

Early spring migration of waterbirds in Severn Sound, Georgian Bay in 1992

by
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Introduction

The use of wetland habitats by waterfowl during spring migration has been reasonably well documented around the lower Great Lakes and connecting channels (Boyd 1974; Curtis *et al.* 1984). However, there is little published information on waterfowl migration around the Canadian shorelines of Lake Huron, and none for Georgian Bay (Dennis *et al.* 1984). Many of the more extensive wetlands, bays, and adjoining river systems on the lower Great Lakes support large numbers of staging waterfowl in spring, and for some areas the timing of migration has been studied (Dennis and Chandler 1974; Dennis *et al.* 1984; Ross 1984; R.W. Knapton, pers. comm.).

In early spring 1992 I had the opportunity to census waterbird species at regular intervals in parts of Severn Sound, at the southeastern end of Georgian Bay, Lake Huron. Parts of Severn Sound have been identified by the International Joint Commission as one of 43 key Areas of Concern around the Great Lakes, mainly on account of degradation of aquatic and shoreline habitats, attributable largely to physical development pressures and eutrophication from agricultural runoff and sewage discharges (Anonymous 1988). Matchedash Bay, at the head of Severn Sound, is an extensive wetland of outstanding, but not yet quantified, importance for staging and breeding waterfowl

(Gartner Lee Limited 1990). It is currently being purchased by the Nature Conservancy, and is a key site identified in the Lower Great Lakes-St. Lawrence basin area as priority habitat for waterfowl, within the North American Waterfowl Management Plan (United States Fish and Wildlife Service and Environment Canada 1986; Prince *et al.* 1992).

This paper provides the first documentation of the chronology and numbers of waterbird species in spring in some parts of Severn Sound (including the western part of Matchedash Bay), between late March and mid April in 1992.

Methods

Observations were made within three hours of sunrise on eight dates between 25 March and 19 April 1992. Birds were counted from seven suitable vantage points overlooking clearly defined areas of open water or ice (Figure 1). Species were identified with a telescope with 20x wide-angle lens, and zoom lens to 45x magnification. Counts were of individual birds whenever possible, but numbers in large, compact resting groups, or active feeding flocks, were estimated to the nearest 10-100 birds. Ducks farther than approximately 1 km away were not usually identified specifically. The vast majority of unidentified birds were species of diving duck, other than Mergansers (*Mergus* spp.). All identifications,

