

Type E Botulism in Fish-eating Birds Ontario 2002

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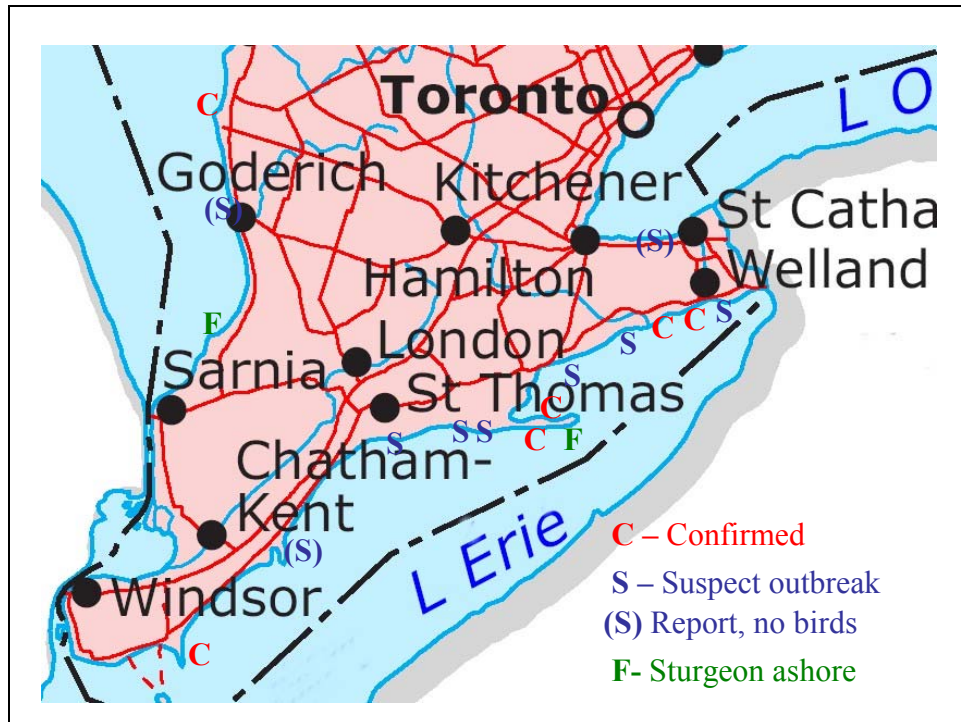
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What are we studying in Canada?

- Stomach examination of fish eating birds to determine food habits (ongoing, OMNR, Canadian Co-operative Wildlife Health Centre)
- Distribution of fish and bird mortality events (OMNR, CWS)
- Loon population analysis for Ontario breeding lakes (CWS)
- Experimental dosing of fish with Type E toxin to:
 - evaluate toxic dose
 - fish behavior relevant to consumption by fish-eating birds
 - tissue distribution

(R.D. Moccia - University of Guelph & graduate student)



Case #	Date	Location	2002 Type E Botulism Test Results		Stomach contents
			Species	Result	
W321.02	28 June	Mohawk Is.	Herring Gull	+	
W322.02	"	"	RB Gull	-	
W338.02	9 July	Pt. Pelee NP	RB Gull	-	
W360.02	14 July	"	RB Gull	+	
W386.02	2 August	Mohawk Is.	Caspian Tern	-	
W387.02	"	"	DC Cormorant	-	
W388.02	"	"	RB Gull	NT	
W415.02	4 Sept.	Pt. Dover	RB Gull	-	
W449.02	31 August	Long Pt.	Sanderling	-	
W450.02	"	"	DC Cormorant	-	unidentified fish bones
W451.02	"	"	Golden Plover	+	
W503.02	15 October	Kincardine	Common Loon	-	unidentified fish bones
W504.02	"	"	Red Necked Grebe	+	round goby
W515.02	"	"	Common Loon	-	unidentified fish bones
W516.02	"	"	Red Breasted Merganser	+	unidentified fish bones
W517.02	"	"	Red Necked Grebe	-	empty
W518.02	"	"	Pied Grebe	-	empty
W519.02	"	"	RB Gull	-	unidentified fish bones, Physells spp.,zm
W520.02	30 October	Lincoln	Ruddy Duck	-	
W521.02	31 October	Burlington	Long Tailed Duck	-	empty
W550.02	9 November	Hoover Pt.	Common Loon	NT	unidentified fish bones, zm
W551.02	"	"	Red Breasted Merganser	NT	
W552.02	"	"	Horned Grebe	NT	
W553.02	"	"	Long Tailed Duck	NT	
W554.02	9 November	Quarrie Rd.	Common Loon	NT	
W555.02	"	"	Long Tailed Duck	NT	
W556.02	9 November	Long Beach	Common Loon	+	
W557.02	"	"	Long Tailed Duck	-	
W561.02	9 November	Nickle Beach	Common Loon	NT	empty
W562.02	"	"	Horned Grebe	NT	
W563.02	"	"	Long Tailed Duck	NT	
W566.02	9 November	Long Pt.	Common Loon	+	
W579.02	"	John Pearce PP	RB Gull	NT	
W580.02	"	Pt. Bruce	RB Gull	NT	
W581.02	"	Pt. Burwell PP	RB Gull	NT	
W582.02	"	Pt. Stanley	RB Gull	NT	

