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Breeding biology of the Herring Gull *Larus argentatus* in the northern Baltic

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Study of the breeding biology of a small Herring Gull colony off Hanko, southern Finland in five seasons, 1978 and 1983–86, showed that the gulls occupy the colony in mid-March, arriving in the area a few weeks earlier. Non-breeding cohorts arrive in April and laying begins in the second half of April. Median dates for laying ranged from 25 April to 4 May. Laying was related to the ice break-up. In one season early breeders lost eggs due to cold weather. Clutch-size was close to three, and only 11% of the full clutches had two eggs. Clutch size decreased with season, but variation was pronounced. Full clutches of three eggs were of equal volume in all years, averaging about 28% of female weight. Only 5 ± 4.5% of all eggs laid were lost during incubation. Total losses up to the time of hatching (average 13 ± 10%) varied significantly between years. Of the hatched chicks, 29 ± 13% died, mostly during their first week of life. On average, only 6 ± 5% of those surviving the first week died before fledging. Of the hatched chicks, 63 ± 12% fledged successfully, the mean number of young fledging per pair being 1.55 ± 0.29. Chicks left the colony in early August. Compared with other NW European populations, Herring Gulls off Hanko breed early, and their breeding success is high.

1. Introduction

The Herring Gull (*Larus argentatus*) has been highly successful throughout its Holarctic breeding range during this century (Kadlec & Drury 1968, Harris 1970). Being very flexible in its use of food (Tinbergen 1956, Spaans 1970), the Herring Gull has managed to use food resources provided by humans to ensure a rapid population growth, subsequently facilitating expansion into new areas. They invaded the Finnish coast during the 1920s (Bergman 1939), and the population grew until the 1980s at a rate of about 9% per annum, paralleling the measured rates in many other European populations (Bergman 1965, Harris 1970, Coulson et al. 1982, Kilpi 1983). The population events along the Finnish coast have been treated by several researchers (see Kilpi 1985 and references therein), but the breeding biology of the species has thus far been studied only sketchily (Bergman 1965, 1982, Hario 1985).

Herring Gulls (*L. argentatus argentatus*, sensu Barth 1966/67, see also Kilpi & Hario 1985) in the Northern Baltic differ in some aspects of their life-history strategy from conspecifics along the

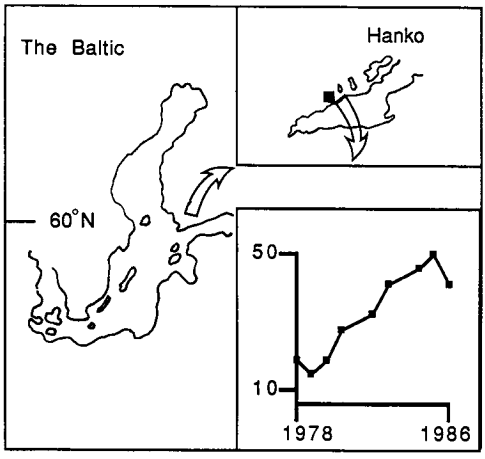

Fig. 1. Location of and pair numbers in the Hanko study colony in 1978–1986.

Atlantic coast of Europe. One of the main differences is their strictly migratory way of life (Kilpi 1984), which in turn might be reflected in other traits (O'Connor 1985). This paper provides an account of the breeding biology of Herring Gulls nesting in the Baltic on the southern coast of Finland, and will compare the traits studied with results from other studies, mainly concerning sedentary populations breeding in areas sustaining the bulk of the Western European population (Cramp & Simmons 1983).

2. Study area and methods

2.1. The study colony

The bulk of the field data used in this study was collected off Hanko, SW Finland, on a small island called Tryskärsgrund (60°N, 23°E, Fig. 1).

Field work was done throughout the breeding seasons of 1978 and 1983–86, with some supplementary information gathered 1979–82.

Tryskärsgrund is about 1500 m^2 in area, of which 1000 m^2 is sheer granite with small patches of *Matricaria inodora, Allium schoenoprasum* and various grasses. The Herring Gulls occupy this area, while the remaining 500 m^2, consisting of stones and boulders, has been used only occasionally (Kilpi 1988).

