

Marsh Bird and Amphibian Communities in the Peninsula Harbour AOC, 1995 – 2002.



Purpose of the MMP

The Marsh Monitoring Program (MMP) was established to provide baseline surveys of marsh bird and amphibian populations and their habitats in marshes within Areas of Concern (AOCs) in the Great Lakes basin, sites where rehabilitation and restoration efforts have taken place or are planned in AOCs, and in many other Great Lakes basin wetlands. Marsh bird surveys were first implemented in the Canadian and bi-national AOCs in 1994. In 1995, the program expanded throughout the basin to include surveys of calling amphibians. To date, over 650 MMP volunteers have surveyed marsh bird and/or amphibian populations and their habitats. Information about abundance and diversity of these species provides useful, and easily obtainable indicators of habitat quality, structure and areal extent.

Purpose of the Report

This report summarizes results of MMP surveys done in the Peninsula Harbour AOC from 1995 to 2002. It also explains how the set of indicators used by the MMP assesses marsh quality and describes the significance of MMP results for this AOC. Results herein provide an opportunity to determine whether or not amphibian and/or marsh bird community status at Peninsula Harbour AOC wetlands are impaired. This report should be read in conjunction with the context and analyses description in the Marsh Monitoring Program: Areas of Concern Summary Reports 1995 – 2002.

Highlights of the MMP's Peninsula Harbour Results

Indicator Species

The presence of the following suite of marsh bird and amphibian species indicates high quality marsh habitat.

A **T** indicates those species found in the Peninsula Harbour AOC marshes.

Birds

- T American Bittern (AMBI)
- T American Coot (AMCO)
- Black Tern (BLTE)
- T Blue-winged Teal (BWTE)
- Common Moorhen (COMO)
- T Common Snipe (COSN)
- Least Bittern (LEBI)
- Marsh Wren (MAWR)
- C. Moorhen/ A.Coot (MOOT)
- Pied-billed Grebe (PBGR)
- T Sora
- T Virginia Rail (VIRA)

Amphibians

- Bullfrog (BULL)
- Chorus Frog (CHFR)
- Mink Frog (MIFR)
- Northern Leopard Frog (NLFR)
- Spring Peeper (SPPE)

- Since the program's initiation two routes surveyed for marsh birds have been monitored in the Peninsula Harbour AOC.
- Overall, 15 species of marsh nesters were recorded in the Peninsula Harbour AOC – a moderate level of diversity. Further, five (American Coot, Blue-winged Teal, Common Snipe, Sora, Virginia Rail) of 12 marsh bird indicator species were recorded in the Peninsula Harbour AOC. Swamp Sparrow was the most abundant nesting species, followed by Virginia Rail, Common Yellowthroat and Mallard. One water forager and two aerial foragers were recorded in the Peninsula Harbour AOC – a low level of diversity.
- Abundance of two of five marsh bird indicator species (American Coot, Sora) that occurred in the Peninsula Harbour routes scored within the average of that for those species at Great Lakes basin non-AOC routes. However, Blue-winged Teal, Common Snipe and Virginia Rail abundance at Peninsula Harbour routes scored below those at Great Lakes basin non-AOC routes.
- Marsh bird indicator species diversity in the Peninsula Harbour AOC scored within average of that at Great Lakes basin non-AOC routes, however marsh nesting bird species diversity scored below that at Great Lakes basin non-AOC routes. Overall, this AOC is apparently impaired in its ability to support marsh dependent species. However, monitoring of more routes at this AOC is required to make a more definitive assessment.

MMP Methods

Table 1. Marsh Monitoring Program Survey Methods

Survey	Time commitment	Skills Required	Survey Duration	Weather conditions
Birds	2 evenings, 10 days apart, between May 20 and July 5	ability to identify about 50 common birds	10 minutes at each station	warm, dry weather with little or no wind
Amphibians	3 nights, 15 days apart, between April 1 and July 15	ability to learn about 10 amphibian calls	3 minutes at each station	warm, dry weather with little or no wind

