A Chronicle of Atlantic Brant Records for the Maritime Provinces

August, 1974

Barry Hughson

PRELIMINARY DATA
NOT FOR PUBLICATION

A Chronicle of Atlantic Brant Records for the Maritime Provinces*

by

Barry Hughson
Canadian Wildlife Service

August, 1974

does not include data in AJE files, nor in NB Museum files

*Preliminary compilation for internal use

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A Chronicle of Atlantic Brant Records for the Maritime Provinces

INTRODUCTION

Records of Atlantic Brant (*Branta bernicla hrota*) in the Maritime Provinces of Nova Scotia, New Brunswick and Prince Edward Island date back to the fall of 1933. The information presented herein includes all available records to June, 1974. The assembly of those data under one cover constituted the primary objective of this work, and was undertaken to provide an information packet for Canadian Wildlife Service biologists concerned with waterfowl management, surveys, oil pollution, habitat studies, and assessment investigations.

The assembly of information on Atlantic Brant will provide a basis for assessing surveys and studies of that species in the Maritime Provinces when such programs are undertaken.

Ultimately, this exercise in documentation will be rewarding regardless of whether it illustrates and supports what is thought to be known, and/or delineates what is not known. If nothing more, herein is a compilation of past data which reaches through to the present. It is a vehicle upon which present day decisions can be made and future information evaluated. Without such cornerstones, it is time-consuming and wasteful to start data assembly afresh. A proper perspective to assess influences imposed by port developments, tidal power projects, oil spills, recreational developments, and yet unknown future schemes, alterations, and events is essential.

RECORDS OF ATLANTIC BRANT IN THE MARITIME PROVINCES

Information on Atlantic Brant is tabulated chronologically in Tables 1 to 7. Place names in each table are presented in a corresponding Figure and identify the general locale in which Brant were observed. All counts refer to ground counts unless specified otherwise in the tables.

(1) Atlantic Brant records for coastal southwestern New Brunswick and western Nova Scotia, March to June inclusive from 1935 to 1974.

The data presented in Table 1 includes all available records with the exception of ground counts by V. Bagley at Grand Manan, New Brunswick, from February 1971 to April 30, 1974. His data are arranged in Table 2.

Table 1 presents 109 individual records. Thirty of those records pertain to the Grand Manan archipelago, 33 to the coastal zone of Maces Bay to Musquash Harbour inclusive, 36 to western Nova Scotia, of which 18 pertain to the coastal waters of Brier Island, and 9 to Cape Sable. The remaining 10 records account for Atlantic Brant in Passamaquoddy Bay and adjacent waters to the Grand Manan Channel and Maces Bay.

The first tally which accounted for 250 Atlantic Brant in the Grand Manan archipelago was made by A.O. Gross on May 21, 1935. Since that time, estimates for that location have varied from near zero to a high of approximately 20,000 recorded by E.A. Joy on May 1, 1942.

Canadian Wildlife Service aerial survey estimates of Atlantic Brant in the Grand Manan archipelago extracted from Table 1 are as follows:

March 31, 1967 - 3,675
March 21, 1972 - 1,690
March 30, 1972 - 1,680
April 26, 1972 - 1,565
March 19, 1974 - 3,779
April 17, 1974 - 5,322
May 21, 1974 - 708

The first available estimate of Atlantic Brant at Maces Bay, New Brunswick, was made by Peters (1939a). He stated that 400 were there on May 7, 1939, and he provided the spring approximations of other observers for that year as ranging from 1,500 to "several thousand". Subsequent spring reports for Maces Bay have ranged from "present" to 5,000, with J. Kane estimating 10,000 Brant in 1954, 1955, and 1956. Canadian Wildlife Service aerial surveys of Maces Bay located 275 on March 30, 1972, and 207 and 347 on March 19 and April 17, 1974, respectively.

Generally, few Brant have been observed in Passamaquoddy Bay and adjacent waters. The highest available estimate of 290 was made on March 30, 1972, during an aerial inventory of waterfowl in that region.

The first spring record of Atlantic Brant in western Nova Scotia came from Dr. H.F. Lewis who estimated 1,000 along the Shelburne County coast in 1955. Modest numbers have been observed off the Shelburne County coast since that time. In 1956 and 1957, 20 and 18 were reported at Port Joli and Sable River respectively. At Cape Sable, Shelburne County, S. Smith reported 23 on March 4, 1961. The same observer again reported modest numbers of Brant there in the springs of 1966 to 1968, and from 1970 to 1972.

The first spring record of Brant at Brier Island, Nova Scotia, was made on March 6, 1963. Three thousand were reported on that date; however, subsequent Brant records for any one date do not exceed 1,000 at Brier Island.

Other spring sightings for western Nova Scotia have been made at the Annapolis Basin, Chebogue Point, Argyle, Ingomar, and Lockeport, and represent relatively few Brant.

Table 1. Records of Atlantic Brant in coastal southwestern New Brunswick and western Nova Scotia: March to June 1935 to 1974 (inclusive)*

Date	Location (Figure 1)	Brant	Observer	Information source
1935				
May 21	Kent Island, Grand Manan	250	A.O. Gross	CWS, P.Q. office files
1938				
March 14	near Kent I., Grand Manan	2,000	E.A. Joy	CWS, P.Q. office files
1939				
March 18	near Kent I., Grand Manan	5,000	E.A. Joy	CWS, P.Q. office files
May 7	Maces Bay, N.B.	400	H. Peters	Peters, 1939a
"spring"	Maces Bay, N.B.	1,500	W.J. Evans	Peters, 1939a
"spring"	Maces Bay, N.B.	"several thousand"		Peters, 1939a
1940				
March 9	near Kent I., Grand Manan	10,000	E.A. Joy	CWS, P.Q. office files
1941				
March 24	near Kent I., Grand Manan	10,000	E.A. Joy	CWS, P.Q. office files
May 11	Maces Bay, N.B.	750	J.Pearce & H.Mendall	Peters, 1941a
1942				
March 12	near Kent I., Grand Manan	30	E.A. Joy	CWS, P.Q. office files
March 30	Maces Bay, N.B.	present		Peters, 1944
April 15	near Kent I., Grand Manan	about 10,000	E.A. Joy	CWS, P.Q. office files
April 16	Maces Bay, N.B.	present	M.E. Evans	Peters, 1942
April 16	Chance Harbour, N.B.	2		Peters, 1942
April 22	Maces Bay, N.B.	3,000		Peters, 1942
May 1	near Kent I., Grand Manan	about 20,000	E.A. Joy	CWS, P.Q. office files

Table 1. Records of Atlantic Brant in coastal southwestern New Brunswick and western Nova Scotia: March to June 1935 to 1974 (Inclusive)* (continued)

Date	Location (Figure 1)	Brant	Observer	Information source
1943				
March 15	Maces Bay, N.B.	present	Mr. Corscadden	Peters, 1943
March 20	Grand Manan, N.B.	present	A. Foote	Peters, 1943
May 28	Maces Bay, N.B.	800	Peters, et al.	Peters, 1943
1944				
March 21	Grand Manan, N.B.	present	Warden McLaughlin	Peters, 1944
April	Kent I., N.B.	10,000	E. Joy	Peters, 1944
1945				
March 20	Maces Bay, N.B.	200	Warden Waycott	Peters, 1945
March 27	Maces Bay, N.B.	4,000-5,000	Warden Waycott	Peters, 1945
April 2	Maces Bay, N.B.	7,000+		Peters, 1945
April 21	Maces Bay	present		Peters, 1945
April 28	Maces Bay, N.B.	300		Peters, 1945
1947				
"spring"	Maces Bay, N.B.	about 5,000		Boyer, 1947
1954				
"spring"	Grand Manan, N.B.	5,000	R. McLaughlin	CWS, 1955
"spring"	Maces Bay, N.B.	10,000	J. Kane	CWS, 1955
1955				
Spring	Shelburne Co., N.S.	1,000	H.F. Lewis	CWS, 1955
Spring	Grand Manan, N.B.	5,000	R. McLaughlin	CWS, 1955
Spring	Maces Bay, N.B.	10,000	J. Kane	CWS, 1955

Table 1. Records of Atlantic Brant in coastal southwestern New Brunswick and western Nova Scotia: March to June 1935 to 1974 (inclusive)* (continued)

Date	Location (Figure 1)	Brant	Observer	Information source
1956				
Spring	Port Joli, N.S.	20	R. MacAdams	Carter, 1956
Spring	Maces Bay, N.B.	10,000	J.F. Kane	Carter, 1956
1957				
Spring	Sable River, N.S.	18	H.F. Lewis	Bartlett, 1957
Spring	Dipper Harbour, N.B.	4,000	J.F. Kane	Bartlett, 1957
1961				
March 4	Cape Sable, N.S.	23	S. Smith	N.S.B.S.N., May 1961
June 9	Outer Wood I., Grand Manan	20	P. Pearce	pers. comm.
1962				
April 21	Maces Bay, N.B.	75	P. Pearce	pers. comm.
May 18	Grand Manan, N.B.	"several thousand"	P. Pearce	pers. comm.
May 26	Grand Manan, N.B.	present	E. Wilcox	Nat. News, Vol. 13(3)
1963				
March 6	Brier Island, N.S.	3,000	W. Lent	N.S.B.S.N., June 1963
March 9	Point Lepreau, N.B.	2	P. Pearce	pers. comm.
April 10	Maces Bay, N.B.	50		Nat. News, Vol. 14(2)
April	St. Andrews, N.B.	200	MacCoubrey & Bourne	Nat. News, Vol. 14 (2)
April 20	Maces Bay, N.B.	1,000 to 2,000+		Nat. News, Vol. 14(2)
April 20	Maces Bay, N.B.	50 - 60	P. Pearce	pers. comm.
1964				
March 3	Grand Manan archipelago	6,500	aerial survey	Nat. News, Vol. 15(2)
March 11	Deer Island, N.B.	present		Nat. News, Vol. 15(2)
March 14	St. Andrews, N.B.	150	W. MacCoubrey	Nat. News, Vol. 15(2)

Table 1. Records of Atlantic Brant in coastal southwestern New Brunswick and western Nova Scotia: March to June 1935 to 1974 (inclusive)* (continued)

Date	Location (Figure 1)	Brant	Observer	Information source
1965				
March 11	Maces Bay, N.B.	100	A. Erskine	Nat. News, Vol. 16(2)
March 15	Brier Island, N.S.	1,000	W. Lent	N.S.B.S.N., Vol. 7(2)
April 15	Maces Bay, N.B.	800		Nat. News, Vol. 16(2)
April 24	Maces Bay, N.B.	100+		Nat. News, Vol. 16(2)
1966				
March 17	Cape Sable, N.S.	9	S. Smith	N.S.B.S.N., Vol. 8(2)
1967				
March 5	Cape Sable, N.S.	present	S. Smith	N.S.B.S.N., Vol. 9(2)
March 31	Passamaquoddy Bay, N.B.	250		CWS, aerial survey
March 31	Grand Manan, N.B.	675		CWS, aerial survey'
March 31	White Head, N.B.	3,000		CWS, aerial survey
May 24	Cape Sable, N.S.	35	S. Smith	N.S.B.S.N., Vol. 9(2)
1968				
March 12	Brier Island, N.S.	500	W. Lent	N.S.B.S.N., Vol. 10(1)
March 25	Cape Sable, N.S.	25	S. Smith	N.S.B.S.N., Vol. 10(2)
April 16	Cape Sable, N.S.	present	S. Smith	N.S.B.S.N., Vol. 10(2)
May 23	Brier Island, N.S.	72	E. Cooke	N.S.B.S.N., Vol. 10(2)
May 24	Brier Island, N.S.	138	E. Cooke	N.S.B.S.N., Vol. 10(2)
1969				
March 23	Brier Island, N.S.	1,000	W. Lent	N.S.B.S.N., Vol. 11(2)
April 6	Chebogue Pt., N.S.	45	E. Mills	N.S.B.S.N., Vol. 11(2)
May 24	Brier Island, N.S.	50	R. Anderson	N.S.B.S.N., Vol. 11(2)

Table 1. Records of Atlantic Brant in coastal southwestern New Brunswick and western Nova Scotia: March to June 1935 to 1974 (inclusive)* (continued)

Date	Location (Figure 1)	Brant	Observer	Information source
1970				
March 2 - 8	Cape Sable, N.S.	9	S. Smith	N.S.B.S.N., Vol. 12(2)
March 20	Argyle, N.S.	12		N.S.B.S.N., Vol. 12(2)
April 17	Brier Island, N.S.	450	E. Mills	N.S.B.S.N., Vol. 12(2)
April 18	Brier Island, N.S.	18	E. Mills	N.S.B.S.N., Vol. 12(2)
April 19	Brier Island, N.S.	200	E. Mills	N.S.B.S.N., Vol. 12(2)
May 16 - 21	Brier Island, N.S.	125	E. Mills	N.S.B.S.N., Vol. 12(2)
1971				
March 2	Cape Sable, N.S.	flocks of 20 to 200	S. Smith	N.S.B.S.N., Vol. 13(2)
March 22	Chebogue Point, N.S.		D. Kirk	N.S.B.S.N., Vol. 13(2)
April 10	Brier Island, N.S.		E. Mills	N.S.B.S.N., Vol. 13(2)
April 16	Ingomar, N.S.		L. Goulden	N.S.B.S.N., Vol. 13(2)
April 27	Ingomar, N.S.		L. Goulden	N.S.B.S.N., Vol. 13(2)
May 26 - 30	Brier Island, N.S.		E. Mills	N.S.B.S.N., Vol. 13(2)
1972				
March 10	Cape Sable, N.S.	25	S. Smith	N.S.B.S.N., Vol. 14(2)
March 21	Campobello Island, N.B.	75	B. Hughson	CWS, aerial survey
March 21	Kent Island, N.B.	1,690	B. Hughson	CWS, aerial survey
March 21	Dipper Harbour, N.B.	100	B. Hughson	CWS, aerial survey
March 30	Maces Bay, N.B.	275	Connell & Titman	CWS, aerial survey
March 30	Passamaquoddy Bay, N.B.	290	Connell & Titman	CWS, aerial survey
March 30	Grand Manan, N.B.	345	Connell & Titman	CWS, aerial survey
March 30	White Head, N.B.	1,335	Connell & Titman	CWS, aerial survey

Table 1. Records of Atlantic Brant in coastal southwestern New Brunswick and western Nova Scotia: March to June 1935 to 1974 (inclusive)* (continued)

Date	Location (Figure 1)	Brant	Observer	Information source
1972 (cont'd.)				
April 26	Beaver Harbour, N.B.	1	B. Hughson	CWS, aerial survey
April 26	Grand Manan, N.B.	528	B. Hughson	CWS, aerial survey
April 26	White Head, N.B.	1,037	B. Hughson	CWS, aerial survey
April/May	Brier Island, N.S.	300	E.Mills, R.Howie	N.S.B.S.N., Vol. 14(2)
1973				
March 24	Annapolis Basin, N.S.	2	B. Hughson	CWS, aerial survey
March 24	Brier Island, N.S.	500	B. Hughson	CWS, aerial survey
April 15	Brier Island, N.S.	200+	I. McLaren	N.S.B.S.N., Vol. 15(2)
April 16	Freeport, N.S.	600	I. McLaren	N.S.B.S.N., Vol. 15(2)
May 15	Brier Island, N.S.	85		CWS, aerial survey
June 4	Grand Manan, N.B.	1	C. Dorchester	N.B. Nat. Vol. 4(4)
1974				
March 19	Maces Bay, N.B.	207	M. Bateman	CWS, aerial survey
March 19	Passamaquoddy Bay, N.B.	35	M. Bateman	CWS, aerial survey
March 19	Grand Manan, N.B.	2,189	M. Bateman	CWS, aerial survey
March 19	White Head, N.B.	1,590	M. Bateman	CWS, aerial survey
April 17	Musquash, N.B.	20	A. Smith	CWS, aerial survey
April 17	Maces Bay, N.B.	347	A. Smith	CWS, aerial survey
April 17	Grand Manan, N.B.	3,205	A. Smith	CWS, aerial survey
April 17	White Head, N.B.	2,117	A. Smith	CWS, aerial survey
May 21	Passamaquoddy Bay, N.B.	137	A. Smith	CWS, aerial survey

Table 1. Records of Atlantic Brant in coastal southwestern New Brunswick and western Nova Scotia: March to June 1935 to 1974 (inclusive)* (continued)

Date	Location (Figure 1)	Brant	Observer	Information source
1974 (cont'd.)				
May 21	Grand Manan, N.B.	568	A. Smith	CWS, aerial survey
May 21	The Wolves, N.B.	3	A. Smith	CWS, aerial survey

*Excluding observations by V. Bagley at Grand Manan from 1971 to 1973. Those records are compiled separately in Table 2.

CWS = Canadian Wildlife Service

N.S.B.S.N. = Nova Scotia Bird Society Newsletter

Nat. News = Nature News

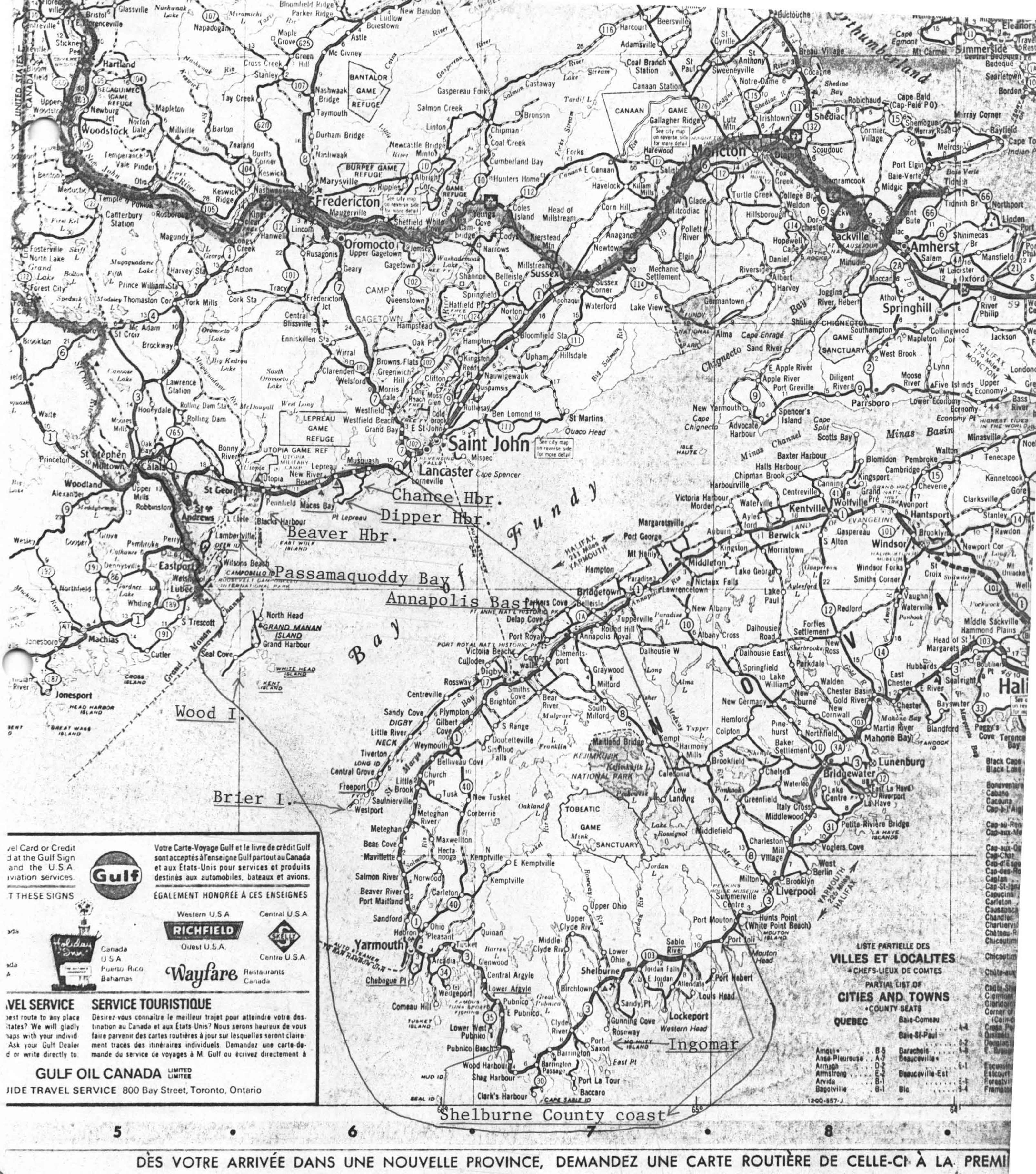

Figure 1. Location of Atlantic Brant sightings in southwestern New Brunswick and western Nova Scotia: March to June 1935 to 1974 inclusive.

