

CHARACTERISTICS OF A GREAT BLACK-BACKED GULL COLONY ON LAKE ONTARIO, NEW YORK, 1981-1983

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From three to five pairs of Great Black-backed Gulls (*Larus marinus*) nested annually on Little Galloo Island, Lake Ontario, New York, from 1981 to 1983. These represent the first annually reoccurring multiple nestings of this species on the Great Lakes. In 1981 and 1982 clutches were initiated on 19 and 22 April, respectively, and early phenology was similar to that of Herring Gulls and Black-crowned Night-Herons. Clutch size ($X = 2.8$) and egg measurements ($X = 78.7 \times 53.4$ mm) were comparable to those of other Great Black-backed Gull populations. The Great Black-backed Gulls nested among both Ring-billed and Herring Gulls. Most pairs nested on an elevated cobblestone beach ridge on the west end of the island.

In a recent review of the status of the Great Black-backed Gull (*Larus marinus*) in the Great Lakes, Angrehn *et al.* (1979) documented ten nestings between 1954 and 1979. The nestings occurred on three different islands in Lake Huron and Lake Ontario and had a maximum frequency of one nesting per year (Angrehn *et al.* 1979, Peck and James 1983). In 1981, four pairs of Great Black-backed Gulls were found nesting on a single island, Little Galloo Island, in eastern Lake Ontario in New York (Blokpoel and Weseloh 1982). The latter nestings not only represented the first by this species in the U.S. waters of the Great Lakes, but also the first occurrence of multiple nesting (more than one per year) by this species on any island on the Great Lakes. In 1982 and 1983 I visited Little Galloo Island (Figure 1) to assess populations of Herring Gulls (*L. argentatus*) and Double-crested Cormorants (*Phalacrocorax auritus*) and to search for continued nesting by Great Black-backed Gulls. In this paper I report on the continued nesting of small numbers of Great Black-backed Gulls on Little Galloo Island and present data from 1981-1983 on their population size, nesting phenology, nest site characteristics and egg measurements.

During 1981-83, I visited Little Galloo Island on 14 occasions: 1981-23 April, 7, 11, 12 & 27 May, 8 June and 24 July; 1982-20 & 27 April, 13 & 14 May and 23 July; 1983-18 May and 16 July. On each visit I first scanned the island (with binoculars) for Great Black-backed Gulls present on the island. I then examined any suspected territories, recorded the contents of all known nests and measured all Great Black-backed Gull eggs found. On visits in July, other duties prevented me from making specific searches for these gulls.

The results of my surveys are presented in Table 1. From three to

five pairs of Great Black-backed Gulls nested on Little Galloo Island annually between 1981 and 1983. Their early nesting phenology was similar to that of other "early" nesting species on the island, e.g., Herring Gulls and Black-crowned Night-Herons (*Nycticorax nycticorax*). On 23 April 1981 Herring Gulls, Great Black-backed Gulls and Black-crowned Night-Herons had 57%, 25% and 17% completed clutches, respectively. On 27 April 1982 the two gull species showed 24% and 20% clutch completion, respectively. Clutch initiation for Great Black-backed Gulls in those years would have been 19 and 22 April, respectively. These data show close agreement with a clutch initiation date of 24 April determined for a colony of this species on the coast of Maine (Butler and Janes-Butler 1982). They are slightly later than the 13 April clutch initiation date for Great Black-backed Gulls in Rhode Island (Erwin 1971). Mean clutch size as reported in the present study (2.8), is similar to that determined on the Atlantic Coast—2.8 in Maine (Butler and Janes-Butler 1982) and 3.0 in Rhode Island (Erwin 1971).

My visitation schedule, especially in 1981 and 1982, allowed me to document fully only the early phenology of the Great Black-backed Gulls on Little Galloo Island. I was often not able to determine what percent of the eggs had hatched or if the young had fledged. On 27 May 1981, I observed one nest that contained only one egg; it was added. A second nest had only two eggs, both eventually hatched. A third nest which contained three eggs in earlier visits held two mobile young, approximately four to seven days old (Blokpoel and Weseloh 1982). These incidents represent the only egg mortality and hatching of Great Black-backed Gulls I observed from 1981 to 1983 and I witnessed no fledging. However, I have no reason to believe that young Great Black-backed Gulls did not fledge each year.

