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Herring Gulls, *Larus argentatus,* Nesting on Sandusky Bay, Lake Erie, 1989[1]

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ABSTRACT. **One of the largest herring gull (*Larus argentatus*) nesting populations on the Great Lakes is located in an urban setting on Sandusky Bay in the Ohio portion of Lake Erie. The survey reported here, carried out in 1989, indicated a population of 4,250 nests. The population has expanded from a focal point on Turning Point Island to coal piles at the Lower Lake Dock Company, rooftops in downtown Sandusky and breakwalls near Cedar Point. Comparison with data from a survey performed in 1976 indicates the population has grown at an average annual rate of 11.9% during the past 13 years. The population may now be expanding into suboptimal nesting areas.**

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INTRODUCTION

A nesting population of herring gulls (*Larus argentatus*) on the south shore of Sandusky Bay near Sandusky, OH has expanded to the point where the birds are creating various nuisance problems as well as causing some damage at industrial sites. Gulls at the Lower Lake Dock Company (LLDC) have created the most problems, causing power outages through perching activities at the transformer station and disrupting the activity of workers through aggressive defense of nests and young.

In conjunction with evaluations of methods to reduce the problems caused by gulls, a census of gull nesting activity was undertaken in the area in 1989. The objective was to obtain an estimate of the size and extent of the herring gull nesting population on Sandusky Bay.

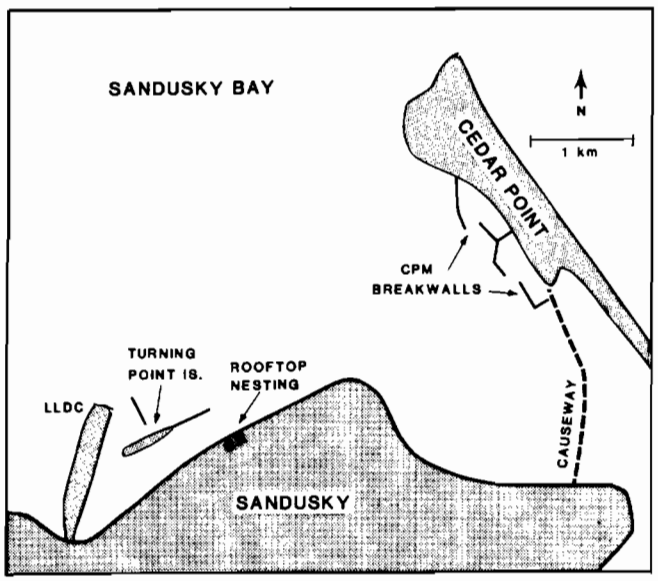

Figure 1. Map of Sandusky Bay at Sandusky, Ohio showing location of Lower Lake Dock Company (LLDC), Turning Point Island and adjacent breakwalls, Cedar Point Marina (CPM) breakwalls, and rooftops where herring gulls nested, 1989.

MATERIALS AND METHODS

Turning Point Island, a 2.5-ha man-made island with two adjacent 7 x 450-m breakwalls located 0.4 km east of LLDC and 0.5 km south of downtown Sandusky (Fig. 1), was censused on 10 May. Transects were made across (from shore to shore) the island, perpendicular to the long axis of the island. The first transect location was randomly selected within the first 30 m along the long axis of the island at the west end and 15 subsequent transects were made at 30-m intervals until the east end of the island was reached. A cord was stretched across the island to delineate each transect and an observer with a 1.8-m pole walked slowly along the cord counting all nests at least 50% within the 1.8-m band. A second observer served as recorder and also double-checked the first observer to ensure no nests on the transects were missed. The number of eggs and chicks in each nest were noted to establish the nesting stage and synchrony of the colony.

All other potential nesting sites along Sandusky Bay were observed during May and early June, and a total count was made of nests at each location where nesting occurred. To ensure that no concentrations of gulls were missed, three observers surveyed the south and north shore of Sandusky Bay from a Piper Cherokee C airplane at 300-m elevation on 15 May. Photographs were taken of rooftops in downtown Sandusky to locate roofs with nesting gulls for subsequent on-site inspection.