(2) Winter and spring counts of Atlantic Brant at Grand Manan, New Brunswick, by V. Bagley: February 1971 to April 30, 1974.

Brant counts recorded by Bagley apply to a segment of the Grand Manan archipelago (Table 2). His recorded Brant numbers range from 1 to 7,000. They vary with time and undoubtedly reflect the response of Brant to tide, weather, food availability, local movements in response to those factors, and spring migration. Locations cited by Bagley are identified in Figure 2.

Table 2. Winter and spring counts of Atlantic Brant at Grand Manan, New Brunswick, by V. Bagley: February 1971 to April 30, 1974*

Date		Atlantic Brant	Location at Grand Manan(Figure 2)
1971			
February	27	500	Bancroft Point
March	1	300	Seal Cove Sanctuary
	2	5	Grand Harbour
	5	200	Thoroughfare
	6	700	Seal Cove Sanctuary
	8	600	Bancroft Point
	10	700	Woodwards Cove
	11	300	Seal Cove Sanctuary
	13	30	Seal Cove Sanctuary
	15	800	Ross' Island
	17	400	Seal Cove Sanctuary
	18	1,000	Grand Harbour
	20	400	Thoroughfare
	22	4,000	Woodwards Cove
	23	500	Seal Cove Sanctuary
	25	700	Bancroft Point
	26	4,000	Grand Harbour
	27	900	Seal Cove Sanctuary
	29	1,000	Woodwards Cove
	30	1,300	Seal Cove Sanctuary
	31	2,000	Thoroughfare
April	1	3,000	Bancroft Point
	2	200	Seal Cove Sanctuary
	5	800	Seal Cove Sanctuary
	6	500	Woodwards Cove
	8	80	Seal Cove Sanctuary
	13	700	Seal Cove Sanctuary

Table 2. Winter and spring counts of Atlantic Brant at Grand Manan, New Brunswick, by V. Bagley: February 1971 to April 30, 1974* (continued)

Date		Atlantic Brant	Location at Grand Manan (Figure 2)
April	14	800	Bancroft Point
	15	500	Thoroughfare
	19	1,000	Grand Harbour
	20	700	Woodwards Cove
	21	500	Seal Cove Sanctuary
	23	200	Seal Cove Sanctuary
	24	75	Bancroft Point
	26	200	Seal Cove Sanctuary
	27	400	Thoroughfare
	28	7,000	Grand Harbour
May	1	70	Southern Head
	2	100	Seal Cove Sanctuary
	5	21	Thoroughfare
	6	24	Seal Cove Sanctuary
	7	32	Woodwards Cove
	8	6,000	Grand Harbour
	13	36	Seal Cove Sanctuary
	14	30	Ross' Island
	15	150	Southern Head
	20	39	Thoroughfare
June	7	2	Bancroft Point
1972			
January	15	200	Woodwards Cove
	20	500	Bancroft Point
	28	70	Thoroughfare
	31	100	Seal Cove Sanctuary

Table 2. Winter and spring counts of Atlantic Brant at Grand Manan, New Brunswick, by V. Bagley: February 1971 to April 30, 1974* (continued)

Date	Atlantic Brant	Location at Grand Manan (Figure 2)
1972		
February 2	150	Grand Harbour
4	700	Bancroft Point
16	500	Bancroft Point
22	400	Woodwards Cove
29	400	Bancroft Point
March 1	200	Seal Cove Sanctuary
7	350	Woodwards Cove
9	250	Bancroft Point
17	300	Seal Cove Sanctuary
18	350	Bancroft Point
20	50	Ross' Island
23	70	Seal Cove Sanctuary
27	100	Seal Cove Sanctuary
29	200	Thoroughfare
April 4	400	Ross' Island
7	150	Seal Cove Sanctuary
11	400	Seal Cove Sanctuary
12	700	Bancroft Point
13	80	Woodwards Cove
17	2,000	Thoroughfare
18	26	Seal Cove Sanctuary
19	12	Southern Head
20	600	Woodwards Cove
21	22	Seal Cove Sanctuary
22	600	Grand Harbour
24	1,000	Bancroft Point
25	19	Seal Cove Sanctuary

Table 2. Winter and spring counts of Atlantic Brant at Grand Manan, New Brunswick, by V. Bagley: February 1971 to April 30, 1974* (continued)

Date		Atlantic Brant	Location at Grand Manan (Figure 2)
1972			
May	1	400	Bancroft Point
	2	10	Seal Cove Sanctuary
	3	100	Thoroughfare
	5	50	Seal Cove Sanctuary
	6	500	Grand Harbour
	8	100	Seal Cove Sanctuary
	9	26	Southern Head
	10	200	Bancroft Point
	12	100	Thoroughfare
	23	11	Seal Cove Sanctuary
	24	400	Bancroft Point
	25	13	Thoroughfare
1973			
March	12	300	Bancroft Point
	14	500	Woodwards Cove
	16	300	Seal Cove Sanctuary
	19	1,000	Grand Harbour
	22	2,000	Bancroft Point
	23	80	Seal Cove Sanctuary
	26	600	Woodwards Cove
	28	800	Thoroughfare
	29	2,000	Grand Harbour
	30	1,000	Seal Cove Sanctuary
April	2	100	Seal Cove Sanctuary
	5	30	Seal Cove Sanctuary
	6	75	Ross' Island
	9	300	Seal Cove Sanctuary
	10	200	Thoroughfare
	11	400	Woodwards Cove
	13	300	Bancroft Point

Table 2. Winter and spring counts of Atlantic Brant at Grand Manan, New Brunswick, by V. Bagley: February 1971 to April 30, 1974* (continued)

Date	Atlantic Brant	Location at Grand Manan (Figure 2)
1973 (cont'd.)		
April 16	250	Seal Cove Sanctuary
24	70	Southern Head
May 7	100	Ross' Island
16	300	Grand Harbour
17	12	Seal Cove Sanctuary
21	5	Bancroft Point
23	16	Southern Head
1974		
January 8	31	Bancroft Point
31	50	Bancroft Point
February 20	100	Bancroft Point
22	4	Seal Cove Sanctuary
March 6	100	Seal Cove Sanctuary
7	650	Woodwards Cove
8	900	Bancroft Point
14	1,500	Bancroft Point
15	4	Seal Cove Sanctuary
18	400	Seal Cove Sanctuary
19	100	Seal Cove Sanctuary
21	6,000	Woodwards Cove
22	200	Seal Cove Sanctuary
25	200	Seal Cove Sanctuary
26	2,000	Grand Harbour
27	150	Thoroughfare
28	700	Ross'Island
29	130	Seal Cove Sanctuary

Table 2. Winter and spring counts of Atlantic Brant at Grand Manan, New Brunswick, by V. Bagley: February 1971 to April 30, 1974* (continued)

Date	Atlantic Brant	Location at Grand Manan (Figure 2)
1974 (cont'd.)		
April 1	200	Seal Cove Sanctuary
2	1	Southern Head
3	200	Seal Cove Sanctuary
4	200	Woodwards Cove
11	21	Southern Head
15	29	Seal Cove Sanctuary
16	150	Thoroughfare
17	100	Woodwards Cove
18	100	Seal Cove Sanctuary
22	60	Seal Cove Sanctuary
23	600	Grand Harbour
24	71	Southern Head
25	30	Seal Cove Sanctuary
26	350	Ross' Island
29	13	Seal Cove Sanctuary

*Sanctuary Warden Diaries filed at CWS office, Sackville, New Brunswick

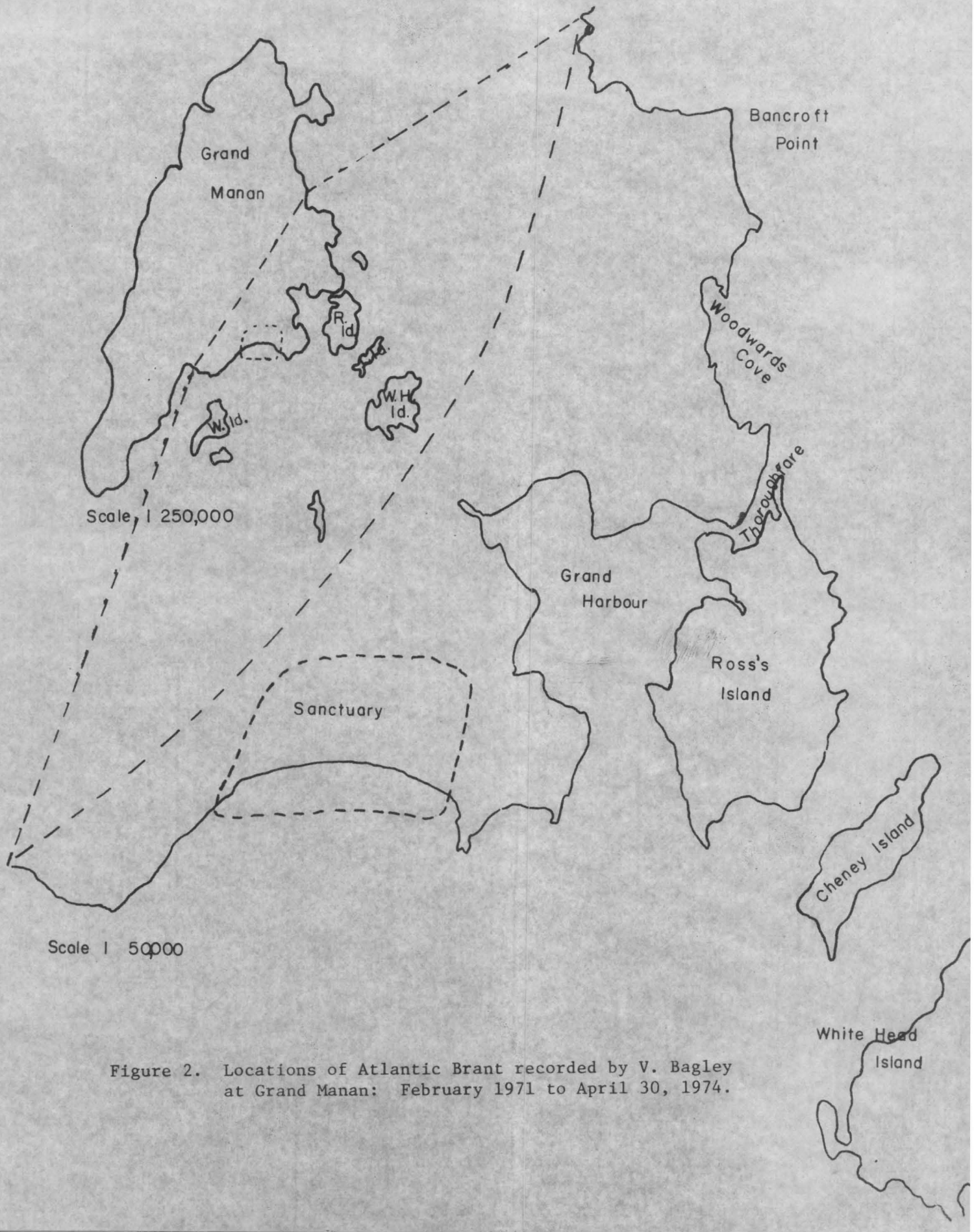

Figure 2. Locations of Atlantic Brant recorded by V. Bagley at Grand Manan: February 1971 to April 30, 1974.

not including any AJE records

(3) Records of Atlantic Brant in coastal waters east of southwestern New Brunswick and western Nova Scotia to the North Shore of Nova Scotia and Cape Breton, inclusive: March to June inclusive, 1946 to 1974.

Fifty-four Atlantic Brant records are presented in Table 3. Twenty-six of those records pertain to all or a segment of the north shore of Nova Scotia and fourteen records are for the Minas Basin. Of the latter, seven of the Minas Basin records refer to birds in the vicinity of Boot Island in 1969 and it is likely that all of the Minas Basin records pertain to that location. The five records for May 18, 1974 all pertain to the north shore of Nova Scotia. Five records each are for Baie Verte, New Brunswick and the Cumberland Basin, while there is one record each for Neil's Harbour, Cape Canso, Lawrencetown, Sand Bay, and Port George, Nova Scotia.

Of the area represented in Table 3, the highest Atlantic Brant count of 890 was obtained on the Canadian Wildlife Service aerial survey of April 21, 1966. On that date, 500 Brant were observed in Baie Verte, New Brunswick, and an additional 390 in the vicinity of Tatamagouche, Nova Scotia.

Table 3. Records of Atlantic Brant in coastal waters east of southwestern New Brunswick and western Nova Scotia to Baie Verte, the north shore of Nova Scotia, and Cape Breton, inclusive: March to June inclusive - 1935 to 1974.

Date	Location (Figure 3)	Brant	Observer	Information source
1935				
Week of May 4	Baie Verte, N.B.	300	Scott	CWS, P.Q. office files
Week of May 4	Tidnish, N.S.	50	Chappell	CWS, P.Q. office files
Week of May 4	Malagash, N.S.	100	Waugh	CWS, P.Q. office files
Week of May 4	New Glasgow, N.S.	300	Moore	CWS, P.Q. office files
1952				
June	Neil's Harbour, Cape Breton	8	A.A. Buchanan	N.S.B.S.N., Vol. 10(3)
1954				
Spring	Minas Basin - Cobequid Bay	300	G.F. Boyer	CWS, 1955
Spring	North shore of Nova Scotia	200	aerial survey	Bartlett, 1957
1956				
Spring	North shore of Nova Scotia	484	? aerial survey	Bartlett, 1957
1957				
Spring	North shore of Nova Scotia	566	? aerial survey	Bartlett, 1957
Spring	Cumberland Basin	50	B.C. Carter	Bartlett, 1957

Table 3. Records of Atlantic Brant in coastal waters east of southwestern New Brunswick and western Nova Scotia to Baie Verte, the north shore of Nova Scotia, and Cape Breton, inclusive: March to June inclusive - 1935 to 1974 (continued)

Date	Location (Figure 3)	Brant	Observer	Information source
1958				
May 27	Tignish R. to Antigonish	495	C.Bartlett (aerial)	Carter, 1959
1959				
May 5	Tignish R. to Antigonish	530	C.Bartlett (aerial)	Carter, 1959
May 13	Boot Island - Minas Basin	200	C. Bartlett	CWS aerial survey
1963				
April 13	Northport	70+	H. MacNeil	N.S.B.S.N., June 1963
April 16-May 3	Pictou	44	E. Holdway	N.S.B.S.N., June 1963
1966				
April 3	Minas Basin	present	S. Bleakney	N.S.B.S.N., Vol. 8(2)
April 21	Baie Verte	500		CWS aerial survey
April 21	Tatamagouche	390		CWS aerial survey
April 21	Brule Harbour	80		CWS aerial survey
1967				
April 6	Cumberland Basin	500		CWS aerial survey
April 21	Wallace Harbour	20	A. Erskine	N.S.B.S.N., Vol. 9(2)
April 22	Minas Basin	70	W. Neily	N.S.B.S.N., Vol. 9(2)
April 24	Sand Bay, Lunenburg Co.	15	Whitman, Dennis	CWS aerial survey
April 24	Pictou	47	E. Holdway	N.S.B.S.N., Vol. 9(2)
May 3	Wallace	225	Allen	N.S.B.S.N., Vol. 9(2)

Table 3. Records of Atlantic Brant in coastal waters east of southwestern New Brunswick and western Nova Scotia to Baie Verte, the north shore of Nova Scotia, and Cape Breton, inclusive: March to June inclusive - 1935 to 1974 (continued)

Date	Location (Figure 3)	Brant	Observer	Information source
1968				
March 30	Minas Basin	25	S. Smith	N.S.B.S.N., Vol. 10(2)
April 5	Linden	195	A. Erskine	N.S.B.S.N., Vol. 10(2)
May 16	Pugwash	300	Metcalfe	N.S.B.S.N., Vol. 10(2)
1969				
March 31	Minas Basin	21	J. Kearney	pers. comm.
April 16	Minas Basin	50	J. Kearney	pers. comm.
May 10	Minas Basin	170	J. Kearney	pers. comm.
May 24	Minas Basin	254	J. Kearney	pers. comm.
May 26	Minas Basin	200	J. Kearney	pers. comm.
May 27	Minas Basin	175	J. Kearney	pers. comm.
June 1	Minas Basin	200	J. Kearney	pers. comm.
1970				
April 13	Baie Verte	225	R. Hounsell	CWS aerial survey
April 20	Baie Verte	150	R. Hounsell	CWS aerial survey
1971				
April 3	Lawrencetown, Halifax Co.	present	J. Elliott	N.S.B.S.N., Vol. 13(2)
1972				
April	Pictou Harbour	60	E. Holdway	N.S.B.S.N., Vol. 14(2)

Table 3. Records of Atlantic Brant in coastal waters east of southwestern New Brunswick and western Nova Scotia to Baie Verte, the north shore of Nova Scotia, and Cape Breton, inclusive: March to June inclusive - 1935 to 1974 (continued)

Date	Location (Figure 3)	Brant	Observer	Information source
1973				
April 7	Amherst Point	17		N.S.B.S.N., Vol. 15(2)
April 8	Minas Basin	4		N.S.B.S.N., Vol. 15(2)
April 19	Northport	45	B. Hughson	CWS aerial survey
April 27	Port George	3		N.S.B.S.N., Vol. 15(2)
April 29	Tatamagouche	18	R. Baker	N.S.B.S.N., Vol. 15(2)
1974				
April 17	Tatamagouche	65	A. Smith	CWS aerial survey
April 21	Cape Canso	6	P. Barkhouse	CWS aerial survey
April 26	Aulac, N. B.	10	W. Barrow	pers. comm.
May 18	Port Elgin, N.B.	100	W. Barrow	CWS aerial survey
May 18	Linden	50	W. Barrow	CWS aerial survey
May 18	Port Philip	14	W. Barrow	CWS aerial survey
May 18	Fox Harbour	45	W. Barrow	CWS aerial survey
May 18	Tatamagouche Harbour	200	W. Barrow	CWS aerial survey
May 18	Brule Point	80	W. Barrow	CWS aerial survey
June 5	Port Philip	30	B. Turner	pers. comm.