In each year more than half the pairs of Great Black-backed Gulls nested on a cobblestone beach ridge on the west end of the island (Table 1). This ridge separated a low area, which often contained 2-4 cm of water in the spring, from Lake Ontario (see Figure 1, Area A). Other nestings occurred on grass covered areas, 160-200 m east of the cobblestone beach. In 1981 and 1982 one of the grass sites was at exactly the same location, i.e., against a partially buried 22-liter (5-gallon) can. In 1982, the second territory on grass (but without a nest) was located near a fenced Herring Gull study area. In 1983 this site was again occupied and a nest was present. The nests on the cobblestone ridge also appeared in the same general area each year. Hence, it appears that there may be a reasonable degree of nest-site fidelity among Great Black-backed Gulls nesting on Little Galloo Island.

Egg measurements are presented in Table 1. Mean length and width (78.7 x 53.4 mm) appear comparable to those given by Bent (1921) for

Great Black-backed Gulls from New England (77.9×54.2 mm). Except for greatest length, the extreme length and width measurements also are similar, *i.e.*, Little Galloo Island: 82.8×57.0 and 74.0×50.3 ; New England: 86.5×57.5 and 73.0×51.0 (Bent 1921). There were no significant differences in the length of eggs in the three years but the eggs in 1981 were significantly narrower than those in 1982 (Mann-Whitney test, $P < .01$). The mean weight ($\pm$ S.D.) of three fresh Great Black-backed Gull eggs in 1982, all from one clutch, was 126.3 ± 2.5 gm.

Nesting neighbors of the Great Black-backed Gulls included both Herring Gulls and Ring-billed Gulls (*L. delawarensis*). On the cobblestone ridge (which measured approximately 10×50 m) there were approximately ten pairs of Herring Gulls nesting each year. The area near the fenced study area harbored approximately 30-40 pairs of Herring Gulls whereas the area near the 22-liter can contained only Ring-billed Gulls. In areas where Herring Gulls nested, the distance between a Great Black-backed Gull nest and the nearest Herring Gull nest was estimated to be similar to the distance between adjacent Herring Gull nests. However, in the area where Ring-billed Gulls nested, an area approximately 5 m in radius around the Great Black-backed Gull nests was devoid of Ring-billed Gulls. This figure is similar to the nearest neighbor distance of 6.7 m determined for Great Black-backed Gulls nesting in Maine (Butler and Janes-Butler 1982). Also, it is strikingly different from the nearest-neighbor distance of Ring-billed Gulls on Little Galloo Island (approximately $0.5 [-1.0]$ m, pers. obs.).

The review of Angrehn *et al.* (1979) included nest records up to 1979. Since that time, in addition to nestings on Little Galloo Island, known nestings of Great Black-backed Gulls on the Great Lakes occurred in 1981 and 1982: one pair on the Eastern Headland, Toronto, Lake Ontario (H. Blokpoel, pers. comm.); and in 1983: one pair with at least one chick on Snake Island, Kingston, Lake Ontario (Weir 1983, and D. V. Weseloh, pers. obs.). Hence, except at Little Galloo Island, the Great Black-backed Gull apparently still nests only sporadically on the Great Lakes, with most records on Lake Ontario.

Evidence suggests that the present small colony of Great Black-backed Gulls may have first nested on Little Galloo Island between 1977 and 1981. Scharf (1978) visited the island in 1976 and 1977, Ludwig (1974 and pers. comm.) visited the island in 1971 and Belknap (1950, 1955, 1961, 1968, 1979) made many earlier visits to it. None of these authors reported the presence of nesting or loafing Great Black-backed Gulls. The origin of the Great Black-backed Gulls nesting on Little Galloo Island is not known. However, Angrehn *et al.* (1979) present evidence from banding returns indicating that most Great Black-backed Gulls recovered in the Great Lakes area originated from colonies in the St. Lawrence River.

The Great Black-backed Gull is a marine species and the Great Lakes represent the western limit of its breeding range (A.O.U. 1984, Eagles and McCauley 1982). It is not known to be greatly or rapidly expanding its breeding range, although small colonies of recent origin are known from Lake Champlain on the New York-Vermont border (D. Kibbe, *in litt*). The factor(s) which may be limiting the Great Black-backed Gull's distribution in interior North America have not been assessed. The species may be sensitive to a freshwater environment during the breeding season, it may not be able to contend with the high numbers and densities of other breeding colonial waterbirds, *e.g.*, Ring-billed Gulls, or other factors may be at work.

In 1968 Ludwig (1968) predicted that the Great Black-backed Gull "seemed poised at the edge of the Great Lakes for an invasion." As Angrehn *et al.* (1979) have pointed out, and as the present report shows, the "invasion" has yet to occur. However, it appears that Great Black-backed Gulls have established their first, small but viable, breeding "colony" on the Great Lakes at Little Galloo Island, Lake Ontario. It will be interesting to see if their Great Lakes breeding population increases over the next several years as any surviving birds from the Little Galloo colony attain sexual maturity and return there (or elsewhere on the Great Lakes) to breed.