The colony was established around 1976, but not censused then. The numbers of pairs in 1978–1986 are given in Fig. 1.

The colony on Tryskärsgrund is fairly dense. When the area used is divided equally among the pairs, the space available was 59 m^2/pair in 1978; and in 1985, when the pair numbers peaked, it fell to 20 m^2/pair, corresponding to 500 pairs/ha. The mean distance between nearest neighbours in 1985 was 2.2 m, SD = 0.9 m. In addition, supplementary data come from other colonies near Hanko in 1984–86, and from the archipelago in the central part of the Gulf of Finland in 1979–81 (Kilpi et al. 1980, 1985).

2.2. Methods

I visited the colony on Tryskärsgrund every second or third day, from early laying until all chicks had fledged. All nests were marked with numbered wooden stakes. Most clutches were found when still not full and could be dated accurately. When this was not feasible, I backdated the laying date from the day of hatching. The figure used for backdating between the laying and hatching of the first egg was 28 days (SD = 1.3 days, which applied to 20 eggs in 1984–86).

I measured eggs with a sliding caliper to the nearest 0.1 mm and for calculation of egg volumes (V) used the formula $V = L \times B^2 \times 0.476$, where L is length and B breadth (Harris 1964).

Monitoring the number of young actually fledged required several counts eprformed around the time most young were expected to have fledged. I chased young off the island, searched for those unwilling to leave, and the raft of young settling on the water was then counted (see also Mineau & Weseloh 1984). In this particular colony the method used is accurate, as there is no risk of confusing the young with young from other colonies. The number of adults in the colony was monitored from the time of arrival of the birds until the young had left the colony by counting adults (see Kilpi 1987a, b). Non-breeding birds in the area were observed in an opportunistic fashion during all study years, counting birds on favoured roosting sites and on the city rubbish dump.

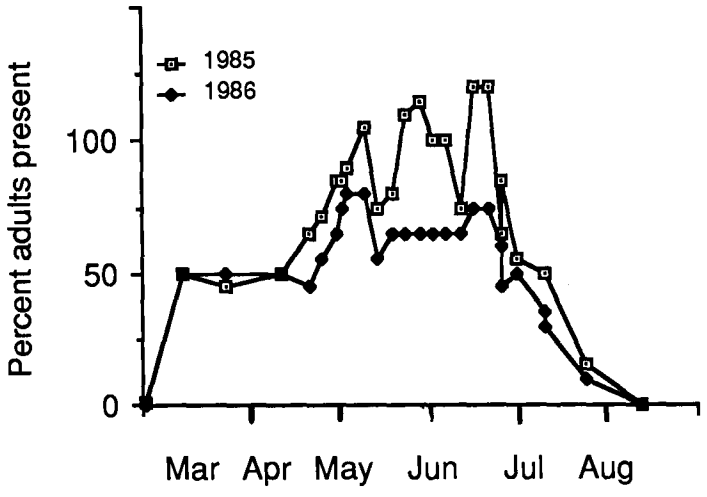

Fig. 2. Number of birds in adult plumage (expressed as percentage of those expected based on nest counts presuming all nesting birds present) associated with the Hanko study colony, 1985–1986.

3. Results

3.1. Phenology

In 1983–86 the colony was regularly occupied in mid-March. In normal years the island is then still covered by snow, and the sea is frozen. The first birds arrive in the area occassionally in late February and regularly in early March, and the colony is occupied by a larger number of birds a few weeks later (Fig. 2). The number of birds in adult plumage which are associated with the colony gradually builds up during the season, reaching a peak at about the time the chicks hatch (see also Kilpi 1987a).

Non-breeding birds begin arriving in the area in April. Most of these birds are in adult plumage, and a minority are younger. The origin of these birds is not known, but they may be migrants from northern areas (Bianki 1977) or simply non-breeding birds of Baltic origin.