CWS = Canadian Wildlife Service

N.S.B.S.N. = Nova Scotia Bird Society Newsletter

Figure 3. Locations of sightings of Atlantic Brant east of southwestern New Brunswick and western Nova Scotia to Baie Verte, the North Shore of Nova Scotia, and Cape Breton inclusive: 1935 to 1974 inclusive.

(4) Spring records of Atlantic Brant in the Saint John River and tributaries extracted from records of the Fredericton Field Naturalists' Club: 1960 to 1973 inclusive.

Seventeen records covering the springs of 1961 to 1964, 1966, 1968, and 1970 to 1973 are presented in Table 4. Brant numbers for the lower Saint John River are small with the highest recorded number being 15. The earliest observation made was on April 4, 1970, while the latest count was recorded on June 1, 1962.

Table 4. Spring records of Atlantic Brant in the Saint John River and tributaries extracted from records of the Fredericton Field Naturalists' Club: 1960 to 1973 inclusive

Date	Location (Figure 4)	Brant
1961		
April 27	Jemseg	2
April 30	Fredericton	6
May 7	Sheffield	2
1962		
June 1	Fredericton	7
1963		
April 22	Fredericton	15
1964½		
March 14	Jemseg	1
April 25	Jemseg	1
May 24	Fredericton	2
1966		
April 10	Jemseg	7
1968		
April 6	Jemseg	6
April 15	Gagetown	1
1970		
April 4	Jemseg	9
April 11	Sheffield	12
1972		
April 16	Jemseg	4
May 7	Lower Gagetown	8
1973		
April 15	Oromocto	1
May 23	Cambridge	8

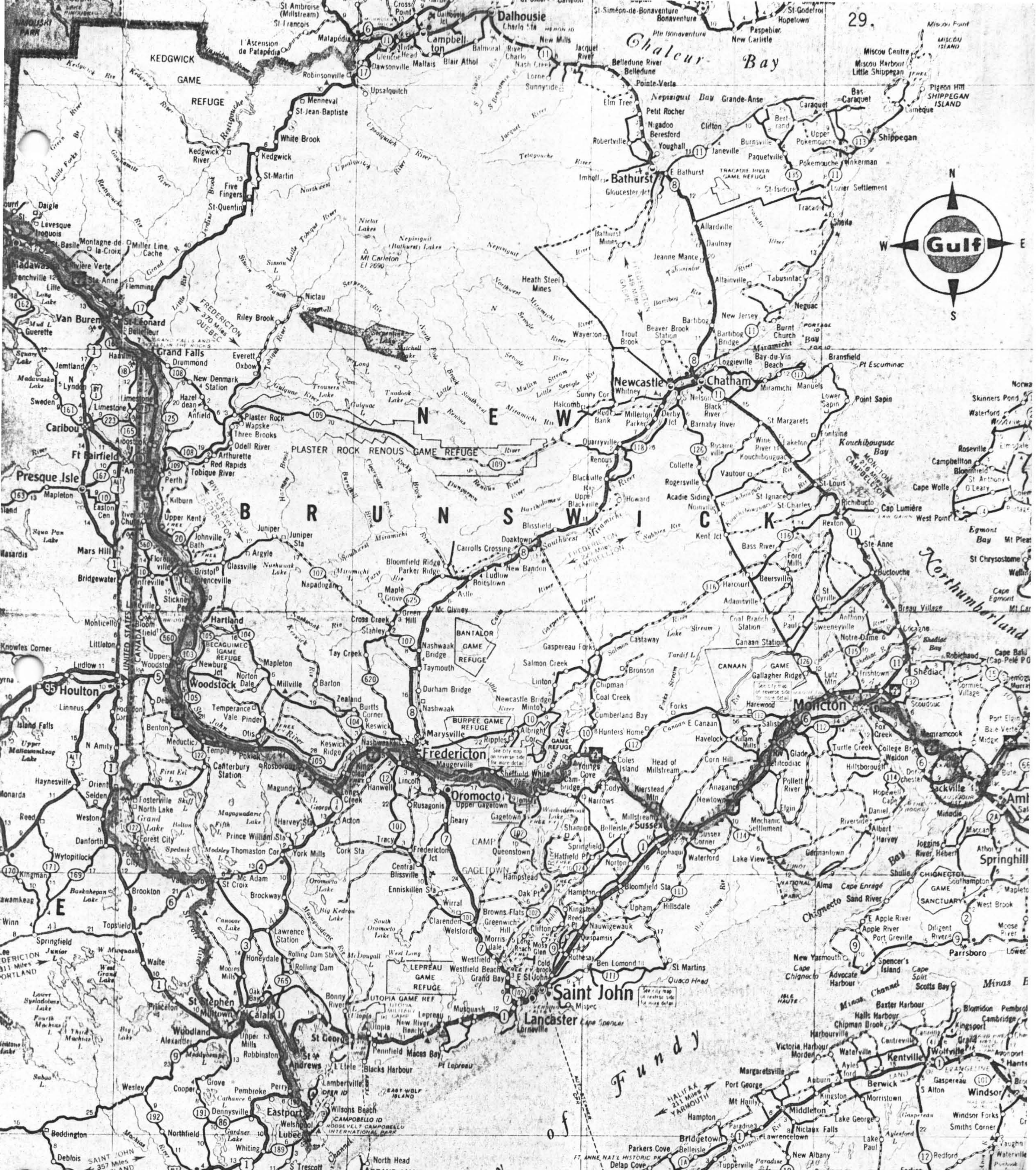

Figure 4. Locations of Atlantic Brant sightings in the Saint John River and tributaries: 1960 to 1973 inclusive.

(5) Records of Atlantic Brant in coastal Prince Edward Island and the eastern and Bay of Chaleur shores of New Brunswick: March to June inclusive - 1935 to 1974.

Table 5 presents 119 counts of Atlantic Brant from May 1935 to June 1974. Those records were obtained by ground counts and aerial surveys. The first extensive aerial survey was undertaken in Prince Edward Island in 1954 and recorded 2,204 Brant. Subsequent spring aerial surveys have recorded less than 2,000 to more than 5,000 Brant in coastal Prince Edward Island.

Estimates of Brant numbers have varied widely for Prince Edward Island, the eastern coast of New Brunswick, and the Bay of Chaleur shores of New Brunswick. The highest reported number of Brant along the latter shore, 400, was recorded in May 1935; whereas reported numbers along the eastern coast of New Brunswick have ranged from a few hundred to more than 5,000.

Table 5. Records of Atlantic Brant in the coastal zone of Prince Edward Island and the eastern and Bay of Chaleur shores of New Brunswick: March to June inclusive - 1935 to 1974

Date	Location (Figure 5)	Brant	Observer	Information source
1935				
Week of May 4	Annandale, P.E.I.	100	R. Jenkins	CWS, P.Q. office files
	Belmont, P.E.I.	150	Clark	CWS, P.Q. office files
	Marshfield, P.E.I.	40	L. Jenkins	CWS, P.Q. office files
	Pownall, P.E.I.	200	Brown	CWS, P.Q. office files
	Bathurst, N.B.	300	Ronald	CWS, P.Q. office files
	Baie du Vin, N.B.	200	Williston	CWS, P.Q. office files
	Burnt Church, N.B.	200	Morrison	CWS, P.Q. office files
	Richibucto, N.B.	100	Long	CWS, P.Q. office files
	So. Kouchibouguac, N.B.	100	Callander	CWS, P.Q. office files
	Tracadie, N.B.	5,000	E.J.M. Bourgeois	CWS, P.Q. office files
	Wishart's Point, N.B.	100	McEarchen	CWS, P.Q. office files
1938				
May 15	Tabusintac, N.B.	150±	J. Wishart	Peters, 1938
May	Prince Edward Island	2,600	S. Jenkins	Peters, 1939a
1939				
May 12	Fullerton Marsh, P.E.I.	60		Peters, 1939a
May 12	Pownall Bay, P.E.I.	75		Peters, 1939a
May	Summerside, P.E.I.	75		Peters, 1939a
Spring	Prince Edward Island	5,000		Boyer, 1947

Table 5. Records of Atlantic Brant in the coastal zone of Prince Edward Island and the eastern and Bay of Chaleur shores of New Brunswick: March to June inclusive - 1935 to 1974 (continued)

Date		Location (Figure 5)	Brant	Observer	Information source
1940					
May		Prince Edward Island	3,300	S. Jenkins	Peters, 1940
1941					
May	13	Charlottetown, P.E.I.	4		Peters, 1941a
May	14	Tignish, P.E.I.	75		Peters, 1941a
May	15	Rusticoville, P.E.I.	6		Peters, 1941a
1942					
May	9	Charlottetown, P.E.I.	75		Peters, 1942
May	18	Tabusintac, N.B.	200		Peters, 1942
May	19	Tabusintac, N.B.	750		Peters, 1942
1943					
April	13	Tabusintac, N.B.	200	J. Wishart	Peters, 1943
May	10	Souris R., P.E.I.	18		Peters, 1943
May	13	Charlottetown, P.E.I.	17		Peters, 1943
May	13	Pownal Bay, P.E.I.	25		Peters, 1943
May	21	Tabusintac, N.B.	400		Peters, 1943
1944					
April	1	Tabusintac, N.B.	50	J. Wishart	Peters, 1944
May	12	Souris, P.E.I.	25		Peters, 1944
May	20	Tabusintac, N.B.	140	Peters et al.	Peters, 1944

Table 5. Records of Atlantic Brant in the coastal zone of Prince Edward Island and the eastern and Bay of Chaleur shores of New Brunswick: March to June inclusive - 1935 to 1974 (continued)

Date	Location (Figure 5)	Brant	Observer	Information source
1944 (cont'd.)				
May 21	Inkerman, N.B.	200		Peters, 1944
May 21	Tracadie, N.B.	250		Peters, 1944
May 21	Tabusintac, N.B.	150		Peters, 1944
1945				
April 12	Prince Edward Island	present	J.S. Jenkins	Peters, 1945
May 10	Souris, P.E.I.	100		Peters, 1945
May 13	New Glasgow, P.E.I.	65		Peters, 1945
May 14	Dunk River, P.E.I.	50		Peters, 1945
1946				
May 8	Souris, P.E.I.	35		Peters, 1946
May 11	Souris, P.E.I.	35		Peters, 1946
1947				
Spring	Prince Edward Island	2,500 - 3,000	B.O. Jenkins	Boyer, 1947
1954				
Spring	Prince Edward Island	2,204	U.S.F.&W.S.pers. (aerial survey)	CWS files, Sackville, N.B
1955				
Spring	Prince Edward Island	2,092	Carter, Boyer (aerial survey)	Bartlett, 1957
Spring	Eastern Kings Co., P.E.I.	1,200	J.F. Sterns	CWS, 1955

Table 5. Records of Atlantic Brant in the coastal zone of Prince Edward Island and the eastern and Bay of Chaleur shores of New Brunswick: March to June inclusive - 1935 to 1974 (continued)

Date	Location (Figure 5)	Brant	Observer	Information source
1955 (cont'd.)				
Spring	Egmont Bay, P.E.I.	1,000	W. Boulter	CWS, 1955
Spring	Tabusintac, N.B.	5,000	J. Wishart	CWS, 1955
1956				
May 17 - 21	Prince Edward Island	1,979	Carter, Lowther (aerial survey)	Bartlett, 1957
Spring	Eastern Kings Co., P.E.I.	1,200	J.F. Sterns	Carter, 1956
Spring	Western Kings Co., P.E.I.	200	G.H. Bruce	Carter, 1956
Spring	Tabusintac, N.B.	6,000	J. Wishart	Carter, 1956
1957				
Spring	Prince Edward Island	4,461	aerial survey	Bartlett, 1957
Spring	Western Kings Co., P.E.I.	1,000	G.F. Bruce	Bartlett, 1957
Spring	Souris, P.E.I.	800	J.F. Sterns	CWS files, Sackville, N.B.
1958				
May 11,21,22	Prince Edward Island	5,353	C.O.Bartlett (aerial survey)	Carter, 1959
1959				
May 21	Prince Edward Island	5,032	C.O. Bartlett (aerial survey)	Carter, 1959
1960				
April 20,21,22	Prince Edward Island	2,280	Erskine, Bartlett (aerial survey)	CWS files, Sackville, N.B.
May 26,27,28	Prince Edward Island	2,202	(aerial survey)	Bartlett, 1960

Table 5. Records of Atlantic Brant in the coastal zone of Prince Edward Island and the eastern and Bay of Chaleur shores of New Brunswick: March to June inclusive - 1935 to 1974 (continued)

Date	Location (Figure 5)	Brant	Observer	Information source
1962				
June 8	Dalhousie, N.B.	9	P. Pearce	pers. comm.
June 10	Bathurst, N.B.	1	P. Pearce	pers. comm.
1966				
April 3	Jacquet River, N.B.	present	J.P. Lebel	Nat. News, Vol. 17(2)
1967				
April 6	Cape Tormentine, N.B.	6		CWS aerial survey
1970				
May 22	Newcastle, N.B.	6	P. Pearce	pers. comm.
June 12	Bathurst, N.B.	1	P. Pearce	pers. comm.
1973				
June 4	Callandar Beach, N.B.	19	Tull et al.	N.B. Nat., Vol. 4(4)
until June 6	Brackley Marsh, P.E.I.	large flock	A. MacLean	N.S.B.S.N., Vol. 15(3)
March 29	Callandar Beach, N.B.	10	S. Tingley	pers. comm.
April 12	Logiecroft, N.B.	225	S. Tingley	pers. comm.
May 25	Kouchibouguac Nat. Park	present	S. Tingley	pers. comm.

Table 5. Records of Atlantic Brant in the coastal zone of Prince Edward Island and the eastern and Bay of Chaleur shores of New Brunswick: March to June inclusive - 1935 to 1974 (continued)

Date		Location (Figure 5)	Brant	Observer	Information source
1974					
April	18	P.E.I. National Park	120	Barrow, Barkhouse	CWS aerial survey
	18	Hillsborough River, P.E.I.	30	Barrow, Barkhouse	CWS aerial survey
	18	Souris, P.E.I.	150	Barrow, Barkhouse	CWS aerial survey
	18	Fortune, P.E.I.	3	Barrow, Barkhouse	CWS aerial survey
	18	Pinette, P.E.I.	457	Barrow, Barkhouse	CWS aerial survey
	18	Orwell, P.E.I.	291	Barrow, Barkhouse	CWS aerial survey
	18	Pownal, P.E.I.	7	Barrow, Barkhouse	CWS aerial survey
	18	Argyle Shore, P.E.I.	25	Barrow, Barkhouse	CWS aerial survey
	18	Borden, P.E.I.	132	Barrow, Barkhouse	CWS aerial survey
	18	Summerside, P.E.I.	15	Barrow, Barkhouse	CWS aerial survey
	19	Victoria Harbour, P.E.I.	45	B. Hughson	Ground count
	20	Neguac, N.B.	481	W. Barrow	CWS aerial survey
	20	Tracadie, N.B.	220	W. Barrow	CWS aerial survey
	21	Grand River, P.E.I.	100-150	B. Hughson	Ground count
	21	Wilmot River, P.E.I.	50	B. Hughson	Ground count
May	2	P.E.I. National Park	81	P. Barkhouse	pers. comm.
	6	P.E.I. National Park	130	P. Barkhouse	pers. comm.
	8	P.E.I. National Park	185	P. Barkhouse	pers. comm.
	13	P.E.I. National Park	142	P. Barkhouse	pers. comm.
	15	P.E.I. National Park	84	P. Barkhouse	pers. comm.
	17	Kouchibouguac, N.B.	45	W. Barrow	CWS aerial survey

Table 5. Records of Atlantic Brant in the coastal zone of Prince Edward Island and the eastern and Bay of Chaleur shores of New Brunswick: March to June inclusive - 1935 to 1974 (continued)

Date		Location (Figure 5)	Brant	Observer	Information source
1974 (cont'd.)					
May	17	Portage Island, N.B.	9	W. Barrow	CWS aerial survey
	17	Tabusintac River & Lagoon, N.B.	375	W. Barrow	CWS aerial survey
	17	Tracadie River & Lagoon, N.B.	555	W. Barrow	CWS aerial survey
	17	Miscou Island, N.B.	4	W. Barrow	CWS aerial survey
	17	Caraquet, N.B.	4	W. Barrow	CWS aerial survey
	17	Bathurst Harbour, N.B.	146	W. Barrow	CWS aerial survey
	17	Heron Island, N.B.	125	W. Barrow	CWS aerial survey
	17	Orwell Bay, P.E.I.	6	W. Barrow	CWS aerial survey
	17	Orwell, P.E.I.	343	W. Barrow	CWS aerial survey
	17	Vernon River, P.E.I.	25	W. Barrow	CWS aerial survey
	17	Hillsborough River, P.E.I.	212	W. Barrow	CWS aerial survey
	17	Boughton River, P.E.I. (= Grand River)	25	W. Barrow	CWS aerial survey
	17	Cody Point, P.E.I.	60	W. Barrow	CWS aerial survey
	17	Rustico Bay (Nat.Park), P.E.I.	12	W. Barrow	CWS aerial survey
	17	Covehead Bay(Nat.Park), P.E.I.	100	W. Barrow	CWS aerial survey
	17	Rustico Harbour, P.E.I.	4	W. Barrow	CWS aerial survey
	17	Indian Point, P.E.I. (Summerside)	40	W. Barrow	CWS aerial survey
	18	Pinette, P.E.I.	45	W. Barrow	CWS aerial survey
	18	Orwell, P.E.I.	374	W. Barrow	CWS aerial survey
	18	Hillsborough River, P.E.I.	212	W. Barrow	CWS aerial survey
	18	Mt. Stewart, P.E.I.	5	W. Barrow	CWS aerial survey

Table 5. Records of Atlantic Brant in the coastal zone of Prince Edward Island and the eastern and Bay of Chaleur shores of New Brunswick: March to June inclusive - 1935 to 1974 (continued)

Date		Location (Figure 5)	Brant	Observer	Information source
1974 (cont'd.)					
May	18	Fortune, P.E.I.	25	W. Barrow	CWS aerial survey
	18	Murray Harbour, P.E.I.	60	W. Barrow	CWS aerial survey
	18	P.E.I. National Park	116	W. Barrow	CWS aerial survey
	18	Malpeque Bay E., P.E.I.	40	W. Barrow	CWS aerial survey
	21	P.E.I. National Park	91	P. Barkhouse	pers. comm.
	27	P.E.I. National Park	120	P. Barkhouse	pers. comm.
	29	P.E.I. National Park	12	P. Barkhouse	pers. comm.
	30	Cape Tormentine, N.B.	35	R.A. Dixon	pers. comm.
June	4	P.E.I. National Park	20	P. Barkhouse	pers. comm.