A route, consisting of up to eight semi-circular stations (100 m radius for marsh birds and unlimited distance for amphibians), is monitored in each marsh being surveyed. Stations are usually accessed by foot, but can be surveyed by canoe or boat. Marshes must be a minimum of two hectares and if very large, may support more than one route. Stations must be 500 metres apart for amphibians surveys and 250 metres apart for marsh bird surveys. Numbers of marsh birds heard calling or seen in the station are recorded. At amphibian stations, one of three Call Level Codes is used to record calling intensity of each species; abundance estimates are also made. Participants are also asked to identify if they hear each amphibian inside and/or outside of the 100 m semi-circle. Each MMP volunteer is provided with a training kit that fully explains survey methods. The kit also includes a copy of the MMP Training Tape that aids volunteers in learning songs and calls of common marsh birds and amphibians. For further information about these methods, please refer to the 2003 edition of the *MMP Training Kit and Instructions for Surveying Marsh Birds, Amphibians and their Habitats*, which is available from Bird Studies Canada.

MMP in the Peninsula Harbour AOC

Since the program's initiation, two routes surveyed for marsh birds have been monitored in the Peninsula Harbour AOC.

The primary beneficial use impairment in this AOC pertains to high levels of contaminated sediments and their effects on coastal fish habitat. Dredging is restricted until remedial action reduces contaminant levels.

To become involved, please contact the MMP Volunteer Coordinator, Bird Studies Canada at (888) 448-2473 (phone), (519) 586-3532 (fax), or by email at aqsurvey@bsc-eoc.org.

Results

Both marshes monitored in the Peninsula Harbour AOC were small in size and inland, thus the marshes were not affected by fluctuations in Lake Superior water levels.

Overall, 15 species of marsh nesters were recorded in the Peninsula Harbour AOC – a moderate level of diversity (Table 4). Further, five (American Coot, Blue-winged Teal, Common Snipe, Sora, Virginia Rail) of 12 marsh bird indicator species were recorded in the Peninsula Harbour AOC. According to the Ontario Breeding Bird Atlas database, only three indicator species have historically been recorded in this AOC: Common Snipe, Blue-winged Teal and Virginia Rail. Densities for six of 15 marsh nesting species were higher at Peninsula Harbour routes than for that of those species at Great Lakes basin non-AOC routes. Swamp Sparrow was the most abundant nesting species, followed by Virginia Rail, Common Yellowthroat and Mallard.

One water forager and two aerial foragers were recorded in the Peninsula Harbour AOC – a low level of diversity (Table 4). Barn Swallow was the most abundant aerial forager and its densities were higher at Peninsula Harbour routes than at Great Lakes basin non-AOC route averages.

Conclusions

Abundance of two of five marsh indicator species (American Coot, Sora) that occurred in the Peninsula Harbour routes scored within the average of that for those species at Great Lakes basin non-AOC routes (Table 5). However, Blue-winged Teal, Common Snipe and Virginia Rail abundance at Peninsula Harbour routes scored below those at Great Lakes basin non-AOC routes.

Marsh bird indicator species diversity in the Peninsula Harbour – AOC scored within the average of Great Lakes basin non-AOC routes, however marsh nesting bird diversity scored below the average of those at Great Lakes basin non-AOCs (Table 5). The Peninsula Harbour AOC appears to be impaired in its ability to support a high diversity. Overall, this AOC is impaired in its ability to support marsh dependent species. However, monitoring of more routes at this AOC is required to make a more definitive assessment.