After most young have fledged in July, the number of birds in the colony rapidly decreases (Figs. 2–3), and by August the colony is abandoned. The fledged young gather in flocks in August. Extensive movements of young Herring Gulls take place already in early August, when they seem to move independently of adults (Kilpi & Saurola 1983).

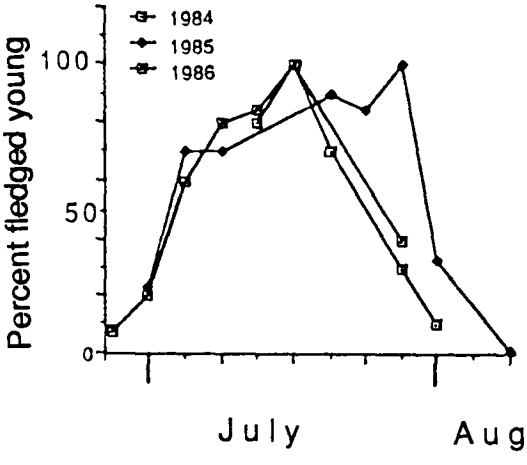

Fig. 3. Percentage of fledged young during late breeding season, 1984–86, expressed as fraction of surviving young either on the wing or present in the colony (decline after peak numbers indicates number having left the colony, see also text).

3.2. Timing of breeding

The laying in each study year is shown in Fig. 4. First clutches have been initiated from 18 April to 15 May. The seasons 1983 and 1984 were early (first nests started on 18 and 19 April), while 1985 was late (first nest started 29 April).

Median laying dates ranged from 25 April to 4 May.

In all years the first nests were initiated a day or two before the final break-up of the ice (for 1978 the ice break-up was extrapolated from ice charts). In 1985, no less than 22 nests (45%, N = 49) were initiated before the final ice break-up, while the respective percentage in the other years was lower (1978: 12%, 1983: 6%, 1984: 6% and 1986: 18%). The median date of laying correlated positively with the date of ice break-up ($r = 0.98$, $df = 3$, $P < 0.01$), but the median is also closer to the ice break-up in late years ($r = -0.91$, $df = 3$, $P < 0.05$).

3.3. Clutch size

True clutch-size was determined for most nests in all years except 1985, when ice conditions prevented visits to the island during early laying. This was unfortunate, since I could not be sure whether some of the many 2-egg clutches in that year (10 of the 22 clutches laid before my first visit) were due to freezing, and a subsequent rejection, of eggs. In two cases the first egg was rejected from a clutch of three in 1985 soon after a cold spell. Both eggs were cracked and had apparently frozen, and it seems plausible that other early two-egg clutches had experienced the same fate.

The mean clutch size was very close to three in all years except 1985, with no significant differences (Table 1), only inclusion of 1985 data produces significant annual variation in clutch size among years (1-way ANOVA $F_{4,179} = 5.5$, $P < 0.003$). Clutch size did not therefore differ between years under normal circumstances. Of 148 full clutches with no egg losses during laying, only 16 (11%) were true 2-egg clutches. Clutch size decreased with season, both in relation to real laying dates ($r = -0.21$, $df = 126$, $P < 0.05$) and deviation from the yearly population