Figure 5. Locations of Atlantic Brant sightings in the coastal zone of Prince Edward Island and the eastern and Bay of Chaleur shores of New Brunswick: March to June inclusive 1935 to 1974.

(6) July to November records of Atlantic Brant in the Maritime Provinces.

Of the eleven Atlantic Brant records presented in Table 6, eight apply to the months of September, October and November. The remaining three summer records are observations of two Brant at Nashwaaksis, in August 1945, seven at Kent Island on July 20, 1962, and one at Fundy National Park on July 17, 1971 (Figure 6).

With the exception of 600 Brant reported at Tabusintac, New Brunswick, on November 16, 1943, the remaining observations refer to fewer than 20 birds. I have located no summer or fall records for Prince Edward Island other than the earliest count reported here which was of six near Malpeque Bay in the fall of 1933. Nine Brant were observed on the north shore of Nova Scotia on September 10, 1963, and 15 at Point Michaud, Cape Breton on September 15, 1968. The remaining nine observations were made in New Brunswick.

Table 6. July to November records of Atlantic Brant in the Maritime Provinces

Date	Location (Figure 6)	Brant	Observer	Information source
1933				
Fall	near Malpeque Bay, P.E.I.	6		CWS, P.Q. office files
1935				
late October	Head of Chaleur Bay, N.B.	500		CWS, P.Q. office files
1943				
November 16	Tabusintac region, N.B.	600	J. Wishart	Peters, 1943
November 26	Tabusintac River, N.B.	few	Col. Ritchie	Peters, 1943
1945				
August	Fredericton, N.B.	2		Peters, 1945
September 15	Fredericton, N.B.	1	Lloyd Bailey	Peters, 1945
1961				
October 26	Fredericton, N.B.	1	Fredericton Field Nat. Club records	
1962				
July 20	Kent Island, N.B.	7		Nat. News, Vol. 13(3)
November 24	Mouth of Keswick River, N.B.	3	Fredericton Field Nat. Club records	
1963				
September 10	North shore, N.S.	9		N.S.B.S.N., Nov. 1963

Table 6. July to November records of Atlantic Brant in the Maritime Provinces

Date	Location (Figure 6)	Brant	Observer	Information source
1968				
September 15	Pt. Michaud, Cape Breton	15	D.D. Findlay	N.S.B.S.N., Vol. 10(3)
November 18	Baie Verte, N.B.	19	R. Hounsell	CWS aerial survey
1971				
July 17	Fundy National Park, N.B.	1	M. Majka	N.B. Nat., Vol. 2(4)
September 27	Neguac, N.B.	5		CWS aerial survey

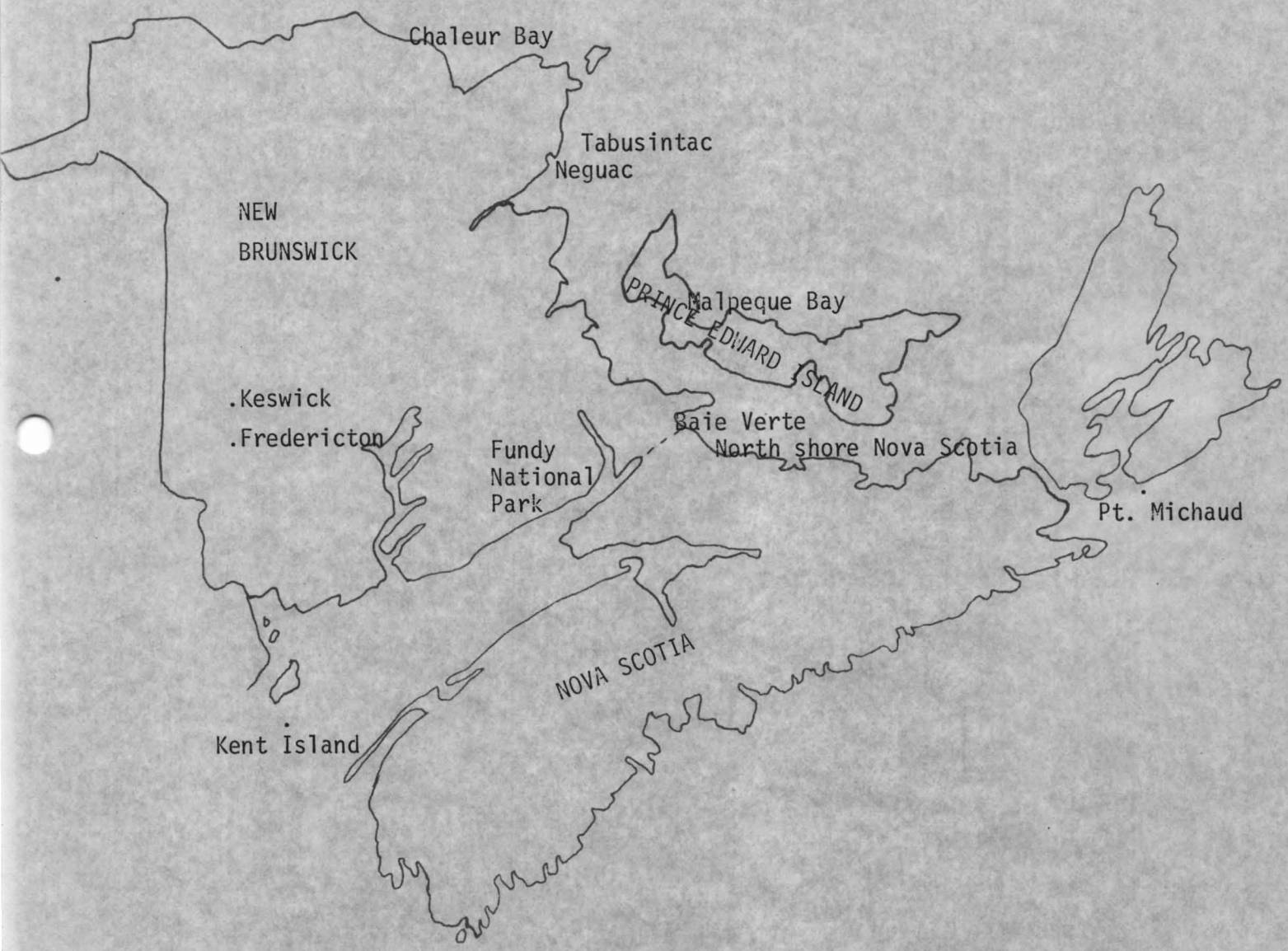

Figure 6. Locations of July to November records of Atlantic Brant in the Maritime Provinces.

(7) December, January, and February records of Atlantic Brant in the Maritime Provinces.

Table 7 presents three December records of Atlantic Brant plus 13 records for each of January and February. Each December record is of six or seven birds.

Seventeen of the twenty-seven December to February observations were made in the Grand Manan archipelago where the highest estimate for that period was 2,005 on February 13, 1974. Other winter estimates for Grand Manan range from few to 700 Brant.

The highest number of Brant observed outside of the Grand Manan archipelago in winter was 47 at Brier Island, Nova Scotia, on February 18, 1966.

Table 7. December, January, and February records of Atlantic Brant in the Maritime Provinces

Date	Location (Figure 7)	Brant	Observer	Information source
1961				
January 30	Brier Island, N.S.	present	W. Lent	N.S.B.S.N., May 1961
February 8	Bon Portage Island, N.S.	1	E. Richardson	N.S.B.S.N., May 1961
1962				
January 8 - 9	Kent Island, N.B.	20	T. Green	Nat. News, Vol. 13(1)
1964				
December 26	Northport, N.S.	7	R. MacNeil	N.S.B.S.N., Vol. 7(1)
1966				
February 18	Brier Island, N.S.	47	W. Lent	N.S.B.S.N., Vol. 8(2)
1967				
January 25	Grand Manan, N.B.	5	V. Bagley	Nat. News, Vol. 18(1)
December 31	Grand Manan, N.B.	6	P. Pearce	pers. comm.
1968				
February 14	Brier Island, N.S.	2	W. Lent	N.S.B.S.N., Vol. 10(1)
February 15	Brier Island, N.S.	24	W. Lent	N.S.B.S.N., Vol. 10(1)
1969				
January 16-17	Grand Manan archipelago	79		CWS aerial survey

Table 7. December, January, and February records of Atlantic Brant in the Maritime Provinces

Date	Location (Figure 7)	Brant	Observer	Information source
1971				
February 27	Grand Manan, N.B.	500	V. Bagley	CWS file, Sackville, N.B.
February 28	Pt. Lepreau, N.B.	11	D. Christie	Am. Birds, Vol. 25(3)
December 21	Brier Island, N.S.	6	E. Mills	N.S.B.S.N., Vol. 14(1)
1972				
January 1	White Head, N.B.	100+	Mrs. Small	N.B. Nat., Vol. 3(2)
January 9	Maces Bay, N.B.	7	D. Abbott	Am. Birds, Vol. 26(3)
January	Brier Island, N.S.	6	W. Lent	Am. Birds, Vol. 26(3)
January 12	Grand Manan, N.B.	6	E. Wilcox	N.B. Nat., Vol. 3(2)
January 12	St. Andrews, N.B.	12	J. Rigby	N.B. Nat., Vol. 3(2)
January 15	Grand Manan, N.B.	200	V. Bagley	CWS file, Sackville, N.B.
January 20	Grand Manan, N.B.	500	V. Bagley	CWS file, Sackville, N.B.
January 28	Grand Manan, N.B.q	70	V. Bagley	CWS file, Sackville, N.B.
January 31	Grand Manan, N.B.	100	V. Bagley	CWS file, Sackville, N.B.
February 2	Grand Manan, N.B.	150	V. Bagley	CWS file, Sackville, N.B.
February 4	Grand Manan, N.B.	700	V. Bagley	CWS file, Sackville, N.B.
February 16	Grand Manan, N.B.	500	V. Bagley	CWS file, Sackville, N.B.
February 22	Grand Manan, N.B.	400	V. Bagley	CWS file, Sackville, N.B.
February 26	Maces Bay, N.B.	1	J. Mercer	P. Pearce, pers. comm.
February 29	Grand Manan, N.B.	400	V. Bagley	CWS file, Sackville, N.B.

Table 7. December, January, and February records of Atlantic Brant in the Maritime Provinces

Date	Location (Figure 7)	Brant	Observer	Information source
1974				
February 13	Grand Manan archipelago	2,005	B. Hughson	CWS aerial survey

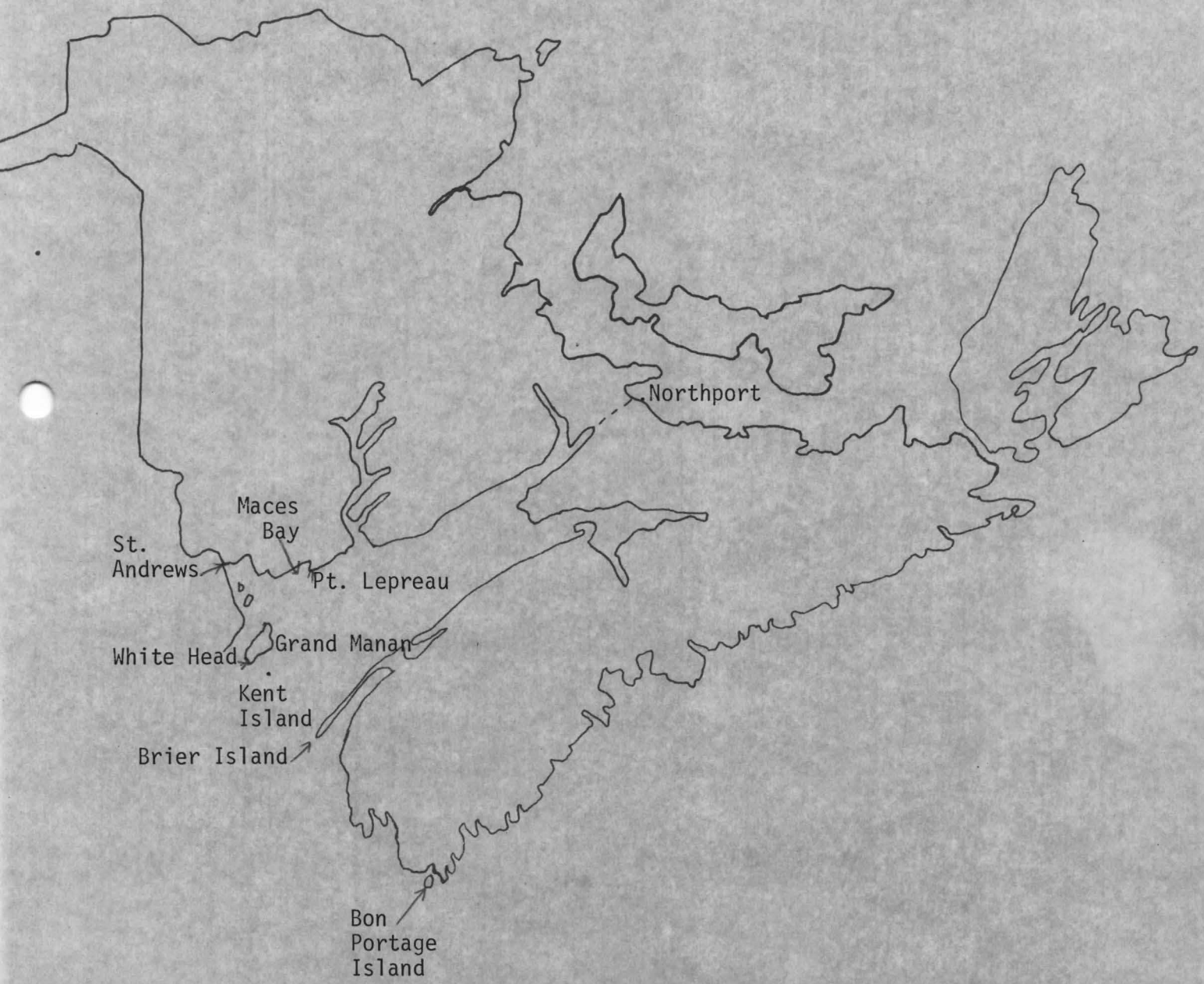

Figure 7. Locations of Atlantic Brant sightings in December, January, and February, in the Maritime Provinces.

AN HISTORICAL PERSPECTIVE

Prior to 1930, eelgrass (*Zostera marina*) was believed to comprise over 80 per cent of the winter diet of the Atlantic Brant (Cottam, 1933). In correspondence to H.F. Lewis on September 3, 1935, Cottam related that eelgrass failed along the east coast of the United States in the early 1930's, and that was paralleled by "a precipitous and an alarming decrease in the Brant population along the Atlantic seaboard" (CWS file, Quebec office). Peters (1938) reported that eelgrass in the Maritime Provinces "started to go in 1927 and by 1935 it was practically all gone. In 1936 and 1937 it started to come back, and an increase in the numbers of Brant was noticed in 1936, 1937, and 1938". In 1934, Lewis (CWS internal memorandum) wrote that "in the northern part of the Gulf of St. Lawrence, from Gaspe to the Strait of Belle Isle, and in the estuary of the St. Lawrence River, the eelgrass disappeared some time between September 1, 1932, and May 1, 1933". At la Baie de Sept Isles in the spring of 1935 Lewis reported finding little trace of eelgrass (CWS file, Quebec office).

Cottam and Munro (1954) reported the first mid winter count tallied 22,400 Atlantic Brant in the eastern United States in 1935. They further reported that "the loss of eelgrass beds appear not only to have decimated Brant populations but also to have altered their migration and diet. Formerly, the majority of this eastern species wintered in Pamlico Sound (North Carolina) whereas since the plant's demise, only a small fraction of them have migrated that far southward. In many places along the coast, large flocks of the birds have resumed

their traditional diet of eelgrass yet many others winter in bays along southern New Jersey where there has been little or no recovery of eelgrass. In the latter locations, the principal foods appear to be sea-cabbage (*Ulva* and *Enteromorpha*) and other algae."

Correspondence from F.C. Lincoln to H.F. Lewis on April 7, 1936 (CWS files, Quebec office) contained the following mid winter Brant estimates:

State	Atlantic Brant
New Jersey	25,500
Maryland	7,200
Virginia	7,000
North Carolina	8,200
Total	47,900

The most adequate and comprehensive inventory of Atlantic Brant is the January Atlantic Flyway Brant Census. That inventory is described and past data analysed by Ferrigno et al. (1973).

Data from the January Atlantic Flyway Brant Census are presented in Table 8. Brant numbers have fluctuated widely and apparently primarily in response to breeding ground success or failure, and secondarily to winter conditions and hunting mortality. Combinations of those factors resulted in the marked decline of Brant from 213,500 in January 1968, to 40,700 in January 1973. A favourable breeding season in 1973 doubled the Brant population to 85,852 by November 1973 (Table 8).

Table 8. Atlantic Flyway January Atlantic Brant census: 1948-1973*

January	Atlantic Brant	January	Atlantic Brant
1948	57,900	1962	124,600
1949	75,400	1963	173,500
1950	77,300	1964	182,900
1951	113,600	1965	181,600
1952	104,300	1966	165,400
1953	158,300	1967	219,200
1954	245,200	1968	213,500
1955	183,900	1969	130,900
1956	164,000	1970	106,500
1957	162,000	1971	151,000
1958	211,300	1972	73,300
1959	217,500	1973	40,700
1960	238,400	1973**	85,852
1961	265,600		

* Data from Ferrigno et al. 1973

**Data from the November 1973 Periodic Goose Survey, Patuxent, Maryland

A preliminary report by Curtis (1973) describes aerial inventories of Brant in James Bay (Appendix I). Particular notice should be made of his October 12, 1972 flight on which 45,000 to 50,000 Brant were estimated. Those figures approximate those of the January 1973 mid winter inventory (Ferrigno et al. 1973). From those data it appears that almost the entire North American Atlantic Brant population passed through James Bay in the fall of 1972.

