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Fish-eating birds nesting in Canadian Lake Erie and adjacent waters

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Abstract

An inventory in 1977 of gulls and terns nesting in the Canadian parts of Lake Erie, the Detroit River, and the Niagara River produced the following results: 1171 nests of Herring Gulls (*Larus argentatus*), 15 130 nests of Ring-billed Gulls (*L. delawarensis*), and 1583 nests of Common Terns (*Sterna hirundo*). Lack of reliable, historical data made it impossible to determine any recent changes in numbers for the two gull species. Most Common Tern colonies have declined in recent years; their most important colonies on Lake Erie are being affected by various types of disturbance.

This paper also reports observations in 1977 of colonies of Double-crested Cormorant (*Phalacrocorax auritus*), Great Egret (*Casmerodius albus*), Cattle Egret (*Bubulcus ibis*), Great Blue Heron (*Ardea herodias*), and Black-crowned Night Heron (*Nycticorax nycticorax*). In 1977 there was one, small, rather threatened colony of cormorants on Lake Erie. The Black-crowned Night Heron appears to be the second most numerous fish-eating bird species on Lake Erie, as well as on the lower Great Lakes in general. The archipelago in the western basin of Lake Erie is of great importance as nesting habitat for several heron species, two of which nest in very few places elsewhere in Canada.

Introduction

The reproductive success of fish-eating birds on the Great Lakes is affected by several factors which include availability of food and of nesting habitat, predation, human disturbance, and toxic chemicals. For most Great Lakes colonies the food supply is probably adequate, but suitable nesting habitat is becoming scarce for some species, e.g., the Common Tern, especially during years when lake levels are high (Ludwig 1974). Human disturbance appears to affect certain species, e.g., the Black-crowned Night Heron, more than others (P.M. Fetterolf, pers. comm.). Toxic chemicals in the aquatic environment of the birds affect their reproduction chiefly through the bio-accumulation of those chemicals through the food chain. Low reproductive success associated with high loads of toxic chemicals has been reported for Great Lakes Double-crested Cormorants (S. Postupalski, pers. comm.), Black-crowned Night Herons (I.M. Price, pers. comm.), and Herring Gulls (Gilbertson 1974, Gilbertson and Hale 1974).

Poor reproduction does not necessarily lead to population decline, nor does successful reproduction necessarily imply a healthy population (Nisbet, pers. comm.). Other factors in-

cluding emigration, immigration, recruitment rates, age-specific survival rates, all affect the population levels of any species. Long-term banding studies can provide information on immigration and emigration, inter-colony shifts, and mortality rates. To fully understand the population dynamics of the Great Lakes fish-eating birds, information on their distribution and numbers is needed. Hence the Canadian Wildlife Service (CWS), Ontario Region is planning to inventory piscivorous bird colonies on the Canadian portion of all the Great Lakes. In 1976 those inventories were begun with a survey of gull and tern colonies on Canadian Lake Ontario and the upper St. Lawrence River (Blokpoel 1977). Bird colonies on the US portion of the Great Lakes were inventoried in 1976 and 1977 by Scharf and co-workers (Scharf, Shugart, and Chamberlin 1978).

In 1977 CWS and the Ontario Ministry of Natural Resources (OMNR) jointly undertook an inventory of colonies of Herring Gulls, Ring-billed Gulls, and Common Terns in the Canadian portions of the Niagara River, Lake Erie, and the Detroit River. Other fish-eating species encountered during the survey were also recorded. In addition, we received reports of nesting piscivorous birds from several knowledgeable observers. This paper reports the results of the larid survey and summarizes all other related observations.

Methods

Larid census

Most of the breeding colonies were censused by making ground counts of the nests. Where ground counts were not feasible, we estimated the number of nests (ground estimates).

When making ground counts, a structure was considered to be a nest if it was clearly completed, if it contained eggs or young, or if it clearly had contained young. Where necessary, a colony was divided into strips and nests were counted in each strip. Strips were delimited with tough plastic tape.

It was impossible to survey the whole area by boat. We made decisions as to what areas to cover by boat largely on the basis of information from detailed maps, published and unpublished reports, waterfowl survey flights, telescope observations from shore, weather conditions, available craft, and the local situation. For example, Table Rock Island just above the Niagara Falls was not visited by boat, but we made a ground estimate using a 20X telescope. Prolonged bad weather made it impossible to survey Middle Island.

Historical records

To obtain data for previous years we searched the literature and examined the files of the Ontario Nest Record Scheme (ONRS) and of the OMNR. We also corresponded with biologists, naturalists, and bird watchers.