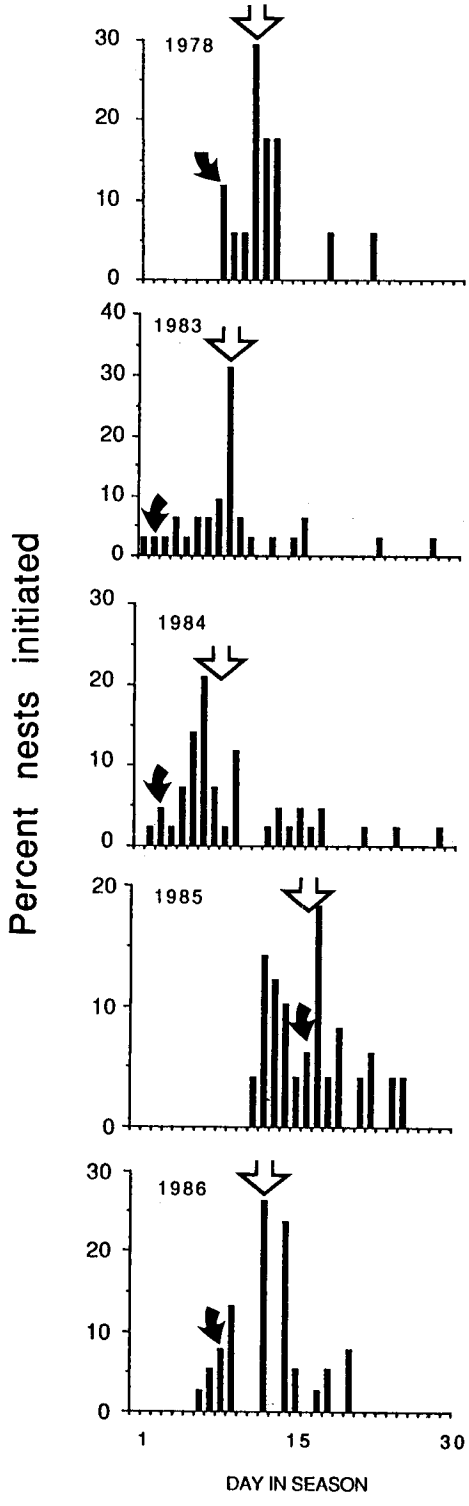

Fig. 4. Initiation dates of clutches, Hanko study colony, 1978 and 1983–86. Larger arrow indicates median date of laying, star shows date of final ice break-up. Interval = one day, starting date (= 1) is 18 April. Replacement clutches omitted from graph.

Table 1. Mean clutch size for Herring Gulls at Tryskärsgrund, Hanko, 1978 and 1983–86.

Year	Mean ± SD	Nests
1978	3.0 ± 0.0	15
1983	2.9 ± 0.3	32
1984	2.8 ± 0.5	44
1985	2.6 ± 0.5	47
1986	2.9 ± 0.3	38

Table 2. Mean total volume (cm^3) of full three-egg clutches of Herring Gulls on Tryskärsgrund, Hanko, 1984–86.

Year	Volume ± SD	Clutches
1984	264 ± 19	30
1985	252 ± 21	24
1986	259 ± 21	33

median ($r = -0.26$, $df = 126$, $P < 0.05$). However, the date explained only 4% to 6% of the variation in clutch size, when 1985 was excluded from the analysis. Further examination of clutch sizes in early and late breeders (defined as the first and last quartiles in the laying distributions each year) showed that in late breeders (n = 37), 15% of the clutches were two-egg clutches, while all early clutches (n = 37) were three-egg clutches, but the difference was not significant (χ^2 test).

The mean total volume of a full three-egg clutch did not vary between years (1984–1986; 264 ± 19 cm^3, n = 30, 252 ± 21, n = 24, 259 ± 21, n = 33, ANOVA, $F_{2,84} = 2.3$, $P > 0.1$, 1978 not included due to small size, Table 2). A full clutch averaged about 287 g (28%) of female weight during early breeding in the Gulf of Finland (mean = 1035 g, SD = 100 g, n = 45 females, M. Hario, M. Kilpi & K. Selin, unpubl.).

3.4. Success up to hatching

Between 91% and 100% of the eggs laid in full clutches that were brooded survived up to hatching, success in this respect being lowest in 1984 (Table 3). Of the eggs surviving the incubation period, 87–100% hatched.

Success varied significantly between years in terms of total losses ($\chi^2 = 32.0$, $df = 4$, $P < 0.001$), the percentages lost being lowest in the first two study years. If my interpretation is correct that several first eggs had been lost in 1985, losses in 1985 were actually higher. Assigning early 2-egg clutches an extra egg (n = 10) would bring the total losses up to hatching to 23% for 1985.

During this study, only three clutches interpreted as replacement clutches (same nest used) were laid after loss of a full clutch. No replacement clutches were laid after loss of chicks.