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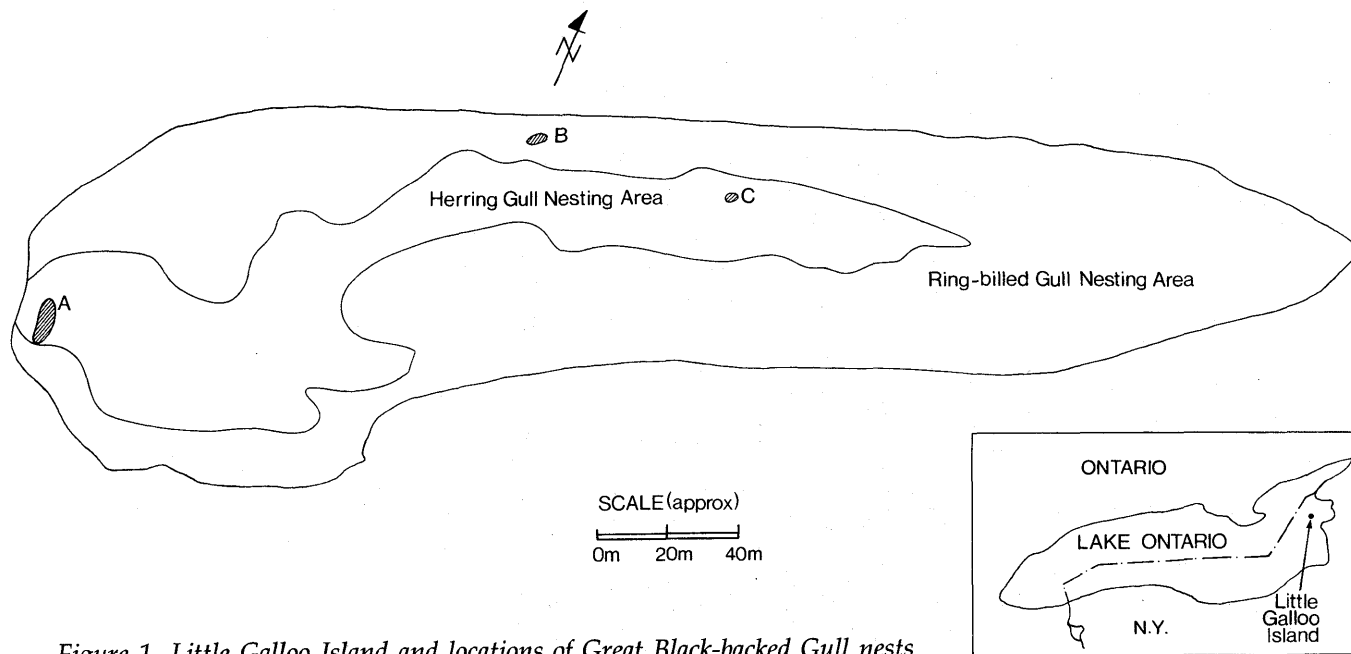


Figure 1. Little Galloo Island and locations of Great Black-backed Gull nests (diagonal shading), 1981-1983.
Herring Gull nesting area redrawn with modifications from Scharf (1978).

Table 1. Nest and Egg Characteristics of Great Black-backed Gulls, Little Galloo Island, 1981-1983.

Year	No. of Territories (nests if different)	Date of 1st known com- pleted clutch	Mean clutch size	No. Eggs	Nesting/Territory substrate (N)	Egg Measurements: Mean Length & Width + S.D. (N)
1981	4	23 April	2.3	9	Cobblestone (3) grass (1)	$78.1 \pm 2.3 \times 51.3 \pm 1.0^*$ (7)
1982	6 (5)	26 April	3.0	15	Cobblestone (3) grass (2)	$78.9 \pm 1.9 \times 54.1 \pm 2.2^*$ (15)
1983	3	18 May [↓]	3.0	9	Cobblestone (2) grass (1)	$78.7 \pm 2.6 \times 53.8 \pm 2.9$ (9)
Overall	13 (12)		2.8	33		$78.7 \pm 2.2 \times 53.4 \pm 2.3$ (31)

* Significantly different from one another, Mann-Whitney Test $P < 0.01$.

[↓] In 1983 all three nests were complete by the time of my first visit on 18 May.