Beach Survey, North Shore, Lake Erie

November 14, 2002

Long Point NWA

Common Loon	720	30 per km of beach surveyed
Gull spp.	254	10.6
Red-breasted merganser	43	1.8
Scaup spp.	7	0.3
Long-tailed duck	4	0.2
White-winged scoter	1	
Horned Grebe	1	
carp	100	
Total	830(34/km)	

Points west of Long Point NWA

Port Burwell

Bonaparte's Gull	60
Ring-billed Gull	76
Herring Gull	11
Herring or Ring-billed	31
Great Black-backed Gull	1
Common Loon	11
Horned Grebe	1
White-winged Scoter	1
Red-breasted Merg	8
Greater Scaup	1
Total	201(50/km)

Port Bruce

Bonaparte's Gull	26
Herring or Ring-billed Gull	35
Great Black-backed Gull	1
Common Loon	7
Horned Grebe	3
Double-crested Cormorant	2
Red-breasted Merganser	6
scaup species	1
Total	81(160/km)

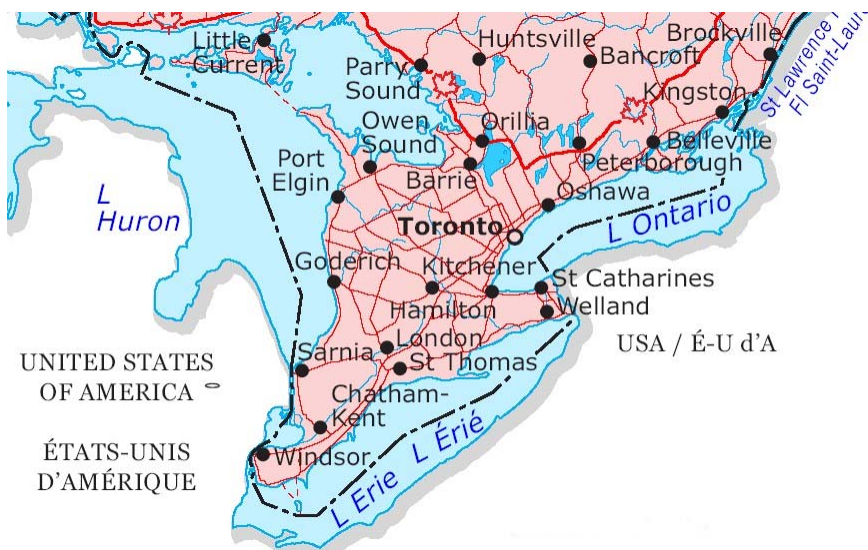
Port Stanley

Bonaparte's Gull	16
Ring-billed Gull	95
Herring Gull	15
Common Loon	3
Red-breasted Merganser	4
Total	133(50/km)

Rondeau Provincial Park(October 25, 2002)

Common Loon	82
Red-breasted Merganser	40
Gull spp	4
Total	126(13/km)

Round gobies now are found as far north as Severn Sound in Georgian Bay, and the North Channel of Lake Huron



**Gizzard contents analysis from 2002 botulism events
(confirmed and suspected)**

	Common Loon Erie Nov 9	Common Loon Huron Oct 15	LT Duck Erie Oct 30	LT Duck Nov 9
Empty	17	-	1	1
Fish(no ID)	25	6	5	-
Perch(white and yellow)	5	-	-	-
Goby	1	-	-	-
Shad	1	-	-	-
Shiner	2	-	-	-
Zebra Mussels	2	1	18	3
Other items	5	-	1	-

**Breeding loon numbers in Stratum 4 (north-central Ontario)
~doubled 1991-2002**



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Table 6: Estimated number of indicated pairs and standard error

Common Loon

Year	--Stratum 1--		--Stratum 2--		--Stratum 3--		--Stratum 4--		-----Total-----	
1990	4856	1166	2346	636	4424	978				
1991	3458	929	4278	1030	5407	1476	18979	3890	32122	4386
1992	3192	813	2304	512	5407	1745	23511	4124	34414	4580
1993	3746	962	5520	1303	7374	1964	25846	5746	42485	6285
1994	2882	763	5013	1156	10815	2788	28239	5568	46948	6379
1995	3458	1544	6323	1712	7692	1998	24786	7002	42258	7637
1996	1773	657	2484	697	5838	1590	29929	6229	40024	6499
1997	3192	1100	5493	1003	14010	2890	39038	9200	61733	9758
1998	2660	786	5332	1203	8173	1423	28194	5585	44358	5940
1999	1419	452	7097	1394	9807	1857	28194	5654	46517	6129
2000	2305	731	5962	1510	11208	3062	24724	4970	44199	6074
2001	5047	1618	7593	1688	8406	1822	37303	6688	58349	7316
2002	1820	499	8517	1547	7005	1483	40339	7401	57680	7722

Figure 1 Indicated Pairs for Common Loon