Table 3. Laid eggs, percentage lost, hatched chicks and percentage fledged of Herring Gulls in the study area each year.

Year	1978	1983	1984	1985	1986
Eggs laid	51	99	127	130	113
Eggs lost (%)	0	0	8	8	8
Eggs surviving 28 days of incubation (%)	100	100	91	92	92
Addled eggs (%)	0	0	13	8	9
Died at hatching (%)	0	4	2	1	2
Total losses (%)	0	4	23	17	19
Hatched young	51	96	98	109	92
Fledged young	25	63	58	64	75
% fledged	49	65	59	59	81

3.5. Chick mortality

The fate of chicks was studied intensively three years, 1984-86. Very few chicks dying before the age of about 6 days were located (3–8% of all hatched), 15–41% of all chicks hatched simply disappearing before 6 days old in these years. Chick losses up to this age were lowest in 1986 and highest in 1985, the variation between years being significant ($\chi^2 = 16.4$, df = 2, $P < 0.001$).

Of the chicks reaching the age of 6 days, very few disappeared (Table 4). There were no significant differences in survival after the age of 6 days up to fledging between the years (χ^2 test). Of 208 chicks ringed when 6 days old, only 10 (5%) were later found dead. All these had been killed, and 5 of them eaten, either by conspecifics or Great Black-backed Gulls (L. *marinus*).

Of all chicks lost before fledging in 1984–86, 80%, 96% and 82% disappeared when younger than 6 days. Differences in survival of small chicks may vary between years, but apparently the survival of larger chicks was high and varied very little between years.

3.6. Fledging

The proportion of chicks fledged per successfully hatched egg varied between 49 and 81%, being highest in 1986 and lowest in 1978 (Table 4). Fledging success varied significantly among years ($\chi^2 = 19.6$, df = 4, $P < 0.001$).

Table 4. Fate of chicks during three study years on Tryskärsgrund, Hanko, assuming that all chicks reaching about one week of age found and ringed (see also text).

Year	1984	1985	1986
Number hatched	98	109	92
Died younger than 1 week (%)	7	9	3
Disappeared younger than 1 week (%)	25	33	12
Total losses during first week (%)	32	41	15
Number surviving first week	66	64	78
Died (%)	8	3	4
Disappeared (%)	4	0	0
Fledged (%)	88	97	96
Fledged/laid egg (%)	47	62	81

The Herring Gulls on Tryskärsgrund produced between 1.23 and 1.92 fledglings per pair during the intensive study. When 1982 is included, the mean number of fledglings per pair was 1.55 (SD = 0.29).

The first chicks fledged at the age of about 39 days (1985) and 40 days (1986). Burger (1981) gives the first fledging age as 39–43 days, with the chicks flying well at the age of 48 days. Taking 45 days as the median age of flying would put the median dates of fledging at 18 July 1985, and 12 July 1986. This agrees well with my notes; on 20 July 1985 all surviving chicks flew, with 95% of all surviving chicks flying on 13 July 1986.

The colony was totally abandoned by 5 August in both years, when the median chicks were about 60 (1985) and 70 days (1986) old.

4. Discussion

4.1. Occupancy of the colony and timing of breeding

Breeding Herring Gulls occupy their colonies off the southern Finnish coast in mid-March. In the southern part of the Baltic, Herring Gulls occupy their colonies from late February to mid-March (Paludan 1951).On the coast of the Netherlands birds arrive in the colonies in mid-March (Tinbergen 1956), while on the German Wadden See coast, arrival at the colonies takes place in March (Goethe 1956). On the British Isles, Herring Gulls may be present in the colonies all year (Coulson & Butterfield 1986) and be spending time on their territories already by December (Harris 1964). Most British Herring Gulls seem to be present in the colonies by late February (Coulson & Butterfield 1986), and these start defending territories in March (Coulson et al. 1983). Egg laying in these colonies peaks in mid-May. This indicates a 2- to 2.5-month period between settling on the territories and laying. Early arrival might be valuable from the point of view of territory acquisition (Burger 1984). Finnish Her-

ring Gulls arrive at their colonies 1 to 1. 5 months before laying, earlier arrival being in most years impossible due to cold weather's preventing feeding.