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Figure 1
Lake Erie and adjacent waters. Numbers refer to colonies visited in 1977 and listed in Tables 1 and 2

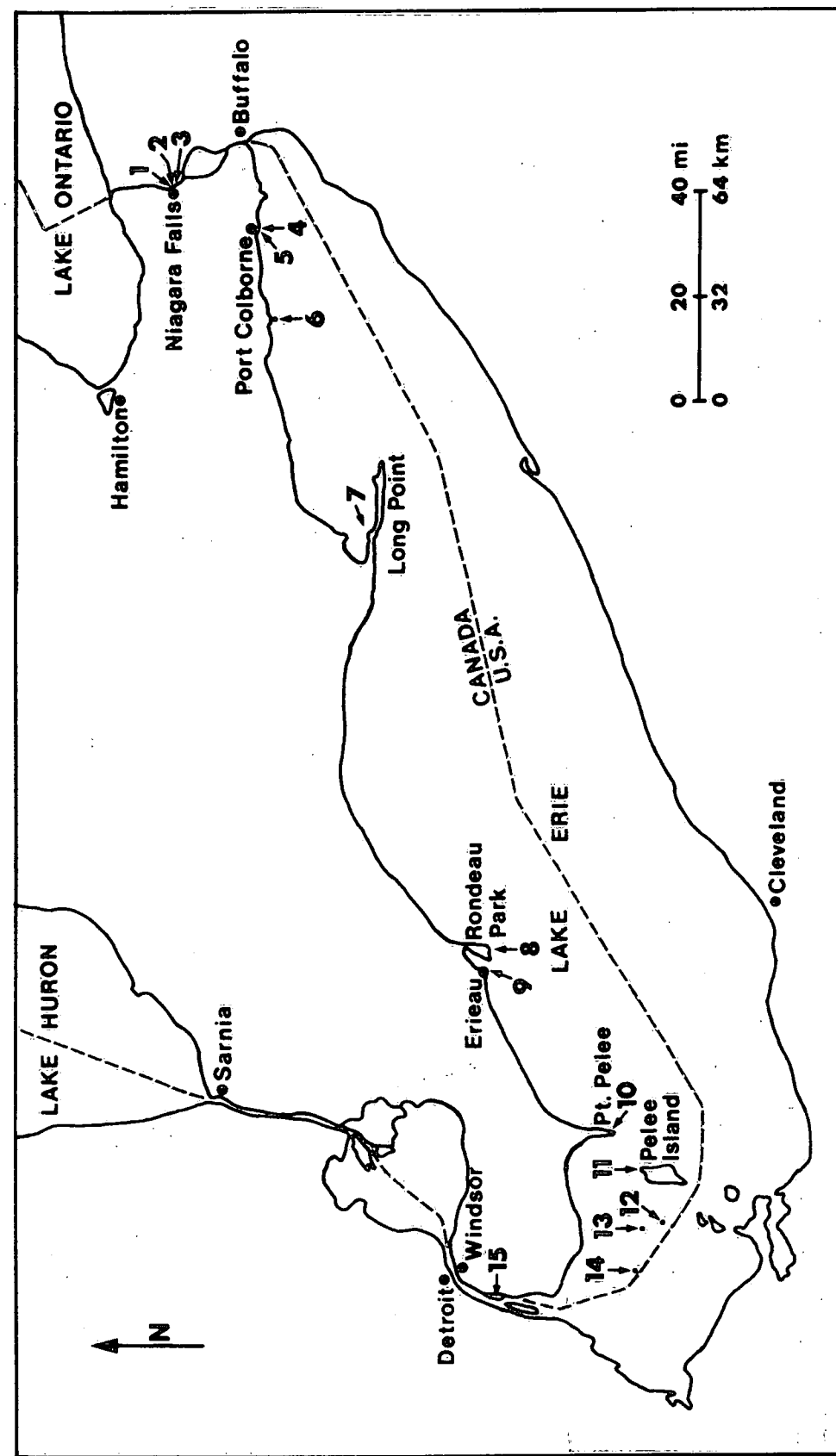


Table 1
Numbers of gull and tern nests in Canadian Lake Erie and adjacent waters in 1977