Bent (1925) wrote that "the Brant which have spent the winter farthest south begin to move northward in February, joining the birds which have wintered on the Virginia coast late in February, and moving

on to Great South Bay, Long Island, in March. By the middle of April they have moved farther east and are congregated in large numbers off Monomoy, on the south side of Cape Cod." Sanford (1903, in Bent, 1925) described the late April departure of Brant from the Monomoy flats immediately south of Cape Cod as being coastally oriented; however, Bent (1925) in reference to Bishop (1921) reported that "there is apparently an occasional, if not regular, offshoot from the main flight, which migrates overland from Long Island to the St. Lawrence River . . . . But the main flight, when it leaves Cape Cod, flies north-eastward to the Bay of Fundy, across the neck of Nova Scotia to the Gulf of St. Lawrence, in the vicinity of Prince Edward Island."

Bent (1925) from his observations and those of others suggested that the early May flight arrival at Sept Isles may consist of Brant migrating overland as they entered the bay at Sept Isles from the southwest. That is opposite to the late May to early June flight of Brant which entered the bay by an easterly route. Lewis (in Bent, 1925) attributed that flight, estimated at "at least 60,000" as coming from Prince Edward Island and including "practically the entire species."

The fall flight of Atlantic Brant was described by Bent (1925) as follows:

> "Winter comes early in the far North, and the Brant are forced to start on their fall migration early in September or even in late August. The route differs only slightly from that taken in the spring. They now migrate down the west coast of Hudson Bay, cross eastern Canada to the Gulf

> of St. Lawrence, which they reach late in September, cross the neck of Nova Scotia to the Bay of Fundy, and then head straight for Cape Cod, where they usually begin to arrive about the middle of October. So far their flight has been more rapid than in the spring, but from here on their movements are more leisurely and they scatter along the coast, lingering at favourable spots until well into winter."

Annually, from 1938 to 1946 inclusive, Harold S. Peters prepared reports on birds in the Maritime Provinces. His records on Atlantic Brant come from personal observation and interviewing ornithologists and sportsmen. That data is quoted verbatim in Appendix III.

Mr. Jack Wishart reported about 10,000 Brant in the Tabusintac area of New Brunswick in the fall of 1927 when eelgrass began to die off, and previously "there were more Brant killed in the Tabusintac area than the kill of ducks and geese (Canada Geese, *Branta canadensis*) combined (Peters, 1938)." Wishart's report contrasts slightly with the fall migration report provided by Bent (1925). It would appear that at least prior to the eelgrass die-off that the fall Brant migration became less dramatic as they reached the Gulf of St. Lawrence. Peters (1944) stated that Brant "do not return (to the Maritimes) until mid October, departing finally in late November as the freeze-up drives them southward."

In an internal memorandum dated January 8, 1934, H.F. Lewis wrote that "... there are several reports of large numbers of Brant

passing the Maritime Provinces last fall without stopping. Some of these birds may have refrained from stopping because of local scarcity of eelgrass. Many of them are reported to have passed soon after freeze-up, which was unusually early. Their failure to stop was presumably due to the ice-bound condition of the bays and lagoons.

It is not impossible that most of the Brant, for one reason or another, passed the Maritime Provinces last fall without stopping. Officer Tufts's estimate of their numbers there last fall may be quite correct, and yet the total number of American Brant on the Atlantic coast may have been as high as 200,000, most of whom were observed little or not at all before they reached the coast of the United States."

In 1947, 1949 to 1959, and in 1961, the Canadian Wildlife Service with the co-operation of the U.S. Fish and Wildlife Service and interested individuals maintained records on ground surveys and observations of Atlantic Brant in the Maritime Provinces. Excerpts of those reports pertaining to Brant are presented in Appendix IV. In general, those surveys represent a continuation of the earlier records maintained by Peters from 1938 to 1946 inclusive.

Boyer (1947) provided a perspective regarding the fall flight through the Maritimes since the die-off period of eelgrass. He stated that "the fall migrations are still negligible. Practically no Brant have been shot in New Brunswick since the re-opening of the season in 1945."

Another ground survey report for the Maritimes by Addy and Cooch (1951) related that hunters and observers reported increases in

the spring and fall flights of Canada Geese and Brant. That may have been true for the spring flight of Brant as the mid winter inventories tallied 77,300 in 1950 versus 113,600 in 1952, an increase of approximately 36,000 (Ferrigno et al. 1973). However, when examining the reports of individual observers or hunters, one must be mindful that weather and other factors can dramatically alter what one may see at a particular site between years. For that reason I critically weigh the records obtained by that means. Thus, spot observations and records are of limited value.

The "New Brunswick Naturalists" (Vol. 3(2)), reported that the fall flight of Brant started arriving at White Head (Grand Manan archipelago) around November 25. That same report indicated there was a gradual buildup there as winter progressed. On November 24, 1962, three were observed at the mouth of the Keswick River northwest of Fredericton, while one was reported at Fredericton on October 26 the previous year (Table 4). Madden and Lebel (Table 9) reported one fall record of 12 Brant in the Bay of Chaleur in October between Campbellton and Jacquet River.

Fall Brant records in the "Nova Scotia Bird Society Newsletters" (May 30, 1961 to July, 1973) contain the following two fall reports of Brant.

Date	Location	Brant	N.S.B.S.Newsletter
September 10/63	Northumberland Strait	9	November, 1963
September 15/68	Pt. Michaud, Cape Breton	15	Vol. 10, No. 3

Only one of the numerous fall survey flights conducted by the Canadian Wildlife Service in the years 1966 to 1973 inclusive recorded Atlantic Brant, when 19 were observed at Baie Verte on November 18, 1968.

The fall records provided above and in Table 6 constitute all the records and descriptions of Brant flights I am aware of for that period. Those records are meagre and strongly indicate that now little movement or stopping-over occurs in the coastal zone of the Maritime Provinces.

DISCUSSION

Information on Atlantic Brant in the Maritime Provinces is sketchy considering records cover a period of approximately 40 years. Most records were obtained by ground count during spring. Brant records from aerial coverages of various stretches of coastline are available from 1954 to 1974.

A crucial unknown, especially of early estimates, is the credibility which can be assigned particular and especially large estimates principally in southwestern New Brunswick prior to 1960. Another factor which detracts from the data are the counts labelled "spring". In those cases it is not apparent whether the counts were made at a particular time or over a period of time. If the latter, many could include recounts. Barkhouse recorded Brant at the Prince Edward Island National Park from May 2 to May 15, 1974 (pers. comm.). The total for his five counts in that period amounted to 622 birds; however, it was his impression that the total number of Brant present for that period was 185, and that due to their behaviour and eventual emigration, fewer were recorded after May 8.

In general, ground counts provide information on sites visited by Brant, and little insight into the magnitude of the flight through that area. The significance of those ground sightings increase as the number of distinct observations increase. Likewise aerial surveys provide the same information; however, other than referring only to specific sites, an aerial survey reveals an estimate of the number of Brant present along a coastline at a particular time. Aerial surveys

provide spacial and temporally isolated information, but do not reveal turnover or the magnitude of the passing flight. If ground observers have incorporated such information in their numbers, they did not reveal it.

Spring counts of Atlantic Brant entering la Baie de Sept Isles, Quebec, in May and June are listed here for comparative purposes (CWS files, Quebec office). Additional data on Atlantic Brant counts in the estuary of the St. Lawrence River are contained in Appendix V.

Spring of	Brant	Observer
1922	60,000	Rowe
1923	40,000	Haultain
1924	17,000	Armstrong
1926	63,400	Scherrer
1929	492,700	Boudreault
1931	79,910	Petitpas
1932	100,400	C. Doire
1933	79,500	C. Doire
1934	91,375	C. Doire
1935	4,508	H.F. Lewis and C. Doire
1937	3,137	D. Talbot
1938	4,567	D. Talbot
1939	6,381	D. Talbot
1940	4,895	D. Talbot
1941	5,342	D. Talbot
1942	5,663	D. Talbot
1943	9,731	B. Bijould

The data for Sept Isles are apparently incongruent though the observers are recorded as counting only those Brant entering la Baie. Outstanding counts are the 492,700 reported for the spring of 1929, and the 4,508 estimated in 1935. It is my impression that counts prior to 1935 could be reduced by a factor of 10 to be realistic. I can offer no explanation for the 1929 figure; however, it is useful to note that H.F. Lewis participated in the 1935 count and I consider it to be accurate.

If the 1935 count is reasonably accurate, all of the earlier counts are open to conjecture. The counts from 1937 to 1942 inclusive appear to be reasonable. Coincident with a change of observer in 1943, the Sept Isles tally rose to 9,731. It is unfortunate that more recent counts for Sept Isles are not available to compare with the Atlantic Flyway January Brant Census. However, a 1935 estimate of 22,400 Atlantic Brant in the United States (Cottam and Munro 1954) may be compared with Lewis and Doire's count of 4,508 at la Baie de Sept Isles (CWS files, Quebec office). Based on the latter count and the assumption that the majority of Brant passed Sept Isles in spring, Lewis surmised that the population at that time was around 6,500. It would appear in retrospect that Lewis observed less than a quarter of the population at Sept Isles, and it may be probable that no more than 10 per cent of the Brant population has migrated via that locale in spring since 1935 and possibly earlier. If that is true, it may further be assumed that roughly the same numbers migrated via the Maritime Provinces in spring.

There appears to be sufficient evidence to indicate that Brant also migrate in a broad front across the northeastern United States, crossing Lake Erie, the Niagara region, Lake Ontario, and the St. Lawrence River to Anticosti Island. The routes actually taken by Brant have been recorded as following river valleys. Based on the discussion thus far, and a process of elimination, it would appear that the bulk of the population migrates overland in spring from the northeastern seaboard of the United States.

In correspondence to H.F. Lewis, Aaron C. Bagg (CWS files, Quebec office) reported four Brant migrating northwest over Northampton,

Massachusetts, in the spring of 1935. Bagg (Ibid) also provided accounts of modest numbers of Brant following the course of the Connecticut River, Vermont, in spring and fall from the middle of the nineteenth century to 1933. A letter from Wendell P. Smith (CWS files, Quebec office) lists the observation of 45 Brant on October 12, 1921 and 30 on October 26, 1923, in the Connecticut River valley of Vermont. Of considerable interest is his report of hearing "five flocks of perhaps 20 to 25" Brant between 11:30 p.m. to 12:00 p.m. on April 12, 1924. Beardslee and Mitchell (1965) reported a number of spring and fall sightings for the Lake Erie and Lake Ontario region of Ontario and New York State. They stated that "although Lake Ontario seems to be the main migration route of this species in our area, we have records almost yearly from Lake Erie or the Niagara River. The maximum number seen in one day was 1,450 recorded on November 1, 1953, at Hamlin Beach Park . . .". Another notable record is of approximately 600 Brant near Rochester, New York, on October 22, 1950 (Ibid.).

Atlantic Brant have been observed at the mouth of the Saguenay River in spring (W.T. Munro, pers. comm.) and also following the Ottawa River valley (K. Ross, pers. comm.). Dave Paul (pers. comm.) reported Brant to arrive in the vicinity of New Liskeard, Ontario, in early June of 1959, 1964, and in 1967 to 1970. There they fed in a pasture of about 25 acres and loafed on a nearby lake.

Observations by V. Bagley at Grand Manan are valuable as they provide counts for specific locations on a day basis (Table 2). As his records are extensive, they provide an index to Brant numbers in the Grand Manan archipelago from winter into spring. The only drawback is

the fact that it is physically impossible for Mr. Bagley to estimate the entire Brant population of the Grand Manan archipelago. That the aerial surveys can do (Table 1), but they cannot provide a picture of turnover or the magnitude of the spring flight at this time.

Bent (1925) described the fall flight of Brant as crossing eastern Canada from Hudson Bay to the Gulf of St. Lawrence: thence to the Bay of Fundy from the Northumberland Strait, "and then straight for Cape Cod, where they usually begin to arrive about the middle of October." That route is backed by Wishart's report (Peters, 1938) of about 10,000 Brant in the Tabusintac region of New Brunswick in the fall of 1927. Peters (1944) observed that Brant returned to the Maritimes by mid October and remained until "late November as the freeze-up drives them southward."

The Canadian Wildlife Service has conducted many aerial coastal surveys along the eastern shore of New Brunswick from Baie Verte to Miscou Island. As the extent of coverage for every locale along that shore is not identical, the coverage of the Tabusintac region is given as being representative of coverage for that shore generally, and because Brant have historically been known to have frequented that location even though not a single Brant was observed during the following 28 survey flights:

September 15, 1965	September 30, 1968	October 22, 1971
August 25, 1966	October 31, 1968	November 18, 1971
September 8, 1966	November 18, 1968	September 29, 1972
October 13, 1966	September 18, 1969	October 11, 1972
November 7, 1966	October 17, 1969	October 27, 1972
December 12, 1966	November 18, 1969	November 17, 1972
April 6, 1967	September 10, 1970	November 15, 1973
October 6, 1967	October 19, 1970	April 20, 1974
November 7, 1967	November 20, 1970	
August 2, 1968	September 27, 1971	

However, the most recent aerial survey of May 17, 1974, located an estimated 375 Brant at Tabusintac (Table 5).

July to November records of Atlantic Brant in Table 6 are meagre. Fourteen records are available from 1946 to 1973 inclusive. The last available fall note of Brant at Tabusintac was in 1943 when a high of 600 was tallied on November 16. Five were observed in the Neguac Lagoon immediately south of Tabusintac on September 27, 1971. That record of five represents the only fall observation of Brant along the Gulf of St. Lawrence and Northumberland Strait coast of New Brunswick since 1943 (that is, for 30 years) with the exception of 19 located in Baie Verte on November 18, 1968. Table 6 also shows that from July to November 1945 to 1973 inclusive there have been two records of Brant in Nova Scotia; nine being reported on the North shore on September 10, 1963, and 15 at Point Michaud, Cape Breton, on September 15, 1968. It is of interest to note that that is the second record

for Cape Breton. The first report of eight occurred at Neil's Harbour in June, 1952.

From 1943 to 1974 there were four summer and fall records of Brant on the Saint John River near Fredericton (Table 6). The highest count of three were at the confluence of the Keswick and Saint John Rivers on November 24, 1962. Seven Brant at Kent Island on July 20, 1962, were the only Brant observed in the Grand Manan archipelago between July and November from 1943 to 1973 inclusive (Table 6). A Brant captured at Fundy National Park on July 17, 1971, was "apparently flightless because of moult" (New Brunswick Naturalist, Vol. 2(4)). The July records of one Brant at Fundy National Park and seven at Kent Island, and an August record of one Brant at Fredericton show that Brant may summer in the Maritime Provinces but that is unusual and limited. Since 1943, there have been seven September to December reports of Brant in New Brunswick and Nova Scotia, and none reported in Prince Edward Island. The average number per observation was seven. Few Brant have been observed in the Maritimes during fall since the 1940's. Today, Brant either do not migrate through the Maritimes in number during fall, or if they do so, only very limited stopping over occurs. The evidence supports the first hypothesis. Even so, it is my feeling that substantial numbers of Brant do migrate through the Maritimes and cross overland from the Gulf of St. Lawrence to the Bay of Fundy with little stopping over in the Maritimes. I emphasize that there is little evidence to support my suspicion.

There are three December records of Atlantic Brant in the Maritimes (Table 7). Seven observed at Northport, Nova Scotia, on

December 26, 1964, was an unusual occurrence as ice conditions there commonly preclude such habitation. The two remaining December observations were of six each at Grand Manan, New Brunswick, on December 31, 1967, and Brier Island, Nova Scotia on December 21, 1971. The available records indicate Brant are uncommon in December but a few may be observed in the vicinity of the Grand Manan archipelago or Brier Island. In addition to those locations, modest numbers have been observed once at Bon Portage Island, Nova Scotia, and Pt. Lepreau, Maces Bay, and St. Andrews, New Brunswick, in winter from 1961 to 1974 inclusive (Table 7). Recent observations tend to confirm that Brant are at least fairly regular inhabitants of the Grand Manan archipelago in winter, and numbers there apparently increase from December to February. Likewise the data in Table 7 show that the Grand Manan archipelago supports the only major number of Brant during that period. The winter build-up most likely involves birds moving north to the Grand Manan region in January and February.

In March to June inclusive, the highest number of Brant have been estimated for southwestern New Brunswick (Table 1). According to that data, several thousand Brant have been observed there in March, April, or May. Significant spring concentration areas there are the Grand Manan archipelago and the Maces Bay region. Across the Bay of Fundy in Nova Scotia, Brant have been regularly observed at Brier Island and Cape Sable in the 1960's and 1970's to date (Table 1). H.F. Lewis reported 1,000 Brant along the Shelburne County shore of Nova Scotia in the spring of 1955, however, fewer have been observed there since.

It is clear from the data presented in Table 1 that Brant numbers increase markedly in southwestern New Brunswick and western Nova Scotia in March. In March, April, and May, Brant enter the Maritimes from the south by way of southwestern New Brunswick and western Nova Scotia (Table 1), and move on principally to coastal waters east of southwestern New Brunswick and western Nova Scotia to Baie Verte and the North shore of Nova Scotia, and Prince Edward Island primarily in April and May (Tables 3 to 5). During the same period Brant occur on the east coast of New Brunswick.

The only significant known Brant stopping points between southwestern New Brunswick and western Nova Scotia to the Northumberland Strait areat Boot Island, Minas Basin, and the Cumberland Basin of Chignecto Bay (Table 3).

East of Shelburne County, Nova Scotia, there are only three records of few Brant for the remainder of the Atlantic coast of Nova Scotia. Based on the records in Table 3 it is assumed that few Brant move along that shore during the spring migration. Rather, most spring migrants apparently funnel into the Bay of Fundy from southwestern New Brunswick and western Nova Scotia to cross the isthmus of Nova Scotia and possibly adjacent New Brunswick to the Northumberland Strait. Upon reaching that Strait, some stop over along the North Shore of Nova Scotia before pressing on, while apparently the majority go to coastal Prince Edward Island and the northeastern shore of New Brunswick.

Modest numbers of Brant have been observed in the lower Saint John River during the spring migration (Table 4). The majority of records are for the month of April. They suggest that Brant may also

migrate across New Brunswick from the southwestern coast to the Miramichi Bay region and/or the Bay of Chaleur. Under favourable conditions that would not be an unlikely flight for Brant.

Spring rafts of Brant in southwestern New Brunswick tend to be larger than those observed east of that location (Tables 1, 2, 3, 5). In Prince Edward Island, Brant are found primarily along all shores with the exception of the north shore of Prince County and the northern end of Kings County.

Spring counts of over 1,000 Brant at a single location in eastern New Brunswick are extracted from Table 5 as follows:

Date	Location	Number Brant	Observer
1935			
week of May 4	Tracadie	5,000	E.J.M.Bourgeois
1955			
Spring	Tabusintac	5,000	J. Wishart
1956			
Spring	Tabusintac	6,000	J. Wishart

It is unlikely that those records are estimates for a single occasion, and probable that recounts are included. For that reason, one can conclude only that at a maximum several hundred Brant probably stopped over at the locations cited.

In contrast, aerial survey estimates of Table 5 are listed below. Here dated records provide an estimate of the population size for the area surveyed.