Non-breeding birds which I observed arrive at the study area much later than do breeding birds. The timing of the return of these non-breeding birds coincides with breeding in mature birds. This might be an important feature for future site-selection, allowing prospectors readily to locate active colonies.

Harris (1964) and Spaans & Spaans (1975) commented on the early breeding of the population studied by Paludan (1951), finding it extraordinary, but they could provide no good explanation as to why. The population in Hanko breeds as early as does the population studied by Paludan (1951) at Christiansö in Denmark much further south. I have compiled the breeding dates for several European populations in Fig. 5. The populations in the Baltic, including the southern coast of Finland, are clearly the earliest breeders. The population on the Krunnit Islands, in the northernmost part of the Bay of Bothnia, lays considerably later than do the other populations in the Baltic. This is a likely outcome of the fact that ice break-up at Krunnit is about 3–4 weeks later than off the southern coast of Finland (Väisänen 1974), because the occurrence of ice has been shown to influence to some extent the timing of breeding in the Herring Gull (Morris & Chardine 1985). The data here also indicate that severe ice conditions may affect the timing of breeding.

The early laying of northern Herring Gulls is in contrast with the delayed breeding in the north found in several species of waders (Väisänen 1977). Slagsvold (1976) and Orell & Ojanen (1983) demonstrated that passerines in Finland delay their laying by 1.5–2.0 days per degree of latitude. Väisänen (1977) found no marked differences in the laying date of British and Finnish Oystercatchers *Haematopus ostralegus*, and Korpimäki (1987) showed that Tengmalm's Owls *Aegolius funereus* breed at about the same time in Finland and Germany. The pattern found here for Herring Gulls cannot be explained as a simple function of arrival of spring, governing most passerines (Slagsvold 1976).

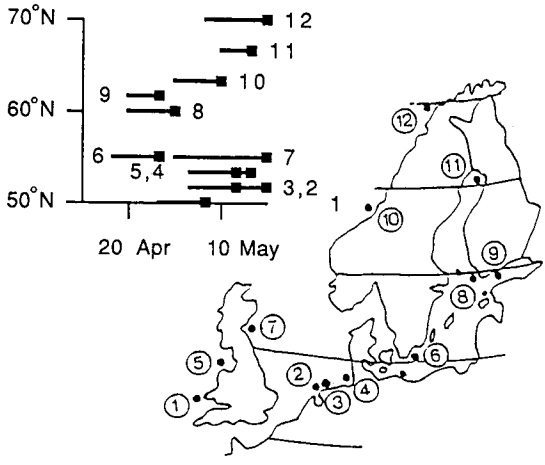

Fig. 5. Dates of first and median (dot) laying dates for Herring Gulls in several NW European colonies. Colonies (and the sources): (1) Skomer (Harris 1964, 309 nests in 1962), (2) Terschelling (Spaans & Spaans 1975, median for 609 nests, 240, 183 and 186 respectively, in 1967–69, a few late nests excluded), (3) Schiermonnikoog (Drent 1970, 1963–66, totalling 187, 42, 53, 64 and 28 first clutches), (4) Mellum (Becker & Erdelen 1986, 86 nests in 1979), (5) Walney (Brown 1967, approximated for laying dates of 250 nests in 1962–65), (6) Christiansö, Bornholm (Paludan 1951, 90 nests in 1943), (7) Isle of May (Parsons 1975, 1976, approximated from laying data of five subgroups of 654 nests (243, 196, 121, 62 and 32) in 1968), (8) this study, (9) Söderskär (Hario 1983, approximated for 116 clutches in 1981–82), (10) Tarva (Barth 1967/68, 32 and 30 nests in 1955–56), (11) Krunnit (Väisänen 1974, approximated for 126 clutches in 1968–73), (12) Tromsø, 278 nests (Barth 1967/68, 95, 90 and 93 in 1964–66). Colony numbers in the insert correspond to map numbers.