No. on Fig. 1	Area	Date (1977)	Method	Herring Gull	Ring-billed Gull	Common Tern	Main observers*
1	Niagara River gorge	13 May	GC†	4	0	0	HB, GTH
2	Table Rock Isl.	11 May	GE‡	0	400	0	HB
3	Two unnamed islands and stranded barge	11 May	GE	34	0	0	HB, GTH
4	Canada Furnace E., Pt. Colborne	13 May	GC	26	6842	78	HB, GTH
		1 June	GC	0	0	116	HB, TH
	Canada Furnace W., Pt. Colborne	15-17 May	GC	31	7132	860	HB, TH
5	Lighthouse, Pt. Colborne	1 June	GC	-§	-	722	HB, TH
		12 May	GC	60	235	292	HB, ARC, GTH
6	Mohawk Isl.	3 June	GC	-	-	562	PC
		1 May	GC	227	-	0	ARC
7	Long Point	12 May	GC	202	520	0	HB, ARC, GTH
		-	GC	0	0	18	DJTH
8	Rondeau Prov. Park	-	GC	0	0	0	AW
9	Erieau	19 May	GC	0	0	6	HB, TH
10	Point Pelee Nat. Park	-	GC	0	1	-	RW
12	Big Chicken Isl.	4 June	GC	94	-	-	RB
13	East Sister Isl. (periph. only)	31 May	GC	344	-	-	IB, WC, RG, GBMcK
14	Middle Sister Isl. (periph. & 50% int.)	31 May	GC	303	-	-	IB, WC, RG, GBMcK
15	Fighting Isl.	19 May	GC	48	0	159	HB, TH
All colonies				1171#	15 130	1699#	

*HB, H. Blokpoel; IB, I. Bowman; RB, R. Brown; ARC, A.R. Clark; PC, P. Courtney; WC, W. Creighton; RG, R. Gator; GTH, G.T. Haymes; TH, T. Hince; DJTH, D.J.T. Hussell; GBMcK, G.B. McKeating; RW, R. Watt; AW, A. Woodliffe.

†Ground count.

‡Ground estimate.

§Not known or not reported.

#Using the count on 1 May for colony 6.

//Using the counts in early June for colonies 4 and 5.

Table 2
Numbers of cormorant, egret, and heron nests in Canadian Lake Erie and adjacent waters in 1977

No. on Fig. 1	Area	Date (1977)	Method	Double-crested Cormorant	Great Egret	Cattle Egret	Great Blue Heron	Black crowned Night Heron	Main observers*
3	Two unnamed islands	11 May	GE†	0	0	0	0	65	HB, GTH
11	Pelee Island, Fish Pt.	1 June	GC‡	0	8	7	0	870	IB, WC, RG, GBMcK
12	Big Chicken Isl.	4 June	GC	57	0	0	0	0	RB
13	East Sister Isl.	13 May	GE	0	10	-§	40-50	>350	DCS
14	Middle Sister Isl.	31 May	GC	-	3	-	31	-	IB, WC, RG, GBMcK
Totals				57	21	7	71-81	>1285	

*HB, H. Blokpoel; IB, I. Bowman; RB, R. Brown; WC, W. Creighton; RG, R. Gator; GTH, G.T. Haymes; GBMcK, G.B. McKeating; DCS, D.C. Smith.

†Ground estimate.

‡Ground count.

§Not known or not reported.

Results

Numbers of nests of fish-eating birds found for the 1977 breeding season are shown in Table 1 (gulls and terns) and Table 2 (cormorants, egrets, and herons). The distribution of the colonies is shown in Figure 1. For some colonies, more detailed information and data for previous years are presented below.

1. Areas for which 1977 data are available

Niagara River gorge. Cliff-nesting by Herring Gulls in the Niagara River gorge was first reported by Andrie (1976) for the US side. He suggested that the colony began in the early 1960's or perhaps late 1950. Apart from the four nests that we found on the Canadian side (using telescopes on the US side), we also observed five Herring Gull nests on the US side downstream from Goat's Island, where there were no nests in 1975 when Andrie made his survey. Goat's Island is adjacent to the Niagara Falls.

Table 3

Numbers of gull and tern nests at the Canada Furnace Colony, Port Colborne, Lake Erie

Date	No. of nests			Source
	Herring Gull	Ring-billed Gull	Common Tern	
1973	—*	12 500–14 000†	1100†	Morris and Hunter (1976)
1973	21	—	—	G.T. Haymes (pers. comm.)
1974	—	13 500–15 000†	1100†	Morris and Hunter (1976)
12 June 1974	—	16 000–16 500	—	D.V. Weseloh (pers. comm.)
1974	41	—	—	Morris and Haymes (1977)
1975	45	—	—	Morris and Haymes (1977)
1976	50	—	—	Morris and Haymes (1977)
13–17 May 1977	57	13 974	938	this report
1 June 1977	—	—	838	this report

*Not known or not reported.

