete, in denen Möwen gezählt wurden, sind schraffiert gezeichnet, bebaute Gegenden punktiert;

A – Fischereihafen, B – Fischräucherei, C – Fischmehlfabrik.

Area 2 – meadow between the railway line and the highway:

This partially waterlogged meadow, c. 200 m x c. 300 m, lies behind the harbour, and is adjacent to three fish smokehouses. The meadow itself is traversed by partially overgrown drainage ditches. Gulls were present here during 23 watches.

Area 3 – meadow overlooking the bay: This is a fairly extensive waterlogged area, c. 300 m x c. 300 m. Gulls were seen here during 25 watches.

All the areas are a good distance from human habitation, and very few people were around on watch days.

2. Materials and methods

Resting flocks of gulls were watched from the beginning of October to mid-April during seasons 1983–84 and 1984–85,

once a week in the morning hours, for a total of 48 watches. The gulls were counted on all the areas with the aid of the 40x64 telescope. The age structure analysis took account of the successive winter plumages of the various species - sticking rigidly to the calendar year system in this kind of study is inconvenient to say the least. Two classes of Black-headed Gulls (Larus ridibundus) and Common Gulls (Larus canus) were distinguished: birds in first-winter plumage, and others. In Herring Gulls (Larus argentatus), Lesser Blacked-backed Gulls (Larus fuscus) and Great Blackbacked Gulls (Larus marinus), first-, second- and third-winter plumages were identifiable with certainty. A fourth class comprised fourth-winter and other plumages. Species and plumages were identified in accordance with GRANT's (1982) guidelines, though it must be noted at this point that the mantle and scapulars in about 10% of second-winter Herring Gulls

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showed no clear grey. This applied in particular to large individuals, probably males, which were classified as secondwinter according to such characteristics as

- a lighter-coloured head, neck and breast than in first-winter birds;
- 2. a light-coloured bill base;
- a different pattern on the greater coverts;
- a more distinctive pattern on the tertials, scapulars and median coverts as a result of wear.

Moreover in another c. 15% of birds in this age category, the grey mantle feathers were not clear grey or were only present singly. Our fieldwork has shown that when observing these birds from greater distances, one can assume that in some 30% of second-winter Herring Gulls the clear grey mantle feathers are not visible. This is why the number of second-winter Herring Gulls may have been underrated.

To supplement the watches on land, two trips in cutters were made around the fishing ground off the Hel peninsula in the 1984–1985 season (26.1.1985 and 27–28.3.1985).

As is customary in this type of study, the month was the accepted time unit when working out the phenology of the different species (PRÜTER u. VAUK 1984; YESOU 1985). In the discussion, use has been made of unpublished data on wintering gulls at Gdansk municipal rubbish dump (FORNAHL-GIZA, JANKOWSKI, NITECKI) and in the Gdansk Bay region (NITECKI, WALIGÒRA).

3. Results

3.1 Species composition in the study area

Seven species of gulls were identified: Black-headed, Herring, Great Blackbacked and Common Gulls were present throughout the winter season, whereas Lesser Black-backed Gulls were present only until the second half of December and from mid-April onwards. Besides these, two adult Little Gulls (Larus minutus) were seen (one each on 29.10.83 and 3.11.85), and two young Kittiwakes (Rissa tridactyla) on 8.2.84 (Faunistic Commission's Approval KF 1392/84). No Glaucous Gulls (Larus hyperboreus) were sighted on watch days, although they were recorded on several other occasions. Some adult Herring Gulls with yellow legs were seen - a total of 12 birds on 7 separate occassions. This leg colour suggests a possible different species - the Yellow legged Gulls (Larus cachinnans). However, in 7 of these birds, the legs were fleshy-yellow, so they may have belonged to the north European »omissus« form.

3.2 Black-headed Gull

The Black-headed Gull was the dominant species in the study area and only excep-



Fig. 2 Percentages of the various gull species.

Black-headed Gull – white; Herring Gull – hatched; Common Gull – dotted; other species – black.

