Port Colborne Important Bird Area Conservation Plan

Dedicated in July, 2000

Written by
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for the Port Colborne IBA Steering Committee and the
"Friends of the Tern"

March 2001

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Acknowledgements

The Important Bird Area (IBA) Program is part of the Natural Legacy 2000 Program, a nation-wide initiative to conserve wildlife and habitats on private and public lands. We gratefully acknowledge the financial support of the Government of Canada's Millennium Partnership Program. We also acknowledge the financial support of the Charles Stewart Mott Foundation to Great Lakes Basin Important Bird Areas.

Canadian Nature Federation and Bird Studies Canada are the national partners of BirdLife International in Canada. The Federation of Ontario Naturalists is responsible for site conservation planning in Ontario IBAs.

A special acknowledgement is reserved for Dr. Ralph D. Morris. He is very much the visionary behind this plan, which continues stewardship of a Common Tern colony that he has carried out for three decades. His comments on drafts of this plan have been invaluable. Many citizens of Port Colborne have contributed to the development of the plan or are involved in Tern stewardship including: Mayor Vance Badaway, Rod Bodner, Barb Butters, Dave Johnson, Mike Hili, Alfred Marinelli, Bradd Wilson, Dave Gibson, Paul Philp, Lorraine Desjardins, Rick Young, Ted Martin, Bruce Pine, Mike Shatkosky, Heather G. Wilson, John Green, Howard Page, Arnie Millier and Erno Rossi.

The following agencies and organizations have contributed to the development of this conservation plan:

City of Port Colborne
Port Colborne and District Conservation Club
Bert Miller Nature Club
Niagara Falls Nature Club
Canadian Wildlife Service

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Citation

Cheskey E. D. and W.G. Wilson 2001. *Port Colborne Important Bird Area Conservation Plan*. Can. Nature Fed., Bird Studies Can., Fed. of Ont. Naturalists. 30pp.

1.0 Introduction

A low fog clung to the dock of the Sugarloaf marina. Yesterday's southerlies brought warm air from the Gulf of Mexico into southern Canada, thawing the last remnants of a long and cold winter, but leaving a pea-soup fog along the Lake Erie shoreline. Wheeling gulls occasionally emerged from the cloud, only to disappear as quickly as they appeared. Three people stood patiently on shore, steaming thermoses of tea in hand, peering through the misty cloak. They had visited the marina every morning for several days, hoping that this would be the day the terns returned. While their vision was hampered, their spirits were not. Conditions were right for the return. At 9:30, just as they reluctantly prepared to depart to other daily duties, an unmistakable and piercing call drifted towards them from the overhead. They froze, peering into the mist towards the breakwall. Again a call, and then, as if on cue, the first Common Tern of the year emerged from the cloud. So might begin another season for the Friends of the Terns.

The Common Tern is situated at the top of the food chain and is the central feature of the Port Colborne Important Bird Area. Its future, like that of much of our wildlife, depends entirely on our commitment to provide adequate and high quality habitat. Birds are key components in Canada's ecosystems and bird populations are often used as indicators of overall ecosystem health. This document is a guide for protecting a Common Tern colony in Port Colborne, Ontario.

The Port Colborne IBA is located offshore from the City of Port Colborne on the north side of Lake Erie toward the eastern end of the lake in the Regional Municipality of Niagara (Fig. 1). Specifically, the site is comprised of a Common Tern (*Sterna hirundo*) colony (approximately 5 x 130 m) on a portion of the east leg of a concrete breakwater situated about one kilometre offshore, southwest of the southern terminus of the Welland Canal. This IBA supports a continentally-significant population of Common Terns along with globally significant numbers of Ring-billed Gulls. Ironically, the main threat to the Tern colony's success is the large number of Ring-billed Gulls. Dr. Ralph Morris of Brock University has studied and managed the colony for over a quarter century. His work and commitment, along with that of his students, has staved off sure extirpation of the Terns by the more numerous Ring-billed Gulls, and loss of suitable habitat.

In January 2000, the first stakeholders' meeting for the Port Colborne IBA was held. The stakeholder group is currently a blend of local clubs and individuals who have worked together to formulate this conservation plan and are determined to continue the good work of Ralph Morris and ensure that the Common Tern remains common on the Port Colborne waterfront.

The vision statement for the Port Colborne IBA is as follows:

> *The Port Colborne Important Bird Area will have a healthy, thriving and sustainable population of breeding Common Terns, and be a place where birds*

can be observed, monitored, studied and enjoyed for the ecological and educational benefits to the people of Ontario and beyond.

2.0 The Important Bird Area Program

The IBA program is an international initiative coordinated by BirdLife International, a partnership of member-based organizations in over 100 countries seeking to identify and conserve sites important to all bird species world wide. Through the protection of birds and habitats, they promote the conservation of the world's biodiversity. There are currently IBA programs in Europe, Africa, the Middle East, Asia, and the Americas.

The Canadian BirdLife co-partners are the Canadian Nature Federation (CNF) and Bird Studies Canada (BSC). The Canadian IBA program is part of the Americas IBA program which includes the United States, Mexico, and seventeen countries in Central and South America. The Federation of Ontario Naturalists is responsible for implementing conservation planning for IBAs in Ontario.

The goals of the Canadian IBA program are to:

- identify a network of sites that conserve the natural diversity of Canadian bird species and are critical to the long-term viability of naturally occurring bird populations;
- determine the type of protection or stewardship required for each site, and ensure the conservation of sites through partnerships of local stakeholders who develop and implement appropriate on-the-ground conservation plans; and
- establish ongoing local involvement in site protection and monitoring.

IBAs are identified by the presence of birds falling under one or more of the following, internationally agreed upon, categories:

1) Sites regularly holding significant numbers of an endangered, threatened, or vulnerable species.
2) Sites regularly holding an endemic species, or species with restricted ranges.
3) Sites regularly holding an assemblage of species largely restricted to a biome.
4) Sites where birds concentrate in significant numbers when breeding, in winter, or during migration.

While the program at all stages is a voluntary one, the advantages of IBA recognition extend beyond those of conservation alone. There can be increased awareness of the true worth of the site among the local community, and community involvement can result in diverse groups working for a common cause.