†Estimate.

Lighthouse, Port Colborne, Lake Erie. This colony was also briefly described by Morris and Haymes (1977). Nest data for previous years are shown in Table 4. Numbers of Ring-billed Gull nests decreased from an estimated 3000 in 1972 to 235 in 1977. Numbers of Common Tern nests dropped from an estimate of some 1300 in 1974 to 562 in 1977. The Herring Gull population remained stable in the last four years.

Mohawk Island, Lake Erie. Palmer (1964) gave a brief description of this island and reported an increase in the Ring-billed Gull population. Nest data for previous years (Table 5) show the gradual but complete decline of the Common Tern colony, coinciding with an increase in the breeding populations of Herring Gulls and Ring-billed Gulls. The

Table Rock Island, Niagara River. Sheppard (1970) mentioned that in 1956 Common Terns nested on this island, but in 1960 Ring-billed Gulls had taken over all the most suitable nesting areas. We did not see Common Terns on the island in 1976, when the entire island was covered with Ring-billed Gull nests.

Two unnamed islands and stranded barge, Niagara River. In 1956 Common Terns were seen on these two islands, but in 1957 and later years they were not reported (Sheppard 1970). Black-crowned Night Heron nests in previous years numbered 25 (1967), 20 (22 May 1971), and 38 (22 April 1973) (Sheppard 1970, ONRS files). In 1977 we counted four Herring Gull nests on the stranded barge.

Canada Furnace, Port Colborne, Lake Erie. This colony was briefly described by Morris and Haymes (1977). In comparison with the information for previous years (Table 3), the number of Herring Gull nests in 1977 had increased, that of Common Tern nests had declined somewhat, and that of Ring-billed Gull nests had changed little.

Ring-billed Gulls apparently reached peak numbers in 1963, but in 1977 we still found 520 active nests. The Herring Gulls colonized the area in 1943. In the last decade their numbers fluctuated with peaks of some 200 nests.

Long Point, Lake Erie. For logistical reasons, we did not visit Long Point, but personnel of the Long Point Bird Observatory found a total of 17 Common Tern nests in 1977. Forster's Terns (*Sterna forsteri*) were also seen, and were probably nesting, but no nest census was undertaken (D.J.T. Hussell, pers. comm.). Data for previous years are shown in Table 6. The discovery in 1976 of the Forster's Tern colony was mentioned by Peck (1976). A more detailed report on this colony is being prepared (Hussell and Field, in prep.).

Table 4

Numbers of nests of gulls and terns at Lighthouse colony, Port Colborne, Lake Erie

Date	No. of nests			Source
	Herring Gull	Ring-billed Gull	Common Tern	
1945	—*	—	birds present	Beardslee and Mitchell (1965)
1950	—	—	50	Beardslee and Mitchell (1965)
17 June 1965	—	birds present	—	ONRS†
4 June 1972	28	—	748	A.R. Clark (pers. comm.)
1972	—	3000‡	—	R.D. Morris (pers. comm.)
1973	49	—	—	Morris and Haymes (1977)
1973	—	>375‡	1250‡	Morris and Hunter (1976)
1974	67	—	—	Morris and Haymes (1977)
1974	—	500–600	1250–1375‡	Morris and Hunter (1976)
1975	61	—	—	Morris and Haymes (1977)
1975	—	631	670	G.I. Melvin (pers. comm.)
1976	60	—	—	Morris and Haymes (1977)
12 May 1977	60	235	292	this report
3 June 1977	—	—	562	this report

*Not known or not reported.

†Ontario Nest Record Scheme.

‡Estimate.

Rondeau Provincial Park, Lake Erie. Park staff searched the area for nesting birds in 1977. They found no nests of Herring Gulls, Ring-billed Gulls, or Common Terns, but they did find three pairs of nesting Black Terns (*Chlidonias niger*) and two nests of Green Herons (*Butorides virescens*). The few data for previous years are given in Table 7.

Point Pelee National Park, Lake Erie. Park staff reported one Ring-billed Gull nest in 1977. Data for previous years (Table 8) suggest that the Park has never had a large gull or tern colony.

Pelee Island, Lake Erie. Data on herons for previous years (Table 9) show that numbers of nests of Black-crowned Night Herons increased from 40 in 1933 to a peak of about 1000 in 1972, followed by a slight decrease to 870 in 1977. We do not know in what year either Great Egrets or Cattle Egrets began nesting (see Table 2). A Common Tern colony with more than 200 nests in 1950 has since disappeared. The island was not searched for larid colonies, but casual observations indicated no nesting larids.