Date	Location	Brant
1954		
Spring	Prince Edward Island	2,204
1955		
Spring	Prince Edward Island	2,092
1956		
May 17-21	Prince Edward Island	1,979
1957		
Spring	Prince Edward Island	4,461
1958		
May 11, 21, 22	Prince Edward Island	5,351
1959		
May 21	Prince Edward Island	5,032
1960		
April 20, 21, 22	Prince Edward Island	2,280
May 26, 27, 28	Prince Edward Island	2,202
1974		
April 18	Prince Edward Island	1,230
May 17	East coast of New Brunswick	988
May 17	Prince Edward Island	827
May 17	Chaleur coast, New Brunswick	271

It is unfortunate that three of the earlier survey flights are dated only as spring. Nevertheless, it is apparent that an April or May survey of Brant in coastal Prince Edward Island will reveal the presence of approximately 1,000 to 5,000 birds.

The 1974 April 18 aerial survey estimate of 1,230 Brant at Prince Edward Island, plus the April 17 count of 65 at Tatamagouche and 5,689 in southwestern New Brunswick, provided a minimum total of 6,984 Brant. Assuming a minimum of 1,000 Brant in western Nova Scotia, the Minas Basin, and eastern New Brunswick, with few elsewhere, then at least 8,000 Brant were in the Maritime Provinces in mid April of 1974. Assuming that few Brant had moved beyond the Maritimes by that time and that few more would be entering the region from the United States, then a rough estimate of 10,000 Atlantic Brant migrated through in the spring of 1974. That number is less than 12 per cent of the 85,852 recorded on the Periodic Goose Survey of November 1973. There are many unknowns which may influence or alter Brant movements through the Maritimes. Additionally, the magnitude of the flight cannot be positively determined at present.

For the seven "springs" of 1937 to 1943, Brant generally arrived at la Baie de Sept Isles starting in the second week of May with the last flocks entering la Baie by mid June. The actual first and last arrival dates for that period were May 9 and June 16. Few Brant have been observed in the Maritime Provinces after the first week of June.

From the foregoing it is seen that the numbers of Atlantic Brant generally increase in southwestern New Brunswick in January and February, and in western Nova Scotia during March. Brant apparently continue to move into southwestern New Brunswick and western Nova Scotia during April and possibly May while at the same time many move northeast to the upper reaches of the Bay of Fundy, the North Shore of Nova Scotia,

Prince Edward Island, and the eastern and Bay of Chaleur shores of New Brunswick. For an indefinite number, that dispersal is apparently to suitable habitat where they remain for some time. The duration of those stopovers is probably generally more dependent upon the conditions which influenced arrival dates. However, as has been shown, Brant arrive at la Baie de Sept Isles by mid to late May and variations of roughly two to three weeks may occur. It may be assumed that a similar variation exists for departure dates of flocks from the Maritimes.

In assembling the data on Brant, it became strikingly apparent that there have been very few observations of Brant in flight in the Maritime Provinces. That suggests that their migration behaviour through that region makes them inconspicuous. The handiest explanation is that the majority pass at night. Though speculation, that is worthy of inclusion here to alert observers.

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APPENDICES

Pages 74 - 82.

APPENDIX I. Curtis, Steven. 1973. The Atlantic Brant and Eelgrass (*Zostera marina*) in James Bay, a preliminary report. Report number 8 in the James Bay report series. pp. 1-6 plus maps.

The Atlantic Brant and Eelgrass (Zostera Marina) in James Bay, a preliminary report.

By Steven Curtis

Canadian Wildlife Service

February , 1973

(Report number 8 in the James Bay report series).

The Atlantic Brant and Eelgrass (Zostera marina) in James Bay, a preliminary report.

I. Atlantic Brant in James Bay

The migration of Atlantic brant (Branta bernicla hrota) through James Bay remains largely unstudied. Earlier workers in the region suggested a northwest to southeast movement of the brant through James Bay in fall, and the reverse for spring, with concentrations off northwest and southeast Akimiski Island, Strutton Islands, and in the protected bay on the east shore of Charlton Island (Smith, 1943).

A. Bourget and S. Curtis of the Canadian Wildlife Service and H. Lumsden of the Ontario Ministry of Natural Resources encountered brant at the above locations in the fall of 1972, as well as at other locations on both sides of James Bay. Figures one and two indicate concentrations of brant encountered during coastal surveys in the fall of 1972. Survey flights on October 4 and 12 were specifically flown to assess brant numbers thus sightings were not incidental to snow goose censusing. As in 1971 (Lumsden, 1971)

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Figure one
· Sightings of brant, fall 1972.

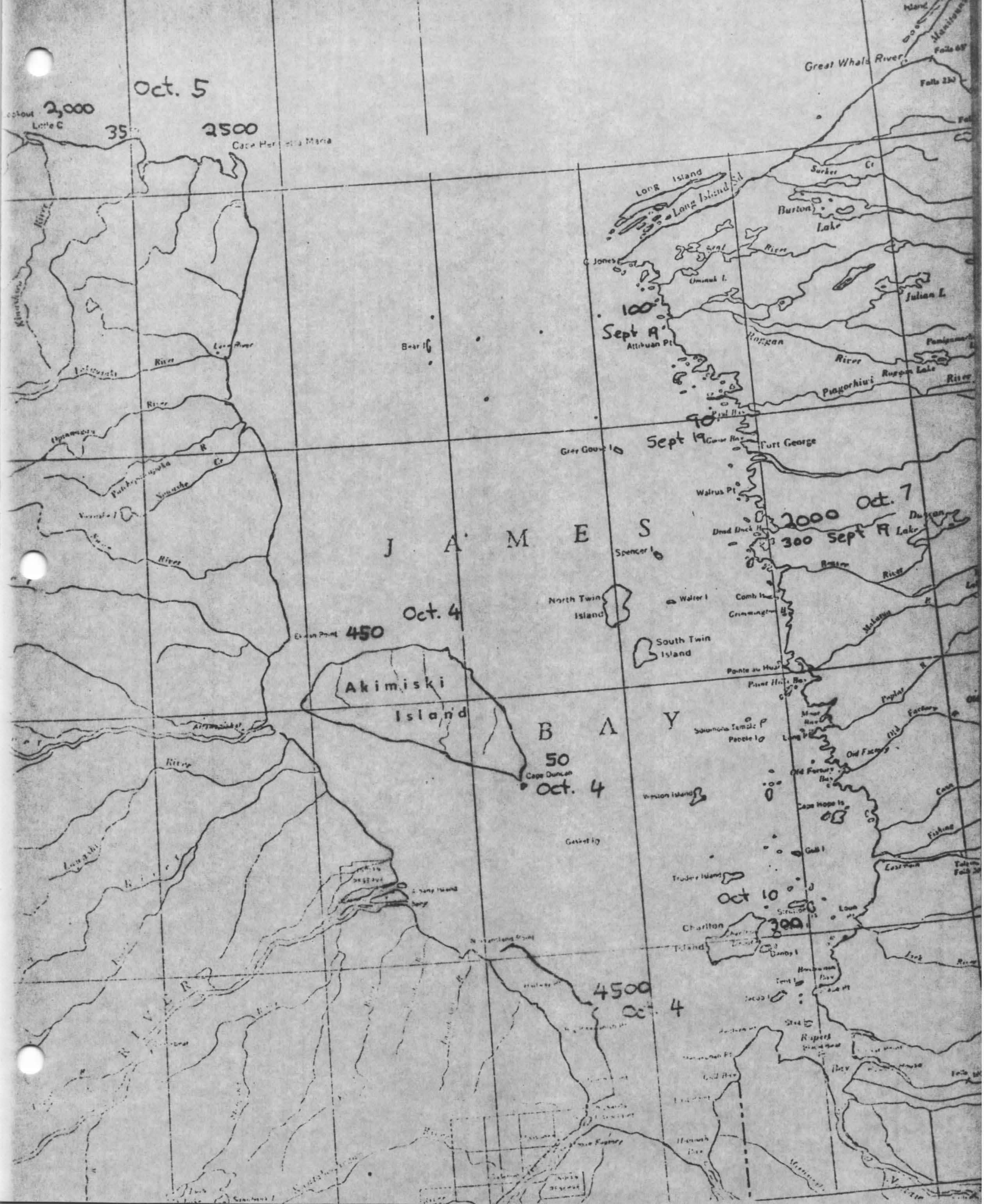
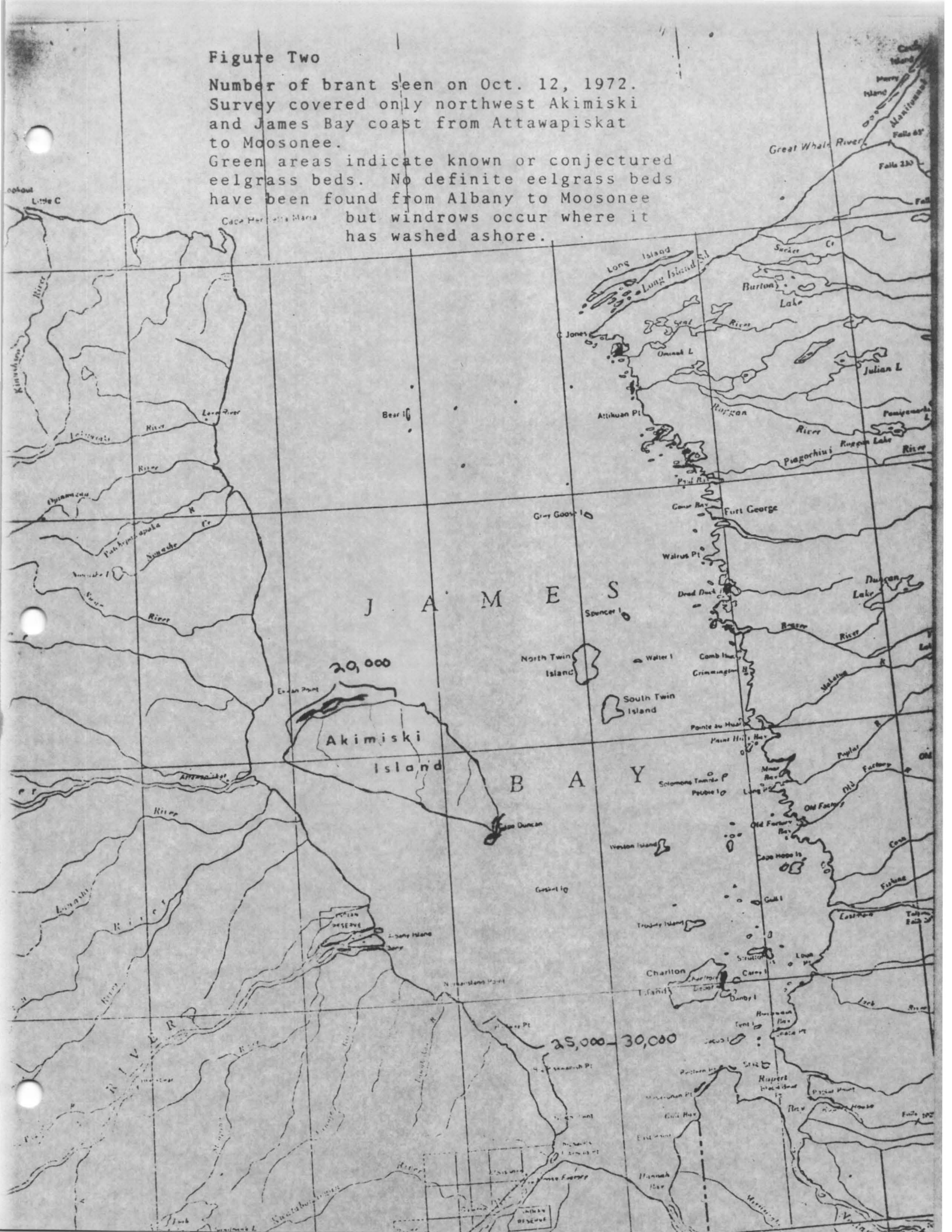

Oct. 5
2,000
35
2500
Cape Henrietta Maria
Great Whale River
Long Island
Long Island Sd
Burton
Lake
Seal River
C Jones
Julian L.
100
Sept 19
Attikuan Pt
Roggan
River
Bear Is
90
Sept 19
Fort George
Walrus Pt
2000 Oct. 7
300 Sept 19
Dead Duck Is
Lake
J A M E S
Spencer I
North Twin
Island
South Twin
Island
Walter I
Oct. 4
450
Akimiski
Island
B A Y
Poplar
Old Factory
50
Cape Duncan
Oct. 4
Cape Hope Is
Trodely Island
Oct 10
300
Charlton
Island
4500
Oct. 4
Rupert
Bay

Figure Two

Number of brant seen on Oct. 12, 1972. Survey covered only northwest Akimiski and James Bay coast from Attawapiskat to Moosonee.
Green areas indicate known or conjectured eelgrass beds. No definite eelgrass beds have been found from Albany to Moosonee but windrows occur where it has washed ashore.



largest concentration of Brants were found along the Northwest end of Akimiski Island and off Pisquanish Pt. and North Bluff Shoal.

On May 18, 1972 a total of 250 brants were seen at the southern end of James Bay, mostly near the mouth of the Moose, Harricanaw and Missisicabi rivers. Lumsden (pers. comm.) says that in late May brant are often seen migrating low over the water of such rivers as the Fort George, Eastmain, Ruperts, Broadback, Nottaway, Missisicabi, Harricanaw and occasionally the Moose. This has been frequently referred to by earlier observers in James Bay and suggests the brants utilize the rivers from the east and southeast as aids in navigation.

Brant numbers are difficult to estimate because of their dark colour, small size, tendency to fly in rather tightly bunched flocks, and their evasiveness with respect to aircraft. They often flush at great distances from the aircraft and in some cases considerable time was spent searching for, and chasing, flocks that one of the observers had noticed at a distance.

In 1972, as in past years, brant seen along the Ontario coast of James Bay were off the tips of the points or, if not near the points, off shore beyond the low tide line. Their tendency to stay off shore probably accounts

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for the low numbers killed by hunters.

Hunting records from organized fall goose hunting camps along James Bay show that very few Brant are killed. Salisbury (1972) has reported that in the period from August 1971 to August 1972 Indians at Fort George killed an estimated 918 brants (328 killed by Indians in interviewed sample). This seems on the high side when compared with other reports of brant hunting and may be due to a misunderstanding as to species identification. (For example, in explaining his tabulated data Salisbury states that he has lumped snow geese and blue geese with Canada geese under the heading "geese" and yet there is a listing of 2240 "wavies" killed). If 1000 odd brant are harvested by Fort George Indians alone, it underscores our need for more data regarding this species in James Bay.

The winter counts of brant off the New Jersey coast indicate a steady decline in numbers over the past three years. In addition, the counts for the winter 1972-1973 show only about one juvenile bird per 1000 adults. The summer of 1972 was a disastrous one for most arctic breeding waterfowl species, especially for brant. Surveys of James Bay, primarily aimed at recording the numbers and distribution of brant, are planned by the Canadian Wildlife Service for late May - early June 1973. Potential hydro impact on this threatened species must be evaluated in advance and prevented.

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II. Eelgrass, Zostera marina, a major food source for Atlantic Brant.

Eelgrass, Zostera marina, is a very important food for brant, and is also heavily utilized by Canada geese. The distribution of eelgrass in James Bay is largely unknown but it seems to be chiefly confined to various bays on the Quebec coast, and to Charlton and Akimiski islands (figure two). McRoy (1970), has reported that it is found in lagoons, bays, and estuaries where the dilution effect is low. Silt laden river water has a strong dilution effect in Rupert Bay and along the Ontario coast from East Point to Attawapiskat.

Smith (1943) reported finding eelgrass in the clear and quite saline waters of the east coast of James Bay, and that none was found on the south coast west of Mesakonan point. Smith (1944) stated that on the west coast eelgrass is apparently confined to the southeastern tip of Akimiski Island and along north Akimiski. From these two centers of distribution drift collects from North Point to the Swan River. The large concentration of brant in the Pisquamish and North Point areas are apparently feeding largely on this drifted eelgrass.

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A good deal of eelgrass was found drifted ashore and floating on the water near Pisquamish Point on Oct. 12, 1972.

While geese along the coast may be directly affected by the proposed Quebec hydro project, there are also possibilities for subtle effects of far ranging consequence. Temperature or salinity changes may directly affect the growth and survival of eelgrass or may indirectly affect this food base (and hence the waterfowl) through the increase of some parasite or disease. The evidence is strong to suggest that eelgrass suffered considerable destruction from the myxomycete Labyrinthula sp. (Renn, 1936). In addition, as dilution increases (due to increased output from the La Grande river) eelgrass will undoubtedly suffer. As eelgrass forms an important part of the base for many food chains this would indeed disrupt the ecology of the area.

It is recommended that the Department of Environment investigate the distribution of eelgrass in James Bay, particularly along the Quebec coast near Fort George. This could perhaps best be accomplished by means of aerial infrared photography in late August or early September.

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APPENDIX II. Todd, W.E. Clyde. 1963. Birds of the Labrador Peninsula and adjacent areas. Univ. of Toronto Press. pp. 126-130.

Branta bernicla hrota (Müller)

AMERICAN BRANT

Anser bernicla HIND, Explor. Interior Labrador Penin., 1863, 17, note (Mingan to Saguenay, and Moisie Bay, Quebec, migr.).

Anser torquatus PACKARD, Proc. Boston Soc. Nat. Hist., 10, 1866, 268 (Okak, Labrador, *fide* Weiz).

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"Brant" TOWNSEND, Labrador Spring, 1910, 38 (Seven Is. Bay, Quebec, June); In Audubon's Labrador, 1918, 30 (Seven Is. Bay, Quebec, migr., habits).—FLAHERTY, Geog. Rev., 5, 1918, 455 (Belcher Is., Hudson Bay, October).—LEWIS, Auk, 42, 1925, 76 (Mingan Is., Quebec, May); Canadian Field-Nat., 48, 1934, 26 (Seven Is. Bay, Quebec, census.—BAILLIE, Audubon Field Notes, 4, 1950, 240 (New Liskeard, Ontario, May, *fide* Trowern); 7, 1953, 270 (Kirkland Lake, Smooth Rock Falls, Larder Lake, and Kenogami Lake, Ontario, May–June); 8, 1954, 310 (northern Ontario localities, May–June); 9, 1955, 23 (L. Abitibi, Ontario, summer).—GUNN, Audubon Field Notes, 11, 1957, 402 (Sturgeon R. [mouth], Ontario, June, *fide* Heslop).