4.2. Clutch size

Although the Herring Gulls is not a truly determinate layer (Harris 1964, Parsons 1976a), almost invariably a clutch of three is laid (90% in this study). Searching for differences in clutch size seems somewhat futile in view of this consistency. When differences have been claimed, likely explanations may be the age structure of the population or even the accuracy of the field work. A high proportion of young breeders may decrease the mean clutch size (Parsons 1976a).

Winkler (1985) demonstrated a drastic decrease in the mean clutch size in one population of California Gulls *L. californicus* attributable to food limitation in the pre-laying period. Hario et al. (1986) showed a decline in clutch size in a decreasing population of the Lesser Black-backed Gull *L. f. fuscus* which might be attributed either to an age-structure effect or to a reduction in the availability of food. No such drastic differences are apparent here. Clutch size decreased slightly with the advancing season in Hanko (excluding some 1985 clutches). This trend might be due to late laying by inexperienced breeders (Coulson & White 1956, Winkler 1985). Parsons (1976a) demonstrated a significant decreasing trend in clutch size with advancing season on the Isle of May.

The females on Tryskärsgrund laid an average clutch weighing 287 g, that is about 28% of the female weight. Comparisons between populations from different geographical regions are severly hampered by the fact that weights are susceptible to great variations within the season (Coulson et al. 1983).

4.3. Hatching success

Hatching success in my study colony was high. Burger (1984) surveyed the literature on hatching success in Herring Gulls and reported a range between 51% and 82% for colonies in both Europe and North America. In Table 5 I have compiled data from several European colonies. The hatching success for Baltic Herring Gulls appears to be 10–15% higher than for British gulls. The available data suggest that the differences explaining this are mainly in the proportion of eggs lost (probably due to predation) and proportion of eggs that are addled.

4.4. Fledging success

The rate of fledging in my study colony is high compared with that of many other colonies in NW Europe (Table 6). The survival of chicks was lowest during the first week of life (see also Kilpi 1989). Hario (1985) found that 42% of the chicks he monitored in the Gulf of Finland died before reaching the age of six days. Heavy mortality during the first days of life seems to be a general rule in the Herring Gull (Davies 1975, Spaans & Spaans 1975), which also seems to be the case for other gulls of similar size (Vermeer 1970, Hunt & Hunt 1976). Harris (1964), however, argued that the mortality rate of Herring Gull chicks in his study colony in Britain was constant from hatching to fledging. Small chicks in most colo-

Table 5. Success up to hatching and the fate of eggs in various colonies in northwestern Europe. Data from Isle of May (1968, Parsons 1975), Walney (1962–65, averaged, Brown 1967), Skokholm (1969–71, averaged, Davis 1975), Skomer (1962, Harris 1964), Schiermonnikoog (1963–65, averaged, Drent 1970), Terschelling (1967–68, averaged, Spaans & Spaans 1975), Christiansö (1943, Paludan 1951) and Söderskär (Hario et al. 1986,1980–84, pooled).

Colony	Eggs laid	% Addled	% Lost	% Died at hatching	% Hatched
British Isles					
Isle of May	2463	11	?	?	70
Walney	250	21	?	?	66
Skokholm	883	?	?	?	71
Skomer	610	7	25	1	67
The North Sea coast					
Schiermonnikoog	350	14	19	2	65
Terschelling	678	12	7	1	78
The Baltic					
Christiansö	270	4	2	1	93
Söderskär	256	5	8	1	86
This study	520	7	6	1	86

Table 6. Fledging success per pair in European Herring Gull colonies. Data for (1) Parsons 1976, (2) Harris 1964, (3) Davis (1975), (4) Brown 1967, (5) Spaans & Spaans (1975), (6) Drost et al. 1961, (7) this study, (8) Hario 1981, (9) Bergman 1965.Values for Wilhelmshafen and Tryskärsgrund are means, range at Wilhelmshafen 0.4–0.9, at Tryskärsgrund 1.22–1.92 (this study). Note: figures from Parsons (1976) cannot be directly compared with other values, since mortality likely reduced numbers fledged after age 10 days.