Big Chicken Island, Lake Erie. Data for previous years (Table 10) indicate that the colony of Double-crested Cormorants is slowly increasing, whereas the Herring Gulls are declining in numbers.

East Sister Island, Lake Erie. Data for previous years are summarized in Table 11, which shows that both Great Blue Herons and Black-crowned Night Herons have nested on the

island since at least 1951. Numbers of Great Blue Heron nests appear to have fluctuated considerably. In 1976 and 1977 considerable numbers of nesting Herring Gulls were seen. It is impossible to tell whether they represent the start of a new gull colony because data for earlier years were incomplete. For the same reason, we do not know when the Great Egrets established their colony.

Middle Sister Island, Lake Erie. We know very little about the history of the avifauna of this island, which is now heavily treed. On 22 June 1920 an estimated 1500–2000 Common Tern nests were found (ONRS); in 1977 there were none. The Herring Gull colony increased from 15 nests on 7 July 1952 (ONRS) to 303 on 31 May 1977. Great Blue Heron nests numbered six on 10 June 1957 (ONRS) and 31 on 31 May 1977. We do not know when the Great Egrets started to nest on Middle Sister Island (see Table 2).

Fighting Island, Detroit River. This island is largely a diked settling pond for chemicals. In 1977 the terns and gulls were nesting on the dikes. As the dikes were being raised during the nesting season, many tern nests were probably destroyed and the birds we found nesting on 19 May may have been re-nesting. The Herring Gulls were unusually shy and made no attempt to scare us away. Of the 48 nests, 12 had no eggs.

The only historical record for this colony appears to be that of Simpson (1972) who reported finding 140 nests of Common Terns and 24 nests of Herring Gulls on 5 June 1972.

Table 5
Numbers of gull and tern nests on Mohawk Island, Lake Erie

Date	No. of nests			Source
	Herring Gull	Ring-billed Gull	Common Tern	
4 July 1933	—*	—	500	Beardslee and Mitchell (1965)
1938-1941	—	—	1000†	Palmer (1964)
1943	1	—	—	Beardslee and Mitchell (1965)
1944	2	—	—	Beardslee and Mitchell (1965)
1945	4	50	—	Beardslee and Mitchell (1965)
1946	13	45-50	1400-1800†	Beardslee and Mitchell (1965)
1947	6	125	1100	Beardslee and Mitchell (1965)
1949	8	175	800	Beardslee and Mitchell (1965)
1950	9	300	—	Beardslee and Mitchell (1965)
1950	—	—	1600†	Palmer (1964)
1952	20†	2000 birds†	500†	Palmer (1964)
1954	35	1200†	—	Beardslee and Mitchell (1965)
1954	—	—	360†	Palmer (1964)
1960	35	2000†	130	Beardslee and Mitchell (1965)
1963	—	6300†	—	Ludwig (1974)
1966	200†	2500†	300†	ONRS
1972	80	1000†	—	S.M. Teeple (pers. comm.)
20 May 1972	160	—	—	A.R. Clark (pers. comm.)
4 June 1974	184	—	—	A.R. Clark (pers. comm.)
27 April 1975	215	301	0	A.R. Clark (pers. comm.)
18 May 1975	245	—	—	A.R. Clark (pers. comm.)
1976	170†	—	0	G.T. Haymes (pers. comm.)
28 May 1976	185	—	—	A.R. Clark (pers. comm.)
1 May 1977	227	—	—	this report
12 May 1977	202	520	0	this report

*Not known or not reported.
†Estimate.

Table 6
Numbers of nests of gulls and terns on Long Point, Lake Erie

Date	Herring Gull	Ring-billed Gull	Common Tern	Black Tern	Forster's Tern	Source
1960	—*	—	10	—	—	D.J.T. Hussell (pers. comm.)
1964	—	—	1	—	—	D.J.T. Hussell (pers. comm.)
1965	—	—	3	—	—	D.J.T. Hussell (pers. comm.)
1966	—	—	1	2†	—	D.J.T. Hussell (pers. comm.)
12 July 1967	—	—	>31	—	—	ONRS†
1967	1	1	9	7†	—	D.J.T. Hussell (pers. comm.)
1968	—	—	4	—	—	D.J.T. Hussell (pers. comm.)
1971	—	—	2	—	—	D.J.T. Hussell (pers. comm.)
1975	—	—	1	30†	—	D.J.T. Hussell (pers. comm.)
1976	—	—	—	33†	17†	D.J.T. Hussell (pers. comm.)
1977	0	0	18	—	—	this report

*Not known or not reported.
†Estimate.
‡Ontario Nest Record Scheme.