Prozentuale Verteilung der verschiedenen Möwenarten:

Lachmöwe – weiß, Silbermöwe – schraffiert, Sturmmöwe – punktiert, andere Arten – schwarz.

tionally did its number fall below 50% of the total number of gulls present (Fig. 2). Especially few of these birds were seen between 27, 12, 84 and 17, 1, 85 when there was a sudden fall in the temperature (-15°C) and heavy snow; subsequently the study area acquired a covering of ice and snow. The average percentage of this species in the total gull flock was 72.9% in the first season and 60,4% during the second. The highest counts were 2944 birds on 4.11.84 and 2325 on 15.10.83 (Fig. 3). From the second half of March until the end of the study period (mid-April), 80% of the gulls (even 96,5% on 23.3.84) were Black-headeds. This high degree of dominance can be explained by the fact that from the second half of February onwards, the numbers of the other species, the Herring Gull in particular, dropped abruptly. The proportion of first-winter birds is small. In the first season it was 10,9% on average, in the second it was 9,4%, and decreased towards the end of the study season (Fig. 4). The highest counts of young Black-headed Gulls were on 15.10.83 (520 birds) and on 4.11.84 (473 birds). Clearly, the numbers of Blackheaded Gulls in both seasons reached a peak at this time.

3.3 Lesser Black-backed Gull

During the winter this species was not seen in the study area. The last pre-winter sightings of a Lesser Black-backed Gull were on 17.12.83 in the first season and on 29.11.84 in the second. In the spring, the first land sightings were on 14.4.84 and 9.4.85. During one of the cutter trips, one adult bird was sighted 27 miles east of Wladyslawowo already on 27.3.85. All the adult birds seen during the study belonged to the *L.f.fuscus* subspecies.

Season 1983-84:

Numbers of Lesser Black-backed Gulls reached a peak in October with 60 birds counted on the 8th and 68 on the 29th. In November, numbers varied from 21 to 43, and by the middle of December, only single birds were being recorded. The proportion of these gulls in the overall flock was very small, 3,5% (8.10) at the most.

At the start of the season (before 5.11.) adults were still prevalent, but after that their numbers fell away rapidly. On 19.11. no adults were sighted. The numbers of first-winter birds ranged from 10 to 32 in October and November, and from 3 to 6 in the first half of December. There were few second-winter birds – a maximum of 5 were seen on 29.10. and 13.11. – the last being recorded on 17.12. Only one third-winter bird was seen – on 26.11. The first spring sighting, of 6 Lesser Black-backed Gulls, was on 14.4.

Season 1984-85:

There were fewer Lesser Black-backed Gulls during this season and at no time were more than 20 individuals seen (17 was the maximum on 18.10.). This was no more than 1,3% (18.10.) of the total gull flock. First-winter birds were predominant from the very first watch onwards. The highest count of adults was on 13.10. when 6 such birds were seen; the last adult before winter set in was sighted on 8.11. No third-winter birds were seen at all in this season and only one second-winter bird was oberserved, on 13.10. In the spring, the first Lesser Black-backed Gulls were recorded on 9.4. (2 adults) and 16.4. (4 adults).

3.4 Herring Gull

In numbers, the Herring Gull comes second to the Black-headed Gull. The highest counts were 1365 on 7.1.84 and 1926 on 13.10.84 (Fig. 5). On average, this species made up 18,5% of the total flock in the first season and 29.1% in the second, the peaks being 39,5% (3.11.83) and 61,6% (13.10.84) respectively. On 3.1.85, the percentage rose to 73,5%, but this was due to a drastic reduction in the numbers of Black-headed Gulls. In both seasons, the average monthly percentage of Herring Gulls was highest in January, and relatively high from the beginning of October till the end of December. Their numbers, and hence the percentage of Herring Gulls in the total flock dropped distinctly in February (Fig. 2), and this

state of affairs was maintained right up to the end of the study period. Quite different results were obtained during the cutter trip on 27.-28.3.85 to the fishing grounds 20-30 miles off the Hel peninsula. In March, when Herring Gulls comprised barely 5,0% of the total gull flock at Wladyslawowo (which at this time was also small), there were large numbers of Herring and Common Gulls out at sea. An estimate to the numbers of them following the boat (two cutters were in the field of view) while the nets were being hauled on board came to about one thousand, roughly half of which were Herring Gulls. About 80% of the Herring Gulls seen at sea were adults, wearing and later winter fourth plumages.