Colony	Nests	Fledged/ pair	Year(s)	Age	Source and criterion
British Isles					
Isle of May	771	0.7	1968	> 10 d	(1)
Skomer	360	0.6	1962	flying	(2)
Skokholm	366	0.6	1970	flying	(3)
Skokholm	224	0.7	1972	flying	(3)
Walney	?	1.0	1962–65	flying	(5)
The North Sea coast					
Terschelling	241	1.4	1967	6 wk	(6)
Terschelling	182	1.5	1968	6 wk	(6)
Terschelling	176	1.2	1969	6 wk	(6)
Wilhelmshafen	11–139	0.7	1951–59	flying	(7)
The Baltic					
Söderskär	400	1.0	1981	flying	(8)
Kirkkonummi	453	1.9	1965	"large"	(9)
Tryskärsgrund	15–47	1.5**	1978–86	flying	

nies seem to be particularily vulnerable to a number of hazards, such as environmental stress, predation and cannibalism (Hunt & Hunt 1976, Parsons 1971, 1975).

4.5. Leaving the colony

My own sparse data suggest that the young left the colony at the age of about 60 days. Hario (1983) has indicated colony desertion about in mid-August for the Gulf of Finland, chicks leaving at about the same age as they do in my own study area. Kilpi & Saurola (1983b) showed that during mid-August post-fledging dispersal has begun, and young Herring Gulls move independently of their parents. Thus it seems that independence is reached at the latest at the age of about 80 days.

Burger (1981) found that young were fed at a nearly constant rate on the territories in colonies in New Jersey to the age of about 70 days, sometimes even 90. Holley (1982) indicated that British Herring Gulls feed their young regularly until the chicks are at least 70 days old, and in some cases even considerably longer. It is not possible to assess exactly whether Finnish Herring Gulls have a shorter period of post-hatching care than do British Herring Gulls. Burger (1980, 1981) has emphasized that the post-fledging period is of prime importance for survival. Young receiving a long period of post-fledging care may survive better than young being fed only a short period post-fledge. Parsons et al. (1976) found that, in some instances, young fledged later (and thus receiving less post-fledge care?) survived less well than chicks hatched early on the Isle of May.

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Sammanfattning: **Gråtrutens (*Larus argentatus*) häckningsbiologi i norra Östersjön**

Min undersökning över gråtrutens häckningsbiologi utanför Hangö udd åren 1978, 1983–86, visade att trutarna anländer till häckningskolonin i medlet av mars. Icke-häckande gråtrutar anländer i april. Äggläggningen inleds efter medlet av april, läggningsmedianen olika år varierade mellan den 25 april och 4 maj. Läggningstidpunkten står i förhållande till islossningen, ju senare islossning, desto senare inleds häckningen. Våren 1985 förlorade tidiga häckare ägg p.g.a. kallt väder. Den fullagda äggkullens storlek var nästan alltid 3, endast 11% av de fulla kullarna innehöll två ägg. Kullstorleken minskade något med framskridande säsong, men variationen var stor. De fullagda kullarnas volym var lika stor varje år. En full treäggskull motsvarade viktmässigt ungefär 28% av honans vikt. Endast 5 ± 4.5% av alla lagda ägg gick förlorade under ruvningen. Skillnaderna i den totala andelen ägg som förlorades (i medeltal 13 ± 10%) varierade signifikant mellan åren. Av de kläckta ungarna dog en större del under den första veckan (i medeltal 29 ± 13) än senare. I medeltal dog endast 6 ± 5% av de ungar som klarat den första veckan innan de blev flygga vid en ålder av ca. 40 dygn. I medeltal blev 63 ± 12% av alla ungar flygga. I medeltal producerade de häckande paren 1.55 ± 0.29 flygga ungar. Kolonin övergavs varje år i början av augusti. Gråtrutarna utanför Hangö häckar tidigt och har hög reproduktionsframgång jämförda med många andra populationer i nordvästra Europa.

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