Table 7
Numbers of nests of gulls, terns, and herons in Rondeau Provincial Park

Date	Little Gull	Common Tern	Black Tern	Green Heron	Least Bittern	Source
19 June 1943	—	13	—	—	—	ONRS†
1971	3	—	—	—	—	Goodwin (1971) Simpson (1972)
9 June 1972	—	10	—	—	—	ONRS
29 June 1975	—	2	—	—	—	ONRS
1976	—	—	—	3	1	S.O. Kratz (pers. comm.)
1977	—	—	5	—	1	S.O. Kratz (pers. comm.)
1977	—	—	3†	—	2†	this report

*Not known or not reported.
†Ontario Nest Record Scheme.
‡Estimate.

Table 8
Numbers of nests of gulls, terns, and herons in Point Pelee National Park

Date	Herring Gull	Ring-billed Gull	Common Tern	Black Tern	Great Blue Heron	Green Heron	Black-crowned Night Heron	American Bittern	Least Bittern	Source
12 May 1947	—	—	—	—	—	—	—	—	—	O.E. Devitt (pers. comm.)
17 June 1951	—	—	—	—	—	—	—	—	—	Nickell (1966)
1969	—	—	45	—	—	—	—	—	8	S.O. Kratz (pers. comm.)
1970	—	—	—	—	—	—	—	—	24	S.O. Kratz (pers. comm.)
1971	—	—	8	—	—	—	—	—	—	S.O. Kratz (pers. comm.)
1973	—	—	—	17	—	—	—	1	—	S.O. Kratz (pers. comm.)
1974	—	—	—	—	—	—	—	—	—	S.O. Kratz (pers. comm.)
1975	1	—	—	—	—	—	—	—	—	S.O. Kratz (pers. comm.)
1977	2	1	—	—	—	—	—	—	—	S.O. Kratz (pers. comm.)
1977	0	—	—	prob. nesting	0	3 at least	0	1 at least	1 at least	this report

*Not known or not reported.

Table 9
Numbers of Black-crowned Night Herons and Common Terns on Pelee Island, Lake Erie

Date	Black-crowned Night Heron	Common Tern	Source
3 June 1933	40	205	ONRS*
2 July 1936	100†	—‡	ONRS
26 June 1950	100†	—	ONRS
2 July 1950	—	211	ONRS
25 June 1951	—	65	ONRS
June 1972	1000–1100†	—	Simpson (1972)
25 July 1973	sev. 100†	—	ONRS
2 June 1974	>500†	—	ONRS
1975	500†	—	ONRS
8 June 1976	700†	—	ONRS
1 June 1977	870†	0	this report

*Ontario Nest Record Scheme.

†Estimate.

‡Not known or not reported.

Table 10
Numbers of nests of Double-crested Cormorants and Herring Gulls on Big Chicken Island, Lake Erie

Date	Double-crested Cormorants	Herring Gull	Source
25 June 1951	1	223	ONRS*
11 June 1971	8	350†	OMNR‡
1972	—§	287	Gilbertson (1974)
23 May 1972	30	—	OMNR
2 June 1973	39	—	ONRS
3 June 1974	37	—	ONRS
28 June 1975	26	500†	ONRS
9 June 1976	47	>300†	OMNR
4 June 1977	57	94	this report

*Ontario Nest Record Scheme.

†Estimate.

‡Ontario Ministry of Natural Resources.

§Not known or not reported.

2. Areas for which no 1977 data are available

Navy Island, Niagara River. This island, located in the Niagara River upstream from the Niagara Falls had a small Great Blue Heron colony in the late sixties (Sheppard 1970). As far as could be determined from the shore on 13 May 1977, no herons were nesting on the west side of the island.

Sugarloaf Point, Lake Erie. This is the name of a short stretch of beach near the Canada Furnace slag dump (Fig. 1). In 1954 a few Common Tern nests were reported (Beardslee and Mitchell 1965). We did not visit this area in 1977, but in recent years no gull or tern nests have been found there (Haymes, pers. comm.).

Middle Island, Lake Erie. This island, located south of Pelee Island, was not visited in 1977 because of bad weather. On 9 June 1976 an OMNR team found a total of 55 Herring Gull nests. There were no herons or egrets nesting on the island. On 5 August 1976 a CWS team briefly visited the island; they saw a total of about 200 Herring Gulls (including many young) and found many old Herring Gull nests along the edges of the airstrip. Also, one Great Blue Heron was seen. The observed Great Horned Owl (*Bubo virginianus*) was probably responsible for the many Herring Gull carcasses scattered over the island.