During the whole season, the proportions of birds in different plumages varied. On average, in the two seasons, they were -55,8% and 60,0% (first winter), 9,3% and 6,4% (second), 5,3% and 7,3% (third) and 29,6% and 20,3% (fourth and later). In principle, the percentage of first-winter birds rose during successive months, whereas the number of adults (fourth and subsequent winter plumages) declined. The proportions of second-winter birds decreased somewhat in December and January, but the proportion of third-winter birds was roughly the same throughout the study period (Fig. 6). The ratios between the various age categories differed slightly in the two seasons. Taking the average proportion of third-winter birds to be 1 (the least numerous class in the first season), the following proportions were obtained:

1983-84: 9,6 : 1,7 : 1,0 : 5,9 1984-85: 7,8 : 0,9 : 1,0 : 3,7

3.5 Great Black-backed Gull

Great Black-backed Gulls were present in small numbers throughout the observation period. Maximum numbers in one



Fig. 4 The age structure of Black-headed Gulls in consecutive seasons. Firstwinter birds are shown black. Die Altersstruktur von Lachmöwen in aufeinanderfolgenden Wintern; schwarz: Tiere im ersten Winterkleid.



Fig. 3 Numbers of Black-headed Gulls in consecutive seasons. The first-winter birds are shown in black.

Anzahl der Lachmöwen in aufeinanderfolgenden Wintern; schwarz: Tiere im ersten Winterkleid.

watch were 51 birds in the first season (7.1.) and 65 (15.11.) in the second. This species was absent during only four watches, on 5.11.83, 18.12.84, 7.4.84 and 14.4.84. The percentages of the total number of gulls were also small. In the first season, Great Black-backed Gulls made up no more than 2,2% of all the gulls present; in the second, the figure was 3,8%. Most of the Great Black-backed Gulls observed were in their first or final winter plumages. As the season progressed, the proportion of first-winter birds rose, while

that of adults decreased (this was particularly marked in the second season), due to the gradual decline in the latter's numbers. The proportions of the various plumages in the two seasons was basically the same. Only among the first-winter birds were any more obvious differences to be discerned. So taking the average proportion of third-winter birds (the least numerus) to be 1, the following ratios were calculated for the two study periods: 1983–84: 2.9:1.5:1.0:7.8 1984–85: 10.0:1.5:1.0:7.9

3.6 Common Gull

Common Gulls were present in the study area during the entire observation period. Their proportion in the total gull flock ranged from 0,3% (29.10.) to 24,3% (10.3.) in the first season, and from 0,6% (26.3.) to 54,2% (17.1.) in the second (Fig. 2). On average, this species made up 6,8% and 8,5% of all the gulls in the respective seasons. The numbers of Common Gulls were very variable, and fluctuated differently during the two study periods. Only in the first half of March were numbers equally high in both seasons (Fig. 7).

The proportion of young birds varied from 2,4% (13.11.) to 43,8% (14.4.) in the first, and from 2,8% (19.3.) to 28,6% (13.2.) in the second. First-winter birds were absent during four watches: 29.10.83, 3.11.83, 5.11.83 and 9.4.85. The average proportion of young birds was 15,0% in the first season and 9,7% in the second.

4. Discussion

The percentages of the gull species recorded in the study area from October to mid-April in the two consecutive seasons were:

Black-headed Gull Lesser Black-backed	72,9% and	60,4%
Gull	0,5% and	0,2%
Herring Gull	18,5% and	29,1%
Great Black-backed		
Gull	1,0% and	1,8%
Common Gull	6,8% and	8,5%
Plack basded Culls		

Black-headed Gull: As many workers have stressed (Hög-STRÖM 1974; GLUTZ and BAUER 1982; SCHREY 1982: BRIESEMEISTER and SEELIG 1984), Black-headed Gulls are particularly sensitive to changes in weather conditions, especially temperature. The considerable fluctuations in numbers observed at the wintering grounds are the result of the birds flying elsewhere when the temperature drops. This is probably the reason why there were striking differences in numbers in the two seasons. Maximum numbers of Black-headed Gulls at Wladyslawowo were recorded in the second half of October and in November. PRÜTER (1982) observed a similar peak on Heligoland. The autumn migration of this species is very long drawn out (GLUTZ and BAUER 1982; PRÜTER 1982) and it is hard to state categorically the date after which only wintering birds are present at a given place. In earlier years, Black-headeds ringed at Wladyslawowo in mid-December were recovered two or three weeks later in Holland. Although it is known that young Black-headeds fly farther west than the adults from the same colony (GLUTZ and BAUER 1982), an analysis of age structure might help to solve this problem. In the first season, the proportion of first yearbirds fell sharply already in mid-November, in the second only in the last ten days of December. But after having analysed the information collected, one still cannot be certain whether the fall in numbers of young birds means that the migration period has come to a close or that the structural changes within the wintering flock are due to the deteriorating weather, especially as in both seasons (but principally in 1984–85), the numbers of first-year birds dropped when the temperature did so. The second peak in numbers was at the turn of December and January (1983–84). WINIECKI (1980) obtained similar results when studying wintering Black-headed Gulls on the river Warta where it flows through the city of Poznań. This second peak was scarcely descernible in the winter of 1984–85, as after a series of severe