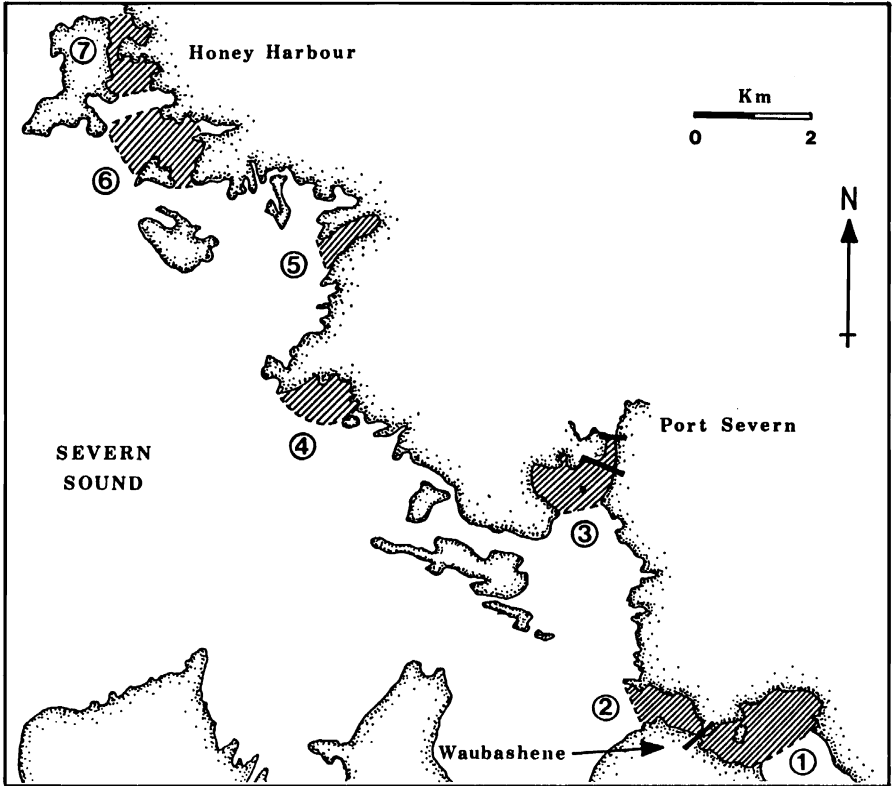


Figure 1: The location of census points and approximate areas within which waterbirds were counted (shaded). Numbers refer to those given in Table 1. Area 1 = Matchedash Bay (western parts); 2 = off Waubashene; 3 = Tug Channel - Sawdust Is.; 4 = Musky Bay; 5 = Macey's Bay; 6 = off Brandy's I.; 7 = off Picnic I.

counts and estimates were made by me. Observations were discontinued after 17 April, when open water permitted birds to feed over large areas of Severn Sound. However, an additional count of Ospreys was made on 19 April, since these birds occurred at nest-sites within the census areas.

Air temperatures were a few degrees below zero during all counts except those on 8 April (3°C) and 17 April ($1\text{-}2^{\circ}\text{C}$). Winds were calm on

17 April, moderate on 1 April ($\text{NW } 40\text{ km h}^{-1}$), and light ($10\text{-}20\text{ km h}^{-1}$) on other count dates. The % extent of open water was estimated by eye.

Results and Discussion

Ice cover

At the end of March, the only area having open water was area 3, at the outflow of the Severn River at Port Severn. Only a very small area of water below the main dam remained

open throughout the winter. Some open water areas extended out to the Sawdust Islands (1 km south of the Highway 69 bridge at Port Severn) by early April, and by 10 April ice covered only 30% of the area. The next areas of open water to develop were in Matchedash Bay and off Waubashene (areas 1 and 2), and off Picnic Island at Honey Harbour (area 7). Ice still covered $\geq 90\%$ of areas 4-6 (northern shore of Severn Sound) on 17 April (Table 1).

Ice melt was later in 1992 in southeastern Georgian Bay than in recent years, by up to two weeks in Severn Sound survey areas checked in both 1991 and 1992 (pers. obs.).

Bird numbers

Duck species comprised the bulk of waterbirds in the census areas, from 66% of all birds seen on 25 March, to over 98% after 8 April (Table 2). Duck numbers were highly significantly correlated with the proportion of open water in each census area ($r^2 = 0.55$, $F_{1,31} = 37.6$, $P = 0.0001$; Table 1). Over 19,000 ducks were counted on 15 April (greater numbers were present outside the census areas), but after that date so much open water was present that birds became less concentrated and more difficult to census accurately from the shoreline. Thus, the apparent reduction in duck numbers on 17 April reflected shifting distribution rather than fewer birds in the overall area.

Areas 1-3 were by far the most important of those censused during this period, supporting 89-100% of the ducks counted on any date. When ice finally began to melt in other areas (eg. 6 and 7), ducks quickly

moved in to feed. On each observation date, ducks were engaged in foraging, resting, and courtship behaviour, usually in rather dense aggregations. Also, flocks of up to about 300 ducks were seen flying in a general northerly direction high over the census areas at times, and whilst counts were being made in the census areas, a few flocks took off and headed north or northwest. Thus, there was undoubtedly considerable turn-over of birds between successive count dates and so the total number of individuals utilizing the area was greater than indicated by the peak counts in Table 2.

A total of 21 species was recorded: 12 waterfowl species (Scaup spp. included specific identification only for Greater Scaup, *Aythya marila*); three gulls; Pied-billed Grebe (*Podilymbus podiceps*), Double-crested Cormorant (*Phalacrocorax auritus*), Caspian Tern (*Sterna caspia*), Osprey (*Pandion haliaetus*) (Table 1), as well as Belted Kingfisher (*Ceryle alcyon*, two birds in area 7 on 15 April), and Tree Swallow (*Tachycineta bicolor*), one in area 4 on 5 April, plus 3800 hawkling over areas 1-3 on 15 April. Two Pied-billed Grebes had probably overwintered below the dam at Port Severn.