RESULTS

About 70% (2,964) of the 4,250 herring gull nests estimated to be on Sandusky Bay were located on Turning Point Island and the adjacent breakwalls (Table 1). Turning Point Island had a mean density of 1,120 nests/ha. Nesting at the nearby LLDC facility (178 nests) was primarily on top of the north coal pile and along the conveyor belts adjacent to Sandusky Bay (Fig. 2).

The breakwalls at Cedar Point Marina, about 5 km east of Turning Point Island, had 889 or 21% of the nests on Sandusky Bay (Table 1). Two hundred one nests were located on two flat rooftops covering 1.3 ha in downtown Sandusky (Americup and Displayco Buildings), less than 1 km from Turning Point Island. No evidence of nesting by ring-billed gulls (*Larus delawarensis*) was noted on

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TABLE 1

Estimated number of herring gull nests in the vicinity of Turning Point Island (TPI), Lower Lake Dock Company (LLDC) and Cedar Point Marina (CPM), Sandusky, Ohio 1989.

Location	Date	Number of nests with						Estimated nesting population	Estimated no. of nests/ha
		0 egg	1 egg	2 eggs	3 eggs	chicks	Unk		
TPI	10 May	7	6	14	112	29	0	2,800 ± 124*	1,120
TPI Breakwall (east-west)	10 May	10	10	16	102	5	0	143	453
TPI Breakwall (north-south)	24 May	4	2	6	8	1	0	21	67
LLDC	8 May	50	28	26	74	0	0	178	—
Sandusky Rooftops Displayco	22 May	16	17	13	28	0	20	94	130
Americup	1 June	25	31	33	17	0	1	107	192
CPM Breakwalls South	11 May	5	14	67	409**	89	0	584	1,669
Center	11 May	5	10	38	231**	18	0	302	575
North	11 May	3	0	0	0	0	0	3	9
Miscellaneous+	11 May-1 June	2	0	2	1	0	13	18	—
TOTAL								4,250	

* Sixteen transects, 29 to 61 m-long and covering 6.0% of the 2.5-ha island, were run. Standard error determined by simple random sample of clusters: ratio to size estimate (Cochran 1977).

** Includes three 4-egg nests on the south breakwall and one 4-egg nest on the center breakwall.

\+ Ten nests on Cedar Point causeway 0.5 km south of Cedar Point Marina; four on Sheldon Marsh sand spit and two on Big Island Marsh, 8 and 2 km, respectively, southeast of Cedar Point Marina; one on lawn and one on rooftop in downtown Sandusky.

Sandusky Bay, although about 200 were observed in the area. Most ring-bills were in subadult plumage.

Turning Point Island has a rubble substrate with some shrubs, small trees and herbaceous vegetation, bordered by riprap (Scharf et al. 1978). Most gull nests were on the rubble substrate, the remaining ones being located in flat areas among the riprap. The breakwalls typically consisted of large, odd-shaped boulders, with no vegetation, and gull nests were confined to the occasional flat, horizontal surfaces. The exception was part of the South breakwall at Cedar Point Marina that contained a rubble substrate with herbaceous vegetation similar to that on Turning Point Island. Here, the nesting-density of 1,669 nests/ha was highest in Sandusky Bay, higher than on the other breakwalls or on Turning Point Island (Table 1).

Rooftop-nesting gulls were observed primarily on light-colored gravel surfaces, but about 5% of the nests were on metal surfaces. At the LLDC, most nests were on the piles of gravel-sized coal (Fig. 2).

Nesting was initiated earlier on Turning Point Island and the Cedar Point Marina breakwalls than at the other localities. For example, on the surveys of 10-11 May, 13% of the nests on Turning Point Island and the Cedar Point Marina breakwalls had newly-hatched young. None of the nests at the LLDC facility had hatched young by 8 May and none of the nests on the rooftops had hatched young by 22 May (Displayco) or 1 June (Americup) (Table 1).