In Ontario, the Federation of Ontario Naturalists is conducting community conservation planning in approximately 20 sites as of 2000. Community conservation planning means engaging the local community in the development and implementation of the conservation plan. This process was initiated at the Port Colborne IBA through a series of events that began with an impromptu meeting on November 22, 1999 between Vance Badaway (the Mayor of Port Colborne), Ralph Morris and Ted Cheskey. This meeting led to a presentation before City Council, official endorsement of the IBA by city council and the first stakeholders' meeting on January 19, 2000. During a series of subsequent meetings, the Port Colborne and District Conservation Club stepped to the forefront by providing leadership in support of Ralph Morris' conservation management of the tern colony. Several other groups and individuals also played key roles including: Councillors Ron Bodnor and Barb Butters; Dave Johnson, a local reporter and photographer; Mike Hili, Alfred Marinelli, Mike Shatkosky and Ted Martin of the Conservation Club; Paul Philp and Lorraine Desjardins of the Bert Miller Nature Club; Rick Young of the Niagara Falls Nature Club; Bradd Wilson of the Sugarloaf Marina; and Dave Gibson, a local falconer.

The purpose of this IBA is to continue the work of Dr. R. D. Morris of Brock University, who has taken responsibility for maintaining the Tern presence in Port Colborne over the last quarter century, and provided the expertise and leadership to promote and educate this local group in stewardship of the IBA.

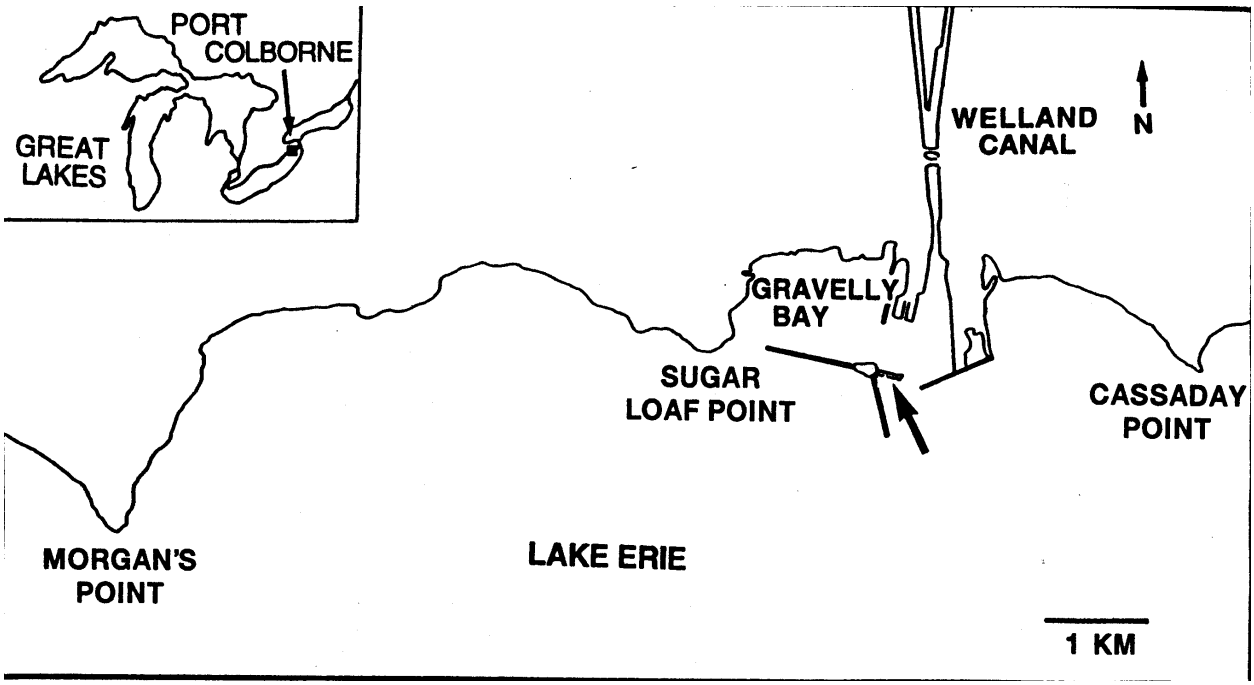
3.0 Port Colborne IBA Site: Background Information

3.1 Location and description

Site: PORT COLBORNE, CAON019G
Location: 42°53' N, 79°16'W

The Port Colborne IBA site is located offshore from the City of Port Colborne on the north side of Lake Erie toward the eastern end of the lake in the Regional Municipality of Niagara (Fig. 1). Specifically, the site is comprised of a Common Tern (*Sterna hirundo*) colony (approximately 5 x 130 m) on a portion of the east leg of a concrete breakwater situated about one kilometre offshore, southwest of the southern terminus of the Welland Canal. As well, the site includes two colonies of Ring-billed Gull (*Larus delawarensis*): one on a rockpile (approximately 60 x 150 m) near the intersection of the three legs of the breakwater and the other (approximately 5 ha) on the mainland along the immediate east side and southernmost tip of the canal terminus.

Figure 1. Port Colborne Important Bird Area



Breakwater and rock pile

Construction of the breakwater began in 1901 in association with the operation of the third Welland Canal. The breakwater is made of concrete and consists of three legs: the east-west legs are about 700 m long and a south leg extends approximately 400 m. This south leg was added to the existing breakwater between 1924 and 1927. The surface of the breakwater has varied from vegetated areas containing small rocks and debris to areas of bare concrete. Near the intersection of these legs lies a pile of loosely scattered limestone boulders forming a rockpile introduced into the lake during construction of the south leg. The rockpile has remained in its current configuration for over fifty years.

Mainland

The mainland site is a man-made landfill consisting predominantly of slag, a waste deposit from Canada Furnace Division, Algoma Steel of Canada, Limited. This is no longer an active landfill site and will likely remain inactive (R. D. Morris, pers. comm.). The slag base has a thin layer of organic material, which supports grasses and weeds. This location has the majority (over 30,000) of Ring-billed Gulls (ibid.). This site contained over 1000 breeding pairs of Common Terns in 1973 and 1974, but was completely abandoned by the late 1970s (ibid.).