Diving ducks were by far the most numerous group, with Ring-necked Duck (*A. collaris*), Common Goldeneye (*Bucephala clangula*), Bufflehead (*B. albeola*) and Common Merganser (*M. merganser*) together accounting for $\geq 80\%$ of ducks identified on any date (Table 2). The maximum counts for Ring-necked Duck, Common Goldeneye, Bufflehead, Hooded Merganser (*Lophodytes cucullatus*) and Common

Survey section number (see Figure 1)

Date	1	2	3	4	5	6	7
% open water							
March 25	-	-	5	-	-	-	-
April 1	-	-	30	-	-	-	-
April 5	1	1	40	-	-	-	1
April 8	2	5	60	-	1	1	10
April 10	20	30	70	-	1	3	10
April 15	40	40	90	-	1	3	10
April 17	70	60	90	1	1	10	20
No. of ducks							
March 25	-	-	97	-	-	-	-
April 1	-	-	280	-	-	-	-
April 5	32	43	665	-	-	-	47
April 8	339	1200	2552	-	10	44	30
April 10	3400	3213	3994	1	-	45	48
April 15	8840	807	7970	-	-	1370	220
April 17	8000	2104	3146	8	-	1300	400

Table 1: Percentage open water and number of ducks in each survey section of Severn Sound, 25 March - 17 April 1992.

Merganser were all higher than those recorded in spring 1992 from another known site of wildfowl importance in the Great Lakes - the Inner Bay at Long Point, Lake Erie (R.W. Knapton, pers. comm.). Clearly, the Severn Sound numbers for these species were even higher than indicated in Table 2, since about 50% of the diving ducks could not be identified specifically after 5 April. Such large spring staging concentrations of Ring-necked Duck, Common Goldeneye and Bufflehead are not seen on Lake Erie (R.W. Knapton, pers. comm.), so presumably these birds are coming from wintering areas on Lake Ontario or farther south.

Species seen in good numbers elsewhere in the lower Great Lakes during early spring migration, but which were notable by their absence from Severn Sound include: Oldsquaw (*Clangula hyemalis*), White-winged Scoter (*Melanitta fusca*), Canvasback (*A. valisineria*), Redhead (*A. americana*), Tundra Swan (*Cygnus columbianus*), Northern Pintail (*Anas acuta*), and Green-winged Teal (*A. crecca*). With the exception of Green-winged Teal, these species were found to be uncommon or rare spring migrants in the Muskoka and Parry Sound districts of Georgian Bay (Mills 1981), and in Matchedash Bay (Gartner Lee Limited 1990). In

general, early spring numbers of dabbling ducks in Severn Sound were low compared to counts at other lower Great Lakes sites, but diving duck numbers were higher (Dennis and Chandler 1974; Dennis *et al.* 1984; Prince *et al.* 1992; R.W. Knapton, pers. comm.). I was unable to extend counts into inner Matchedash Bay, but the wetland areas there appeared to offer much more suitable shallow water feeding conditions for dabbling ducks, so may have supported considerable numbers once free of ice. Clearly, on the basis of these 1992 data, Severn Sound appears to be one of the most important spring staging areas for diving ducks in the Great Lakes.

Chronology

There were considerable differences among species in the timing of spring build-ups in Severn Sound (Table 2). Some Canada Geese and Herring Gulls (*Larus argentatus*) were present even when little open water was available, whereas Double-crested Cormorants, Caspian Terns, Ring-billed Gulls (*L. delawarensis*) and scaup species only appeared once melt was well under way. Among the diving ducks, numbers of Ring-necked Duck, Common Goldeneye, Bufflehead and Common Merganser began to build up earlier than other species. Dabbling duck numbers rose steeply after 5 April, but were never large. Very similar temporal trends were seen amongst these waterfowl species in counts made on the same dates in 1992 at Lake Dalrymple and Canal Lake, at the northwestern end of the Kawartha Lakes complex, about 70 km east of Severn Sound. At these sites, the timing of ice melt was

virtually identical to that in Severn Sound, but total waterfowl numbers never exceeded 500 individuals in April 1992 (pers. obs.).