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In its breeding-range the Brant is a distinctively Arctic species. It owes its specific name to Linnæus, who based his description (presumably) on specimens from Sweden, where the bird occurs in winter. Early American authors, beginning with Wilson (1813), identified the American bird with the European, and were followed in this respect by most of the later writers. Seebohm (*History British Birds*, 6, 1885, 508) seems to have been the first author to have noticed the differences between the two, but it remained for Coues (*Auk*, 14, 1897, 207) to formally recognize *glaucogastra* (Bonaparte, 1856) as the distinctive name for the Brant of eastern North America. This name soon came into general use, until Lönnberg (*British Birds*, 18, 1924, 135) showed that *hrota* of O. F. Müller (1776), based on Icelandic specimens, is earlier and pertinent. Compared with true *bernicla* from Europe (Sweden and Holland), *hrota* is easily distinguishable by its paler, whiter underparts. I have examined specimens from Spitsbergen in the collection of the Stockholm Museum; just as Jourdain claims (*Auk*, 43, 1926, 536), they seem to be referable to *hrota*. The breeding-range of *bernicla* proper is given from Kolguev Island and Franz Joseph Land east to the Taimyr Peninsula of Siberia. The matter assumes a degree of importance in view of what we now know about the migration route of the American bird. Are these pale-breasted brant from Spitsbergen, Iceland, etc., subspecifically the same as the pale-breasted brant of eastern America? Sufficient comparative material to decide this point has not yet been seen by the writer.[1]

[1]But see Webbe, *Dansk Orn. Foren. Tidsskr.*, 52, 1958, 41–47.

Audubon (*Birds Am.*, 6, 1843, 203) attributes the Brant to Labrador as a breeding species, as also does Henry Youle Hind (1863), but both were misled by hearsay reports. Comeau also supposed that it bred at Godbout, but this record, as Brewster pointed out, must have been based on the sporadic presence of some individuals through the summer, and is in error. The fact is that the Brant is one of the few species of birds whose breeding-range lies entirely north of the Labrador Peninsula, while its wintering-grounds lie entirely to the southward thereof. Its status in our region is therefore that of a transient visitant in spring and fall. Moreover, its migration route across the Peninsula appears to be restricted to a comparatively narrow belt. Several of the earlier authors imply as much. Hind (*l.c.*) says that brant are found on the North Shore between Mingan (seldom farther east) and the Saguenay River. Stearns claims (probably on hearsay authority) that they reach Cape Whittle. But it remained for Harrison Lewis (1937) to amass the records (published and unpublished), marshal and analyze the evidence, and propound a theory to fit the facts in this unique and interesting case. His paper is such a model of its kind—in the presentation of the known facts, in the orderly development of his thesis, and in the logic of his conclusions—that were it not for its length I should be inclined to reproduce it here. It is precisely the kind of a paper I would have had to attempt for inclusion in the present work, but now I can appropriately cite Dr. Lewis as authority (by direct and indirect quotations), and need add only the notes and information that have subsequently come to light.

To understand what follows it must be borne in mind that the Brant is properly a salt-water Goose. It winters in the salt marshes of the coast from New Jersey to North Carolina. Its main food is eel-grass (*Zostera marina*)—a plant which for some mysterious reason is subject to recurring periods of scarcity in American waters, with what result to the Brant remains to be seen. It begins to move north sometime in March, and reaches Monomoy Island, Massachusetts, usually by the second week of that month, but sometimes even earlier. As a usual thing all are gone by April 25. The next stage of the northward movement carries the Brant to the Bay of Fundy and thence across the narrow neck of the isthmus to Northumberland Strait. A few may be deflected to Maine waters and linger there until May, but the bulk presses on to the Strait. "The time of arrival of the first Brant at Northumberland Strait in spring is commonly in the first week of April, and the numbers in that region increase steadily thereafter until they reach their maximum in the first week of May." There is some evidence going to show that there is also a minor inland migration route leading to the upper St. Lawrence, which the birds reach at about the same time as they do Northumberland Strait. The month of May is passed in loitering and feeding

along the southern and western shores of the Gulf of St. Lawrence, where there are many shallow harbors and lagoons, and in the lagoons of the Magdalen Islands. Tabusintac Beach in Miramichi Bay, New Brunswick, is a favorite resort; it was here that I saw immense flocks of brant on May 25, 1901, and eventually secured two birds for specimens. The majority of the birds resume their northward movement rather suddenly about the end of May. "Their departure from the Gulf is carried out chiefly in the first fifteen days of June, but may begin in the last week of May. In executing this part of their journey to their nesting-grounds, the Brant proceed northward to the north shore of the Gulf of St. Lawrence, and there make a pause which for the most of them is comparatively brief." Some seem to fly directly across the Gaspé Peninsula from the Bay of Chaleur, while others take a more easterly route along the coast and past the west end of Anticosti. According to one local observer with many years' experience, "the main stream of northward-flying Brant arrives at that shore in the vicinity of Cape Cormorant, from which point the flocks turn westward along the north shore of the Gulf, flying sometimes close to the land, sometimes a mile offshore." Some small flocks, however, regularly reach the shore farther east, behind the Mingan Islands, but east of Havre St. Pierre (Eskimo Point) the species is of only casual occurrence.

Seven Islands Bay is perhaps the most important concentration place for brant on the North Shore. Although locally known as such for many years, it was first formally brought to the notice of ornithologists by Townsend and Bent (1910). Our party saw great numbers of brant when we crossed the bay on May 21, 1917. They haunt the shallow waters and tidal flats of the northern part of the bay, where there is plenty of feed. Now, the significant thing about the spring migration of the Brant at Seven Islands Bay is that there appear to be two distinct flights, or movements, of the species, one earlier than the other. Dr. Lewis "observed a flock of about 1100 Brant in the inner part of this bay on May 14, 1925." In 1930 the first were seen on May 5 by a local observer. Dr. Lewis goes on to quote the observations of former brant-hunters at Seven Islands for what they may be worth.

According to these hunters, the annual flight of Brant was a regular annual occurrence, quite distinct from the principal flight, which arrived there about the first of June. The early flight never contained more than a few thousand birds. These were reported to enter the bay by the southwestern pass, between all the islands and the western mainland shore, whereas the main flight of Brant entered the bay by the southeastern pass, between all the islands and the eastern mainland shore. Often the early flight had entirely left the bay before the main flight began to arrive. The birds in the early flight are said to have been so much darker in color than the birds of the principal flight that, while these French-Canadian hunters recognized that they were really Brant, or "bernaches," as they call the birds of the June flight, they seldom used that name for the birds in the early flight, but commonly referred to them as "les noirs," that is, "the black ones."

Birds of the second group usually leave for the north during the first week in June, and not later than the second week. It is said that they "always take their departure from this bay in the evening and that, when they are ready to leave, they fly upwards in spirals until they attain a great height before they start northward toward the mountain barrier." Now begins the long overland flight to salt water on Ungava Bay—a flight whose course still remains mostly untraced on the map. It fell to the lot of our party to witness the Brant in this cross-country transit for the first time. "On June 7, 1917, late in the evening, we saw flocks of Brant flying northward, following the course of the Ste. Marguerite River. This was at the Grande Portage (33 miles north of Seven Islands Bay). They were flying fast and very high, above the tops of the hills on either side, and although the hour was toward nightfall, they showed no signs of stopping. They were not flying in regular formation, as do the Canada Geese and some other species" (Todd, in Lewis, 1937, 80, note). "Indians of the Labrador Peninsula say that they sometimes see Brant on the lakes of the interior in the season of migration, but these are probably birds that have been forced down by adverse weather conditions." Our Indian guides told us the same story, which certainly requires verification. Near the farther end of the traverse, at Fort McKenzie, a Hudson's Bay Company's outpost on Lac leMoyne, 150 miles above Fort Chimo, a local observer, G. Webster, reports that "Brant to the number of three or four thousand fly down the Koksoak [i.e., the Kaniapiskau] past Fort McKenzie on June 10." There is thus every reason to believe that under usual and normal circumstances the cross-country traverse of the flocks is accomplished in one nonstop flight of almost six hundred miles. Their leisurely northward progress across the Gulf of St. Lawrence, feeding and growing fat as they go, serves to put the birds in condition for the grand effort ahead of them. Leaving Seven Islands Bay in the evening as they do, and flying all night and all the next day, brings them to the head of Ungava Bay by nightfall. Their flight-speed would thus be about twenty-five miles an hour.

At Fort Chimo, according to Turner,

they arrive from the 20th of May to the 20th of June. They fly past the station of Fort Chimo over the water in the Koksoak. At times they are as high as 100 yards, or oftener only a few feet above the water or running ice. They come at a time when it is almost impossible to get at them on account of ice, and if this is not present they fly too high. They follow the sinuosities of the river and only cross such points as they can see over. Thousands of them are seen every spring and never one of them in the fall.

More recent observations (1924–30) made by J. W. Payne, and quoted by Dr. Lewis, are to the same effect:

> Brant fly down the Koksoak River past Fort Chimo in early June. They generally arrive there in the evening and are usually observed passing in silent, low-flying flocks containing from fifty to one hundred thirty birds each. Their regular stopping-place in that region is in a big arm or inlet on the east side of the Koksoak River, below Fort Chimo and about twelve miles above the river-mouth. That part of the river is tidal and there are large flats in the inlet that are uncovered at low tide to a distance of about half a mile from the shore. No one lives near the inlet and the Brant are seldom hunted or disturbed there. . . . The Brant generally stay at their resting-place in the inlet beside the lower Koksoak River for only two or three days in June, after which they continue their flight toward the north.

They cross Hudson Strait to Baffin Island and the Arctic islands beyond, where their odyssey ends in the homeland of their hopes.

The occurrence of the Brant on Hudson Bay and Strait has long been known, as appears from the literature, but its significance was not understood until the appearance of Dr. Lewis' paper above cited. Bell (1885) recorded the Brant without comment from Digges Islands and Stupart Bay on Hudson Strait; Feilden (1887) wrote that the species was "reported as plentiful on Digges Islands during the spring migration of 1886"; and Payne (1888) states that "A few were seen in company with Hutchins' Goose in their flight southward on September 6th, and one was brought to me by an Eskimo on December 1st"—this at Stupart Bay, Hudson Strait. G. M. Sutton recorded a specimen (wings only) taken at Mansel Island on September 15, 1929. So far as I can discover the Brant was unknown as a visitant to James Bay until 1912, when our party examined the head and wings of a specimen killed on Rupert Bay, north of Stag Rock, on July 6. In 1926 we saw two large flocks in Hannah Bay, off Plover Shoals, on June 16, and odd birds off Mesakonan Point as late as June 22. On July 1 a small party was noted north of Watt Harbour. These late dates are admittely hard to explain; they do not fit into the general picture, as we have it on the authority of J. W. Anderson (then district manager of the Hudson's Bay Company for the James Bay District, and known to the writer), as reported to Dr. Lewis. This information, gathered from the various trading-posts in the district, was to the effect that the Brant used to arrive on the east coast of the Bay during May, remain for a time to feed, and then depart for the north.

> At Rupert's House it is said that they arrived from the south, that is, from overland, about May 1, and that they departed for the north about the end of May. At Eastmain they are said to have arrived about May 25 from the south, that is, coastwise, and to have departed for the north and northwest after feeding in that vicinity for two or three weeks. Near this post they were commonly observed in flocks of from two hundred to three hundred individuals. At Fort George, it is stated, they arrived about the middle of May from the east, that is, descending the Fort George River, and without stopping flew in a northerly or westerly direction. It will be observed that the dates given for the arrival of Brant in spring at these three posts on James Bay are all earlier than the time of arrival of the principal flight of Brant at the Bay of Seven Islands, on the north shore of the Gulf of St. Lawrence.

Dr. Lewis is careful to point out that the status of the Brant on the Bay seems to have changed materially since the 1920's. For all of James Bay (both coasts) only two flocks and eight other birds were reported in 1935. However, Arthur C. Twomey, who spent the season of 1938 on the Belcher Islands, records that on May 22–24 large flocks of brant passed over on their way northward. Some of the flocks were nothing but brant, but most of them were mixed with blue geese. Obviously the Brant migration here was a hurried affair. Fall records for the species on this coast are much more numerous. On the Belchers ten flocks averaging from fifteen to twenty-five individuals each were seen at Eskimo Harbour just as Dr. Twomey and party were leaving on August 29.

> They had come during the night when the wind swung to the north after three days of stormy weather. A flock of twenty-five birds passed within as many yards as we were loading the boat. They seemed but little disturbed at our presence and did not veer from their course. As we moved out into the harbor other flocks began to fly up from the tundras, but they soon recovered from their fright and circled to again alight to feed on the abundant crop of blueberries, cranberries, and crowberries. . . . On September 2, in a small harbor fifteen miles southwest of Great Whale River, where we were forced to take shelter from a heavy storm, a flock of thirty brant flushed, circled quite close to the boat and decamped to an inland lake.

Dr. Lewis refers to the occurrence of brant at Charlton Island as "casual," but on September 19, 1812, I saw a flock of seven just south of the island, and on September 18, 1931, at Salt Water Lake, flock after flock was disturbed at our approach from what was apparently their favorite feeding-ground and flew out to sea, far out of gunshot. Alfred E. Preble saw brant at the same place on August 23, 1912. They were reported regular and common here.

Again it must be noted that these dates of observation do not agree with those supplied to Dr. Lewis by Mr. Anderson, who says that the main flight of brant reaches Charlton Island about the first of October, coming presumably from Cape Henrietta Maria by way of Akimiski Island. I have never myself seen brant on Charlton quite so late in the season, but Dr. Lewis has noted them there on September 26 in 1940, and on the Struttons on September 27. James Bay offers so many tidal flats and shores attractive to brant that there is a good deal of drifting around during this month. It is assumed that southbound

migrants from the Bay reach the estuary of the St. Lawrence River by an overland flight. Not too much is known about the autumnal migration of brant along the North Shore. They rather avoid Seven Islands Bay at that season, and their route appears to lie farther west. Because their numbers are fewer in the fall than in the spring, it has been suggested that some of the birds that go north across the Peninsula in the spring must return by way of Hudson and James bays. I doubt this on general principles, but I have no explanation to offer in the absence of pertinent data.

Dr. Lewis believes that the early flight of brant is composed of those birds which migrate across Vermont and southern Quebec to Seven Islands Bay and then proceed directly across country to James Bay, which they usually reach before the second or main flight of brant arrive and linger into June before leaving for Ungava. This thesis, although admittedly based on theoretical considerations, appears to me to be sound. There are obviously two different populations involved—recognized as such by the local hunters, and possibly subspecifically distinct. Delacour and Zimmer (*Auk*, 69, 1952, 82) intimate that *Anser nigricans* of Lawrence, 1846, may possibly be applicable to these supposedly darker Brant which migrate to James Bay, but whose numbers are reported to have dwindled markedly of late years. May it not be that the brant of this latter population have chosen to change their usual route to James Bay to one farther west? Recent records from the lower Great Lakes listed by R. W. Sheppard (*Canadian Field-Naturalist*, 63, 1949, 99–100) would suggest as much, while several New York State occurrences cited by Kenneth C. Parkes (*Kingbird*, 2, 1952, 57) are corroborative. It will be noted that these records of inland appearances correspond with the coastal decline in numbers. I take it that brant reach Southampton Island and western Baffin Island by way of James and Hudson bays, as Dr. Lewis claims, and the few breeding specimens I have seen from there are not definitely separable from Atlantic Coast spring migrants.

A further and quite unexpected development in this potential westward shift of the migration route of the Brant has taken place in the past decade. Baillie (1950–55) was the first to publish Brant records from northern Ontario, and Smith (1957) has given us a full and circumstantial account of the new development. It appears that in late May of 1953 about 2,000 brant arrived in Lake Abitibi, where many were slaughtered for food by local residents (Indians). But instead of moving on north, they remained at least until August and many of them molted there. As a rule they kept in flocks of fifty or more, and they made no effort to breed. However, an observer at Kelly Lake, near Copper Cliff (outside of our limits), saw a pair with five young in the summer of 1954. The Abitibi convocation was not repeated in 1954, but smaller numbers were reported from Lake Temiskaming, Cochrane, Timmins, and Gogama from May 1 to 27. Obviously, this branch of the Brant family is not confined to salt-water feeding-grounds. It should be noted, however, that since there are no definite fall records from northern Ontario and western Quebec, the chances are that at this season the James Bay Brant must reach the St. Lawrence in one continuous flight. The route probably dates back to late Pleistocene time, when there was a connection between the waters in question.

On the Labrador coast the Brant is irregular but not unknown. Hantzsch saw a party of five at Port Burwell on September 16, 1906, and two on September 24. Packard includes it in his Okak list on Weiz' authority; Dr. Wilfred T. Grenfell obtained one specimen at Nain in October, 1899 (Bigelow); an Eskimo at Hopedale gave the crew of the "Bowdoin" a preserved specimen (Gross). "John Keats wrote me from Davis Inlet that he 'killed seven Brant Geese July 15, 1926, in Jack Lane's Bay. About two hundred or more were in the company. These birds are quite often seen traveling north in the spring, but are seldom observed going south in the fall'" (Austin, 1932). This record, together with certain of those from James Bay suggests that non-breeding individuals must have been involved.

In closing this account of the Brant in the Labrador Peninsula, it may be well to note that Dr. Lewis has not attempted in his article to discuss the migration route of those individuals of this species which breed in Greenland and in the Arctic islands between Baffin Island and Alaska. We have specimens of typical *Branta bernicla hrota* from British Columbia, and there are a few California records for this race.

For a fuller account of this species Dr. Lewis' paper, cited above, should be consulted, also an informative article by Cottam, Lynch, and Nelson in the *Journal of Wildlife Management*, 8, 1944, pp. 36–56. For a discussion of the relation between eelgrass and geese, see Lewis, *Canadian Field-Nat.*, 45, 1931, 57–62.

APPENDIX III. Atlantic Brant records pertaining to the Maritime Provinces contained in reports by Harold S. Peters: 1938 to 1946 inclusive.

1938 Report

Information source: Mr. Jack Wishart

Atlantic Brant

Generally arrive in the fall (in Tabusintac area, New Brunswick) about October 13 to 15, and leave about November 15, but sometimes stay as late as December 1 if there is open water. In the spring they arrive about April 20 and leave June 7 to 10 (about 150 present May 15, 1938). They come through in big numbers in the fall, but only straggle through in the spring. The fall of 1936 found Brant in the lowest numbers. In 1927 about 10,000 Brant were in Tabusintac Bay, now they go farther up the river and inlets now, in search of food. Brant changed their route of migration when eelgrass diminished. Formerly there were more Brant killed in the Tabusintac area than the kill of ducks and geese combined. Eelgrass situation - started to go in 1927 and by 1935 it was practically all gone. In 1936 and 1937 it started to come back, and an increase in the numbers of Brant was noticed in 1936, 1937 and 1938.

1939(a) Report

Atlantic Brant

May 7, Maces Bay, N.B. I saw 400 feeding on flats at the first evidence of flood tide. Warden W.J. Evans reports a maximum of

1500 here this spring, although other observers reported several thousand. They arrived at Naces Bay on March 29 this year (usually they arrive about March 9 each year) and generally depart about June 8. They are eating sea-lettuce here at Naces Bay, and seem not to go back to the returning beds of eelgrass. There is some evidence that their migration route has changed due to the failure of the eelgrass.

May 12, Charlottetown, P.E.I. We saw 60 at Fullerton marsh and 75 at Pownal Bay, near here.