Table 11
Fish-eating birds on East Sister Island, Lake Erie

Date	Double-crested Cormorant	Great Egret	Cattle Egret	Great Blue Heron	Black-crowned Night Heron	Herring Gull	Source
25 June 1951	—*	—	—	117 nests	675 nests†	—	ONRS‡
10 June 1957	—	—	—	50 nests	300 nests†	—	ONRS
11 May 1971	—	16 birds	2 nests†	>200 nests	>200 nests†	—	OMNR§
1972	—	4 nests	1 nest	250 nests†	250 nests†	—	Simpson (1972)
1975	—	11 nests	—	12–15 nests†	200–300 nests†	—	G.K. Peck (pers. comm.)
28 June 1975	—	—	—	10–12 nests	—	6 nests	ONRS
1976	birds pres. no nesting	11 nests	2–4 birds	110 nests†	400 nests†	—	G.K. Peck (pers. comm.)
4 Aug. 1976	5 birds pres.	—	—	—	—	>500 birds	this report
31 May 1977	—	—	—	—	—	344 nests	this report
July 1977	—	10 nests†	—	40–50 nests†	>350 nests†	—	this report

*Not known or not reported.

†Estimate.

‡Ontario Nest Record Scheme.

§Ontario Ministry of Natural Resources.

We have no firm information for other years, but it is likely that the Herring Gulls have nested at Middle Island in recent years.

North Harbour Island, Lake Erie. This small island is part of the Lake Erie archipelago. It had a large Common Tern colony in 1920 (1000 nests, ONRS). In 1957 there were 10 nests of Double-crested Cormorants and some 200 nests of Herring Gulls (ONRS). A cottage was built on the island in the early sixties, and no nesting of gulls or cormorants has been reported since (OMNR). We circled the island in 1976 and saw no sign of nesting gulls, terns, or cormorants.

Chick Island and Little Chicken Island, Lake Erie. Both islands, located near Big Chicken Island (see Fig. 1), were submerged in 1977 due to high lake levels.

Little Chicken Island had held a Double-crested Cormorant colony in the recent past: 35 nests found on 11 June 1971, and 10 on 23 May 1972 (OMNR). A report of seven cormorant nests in 1939 (Core 1948) may indicate that Little Chicken Island has had a long history of cormorant nesting. In 1971, 120 Herring Gull nests were counted (OMNR). Due to a higher lake level, less nesting habitat was available in 1972 than in 1971, and only 43 Herring Gull nests were counted on 6 June 1972 (Simpson 1972).

The only historical information for Chick Island that we found is the mention of at least 100 nests of terns (probably Common Terns) in 1939 by Core (1948).

Bois Blanc Island, Detroit River. This island is often called Bob-Lo Island. Ludwig (1962) reported a large Common Tern colony for the period 1957–62 (1957, 225 nests; 1959, a peak of 1500 nests; 1962, 900 nests). There is also a report (ONRS) of some 12 Ring-billed Gull nests in 1961, but

Ludwig (1962) does not mention Ring-bills. We did not visit the island, but our observations from the shore did not indicate nesting gulls or terns.

Discussion and conclusions

Methodology

We focused our inventory largely on larid species (Herring Gull, Ring-billed Gull, and Common Tern). Cormorant and heron colonies were reported when encountered during larid surveys. Although the area was not completely covered, we believe that we did not miss any important gull or tern colony. We would appreciate receiving information on any colonies not mentioned in this report.

The maximum number of active nests at any time during the breeding season is probably the best measurement of colony size. As the number of active nests varies during the season (due to late nesting and re-nesting), a nest count on a particular day can only serve as an estimate of the size of the breeding population.

Results

To give an idea of the relative importance of the colonies on Canadian Lake Erie and adjacent waters we present in Table 12 recent data for Canadian and US Lake Ontario as well as for Canadian and US Lake Erie (plus adjacent waters). All data for the US Great Lakes are from Scharf *et al.* (1978).