An aerial (rotor-winged) survey of some of these Severn Sound census areas on 11 April 1991 recorded considerably lower numbers of waterfowl than my ground counts in mid April 1992 (R. Craig, pers. comm.). However, in 1991 the birds were dispersed over much wider areas, since ice melt was up to two weeks earlier than in 1992. Systematic aerial counts along transects, and/or ground and boat counts of all open water areas, would probably have revealed much higher numbers in 1991. Further, a delayed melt in 1992 may well have caused an unusually concentrated passage of waterfowl returning northwards in April.

Along the Canadian shorelines of Lake Erie and Lake Ontario, extensive spring waterfowl surveys from 1969 to 1973 revealed that numbers of dabbling ducks, most diving ducks, Canada Geese and Tundra Swans peaked on 1 April and declined thereafter (Dennis and Chandler 1974). A more detailed, regular census of waterfowl at Long Point, Lake Erie, in 1992 found similar relative patterns of spring build-up of waterfowl species to those seen in Severn Sound (i.e. Common Goldeneye and Common Merganser peaking earlier, followed by Ring-necked duck, Bufflehead, scaup spp., Hooded Merganser, etc.), but the increases occurred for virtually all species about a month earlier than in Severn Sound (R.W. Knapton, pers. comm.).

	25 March	1 April	5 April	8 April	10 April	15 April	17 April
Pied-billed Grebe	2	2	2	2	2	3	1
Double-crested Cormorant	-	-	-	1	9	54	81
Osprey	-	-	-	2	6	10	12
Ring-billed Gull	-	-	-	-	2	235	11
Herring Gull	27	31	4	118	57	81	8
Great Black-backed Gull	-	2	-	-	-	-	-
Caspian Tern	-	-	-	-	-	12	3
Canada Goose	20	150	137	218	28	27	95
Wood Duck	-	-	-	15	-	-	6
Black Duck	-	-	12	12	12	33	-
Mallard	-	10	1	5	46	12	-
Gadwall	-	-	-	5	2	-	-
American Wigeon	-	-	1	-	1	64	32
Ring-necked Duck	15	110	283	1650	4160	3809	355
Scaup spp.	-	-	-	-	45	1525	29
Common Goldeneye	40	50	234	505	845	2320	35
Bufflehead	7	40	96	256	1092	1128	32
Hooded Merganser	-	30	50	83	142	435	30
Common Merganser	35	40	110	444	376	931	39
Unidentified Duck spp.	-	-	-	1200	3950	8950	14400
Total ducks	97	280	787	4175	10671	19207	14958

Table 2: Counts of waterbirds in Severn Sound census areas, March - April 1992.

Herring Gulls were present in small numbers throughout the period, but increased from 8 April onwards. An influx of Ring-billed Gulls and Caspian Terns was noted on 13 April. Double-crested Cormorant numbers increased steeply from 8 April onwards - perhaps mostly birds from the South Watcher I. colony, 35 km to the northwest, in the open waters of Georgian Bay. In 1991, cormorants were seen at that colony from 4 April onwards, and approximately 17% of the total number of birds which subsequently bred were present at the colony in the middle part of the day on 25 April. At eight occupied Osprey nest-sites occurring within the census areas, numbers built up steadily from 8 April, until all sites were occupied by at least one bird on 25 April. Solid ice cover around some nests until mid April meant that some Ospreys flew up to 12 km from their nest to reach open water fishing areas. This suggests that there was a premium on early occupation of the limited number of high quality nest-platforms in the area.