City of Port Colborne

The City of Port Colborne, population 18 450 (1996), is situated at the south port of entry to the Welland Canal. Founded in 1833 with the construction of the canal, Port Colborne has about 60 manufacturing and servicing firms. Industries associated with the canal include the servicing, repair and break up of vessels. Other significant industry includes a nickel refinery, flour mills, lake fishing marinas and limestone quarrying. Some intensive agriculture occurs on reclaimed marshland. Sugarloaf Harbour, Port Colborne, is advertised as one of the finest harbours in the world. With its harbour and location – a vital link to the International St. Lawrence Seaway Systems – little wonder that the City of Port Colborne declares itself to be "The Gateway of Navigation."

3.2 Physical environment

The Port Colborne IBA lies at the interface between the Lake Erie Lowland Ecoregion and the near-shore waters of Lake Erie in the Great Lakes Basin. The climate, marked by warm summers and cool winters, is moderated in all seasons by Lake Erie. The weather is highly changeable because this shoreline lies along one of the major storm tracks of North America.

Large nutrient inflows from urban areas along Lake Erie's shores, particularly on the American side, and from hundreds of thousands of hectares of intensively cultivated farmlands within its watershed, contribute to high levels of biological productivity in the lake.

4.0 IBA Species Information

4.1 Why Port Colborne is an Important Bird Area

The breeding colonies at this location are recommended as a globally significant IBA (Table 1). About five percent of the estimated North American Ring-billed Gull breeding population nest here along with over two percent of the estimated North American Common Tern population.

Figure 2 Common Terns at Port Colborne colony

Table 1: IBA species and their percentage occurrence at the global or national level.

In addition to these two species, about 226 pairs of Herring Gulls nest at the breakwall colony along with one pair of Great Black-backed Gull (count by R.D. Morris, 11 May 1999).

4.2 Natural history of IBA species

Both the Common Tern and the Ring-billed Gull are species of concern on the lower Great Lakes: the tern because its numbers are in decline (Courtney and Blokpoel, 1983) and the gull because it has become a nuisance species (Blokpoel and Tessier, 1986). Management intervention of any species requires knowledge of its natural history. This IBA exemplifies a conservation plan to preserve a tern colony. Managing Ring-billed Gull nesting activity so that it does not jeopardize the tern colony is part of the plan. (See section 7.2)

4.2.1 Common Tern

4.2.1.1 Distribution, population trends and abundance

Breeding in the Northern Hemisphere, the Common Tern has a worldwide distribution throughout the boreal and north temperate zones of North America, Europe and central Asia. It occurs in a wider spectrum of habitats than other tern species (Razurel, 1996). But, at the beginning of the 20th century, the Common Tern was on the verge of extinction (Bent, 1921).

Common Tern feathers were popular in the millinery trade of the late 19th and early 20th century. The millinery trade devastated populations of many species of colonial waterbirds and songbirds. With the waning of the `fashionable feather' by the beginning of the First World War, in conjunction with the ratification in 1917 of the Migratory Birds Convention Act, the Common Tern began its recovery. Many populations of this species would recover to their mid-19th century levels (Ehrlich, et al. 1988). Towards the end of the 20th century, however, numbers are once again declining.

The most recent population estimate for North America is 100 000 birds and an estimated 35 000 pairs for eastern North America (Canadian IBA database, 1999). Although no population estimate exists for Canada, most of this species' eastern North American range lies within Canada. A sum of Canadian regional estimates yields a total of at least 40 000 pairs in Canada during the late 1980s and early 1990s (ibid.). During the last decade, however, observers have documented a decreasing trend at most of the larger colonies particularly in the Great Lakes (Courtney and Blokpoel, 1983; Blokpoel and Scharf, 1991).

On the lower Great Lakes, few large tern colonies remain. On the Canadian side, there are Port Colborne IBA, 500–1000 pairs, (Morris, pers. comm.) and Hamilton Harbour, 954 nests in 1993, (Quinn et al., 1996) although numbers of nests were reduced to 562 in 2000 (Morris et. al MS). Together, these colonies represent about eighty percent of the lower Great Lakes' population. In the early 1980s, over a thousand pairs nested on Leslie Street Spit. By 1987, only 332 nests remained (Dobos et al. 1988).

On the American side of Lake Erie, there are two small colonies of recent origin in Ohio with 61 and 119 nests respectively. (Bill Whan, pers. comm.).

Common Tern pairs may nest alone or in small groups. For example, along the American side of the Niagara River, scattered pairs of Common Terns nest in a variety of situations, numbering as many as 800 pairs as recently as 1995 (Willie D'Anna, pers. comm. 2000, Peterson, 1988).

4.2.1.2 Aspects of biology of potential relevance to conservation

Common Terns breed on islands, shores and marshes of lakes and rivers. Of 132 breeding sites catalogued by Peck and James (1983), about fifty percent were on rocky, grassy or sandy areas of islands; thirty-two percent on mainland shores of sand, rock and gravel, landfill or grass; and, seventeen percent in marshes including cattail, marsh islets and muddy or boggy edges of marshes. With loss of habitat, particularly on mainland shores, some attempts to provide artificial nesting habitats have been made on both Lakes Erie and Ontario with mixed results. (Whan, pers. comm.; Great Lakes Success Stories, 1999; Scott Jarvie, pers. comm.)

Common Terns arrive in the lower Great Lakes in early to mid-April (Goodwin, 1995). Early arrivals may not settle immediately within the territory. They will remain in the general area, roosting nearby at night and feeding by day in the surrounding waters. Where Ring-billed Gulls breed at the same location as terns, the terns may arrive to find the breeding territories of their colony occupied by Ring-billed Gulls. The gulls normally initiate their nesting approximately three weeks earlier than the terns – this is a major threat that causes terns to desert their breeding sites (Morris and Hunter, 1976).

Within a week of arrival, and, in the absence of gull interference, Common Terns begin to select their breeding territories. These may be the same territories as previous years (Erhlich, et al. 1988). During the first three or four years of life, terns seldom return to their breeding colony (Morris and Hunter, 1976); instead they remain on the wintering grounds or along the migration route. Young terns that do return, tend to be unsuccessful at breeding and may roost in small groups outside the colony (Stokes, 1989).