Fig. 5 Numbers of Herring Gulls in consecutive seasons. Black – first-winter birds; hatched – second-winter birds; dotted – third-winter birds; white – birds in fourth and subsequent winter plumages.

Anzahl der Silbermöwen in aufeinanderfolgenden Wintern;

erstes Winterkleid – schwarz, zweites Winterkleid – schraffiert, drittes Winterkleid – punktiert, Altvögel – weiß.

frosts (on 10, 1, there were no birds at all) it was February before numbers began to pick up again. The peak at the turn of February and March appears to have been due to the start of the spring migration. In 1983-84, numbers where low during these months; the peak arrived only at the beginning of April. According to the literature, Black-headed Gulls usually start their spring migration at the end of February (WINIECKI 1980; GLUTZ and BAUER 1982), although when exactly it starts and how long it takes to complete depends largely on the temperature (BRIE-SEMEISTER and SEELIG 1984). This could be one of the reasons for the differences recorded in the two seasons.

The proportion of young birds is variable, in both seasons being much greater in autumn than in spring. SCHREY (1982) drew attention to this, saying that this was due to high mortality among first-winter Black-headed Gulls. It must be borne in mind, however, that young birds begin their spring migration much later, in the second half of April, and by this time our watches had come to an end. The lower proportion of first-winter birds during the severe winter of 1984-85 suggest that young birds react to worsening weather by flying away, e.g. to towns, where the proportion of this species is usually higher (NITECKI and WALIGORA unpubl.).



Fig. 6 Percentages of the various age classes of the Herring Gull in consecutive seasons. Explanations as in Fig. 5. Verteilung der verschiedenen Altersklassen der Silbermöwe in aufeinanderfolgenden Wintern; Erklärung s. Fig. 5. Earlier observations and trappings of gulls near Wladyslawowo showed that the numbers of Black-headed Gulls are also affected by the kind of fish being caught and processed there. These gulls prefer sprat and herring remains, and when cod is being intensively fished and processed (January – mid-February), their interest in the port and its environs wanes.

Lesser Black-backed Gull:

Lesser Black-backed Gulls do not normally winter in Poland. The wintering grounds of the L. f. fuscus subspecies (the most numerous one on the Polish coast) are in the Middle East and east Africa (GRANT 1982). The autumn peak on the Polish coast is in September (GLUTZ and BAUER 1982) and, like the mainstream of the spring migration, lay outside our periods of observation. Nevertheless, from time to time, one comes across information on Lesser Black-backed Gulls wintering in Poland (TOMIALOJC 1972; WINIE-CKI 1980). No wintering birds were seen during our study period although during the mild winter of 1983-84, they did linger rather longer in the study area.

The tiny number of second- and third-winter birds recorded is due to the fact that in spring immature birds do not return to the breeding areas, though a few may move towards them in their wanderings (GRANT 1982). PRÜTER (1983,1986) stresses the fact that in spring, Lesser Black-backed Gulls appear earlier out at sea than on the coast. This may be because they are transcontinental migrants (KILPI and SAU-ROLA 1984). They fly over Europe, and only the coastal regions where the shoreline happens to the run in the same direction as the migration route, are they likely to appear in greater numbers.