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Literature cited

- Anonymous*. 1988. Severn Sound Remedial Action Plan Part 1: Environmental Conditions and Problem Definitions. Environment Canada, Ontario Ministry of Agriculture and Food, and Ontario Ministry of Natural Resources. 123 pp.
- Boyd, H. (Editor)*. 1974. Canadian Wildlife Service waterfowl studies in eastern Canada, 1969-73. Canadian Wildlife Service Report Series No. 20.
- Curtis, S.G., D.G. Dennis and H. Boyd (Editors)*. 1984. Waterfowl studies in Ontario, 1973-81. Occasional Paper No. 54, Canadian Wildlife Service.
- Dennis, D.G. and R.E. Chandler*. 1974. Waterfowl use of the Ontario shorelines of the southern Great Lakes during migration. Pp. 58-65 in Boyd, H. (Editor). Canadian Wildlife Service waterfowl studies in eastern Canada, 1969-73. Canadian Wildlife Service Report Series No. 20.
- Dennis, D.G., G.B. McCullough, N.R. North and R.K. Ross*. 1984. An updated assessment of migrant waterfowl use of the Ontario shorelines of the southern Great Lakes. Pp. 37-42 in Curtis, S.G., D.G. Dennis and H. Boyd (Editors). Waterfowl studies in Ontario, 1973-81. Occasional Paper No. 54, Canadian Wildlife Service.
- Gartner Lee Limited*. 1990. A biological inventory and evaluation of the Matchedash Bay Provincial Wildlife Area. Fish and Wildlife, Huronia District and Parks and Recreational Areas Section, Central Region. Ontario Ministry of Natural Resources, Aurora, Ontario. Open File Ecological Report 9003, vii + 117 pages + appendices + 5 maps in back pockets.
- Mills, A*. 1981. The Birds of Muskoka and Parry Sound. Published by the author.
- Prince, H.H., P.I. Padding and R.W. Knapton*. 1992. Waterfowl use of the Laurentian Great Lakes. Journal of Great Lakes Research 18: 673-699.
- Ross, R.K*. 1984. Migrant waterfowl use of the major shorelines of eastern Ontario. Pp. 53-62 in Curtis, S.G., D.G. Dennis and H. Boyd (Editors). Waterfowl studies in Ontario, 1973-81. Occasional Paper No. 54, Canadian Wildlife Service.

United States Fish and Wildlife Service and Environment Canada. 1986. North American Waterfowl Management Plan. Pp. 19. Minister of Supply and Services: Ottawa.

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Recognizable Forms

Merlin

by
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Introduction

Three distinct forms of the Merlin (*Falco columbarius*) breed in North America: (1) Taiga Merlin (*F. c. columbarius*), a medium dark bird of the boreal forest (taiga is a Russian word for boreal or northern forest); (2) Richardson's Merlin (*F. c. richardsonii*), a very pale bird of the northern prairies and aspen parklands; and (3) Black Merlin (*F. c. suckleyi*), a very dark bird of the West Coast. See Figure 1 and Map 1. These forms are also illustrated in Clark and Wheeler (1987), Scott (1987) and Peterson (1990). Note that the illustrations in the latter are mislabelled; from left to right they should read *suckleyi*, *columbarius*, and *richardsonii*. Also see the excellent paintings by Paul Donahue, including adult males and females of all three forms, in the Fall 1987 issue of *American Birds* 41: 369. In this note I

discuss the taxonomy, occurrence, and identification of the recognizable forms of the Merlin in Ontario.

Taxonomy

The American Ornithologists' Union (1957) and Godfrey (1986) list four subspecies of the Merlin as breeding in North America: (1) *F. c. columbarius*; (2) *F. c. bendirei*; (3) *F. c. richardsonii*; (4) *F. c. suckleyi*. See Godfrey (1986) for ranges of the subspecies (races) and areas of intergradation.

Many authorities do not recognize *bendirei* (western taiga population) as a valid subspecies because it is similar to *columbarius* (eastern taiga population) in phenotype (appearance) and ecology (Swarth 1935, Taverner 1937, Rand 1946, Temple 1972a, Beebe 1974, Palmer 1988, Sodhi *et al.* 1993). Here I follow