Two aspects of courtship are readily observed in April and May: mate-feeding which may occur in air or on territory, and scraping – bending forward and kicking with both feet. With this behaviour, nest building has begun. Peck and James (1983) describe Common Tern nests as ranging from a simple scrape in gravel to elaborate bowls of vegetation. Occasionally, no nest is built. Nests can be either lined or unlined. Some nest materials include fine grasses and weeds, small sticks and debris, pebbles, straw, feathers and mossy stonecrop (*Sedum acre*).

With the laying of the first egg, incubating becomes a shared responsibility (Stokes, 1989); mate-feeding declines after the laying of the second egg (Morris, 1986). The average clutch contains three eggs with incubation lasting 22 to 23 days (Peck and James, 1983). During the first week after hatching, the young usually crouch together somewhere in the breeding territory and are brooded mostly by the female. During this period, the male feeds himself, the female and the

young. After the first week or so, both parents may feed the young (Burness et al., 1994). As the young grow, they wander off territory and may hide beneath vegetation if present or beside stones. Even after a month, by which time they have grown all of their juvenile feathers and perhaps have flown short distances, the young tend to sit and wait for adults to bring food. Disturbance at the colony throughout this period can be disastrous; flightless birds frightened from the nest site are easy prey for gulls; flying juveniles may attempt to fly from the colony, ending up on the lake and unable to return (Stokes, 1989, Morris, et al. 1992).

Common Terns feed mainly on small fish and the young of larger fish species by hovering over open waters, then plunging headfirst into the lake in pursuit of their prey from several metres above the surface. The main prey fish at Port Colborne are Emerald Shiner and Rainbow Smelt (Burness et al. 1994). Flocks of hovering terns often indicate the presence of a school of fish below. Ninety percent of the tern's diet is fish. Crustaceans and insects make up the remainder (Erhlich, et al. 1988).

By mid-August and early September, the southward migration begins. Family units can begin migration together, if young continue to be fed by their parents. Flocks tend to be small; however, large flocks may form in response to food. For example, in the fall of 1999, 1270 Common Terns were counted during fall migration at Port Clinton, Ohio (Whan, pers comm.). By late fall, Common Terns have left the lower Great Lakes heading south to winter in the southern United States through to South America (Blokpoel, 1987a).

Data suggest that the Great Lakes' population of the Common Tern may represent a distinct genetic stock (Quinn et al. 1996). Studies of banded birds from the early 1920s to 1976 indicated very little movement of Common Tern into the Great Lakes from the east coast. While the Committee on the Status of Endangered Wildlife in Canada has assigned no status to the Common Tern, numbers have been declining on the Great Lakes since the early 1970s. Should this decline continue, conserving this population has important biological significance. It is well established that Common Terns on the Great Lakes and elsewhere have been affected by habitat loss (Martins, 1997), and the response has focused on enhancing existing nesting habitat and creating new habitat.

The above account describes in general terms the breeding biology of the Common Tern. The long-term study (25 years) of the Port Colborne colony by R.D. Morris, Department of Biological Sciences, Brock University and his students, provides the average nesting chronology of the Common Tern (Table 2).

Table 2: Typical nesting chronology of the Common Tern at the Port Colborne IBA Site

Date	Observation
15 – 17 April	Individuals can be heard or seen high over the breakwater.
29 April – 2 May	Birds go to ground and establish territory; nesting activity begins.
6 – 10 May	Peak of egg-laying period.

4.2.2 Ring-billed Gull

4.2.2.1 Distribution, population trends and abundance

In his introduction to the species account of Ring-billed Gull in *The Breeding Birds of Quebec: Atlas of the Breeding birds of Southern Quebec* (1996), Pierre Brousseau cites this passage from Bent (1921): "The Ring-billed Gull yields readily to persecution, is easily driven away from its breeding grounds, and seems to prefer to breed in remote unsettled regions, far from the haunts of man." How times have changed! Residents of almost every Canadian province would acknowledge the extraordinary increase in numbers of the Ring-billed Gull (referred to as "seagulls" in common parlance, which also includes all other gull species). Protected in 1917 under the Migratory Birds Convention Act, this North American species has staged a spectacular comeback and has re-occupied its former breeding range in southern Canada and the northern United States. It has become the most abundant gull in North America and perhaps is more abundant now than ever before (Blokpoel and Weseloh, 1979). In fact, Ring-billed Gulls were probably fairly common during the first half of the 19th century (Blockpoel, 1987b). Only with the great demand by the millinery trade for feathers for hats and gowns, did this gull decline in number along with several other species of gulls, terns and herons (Erhlich, et al. 1986).

The world population of Ring-billed Gulls is estimated to be three to four million (Canadian IBA database, 1999). This gull nests abundantly in Canada on the Great Lakes, Prairie Provinces, British Columbia, along the St. Lawrence in Quebec, the Maritimes, exclusive of Nova Scotia, and on the south and east coasts of Newfoundland. The North American breeding population is estimated to be 881,874 pairs of which an estimated 606,424 pairs breed in Canada (ibid.). In the Great Lakes Region, the number of breeding pairs has increased dramatically from 56,000 pairs in 1976 to four times that number in 1990 (Blokpoel and Tessier, 1991).

4.2.2.2 Aspects of biology of potential relevance to conservation

The Ring-billed Gull is an opportunistic feeder that readily feeds on offal and garbage, particularly in winter, and insects, worms, fish, rodents and bird eggs (Ehrlich, et al. 1986). It is also the bird that is encountered in the summer along beaches begging for food, around fast-food restaurants, parking lots and other urban situations. Comparing this gull's diet in a farming area to an urban area, studies by Lefebre and Giroux, and Brousseau et al. (Brousseau, 1996), showed that only the proportions of food taken differed to any extent. In a farming area, 51 percent commercial waste (dead poultry chicks and viscera), seven percent domestic waste, 26 percent insects, six percent earthworms and five percent small mammals. In an urban setting, the proportions were 42 percent garbage, 22 percent insects, 23 percent earthworms and seven percent fish. Human's approach to waste management has unwittingly included the Ring-billed Gull.