Recommendations

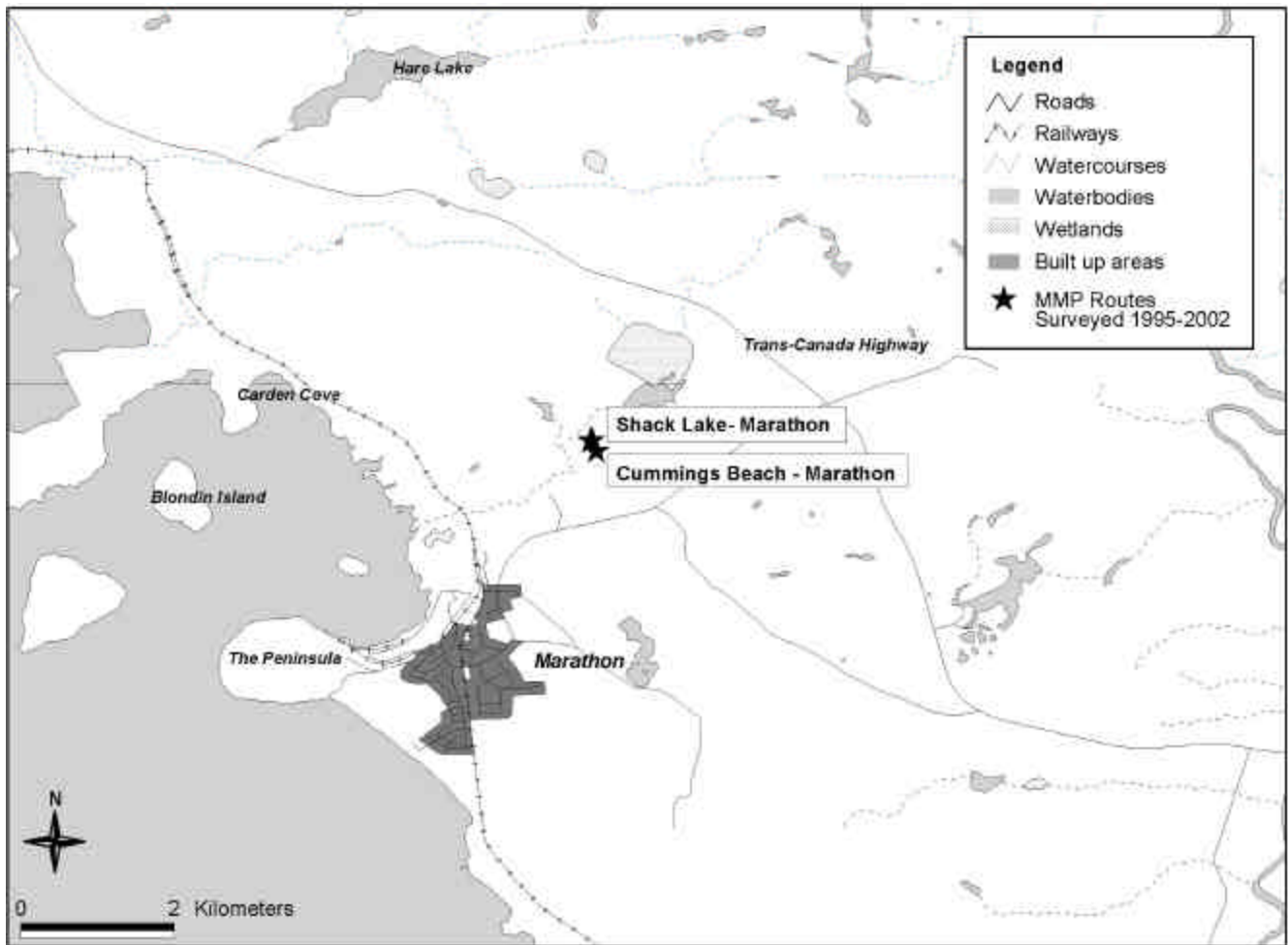
Efforts should be made to continue to rehabilitate marsh habitat and to monitor marsh bird and amphibian populations to properly address loss of habitat. MMP routes should be established at all marsh rehabilitation projects. Efforts should be made to encourage all MMP volunteers surveying routes within AOCs to rigorously collect habitat information at their survey stations. Complementary amphibian and marsh bird surveys should be conducted at all new and existing routes to permit a more definitive quantitative analysis of this AOC's wetland-dependent wildlife.

Volunteer Efforts

One participant contributed over 56 person hours between 1995 and 2002 to the program at this AOC. In addition, many volunteer hours at non-AOC routes were contributed to produce results that were used for comparison purposes. Our thanks extend to William Climie who conducted the Peninsula Harbour surveys.

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MMP routes in Peninsula Harbour AOC.

Table 2. Marsh Monitoring Program Routes in the Peninsula Harbour AOC.