DISCUSSION

Scharf et al. (1978) surveyed all nesting areas of colonial waterbirds in U.S. waters of the Great Lakes during 1976-77 and reported 26,719 and 29,406 herring gull nests for the respective years. The Sandusky Bay colony, confined entirely to Turning Point Island, contained 983 and 878 nests in 1976 and 1977, respectively. The estimate in 1989 of 2,964 nests at Turning Point Island

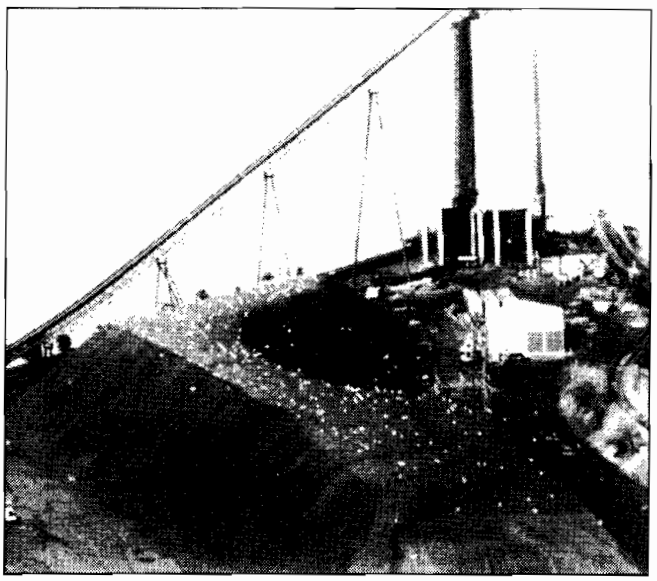

FIGURE 2. Aerial photo of portion of nesting colony of herring gulls on coal piles at the Lower Lake Dock Company, Sandusky, Ohio, 25 April 1988. A count of nests on the coal piles made the same day by observers on the ground revealed 61 nests with eggs and 70 nests without eggs. Nest density on the coal piles was similar in 1989 when the entire Sandusky Bay population was censused.

and the adjacent breakwalls represents a 3-fold increase in nests for this colony during the 13-yr period, or an average annual increase of 8.9%. The estimate of 4,250 nests for the entire Sandusky Bay population in 1989 represents a 4.3-fold increase in the total population during the 13-yr period, or an average annual increase of 11.9%. While this annual rate of increase is large, it is not unprecedented. Ludwig (1966) recorded an annual increase of 13% in the nesting herring gull population on Lakes Michigan and Huron, 1960-65. Dolbeer and Bernhardt (1986) noted a 13.6% annual increase in the early winter herring gull population at Toledo, OH from the 1950's to the 1980's.

The largest herring gull colony on the U.S. portion of the Great Lakes in 1967-77, at Gull Island on Lake Michigan, contained 1,750 nests (Scharf et al. 1978). This is only 59% the size of the colony on Turning Point Island and adjacent breakwalls in 1989 and only 41% the size of the Sandusky Bay population. On the Canadian portion of the Great Lakes, the two largest colonies reported are from Lake Huron, containing 2,416 and 3,714 nests in 1980 (Weseloh et al. 1986). The largest colonies on the Canadian portions of Lakes Ontario, Erie and Superior contained no more than 400 nests, based on surveys from 1976-80 (Blokpoel 1977, Blokpoel and McKeating 1978, Blokpoel et al. 1980). The current (1989) status of other herring gull colonies on the Great Lakes is unknown, but it is probable that the Sandusky Bay colonies represent one of the largest nesting concentrations. The fact that the nesting population has expanded to factory roofs and the coal piles suggests that optimum nesting sites on Turning Point Island and the breakwalls are fully occupied. Paynter (1963) in Massachusetts and Monaghan and Coulson (1977) in England previously have documented rooftop nesting by herring gulls subsequent to rapid growth of colonies in nearby traditional nesting habitat located on islands and along shorelines. The only other documented rooftop nestings by herring gulls in the Great Lakes region were two small (<50 nests) colonies discovered in 1985 near Lake Huron in Ontario (Blokpoel and Smith 1988).

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