In Ontario, Ring-billed Gulls normally breed on islands in the Great Lakes, the St. Lawrence and Ottawa Rivers and as far north as James Bay. The closest colonies to the Port Colborne IBA include Windermere Basin, Hamilton, 60 km northwest of the western end of Lake Ontario, and

Mohawk Island, 24 km to the west, near the mouth of the Grand River (Morris, pers. comm.). A highly colonial species, they may nest in mixed colonies with Herring Gull and terns, both Common and Caspian (Peck and James, 1983). Nests are built on both natural sites (e.g. rocky islets, isolated coasts, occasionally in marshes), and artificial sites (e.g. breakwaters, dredge-spoil areas, dykes, industrial yards, landfill sites, sewage lagoons, even roof tops) (Blokpoel, 1987b). As with diet, the Ring-billed Gull exploits many new opportunities in the human environment. Nests are placed on raised mounds of grasses, plant stalks, aquatic plants, mosses, sticks, bits of wood, fish bones or feathers. They are most often positioned on vegetated substrates of grasses, sometimes between bushes and shrubs; they are less often on bare rock. Ring-billed Gulls are on nest and laying eggs as early as 7 April in Ontario (Morris, pers comm.). The average clutch size is three eggs (Peck and James, 1983).

From August, after the breeding season, to at least late November, Ring-billed Gulls may be observed congregating at active landfill sites, parks, fishing ports, marinas, as well as school yards and golf courses. In late autumn through winter, gulls of several species including the Ring-billed Gull, congregate in large numbers on the lower Great Lakes and particularly along the Niagara River.

If freeze-up occurs, most Ring-billed Gulls migrate to the Atlantic and Gulf Coasts at the end of December and January (Blokpoel, 1987b). Some over-winter as far south as the Caribbean and Central America (Grant, 1986). Christmas Bird Count data from southern Ontario have indicated a steady increase in the numbers of Ring-billed Gulls in southern Ontario in late December and early January in recent years.

5.0 Other Elements of High Conservation Value

Within this IBA is a large and dynamic colony of birds of several species. Ring-billed Gull is by far the most abundant species present. However, this conservation plan is focused on the Common Tern, a species that has declined as a consequence of the Ring-billed Gull's success. In addition to these two primary species, the IBA also has a large population of Herring Gulls (*Larus argentatus*). There is also a single pair of Greater Black-backed Gulls (*Larus marinus*), one of the few locations where this species nests on the lower Great Lakes. A small number of Black-crowned Night-Herons (*Nycticorax nycticorax*) was observed in the poplar trees on the breakwall in the summer of 2000. Small numbers of Double-crested Cormorants (*Phalacrocorax auritus*) were observed roosting on trees at the west end of the rock pile in the fall of 2000. Ring-billed Gull, Herring Gull and Black-crowned Night-Heron all appear to have stable or increasing numbers on the Great Lakes, whereas only Common Tern is decreasing. These species are all potential predators of tern eggs and nestlings.

6.0 Land Ownership and Use

6.1 Land ownership

The St. Lawrence Seaway Authority owns the breakwater, and the mainland site is owned by the Algoma Steel Company of Canada, Limited. In the scientific literature, the mainland site is referred to as the Canada Furnace Property or the landfill site. Canada Furnace is a division of Algoma Steel.

No conservation protection status exists for the breakwall itself; the colony is protected under the federal Migratory Bird Convention Act.

6.2 Land/water use

The concrete breakwater protects the south entry port of the Welland Canal. The landfill is an inactive slag heap that is most likely to remain so. There is no known development that threatens the IBA at this time (R.D. Morris, pers. comm.). The Lake Erie waters about the IBA are used for commercial shipping and recreational boating with lake freighters and yachts regularly entering and leaving the Welland Canal.

6.3 Local interests

The City of Port Colborne Council has welcomed the recognition of the breakwall as an IBA. On 22 November 1999, the Council of the Corporation of the City of Port Colborne passed a resolution in support of the Common Tern colony as an Important Bird Area.

Since 1954, the Port Colborne and District Conservation Club has been an active promoter of conservation in the region. The conservation efforts and programs are diverse and long-standing in several instances, ranging from pheasant releases and fence row plantings to increase wildlife habitat, to the building of a fish cleaning station in Gravelly Bay and a rear and release program for walleye. As well, the Conservation Club has established partnership with the Nature Conservancy of Canada (NCC), Niagara Peninsula Conservation Authority (NPCA) and other conservation clubs for the preservation of Wainfleet Bog.

Three Naturalist Clubs are active in the area: the Niagara Falls Nature Club, the Bert Miller Nature Club of Fort Erie, and the Peninsula Field Naturalists' Club. All three are project partners in the Niagara River IBA, and the first two are involved in this IBA.

These groups, along with other community members, have collectively and informally become the "Friends of the Tern". Their cooperation in taking over stewardship of the Common Tern colony is the essence of this conservation plan.

For many beach strollers, boaters, and fishermen, the graceful, buoyant flight, spectacular hunting behaviour and "kierr" call of a tern is a memorable summer experience on the Great Lakes. Others may dismiss the terns as "seagulls."

Ring-billed Gulls, on the other hand, receive little sympathy from residents. As elsewhere in urban areas, Ring-billed Gulls are considered a nuisance; many people wish they were fewer in number.

7.0 Conservation Management at the Port Colborne IBA: reducing threats to the Common Tern colony

7.1 Response to threats to the Common Tern colony

The Common Tern colony is exposed to five main threats in the Port Colborne IBA:

- human disturbance
- substrate alteration
- competition for suitable nesting habitat by Ring-billed Gull
- egg and chick predation by Ring-billed Gull, Herring Gull and Black-crowned Night-Heron.
- pesticides and other toxins

(Morris, et al. 1992)

7.1.1 Reducing human disturbance

Disturbance at a tern colony during nesting season can have disastrous results and cause significant losses of mobile (but non-flying) chicks. As policing the colonies in not feasible, it is imperative that the public be made aware of the damage that can be caused by disturbance, and that colonies are protected in law.