Herring Gull:

The numbers of Herring Gulls varied widely in both seasons (Fig. 5). Even so, it was not possible to distinguish the autumn migration period from the wintering period. When considering the reasons for this, one should keep in mind the fact that for north European populations of the species, Gdańsk Bay ist the most southerly wintering ground in the Baltic region. The birds may well have arrived here before we began our observations, and some immature birds stay here throughout the whole summer. The fluctuations in numbers observed subsenguently may have been the result of movements within this wintering area. The situation is further complicated of large numbers of adults at the fishing grounds off the Hel peninsula. From the end of January/beginning of February onwards, the number of adults falls rapidly. PRÜTER (1986) observed a similar phenomenon at sea, in the German Bight. This is the time when Herring Gulls start to fly off to their breeding grounds. Adult birds sighted at sea in March may have flown to the fishing grounds from their breeding areas, although the distance they would have to cover is striking. The

possibility that Herring Gulls stay longer at the fishing grounds than on land cannot be discounted.

Apart from PRÜTERS (1985) paper on the age structure of Herring and Great Blackbacked Gulls shot during a few years on Heligoland, there is no other information in the literature on the age structure of wintering gulls on these two species. The lack in the literature on an age structure analysis clearly divided into categories corresponding to the successive plumages of the species makes a meaningful discussion of the results we have obtained very difficult. For instance, it is hard to assess to what extent the differences in the percentages of birds in the various age classes are an accurate reflection of the age structure of the population and to what extent they are due to different migration strategies employed by the different age classes. KILPI and SAUROLA (1983) have drawn attention to this question.

Great Black-backed Gull:

The highest numbers of adults were seen between mid-November (1983-84) or even the beginning of October (1984-85) and mid-December. From January onwards, the numbers of Great Black-backeds were low and relatively constant. The odd deviation from this rule can be explained by the gulls' undertaking local weather movements within the wintering area (GLUTZ and BAUER 1982). It would seem, then, that before their numbers have become stabilised, one cannot speak about wintering proper of the Blackbacked Gull in the Wladyslawowo area. This data ist rather later than the one suggested by GLUTZ and BAUER (1982), for example. Their results refer principally to western Europe, so the date they give for the end of the autumn migration - November - need not apply to Poland. The spring migration ist not clearly defined. In the first season, the birds had left the study area by April, in the second, already by mid-March. GLUTZ and BAUER (1982) consider the spring migration to end in mid-April.

The proportions between the various age classes show that the numbers of first-winter birds differ markedly in the two seasons. On the one hand, this may be due to difficulties in identifying birds in this plumage; SCHREY (1982) has already pointed out that first-winter Great Black-backeds could be confused with first-winter Herring Gulls. In the latter, there are considerable intra- and inter-populational variations in body sizes and head proportions. Large Herring Gulls and small Great Blackbacked Gulls may be quite indistinguishable in large flocks. So the greater numbers recorded in the second season may be the result of the oberserver's greater proficiency in identification. On the other hand, however, the observed differences in the numbers of first-winter birds may have been due to better breeding success in 1984, a consequence of which could have been the larger numbers of young birds seen in the Gdańsk Bay region.



Fig. 7 Numbers of Common Gulls in consecutive seasons. Anzahl der Sturmmöwen in aufeinanderfolgenden Wintern.

Common Gull:

The main wintering grounds of the Common Gull in the Gdańsk Bay region are at the mouth of the Vistula. The flocks seen there regularly number 10-20 thousand birds, and as many as 150 thousand birds have been recorded there (SKAKUJ - verbal report). Common Gulls occur irregularly at Wladyslawowo and we were unable to determine any connection between the age structure and the proportions of this species in the total gull flock. The reasons for this seem to be complex. The proximity of the main wintering area at the mouth of the Vistula may mean that any changes in numbers at Wladyslawowo are a consequence of changes at the Vistula mouth. So, for example the large amount of ice floating down the river and accumulating at its mouth, and also ice and snow on the beaches around there may compel the birds to fly off to some other part of Gdańsk Bay. Common Gulls may also turn up irregulary on the Hel peninsula where they rest after following the fishing boats back from the bay. The short distances between the peninsula, the most important fishing grounds and the Vistula mouth favour this hypothesis (BUSSE and GRO-MADZKI 1961). Common Gulls also accompany the fishing boats out to sea, and when the weather deteriorates, the birds follow the boats back to the harbours and congregate there. So Common Gulls may be »attracted« to a single point from a wide area, and this would certainly distort the picture of wintering studied at only one spot along the coast. Another reason for the lack of any regularity governing the wintering of Common Gulls could be the fact that especially during the autumn migration, flocks of them frequently collect on fields, which are a highly attractive source of food (SCHREY 1982). Much of the land around Wladyslawowo ist agricultural, and on approaching the town one often sees flocks of gulls on the fields.