Year	Route Type	# Routes	# Volunteers
1995	Amphibian	0	0
	Bird	0	0
	Both	0	0
1996	Amphibian	0	0
	Bird	2	2
	Both	0	0
1997	Amphibian	0	0
	Bird	1	1
	Both	0	0
1998	Amphibian	0	0
	Bird	1	1
	Both	0	0
1999	Amphibian	0	0
	Bird	1	1
	Both	0	0
2000	Amphibian	0	0
	Bird	1	1
	Both	0	0
2001	Amphibian	0	0
	Bird	1	1
	Both	0	0
2002	Amphibian	0	0
	Bird	1	1
	Both	0	0
Total	Amphibian	0	0
	Bird	2	1
	Both	0	0

Table 3. Marsh bird species composition and abundance (mean number per 10 stations) in the Peninsula Harbour AOC from 1995 through 2002. Means for Peninsula Harbour routes and Great Lakes basin non-AOC routes are given for comparison. Shading denotes indicator species and 'p' indicates that a species was present only outside of the survey stations.

Marsh Bird Species	Cummings Beach Marathon Station	Shack Lake Marathon	Peninsula Harbour AOC Mean	Great Lakes Basin Mean
<i>Marsh Nesters</i>				
Alder Flycatcher	3.3		2.00	0.34
American Coot	1.9		1.14	0.99
Blue-winged Teal	1.0		0.57	0.77
Canada Goose	0.5		0.29	4.56
Common Snipe	0.6		0.33	0.38
Common Yellowthroat	4.2		2.52	6.41
Green-winged Teal	1.6		0.95	0.15
Lincoln's Sparrow	1.4		0.86	0.01
Mallard	3.9		2.33	5.36
Northern Shoveler	1.0		0.57	0.08
Song Sparrow	2.9		1.76	5.16
Sora	3.0		1.81	1.06
Swamp Sparrow	8.9	10.0	9.33	10.13
Virginia Rail	4.6		2.76	3.12
Yellow Warbler	1.9		1.14	6.31
<i>Water Foragers</i>				
Great Blue Heron	0.5		0.29	1.66
<i>Air Foragers</i>				
Barn Swallow	1.1	25.0	10.67	8.86
Tree Swallow	2.7		1.62	32.59

Table 4. Status assessment of marsh bird and amphibian indicator species abundance in the Peninsula Harbour AOC from 1995 through 2002. ' - ' denotes values below the Great Lakes basin non-AOC average. ' 0 ' denotes values within the Great Lakes basin non-AOC average. ' + ' denotes values above the Great Lakes basin non-AOC average. Blank indicates that the species was not present and ' p ' indicates that a species was present only outside of the sample stations.

Route Name	Marsh Bird Indicator Species											Amphibian Indicator Species					
	AMBI	AMCO	BLTE	BWTE	COMO	COSN	LEBI	MAWR	MOOT	PBGR	SORA	VIRA	BULL	CHFR	MIFR	NLFR	SPPE
Cummings Beach		+		0		0					+	0					
Shack Lake - Marathon																	
Peninsula Harbour Overall Assessment		0		-		-					0	-					

Table 5. Status of Peninsula Harbour marshes from 1995 to 2002¹. ' - ' denotes values below the Great Lakes basin non-AOC average. ' 0 ' denotes values within the Great Lakes basin non-AOC average. ' + ' denotes values above the Great Lakes basin non-AOC average.

Route Name ²	Survey Type	Year	Number of Stations	Assessment of Marsh Bird and Amphibian Species Diversity				Overall Assessment ³
				Marsh Nesting Bird Diversity	Marsh Bird Indicator Species Diversity	Amphibian Species Diversity	Amphibian Indicator Species Diversity	
Cummings Beach <small>I, Small</small>	Bird	1996 - 2002	3	0	+			3
Shack Lake - Marathon <small>I, Small</small>	Bird	1996	3	-	-			0
Peninsula Harbour Overall Assessment				-	0			1

¹ See the Marsh Monitoring Program's 1997 Final Technical Report for a detailed description of the scoring system.

² C = coastal, I =inland. Tiny (2 - 2.5 ha), Small (2.5 - 5 ha), Medium (5 - 25 ha), Huge (> 50 ha).

³ A score of 0, 1 or 2 indicates impairment, a score of 3, 4 or 5 indicates no apparent impairment and a score of 6, 7 or 8 indicates an above average marsh.