From June to August each year, fishermen and sunbathers have used portions of the breakwater, usually the west leg, which is several hundred metres from the tern colony. Since visitor disturbance can result in heavy egg and chick loss, Morris first posted six metal signs (25 x 45 cm) at strategic locations in May 1981. These signs inform people that trespassing or disturbing the birds is prohibited by law. By all accounts signage has controlled the movement of people on

the breakwater. Many visitors may be curious and might appreciate a view of the birds. In 15 years of study, Morris experienced only one significant act of vandalism to research equipment and blinds on the breakwater (Morris, et al. 1992). It is hoped that the publicity accorded this IBA will have a positive effect, and not generate negative attention and vandalism as occasionally happens.

A helicopter pad is maintained on the breakwall to service the lighthouse and the breakwall. Helicopter activity poses a potential threat to both the terns and the helicopter. Much of this threat can be mitigated through approach routes and timing.

7.1.2 Reconstructing the nesting substrate

During the resurfacing of the concrete pad along the length of the east leg in July 1987 by the St. Lawrence Seaway Authority, Morris undertook procedures to ensure continued successful use of the site by the tern colony. This included scarification of the new concrete surface and redistribution of the original substrate over the surface. On 5 December 1987, a major storm raised the water level substantially and washed all of the substrate into the lake. Certain that bare concrete without substrate would cause the terns to abandon the entire site next spring, Morris and his students replaced the substrate on the east leg using hand shovels and wheelbarrows in March 1988. As a result of these efforts, the terns did not abandon the colony that spring; however, they nested in lower numbers, (906 pairs in 1988), approximately 30 percent fewer, than the previous year. In August 1988, with funding support from the Canadian Wildlife Service, Morris returned, this time with a front-end loader mounted on a tractor transported by barge and tugboat. Rehabilitation proceeded as follows: "large amounts of large rock material mixed with various sized smaller rocks and gravel [were] moved from the rockpile and spread to a depth of about 25 cm in a strip 6 x 175 m along the east leg. Small logs, driftwood and debris were then spread and Mossy Stonecrop (*Sedum acre*) was planted at intervals." (Morris, Blokpoel and Tessier, 1992). Experimental studies of the selection of substrate materials by Richards and Morris (1984) had earlier demonstrated that Common Terns prefer nesting on small-sized gravel, often near plants, rocks and logs.

The continued success of the Port Colborne Common Tern colony may well depend upon periodic replacement of nesting materials (Morris and Hunter, 1976; Morris, et al. 1992).

The consequence of these efforts in 1988 was an increase in tern nests to previous levels in the following year (1052 pairs on May 23, 1989).

7.1.3 Reducing competition between Ring-billed Gulls and Common Terns

Each April since 1977, Ring-billed Gulls have been discouraged from nesting at the location of the tern colony under a permit from the Federal Department of the Environment granted to Dr. Morris. Such action is necessary if terns are to nest successfully (ibid.).

As previously stated, the nesting chronology of the Common Tern at this IBA are somewhat predictable (R.D.Morris, pers. comm.) thus making management protocols relatively straightforward. (See Section 4.2.1, Table 2). Once incubation is well underway, the terns themselves will drive away Ring-billed Gull pairs that attempt to nest, thus preventing late nesting by gulls.

7.1.4 Reducing predation by gulls

"Panic flights" by Common Terns caused by human disturbance or other factors result in unattended eggs or young. During these time periods, predation of tern eggs by Ring-billed Gulls and Herring Gulls can and does occur, impacting a small number of terns. Observations by Morris (ibid.) suggest that such predation is caused by a small number of gulls; in the case of Ring-billed Gulls egg predation is the practice of only a few unmated birds which stand at the edge of the tern colony and wait for an opportunity to take unattended eggs. Herring Gull predation is solely on chicks taken by single gulls that cruise over the colony. This type of predation can be reduced with the use of small wooden shelters (Burness and Morris, 1992).

7.1.5 Pesticides and other toxins

In the early 1970s, toxic chemicals were a significant threat to the reproductive success of fish-eating birds in the Great Lakes. As a predator at the top of the food chain, the Common Tern has been monitored from time to time for the presence and effects of contaminants. During the 1970s, legislative controls and restrictions on the use and disposal of many persistent toxic chemicals resulted in a decrease of contaminant levels in Common Tern eggs by 80 to 90 percent between 1969 and 1981. By the mid eighties, however, knowledge of atmospheric deposition of contaminants and re-suspension of contaminants from sediments in the Great Lakes created further concern. Researchers identified very tiny concentrations of chlorinated hydrocarbons as a threat to fertility in wildlife. How much a role toxic chemicals play in the population dynamics of Common Tern is unclear. Laboratory studies show that Common Tern are 10 times more sensitive to chlorinated hydrocarbons than are Herring Gulls. Because of this sensitivity, Canadian Wildlife Service personnel are currently investigating the effects of these toxic chemicals on the endocrine system of these terns. (*The Terns of the Canadian Great Lakes* – Environment Canada. 1997)

7.2 Agencies involved in wildlife conservation and research

The Common Tern and Ring-billed Gull colonies at Port Colborne have been the subject of a long-term study undertaken by researchers from the Department of Biological Sciences, Brock University in St. Catharines. The principal researcher, R.D. Morris, has conducted research within the IBA site since 1972. The agencies involved in supporting this work include the Natural Sciences and Engineering Research Council (operating grant A6298), for ongoing tern and gull research on the Great Lakes and elsewhere, and the Canadian Wildlife Service,

Environment Canada for financial assistance for the construction of signs and rental of earth-moving equipment. As mentioned earlier, terns and the gulls are protected under federal legislation that states that to harm or harass migratory birds is unlawful.

8.0 Opportunities

8.1. Local support

The continued success of the Common Tern colony at Port Colborne IBA will depend upon the efforts and commitment of conservation-minded people in the Port Colborne community. The conservation management strategies, developed and implemented by R.D. Morris, should continue in order to avoid abandonment and elimination of the Common Tern colony by the growing Ring-billed Gull colony on the breakwater. Morris's 30 year research program ends in the year 2000, and will be lost otherwise. These actions will be elaborated in section 9.0 (Conservation Action Plan).