Nevertheless, despite this fairly involved picture, it seems worthwhile drawing attention to a few facts. According to JUNG (1974) and GLUTZ and BAUER (1982), SCHREY (1982) and BRIESEMEISTER and SEELIG (1984), the spring migration of the Common Gull begins during the first half of March. The numbers of Common Gulls counted at Wladyslawowo during this time rose substantially, particularly in 1984–85.

The low proportion of first-winter individuals can be explained by the fact that young birds tend to fly inland, whereas adults remain on the coasts (VAN DE WEGHE 1971).

This paper demonstrates that an analysis of the age structure of gulls is possible in the field. A study of wintering gulls carried out at only one place on the coast does lead to great difficulties in interpretation. But if similar studies were undertaken in different parts of Europe, it would be possible to clear up a good many problems concerning gulls. Their results would moreover supplement the mortality data yielded by analyses of recoveries.

Summary

The present paper provides data on gulls wintering near Wladyslawowo (54°47'N, 18°25'E) in seasons 1983/84 and 1984/85. The information was obtained from weekly counts of birds from the beginning of October to mid-April. The counts took into consideration all age plumage distinguishable in the field. The most numerous species are the Black-headed Gull (max. 2325 birds), Herring Gull (max. 1926 birds) and Common Gull (max. 880 birds). There were far fewer Greater Black-backed Gulls (max. 65 birds). Characteristic of the Herring Gulls in this area was a fall in their numbers from mid-January onwards. The numbers of Black-headed Gulls wintering here depends on the weather conditions and the quality of the fish caught and processed in the port and smokehouses. The respective percentages of first-winter-Black-headed Gulls in the two seasons was 10,9 and 9,4%. The most numerous among Herring Gulls were first-winter birds (55,8 and 60,0%), 9,3 and 6,4% of this species were second-winter birds, 5,3 and 7,3% were third-winter birds; 29,6 and 20,3% of these gulls were in adult plumage. As regards the percentages of birds in each age group, a similar trend could be discerned in the Greater Blackbacked Gull: first-winter birds were most numerous (24,4 and 50,9%), there were fewer second-winter individuals (11,7 and 7,8%) and fewest third-winter birds (6,6 and 4,9%). The percentages of first winter Common Gulls in the two seasons were 15,0 and 9,7% respectively.

Zusammenfassung

Der vorliegende Artikel liefert Daten zur Überwinterung von Möwen in der Umgebung von Wladyslawowo (54°47'N, 18°25'E) aus den Wintern 1983/84 und 1984/85. Die Daten wurden während wöchentlicher Zählungen von Anfang Oktober bis Mitte April gesammelt. Bei den Zählungen wurden alle feldornithologisch unterscheidbaren Alterskleider berücksichtigt. Die häufigsten Arten waren Lachmöwe (*Larus ridibundus*, max. 2325), Silbermöwe (*Larus argentatus*, max. 1926) und Sturmmöwe (*Larus canus*, max. 880). Mantelmöwen (*Larus marinus*) waren sehr viel seltener (max. 65). Typisch für den Silbermöwenbestand in dieser Gegend waren rückläufige Zahlen ab Mitte Januar. Der Bestand der hier überwinternden Lachmöwen ist abhängig von den Wetterbedingungen und der Art der gefangenen und im Hafen verarbeiteten Fische.

Der prozentuale Anteil von Lachmöwen im ersten Winterkleid lag bei 10,9 bzw. 9,4%. Unter den Silbermöwen waren die Tiere im ersten Winterkleid am häufigsten (55,8 und 60,0%), 9,3 bzw. 6,4% dieser Art waren im zweiten Winterkleid, 5,3 und 7,3% waren im dritten Winterkleid, 29,6 und 20,3% dieser Möwenart waren Altvögel. Im Hinblick auf die Altersstruktur konnte bei der Mantelmöwe ein ähnlicher Trend festgestellt werden: Tiere im ersten Winterkleid waren am häufigsten (24,4 und 50,9%), seltener waren Tiere im zweiten Winterkleid (11,7 und 7,8%) und am seltensten Tiere mit dem dritten Winterkleid (6,6 und 4,9%). Die Anteile der Sturmmöwen im ersten Winterkleid lagen bei 15 bzw. 9,7%.

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