Ring-billed Gulls are far more numerous on the lower Great Lakes than are Herring Gulls (Table 12). There are about 4.5 times more Ring-billed Gulls nesting on Lake Ontario than on Lake Erie. On the other hand, the number of Herring Gulls nesting on Lake Erie is about 4.5 times

Table 12
Numbers of nests of fish-eating birds on lower Great Lakes system. All data for US Great Lakes from Scharf, Shugart and Chamberlin (1978)

Location	Herring Gull	Ring-billed Gull	Caspian Tern	Common Tern	Double-crested Cormorant	Great Egret	Cattle Egret	Great Blue Heron	Black-crowned Night Heron
Can. Lake Erie (1977)*	1085	14 730	0	1424	57	21	7	71-81	>1220
US Lake Erie (1977)	1208	59	0	263	0	200	0	2538	3000
Total	2293	14 789	0	1687	57	221	7	>2609	>4220
Can. Lake Ont. (1976)	309†	>40 787†	47†	1569†‡	0§	-	-	-	98#
US Lake Ont. (1977)	213	27 345	0	5	96	0	2	0	130
Total	522	>68 142	47	1574	96	≥0	≥2	≥0	228
Can. Niagara R. (1977)	38	400	0	0	0	0	0	-	65
US Niagara R. (1977)	110	5333	0	518	0	0	0	0	0
Total	148	5733	0	518	0	0	0	≥0	65
Can. Detroit R. (1977)	48	0	0	159	0	0	0	0	0
US Detroit R. (1977)	2	6934	0	20	0	23	0	11	0
Total	50	6934	0	179	0	23	0	11	0
Grand total	3013	>95 598	47	3958	153	≥244	≥9	>2620	>4513

*See Tables 1 and 2, this report.

†From Blokpoel (1977).

‡From Blokpoel and Fetterolf (1978).

§From Blokpoel (unpublished data).

#65 nests at Pigeon Isl. (I.M. Price, pers. comm.) and 33 nests at Gull Isl. (J. Chardine, pers. comm.)

larger than that on Lake Ontario. The Ring-billed Gulls tend to nest in a few large colonies, whereas the Herring Gulls tend to nest in many smaller colonies (see Table 1). Of the four biggest Ring-bill colonies on the lower Great Lakes, two are on the mainland (Port Colborne/Canada Furnace and the Eastern Headland), one is on an island that is separated from the mainland by only a narrow strip of shallow water when the lake level is low (Gull Island near Brighton, Ontario), and only one is located on a rather remote island (Little Galloo Island in the eastern basin of Lake Ontario).

Numbers of nesting Common Terns are similar for Lake Erie and Lake Ontario (Table 12). On Lake Erie almost all Common Terns nest on the two Port Colborne colonies, and in Lake Ontario the great majority nest on the Eastern Headland of the Toronto Outer Harbour. The two colonies at Port Colborne are far from safe nesting areas. At the Canada Furnace colony there is human disturbance both by company operations and vandalism by the public. In addition a red fox (G.T. Haymes, pers. comm.) and deer (R. Fabbro, pers. comm.) have been observed on the colony. At the Lighthouse colony there is disturbance by fishermen and marine activities (G.T. Haymes, pers. comm.). The future of the Eastern Headland has not yet been decided (Blokpoel and Haymes 1978).

Lake Erie and Lake Ontario have one Double-crested Cormorant colony each (Table 12). The one in Lake Erie is not likely to flourish as it is very exposed to the elements, prone to disturbance by fishermen, and situated adjacent to a Herring Gull colony.

We have few reliable data for herons for Canadian Lake Ontario, but it seems safe to say that Lake Erie has a greater species diversity as well as larger numbers than does Lake Ontario. The islands in the western basin of Lake Erie are of great importance as heron colonies. There are very few places elsewhere in Canada where Great Egrets and Cattle Egrets nest. The Black-crowned Night Heron is the second most numerous fish-eating bird species on the lower Great Lakes, with the great majority nesting on the Erie archipelago (Table 12).

We find it difficult to determine any trends in numbers of nesting larids for Canadian Lake Erie, because no comprehensive records are available for even the most recent past. Also, to interpret changes in numbers of nests on Canadian Lake Erie, we would need data for a much larger area (including most of the Great Lakes system). Therefore, we do not comment on possible trends in larid populations on Canadian Lake Erie and adjacent waters except to point out the decline, and in some cases elimination, of Common Tern colonies. Common Terns disappeared from Table Rock Island in the late 1950's and from Mohawk Island probably in the 1960's. Perhaps some of those birds shifted to the two colonies at Port Colborne (Canada Furnace and Lighthouse). In the last four to five years Common Tern numbers have fallen in those colonies as well. Again perhaps some of the Port Colborne terns shifted to the Eastern Headland, Toronto Outer Harbour, where terns have recently increased (Blokpoel and Fetterolf 1978). The available data indicate that the Common Tern is declining as a breeder on the lower Great Lakes, except at the Eastern Headland, which now has the largest known Common Tern colony on the Great Lakes.

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