The Common Tern colony existed before Morris began his study. In fact, former lighthouse keepers at Port Colborne Lighthouse suggested that terns (number unknown) might have nested on the breakwater since the early 1900s. Of course, the stresses and threats to the colony are greater and different today (see Section 7.2). Morris, with his considerable experience and expertise with this colony, strongly recommends a continuation of conservation measures.

The opportunity exists in 2000 and beyond for members of the local community to become stewards and assume the role that Morris and his students have had for a generation. Under the auspices of the IBA, and with official support from City Council, R.D. Morris and community volunteers met in January 2000, to lay the groundwork for the "passing of the torch". During the 2000 breeding season, volunteers from the Port Colborne and District Conservation Club, several nature clubs and volunteers from the community of Port Colborne as well as elsewhere in the Niagara Region, experienced first-hand the protocols of the management process. These procedures are outlined in Chapter 9 below.

In July 2000, the Port Colborne IBA was officially dedicated in a ceremony at the Sugerloaf Marina at which Ralph Morris symbolically passed the dedication plaque to Alfred Marinelli of the Port Colborne and District Conservation Club.

8.2. International and national support.

A multinational initiative called the North American Colonial Waterbird Conservation Plan (NACWCP), is underway in North America to set the agenda for the conservation and

management of colonial waterbirds (i.e. seabirds, terns, wading birds and gulls). This continent-wide initiative is a partnership of non-government agencies, researchers, private individuals, academics and government agencies. The goal is to establish and maintain healthy populations, distributions and habitats throughout the breeding, migratory and wintering ranges of colonial waterbirds.

To coordinate this initiative with other bird initiatives throughout North America, the North American Bird Conservation Initiative (NABCI) has been established to increase the effectiveness of existing and new initiatives, and foster cooperation, as well as joint ventures, among the various relevant organizations across North America. NABCI recognizes that the conservation of migratory birds depends on regionally-based programs such as the Important Bird Areas Program, but also recognizes that conservation efforts require continent-wide partnerships if birds like the Common Tern are to thrive.

Since 1976, the Conservation of the Great Lakes Colonial Waterbirds Program has studied the ecological needs of these birds and developed methods for managing species in decline, e.g. Common Tern, as well as those that were becoming too prolific, e.g. Ring-billed Gull. Volunteers at the Port Colborne IBA can receive advice and information concerning either of these species from Hans Blokpoel, a colonial waterbirds biologist, 613 713 5126 or blokpoel@capitalnet.com

8.3. Environment Canada initiatives

More recently, the Environment Canada initiative, *Nearshore Waters of the Great Lakes Working Paper*, November 1996, acknowledged that breeding habitat is the most critical factor in the preservation of colonial waterbirds. Port Colborne is one of a number of sites on the lower Great Lakes listed as essential to the preservation of these birds. The others include: Pigeon Island, the islands of Presqu'ile Provincial Park (Gull and High Bluff Islands), Tommy Thompson Park, Eastport and its associated islands in Lake Ontario and Middle, East Sister, and Middle Sister Islands in Lake Erie.

8.4. Public interest

Vacationers may visit Port Colborne to view one of the entrances to the Welland Canal, to see lake freighters, or for recreational boating and fishing. Highlighting the conservation effort to preserve the Common Tern colony may be a positive experience for the Port Colborne community. The colony itself will likely attract minimal attention from bird watchers; however, as a component of an annual celebration of civic pride, the community could demonstrate their commitment to wildlife preservation. Brochures and educational signage along the waterfront could alert visitors to the city about the Common Tern colony. As a top carnivore in the Nearshore Waters of the Great Lakes Basin Ecosystem, the Common Tern offers school children a local example of basic ecology and wildlife preservation.

The breakwater at Port Colborne is a regionally well known “landmark” to Great Lakes’ sailors, yachtsmen and the residents of Port Colborne. A structure that for 100 years has protected the “Gateway of Navigation” on the lower Great Lakes, has for many decades afforded a “home” to a unique breeding colony of the Common Tern on Lake Erie. By maintaining the conservation efforts initiated and developed by Ralph Morris and his students, this maritime navigator, the Common Tern, will continue to thrive.

Figure 3. Dr. Ralph Morris on his way to the tern colony.

9.0 Conservation Management

9.1 Vision

The Port Colborne Important Bird Area will have a healthy, thriving and sustainable population of breeding Common Terns, and be a place where birds can be observed, monitored, studied and enjoyed for the ecological and educational benefits to the people of Ontario and beyond.

Groups listed under "responsibility".
After each strategy/action listed in Section 9.4, a group is suggested as responsible for implementing the strategy or action. Many of these activities are the collective responsibility of the "Friends of the Tern". "Friends of the Tern" is the informal name given to the IBA steering committee, and includes members of the City of Port Colborne, the Port Colborne and District Conservation Club, the Bert Miller Nature Club and the Niagara Falls Nature Club as well as some members of the public.

9.2 Goals:

1. *To maintain a viable and healthy population of Common Tern by conserving and managing its habitat appropriately.*
2. *To increase the local population of Common Terns by increasing available nesting habitat.*

9.3 Objectives:

a) To encourage and facilitate active research on the bird colonies.
b) To continue to execute an established protocol to annually monitor the number of nesting common tern pairs by counting clutches.
c) To monitor the tern nesting habitat each year and rehabilitate as required.
d) To discourage nesting Ring-billed Gulls and Herring Gulls from occupying Common Tern nesting habitat through various means (egg collection, use of raptors).
e) To formalise stewardship of the Important Bird Area through the "Friends of the Tern" – a group established under the leadership of the Port Colborne and District Conservation Club.
f) To heighten public awareness of the Common Tern colony, its significance and vulnerability.
g) To heighten public awareness of Important Bird Area.
h) To encourage the City to incorporate the Common Tern into their logo.
i) To maintain adequate signage on the breakwall, consistent with that installed by Ralph Morris.

j) To ensure that a boat is available each season to transport volunteers to and from the breakwall.

9.4 Strategies

The most successful measures on the Great Lakes to enhance habitat for Common Tern have been implemented by R.D. Morris and his students at the Port Colborne IBA (Martins 1997). The following recommendations and chronology are made to ensure that Common Terns continue to breed in the Port Colborne IBA. Groups or individuals responsible for strategies are indicated after the action. Many of the strategies are undertaken annually, some as required, and others as resources and energy permits.

1. Obtain motor boat for season's activities.
ACTION: Ensure that a boat is always available to undertake stewardship work.
Responsibility: Conservation Club, Sugarloaf Marina, City of Port Colborne.

2. Discourage Ring-billed Gulls from occupying the east leg of the breakwater.
ACTION: From early April and continuing until mid-May, Ring-billed Gulls are to be discouraged from establishing nests. If feasible, raptors (birds of prey) are to be placed on the breakwall in early April until the terns arrive in numbers. The timing of placement and removal of the raptors is critical. In the event that a raptor is not available, eggs are to be collected and nests destroyed. This can only be undertaken with the necessary permits from the Federal Government. This activity will be carried out until sufficient numbers of terns return, and are able to colonize a section of the breakwall.
Responsibility: Ralph Morris (arrange permissions), Friends of the Tern (coordinate work), Dave Gibson (falconer).

3. Rehabilitate the substrate.
ACTION: Visit each spring (by early April) to determine if substrate is needed to be added or manipulated. This activity requires a day of work for a party of five to eight people. Herein lies an opportunity to document this activity by videotape to facilitate advance training of volunteers.
Responsibility: Friends of the Terns, City of Port Colborne.

4. Maintain signs on the breakwall.
ACTION: Prior to nesting season, signs are to be put up to reduce human disturbance. Signs are to be stored at the Conservation Club.
Responsibility: Conservation Club, City of Port Colborne.

5. Monitor colony size.

ACTION: Arrange monitoring protocol under the guidance of Ralph Morris, to conduct a count of the number of Common Tern clutches on the breakwall in the third week of May each year.

Responsibility: Ralph Morris, Friends of the Tern.

6. Heighten awareness and interest in the Common Tern colony in Port Colborne.

ACTIONS:

- Encourage local educators to develop education programs around the Common Terns and Ring-billed Gulls.
- Produce a video for the public, schools, and libraries on the terns, gulls and stewardship of the colonies.
- Establish an outdoor plaque and monument in celebration of the tern colony.
- Periodically publish articles on the IBA in the local media.
- Develop web-based information on the terns linked to the FON and other IBA websites.

Responsibility: Friends of the Tern, City of Port Colborne, local teachers, local media.

10. Evaluation

Planning in complex circumstances should include a system of evaluating progress, rethinking goals and objectives, and revising actions. This iterative approach to planning means not only that the plan is open to revision, but also that evaluation and revision are a fundamental part of the planning process. The FON and its national partners are committed to supporting IBAs in plan implementation. Local stakeholders have already invested in the IBA, and have a stake in its success.

The IBA program has created an expectation that local people will undertake the ongoing stewardship of the tern colony. At the end of 2000, the Port Colborne and District Conservation Club is prepared to lead this endeavour, with other groups providing a supporting role. It is important that each fall, stewardship activities are planned for the following year, with an individual or a group taking the lead. It will be a collective responsibility to see that this happens.

An annual update on the conservation plan implementation would be of great value to the CNF, FON and BSC. As Port Colborne has joined the global family of IBAs, information on Port Colborne will be incorporated into BirdLife's global IBA database. This database will be used to report on conservation progress in IBAs around the world. The information required is listed below.

- summary of general progress by the stakeholders group.
- update on actions, objectives and goals.
- changes in actions, objectives and goals (explain why changes were needed).
- any changes in threats affecting the IBA species and site.
- copies of any media coverage or materials produced.
- an updated list of groups involved in the stakeholder group.
- successes and failures within the IBA.

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Personal Communications:

Willie D'Anna, 2000.
Dr. Ralph Morris, 2000.
Bill Whan, 2000.

Appendix 1. IBA Program Partners

BirdLife International

A pioneer in its field, BirdLife International (BL) is the first non-government organisation dedicated to promoting world-wide interest in and concern for the conservation of all birds and the special contribution they make to global biodiversity. BL operates as a partnership of non-governmental conservation organisations, grouped together within geographic regions (e.g. Europe, Africa, Americas) for the purpose of planning and implementing regional programmes. These organisations provide a link to on-the-ground conservation projects that involve local people with local expertise and knowledge. There are currently 20 countries involved in the Americas program throughout North, Central and South America. For further information about BirdLife International, check the following web site: <http://www.birdlife.net/>. The Canadian Nature Federation and Bird Studies Canada are the Canadian BirdLife International partners.

The Canadian Nature Federation (CNF)

The Canadian Nature Federation is a national conservation organization with a mission to be Canada's voice for the protection of nature, its diversity, and the processes that sustain it. The CNF represents the naturalist community and works closely with our provincial, territorial and local affiliated naturalists organizations to directly reach 100,000 Canadians. The strength of our grassroots naturalist network allows us to work effectively and knowledgeably on national conservation issues that affect a diversity of ecosystems and human populations in Canada. The CNF also works in partnership with other environmental organizations, government and industry, wherever possible. Our approach is open and co-operative while remaining firm in our goal of developing ecologically-sound solutions to conservation problems. CNF's web site is http://www.cnf.ca.

Bird Studies Canada (BSC)

The mission of Bird Studies Canada is to advance the understanding, appreciation and conservation of wild birds and their habitats, in Canada and elsewhere, through studies that engage the skills, enthusiasm and support of its members, volunteers, staff and the interested public. BSC believes that thousands of volunteers working together, with the guidance of a small group of professionals, can accomplish much more than could the two groups working independently. Current programs collectively involve over 10,000 volunteer participants from across Canada. BSC is recognized nation-wide as a leading and respected not-for-profit conservation organization dedicated to the study and understanding of wild birds and their habitats. BSC's web site is http://www.bsc-eoc.org/.

Federation of Ontario Naturalists

The Federation of Ontario Naturalists (FON) protects Ontario's nature through research, education, and conservation action. FON champions wildlife, wetlands and woodlands, and preserves essential habitat through its own system of nature reserves. FON is a charitable organization representing 15,000 members and over 105 member groups across Ontario. FON's web site is <http://www.ontarionature.org>.