Summerside, P.E.I. Saw 75 near here. Constable Spurgeon Jenkins estimates about 5,000 Brant spend several weeks around P.E.I. each spring. Last May he counted 2,600 in the bays in two counties. They leave here about June 8 to 10 each year. The week of May 20 he counts them in accessible bays and inlets of P.E.I. and I would like to assist in this in 1940.

Summary of reports

There is some evidence of a slight increase in Brant, but their evident change in migration route has made it difficult to secure exact and reliable information. Some observers report a decrease while others report a good increase. They seem to have found other foods to take the place somewhat of eelgrass.

Spurgeon Jenkins reported that for Prince Edward Island "Brant showing little increase in the spring but few are seen in fall migration."

1939(b) Report

The waterfowl are still not all here (Tabusintac area, N.B.) yet, with very few migrants having arrived from farther north. No geese or Brant have been seen here, except one Snow Goose seen on September 30. It is just about time for them to arrive now.

1940 Report

Brant

Jenkins estimated that about 3,300 stopped at the Island (P.E.I.) on their northward migration this spring - as contrasted to only about 2,600 in the spring of 1938. I saw no Brant so they evidently pulled out before June 5 this year.

1941(a) Report (Spring)

Atlantic Brant

May 11. Maces Bay, N.B. About 750 seen here by John Pearce and Howard Mendall.

May 13. Charlottetown, P.E.I. I saw four fly over the river near here.

May 14. Tignish, P.E.I. Saw about 75 feeding in an inlet here.

May 15. Rusticoville, P.E.I. Six found in the river mouth here.

Summary

From both New Brunswick and Prince Edward Island I received reliable reports of definite increases in Brant migrating northward this spring.

1941(b) Report (Fall)

Brant were reported several times in migration, even over rivers in interior sections. They evidently are slowly, but surely, increasing too.

1942 Report

Atlantic Brant

April 16. Chance's Harbour, N.B. Reports two seen here.

April 16. Maces Bay, N.B. Mrs. Mary E. Evans reports Brant in full flight and three times as many as former years. She reports they have been here a month or so.

April 22. Maces Bay, N.B. Col. Ritchie and I saw about 3,000 on flats.

May 9. Charlottetown, P.E.I. I saw 75 near here.

May 18. Tabusintac, N.B. Col. Ritchie and I saw about 200 in Bay here.

May 19. Tabusintac, N.B. Four flocks, totalling about 750 birds seen.

Summary

Increased numbers of Brant are reported in migration in Maritimes.

1943 Report

Atlantic Brant

March 15. Maces Bay, N.B. First recorded by Mr. Corscadden.

March 20. Grand Manan, N.B. Warden Alton Foote records first birds.

1943 Report (cont'd.)

April 13. Tabusintac, N.B. Jack Wishart saw 200 birds for first time this year.

April 26. Aulac, N.B. A flock was seen by John Tingley.

April 28. Lubec, Maine. I saw about 1200 here.

May 10. Souris River, P.E.I. I saw about 18.

May 13. Hillsborough Bridge, Charlottetown, P.E.I., 17 seen flying over.

May 13. Pownal Bay, P.E.I., 25 found.

May 21. Tabusintac, N.B. About 400 here.

May 28. Maces Bay, N.B. Col. Ritchie and Ed Pugh saw 800 here.

Summary

Slightly increased numbers reported migrating through Maritimes.

Col. H.H. Ritchie provides the following account:

"The Brant situation seems to be showing signs of real improvement. Considerable flocks were seen on the spring migration, and they appeared to remain longer and had no difficulty in finding food. Mr. Wishart reported that on November 16 about 600 Brant were present in two flocks. They had arrived about the first of November and stayed much later than the previous year. They appeared to be feeding and quite satisfied to remain, although ice was making in considerable quantities, both in the bay and in the estuary of the river.

"In the same report Mr. Wishart states that 500 to 700 Canada Geese are present in the bay and making regular trips to the feeding

grounds on the mud flats and shoals. I (Col. Ritchie) saw about 200 geese on the bay on November 26, and a few Brant in the river."

1944 Report

American Brant

March 21. Grand Manan Island, N.B. Warden McLaughlin saw first Brant.

April 1. Tabusintac, N.B. Jack Wishart saw 50 for first date.

April 25. Juniper Station, N.B. F.R. Grant records first arrivals.

April 30. Jemseg, N.G. Ritchie, Pugh and Campbell recorded 25 birds.

April. Kent Island, N.B. Ernest Joy reports about 10,000 at height of migration.

May 12. Souris, P.E.I. I saw 25 in Souris Harbour.

May 20. Tabusintac, N.B. 140 seen in bay by Ritchie, Wishart and I.

May 21. Inkerman, N.B. We saw 200 in this bay from plane.

May 21. Tracadie, N.B. Two flocks (200, 50) seen here from plane by Ritchie and I.

May 21. Tabusintac, N.B. One flock of 150 seen from plane here. The Brant seem to be slowly, but gradually, increasing in the Maritimes.

American Brant

A common migrant, especially in coastal areas. Not present in former abundance, but now slowly increasing since eelgrass is

returning. Occur in large numbers at Maces Bay, near Grand Manan Island, and in Tabusintac Bay in migrations. Eelgrass began to disappear in Tabusintac Bay in 1927 and was practically gone by 1935. In 1936 and 1937 it started back and now is showing excellent abundance.

Generally arrive on south shore about mid March. Earliest records given to me are: Maces Bay, March 15, 1943 and March 30, 1942; Grand Manan, March 21, 1944 and March 20, 1943; Tabusintac, April 1, 1944 and April 13, 1943. I usually see flocks of Brant at Maces Bay in late April and early May, and at Tabusintac in mid May and late May. They depart during the first part of June and do not return until mid October, departing finally in late November as the freeze-up drives them southward.

1945 Report

Atlantic Brant

March 20. Maces Bay, N.B. Warden Waycott reports first 200.

March 27. Maces Bay, N.B. 4,000 to 5,000 seen by Warden.

April 2. Maces Bay, N.B. Over 7,000 estimated present.

April 21. Maces Bay, N.B. Brant began to leave today.

April 28. Maces Bay, N.B. Only about 300 still around Bay.

April 12. Prince Edward Island. J.S. Jenkins saw first ones.

May 10. Souris, P.E.I. I observed 100 in harbour.

May 13. New Glasgow, P.E.I. About 65 recorded in harbour.

May 14. Dunk River, P.E.I. Only about 50 seen here.

Brant continue to slowly increase through the Maritimes.

American Brant

One reported shot at Nashwaaksis, near Fredericton, September 15, 1945, by Lloyd Bailey. Pair said to have been in stream there during August 1945.

1946 Report

Geese and Brant

Steady increases are reported in eastern Canada, but populations are still not large enough to allow increases in the kill.

Brant

A steady, but slight, increase in Brant migrating through the Maritimes has been reported for the last couple of years. Noted few young birds, but cloacal examination of eight birds killed there showed all were juveniles although their plumage resembled that of the adult. Consequently I believe the average hunter cannot distinguish between juveniles and adults satisfactorily in the fall.

Atlantic Brant

May 8. Souris, P.E.I. I saw 35 here in Bay.

May 11. Souris, P.E.I. Same flock around.

Migration notes from Aulac, N.B., from John Tingley's notes:

Migration Records

March 29, Brant 20 (first)

April 4, Brant, 2 flocks.

APPENDIX IV. Records pertaining to ground surveys of Atlantic Brant in the Maritime Provinces from 1947 to 1961.

Boyer, G.F. 1947. Wildlife conditions in the Maritime Provinces - 1947. Internal report, CWS, Sackville, N.B.

"The disappearance of the eelgrass seems to have caused a change in the migration route of this species. Although there are large concentrations mainly off the southern coast of Charlotte County, N.B. in certain areas in the spring, the fall migrations are still negligible. Practically no Brant have been shot in New Brunswick since the re-opening of the season in 1945.

Comments and observations 1947

There was a total estimated population of 35,000 during mid April, the peak of migration.

At Maces Bay, one of the concentration points approximately 5,000 were seen this spring as compared with 1500 in 1939. Here they feed on sea lettuce. This year the Brant arrived on March 8 and left during the first week of June. Local residents report no such concentration in the fall.

In Prince Edward Island, B.O. Jenkins reported this spring's migration as poor. There were only 2,500 to 3,000 as compared with 5,000 in 1939."

Boyer, George F. 1949. Period: April 1 - May 31, 1949. Internal report, CWS, Sackville, N.B.

"This spring most species left their wintering grounds along the southern coasts of New Brunswick and Nova Scotia very early. In the

case of Canada Geese the departure was practically complete by the end of March, two weeks earlier than usual. Reports from the main points of concentration for migrating geese and Brant indicate that both species arrived early in much greater numbers than last year."

Canadian Wildlife Service, 1950. Report on waterfowl conditions in the Maritime Provinces for the Provincial - Dominion Wildlife Conference, June 16 - 17, 1950. Internal paper, CWS, Sackville, N.B.

"During the spring migration the reports of voluntary observers at strategic points along the migration routes indicated an increase in Canada Geese which reflected the substantial increase in this species recorded during the winter inventory in this district. Seven of the twelve observers reported an increase, three a decrease, and two the same number as last year. Seven of eight observers reporting on Atlantic Brant indicated an increase while the other noted a decrease.

"Reports on the eelgrass, the condition of which has been associated with the welfare of geese and Brant, indicate that its recovery has seemingly been greatest in Prince Edward Island, and that it has apparently shown little or no improvement in the Bathurst region of New Brunswick during the past year."

Addy, C.E., and F. Graham Cooch, 1951. Waterfowl breeding ground survey in the Maritime Provinces. 1951. U.S.F.W.S. Spec. Sci. Report: Wildl. No. 13.

"Canada Geese and Brant do not nest in the Maritimes. However, hunters and others say that the spring and fall flights of

these birds are impressive and that these birds have continued their rapid increase of the last few years."

Canadian Wildlife Service. 1951. Report on the 1951 waterfowl conditions in the Maritime Provinces. Internal report, CWS, Sackville, N.B.

"The spring migration of Brant and geese was slightly earlier than usual. Co-operators at concentration points along the migration routes reported satisfactory increases in Canada Geese and substantial increases in Atlantic Brant. These reported increases in Brant reflect similar increases recorded on the wintering grounds during the mid winter inventory. Associated with the decreases reported in the goose populations during the past several years is the continued improvement in the eelgrass situation in most localities."

Webster, H.R. 1952. Report on the 1952 waterfowl conditions in the Maritime Provinces for the Sixteenth Canadian Wildlife Conference. Internal report, CWS, Sackville, N.B.

"The spring migration of American Brant and Canada Geese compared favourably with that of last year. Most of the co-operators located at concentration points along migration routes reported no change to a slight increase in the number of Canada Geese and a noticeable increase in the number of Brant. Except for the reported increase in Brant these observations are in keeping with winter inventory results which showed little change in the status of either species.

"As was also mentioned last year, the recovery of the eelgrass which has been associated with the increased goose populations

during the past few years continues. For the areas reported on, one in southern New Brunswick indicated limited partial recovery only while all of the others show satisfactory improvement, with several areas showing what is regarded as complete recovery."

Boyer, George F. 1953(a). Waterfowl breeding ground studies in the Maritime Provinces. U.S.F.W.S. Spec. Sci. Report: Wildl. No. 25.

"Spring migrants such as geese, Brant and Scaup ducks passed through the Maritimes early this year and slight increases in the first two species were noted and reported by competent observers."

Boyer, George F. 1953(b). Waterfowl report, Maritime Provinces. 1953. For the Seventeenth Canadian Wildlife Conference. Internal report, CWS, Sackville, N.B.

"During the past six years questionnaires have been sent out to reliable observers located in important Canada Goose and Brant stopping areas. This year ten answers were received. Nine observers reported an increase in geese and one a decrease. This latter can be regarded as a case of the birds shifting their feeding grounds to the improved eelgrass beds nearby. Seven observers reported an increase in Brant and three reported that Brant do not occur in their areas.

"From the results of these questionnaires it can be said that the geese and Brant are still increasing along our coasts."

Eelgrass

Eelgrass plays a very important part in the food supply of the waterfowl migrating along our coasts. For this reason the same

observers have been supplied with questionnaire regarding its recovery. From all indications, it is making a steady recovery since the disease of the 1930's. Out of eight answers all were convinced that the eelgrass growth had improved. Four observers reported complete recovery in their areas and four reported partial recovery. None of the observers had noted any sign of the eelgrass disease."

Boyer, George F., Brian C. Carter and Jean Vaillancourt. 1954. Waterfowl breeding ground studies, Maritime Provinces. 1954 U.S.F.W.S. Spec. Sci. Report: Wildl. No. 27.

"Spring migration started at the normal time but the backward weather apparently caused large numbers of geese and Brant to stay longer than usual."

Carter, B.C. 1954. Spring waterfowl report, Maritime Provinces. 1954, for the Eighteenth Canadian Wildlife Conference.

"From observation and reports the spring Brant migration has continued to increase. Eelgrass is also reported to be on the increase with no evidence of disease."

Carter, B.C. and G.F. Boyer. 1955. Waterfowl breeding ground studies, Maritime Provinces. 1955. Internal report, CWS, Sackville, N.B.

"The population of Brant is reported to be about the same as last year although two areas reported an increase."

Canadian Wildlife Service. 1955. Spring waterfowl report, Maritime Provinces, 1955. Internal report, CWS, Sackville, N.B.

Brant

Locality	Approx. largest number 1955	status compared with last year	Observer
Eastern Kings Co., P.E.I.	1200	same	J.F. Sterns
Egmont Bay, P.E.I.	1000	same	W. Boulter
Port Joli Sanctuary	-	-	R. MacAdams
Shelburne Co., N.S.	1000	inc.	Dr. H.F. Lewis
Roberts Isl. Yarm. Co., N.S.	-	-	F. Frost
Grand Manan, N.B.	5000	same	R. McLaughlin
Maces Bay, Charlotte Co., N.B.	10000	same	John Kane
Bathurst Harbour	?	same	R. Ronalds
Tabusintac, N.B.	5000	same	J. Wishart
Baie Verte, N.B.	?	large inc.	W. Johnson
Sackville - Amherst	-	-	G. F. Boyer
Minas Basin - Cobequid Bay	300	same	G. F. Boyer

Carter, Brian C. and J.K. Lowther. 1956. Waterfowl breeding ground studies Maritime Provinces, 1956. Preliminary report, CWS, Sackville, N.B.

"Observations of Brant made this spring indicate that the spring population is still static and that there is no significant increase over the last two years."

Carter, B.C. 1956. Spring waterfowl report, 1955 to May 23, 1956. Internal report, CWS, Sackville, N.B.

"Answers were received from nine observers located at strategic points along the Maritime migration routes . . . ."

Brant			
Locality	Largest number observed	Comparison with 1955	Observer
Eastern Kings Co.,P.E.I.	1200	same	J.F. Sterns
Western Kings Co.,P.E.I.	200	same	G.H. Bruce
Eastern Cape Breton,N.S.	-	-	D.W.McKinnon
Port Joli Sanctuary,N.S.	20	same	R. MacAdams
Shelburne Co., N.S.	-	decrease	Dr. H.F. Lewis
Maces Bay, Charlotte Co., N.B.	10000	increase	J.F. Kane
Tabusintac, N.B.	6000	increase	J. Wishart
Baie Verte, N.B.	?	increase	W. Johnson
Sackville - Amherst	-	-	B.C. Carter

Bartlett, C.O. 1957. Spring waterfowl report, N.B., N.S., and P.E.I., 1957. On file, CWS, Sackville, N.B.

"The aerial survey comparisons for 1956 and 1957 indicate an increase in Brant populations from last year. More Brant were observed during the ground surveys along the north shore of Nova Scotia than in either of the two previous years; 200, 484 and 566 birds respectively, were tallied on the 1955, 1956 and 1957 surveys. The P.E.I. aerial count of 4,461 birds was more than double the 1955 and

1956 counts of 2,092 and 1,979 birds, respectively. R.C.M.P. patrols reported larger than usual concentrations of Brant along the eastern shore of New Brunswick.

"However, Brant populations along the southwestern shore of N.B. (Maces Bay) were down considerably from last year. The reduction of an estimated 6,000 birds from last year tends to offset the increases reported elsewhere in the Maritimes.

"In summary, our surveys suggest that the total Brant population migrating through the Maritimes has not changed appreciably from last year. This year the birds were more dispersed with larger than usual concentrations occurring on P.E.I. and along the N.B.-N.S. shoreline adjacent to P.E.I."

Brant

Locality	Largest number observed	Comparison with 1956	Observer
Western Kings Co.,P.E.I.	1000	increase	G.F. Bruce
O'Leary, Prince Co.,P.E.I.	no reply		Lyle Livingstone
Souris, Eastern Kings Co., P.E.I.	800	decrease	J.F. Sterns
Shelburne, Shelburne Co., N.S.	no reply		A. Smith
Glenwood, Yarmouth Co.,N.S.	-	-	F.B. Frost
Port Joli Sanct.,Queens Co., N.S.	-	-	R. MacAdams
W. Middle Sable, Shelburne Co., N.S.	18	increase	Dr. H.F. Lewis
Antigonish, Antigonish Co., N.S.	no reply		W.S. Archibald

(continued)

Brant			
Locality	Largest number observed	Comparison with 1956	Observer
Glace Bay, Cape Breton Co., N.S.		no reply	J.J. Billier
Louisburg, Cape Breton Co., N.S.		no reply	D.W. McKinnen
Bathurst, Gloucester Co., N.B.		no reply	E. Branche
Wishart Pt., Northumberland Co., N.B.		no reply	J.L. Wishart
Port Elgin, Westmorland Co., N.B.		no reply	W. Johnson
Bathurst, Gloucester Co., N.B.		no reply	R.B. Ronalds
Dipper Harbour, St. John Co., N.B.	4000	decrease	J.F. Kane
Sackville - Amherst	50	increase	B.C. Carter

Carter, B.C. 1958. Spring waterfowl report, N.B., N.S., and P.E.I. On file, CWS, Sackville, N.B.

"The aerial and ground surveys show a decrease in the number of Canada Geese and Brant migrating through the Maritime Provinces in 1958, but observers reported no change. The decrease recorded in the surveys probably resulted from the surveys being carried out at a later date than in 1957.

"Aerial surveys show that Brant seem to be still increasing in all areas except the N.B.-N.S. border area, although the ground surveys showed slight decrease.

"In general, the surveys suggest that the total Brant population migrating through the Maritime Provinces has not changed appreciably from previous years. This year the birds were more dispersed with the only large concentration in Prince Edward Island."

Carter, B.C. 1959. Spring waterfowl report, Maritime Provinces. 1959. CWS, Sackville, N.B.

"Aerial and ground surveys and observers show a slight increase in Canada Geese migrating through the Maritime Provinces in 1959. There was no change in the numbers of Brant - only one observer reported an increase. Again the Brant were dispersed widely over the area with the only large concentrations occurring in Prince Edward Island."

Area	Date	Observer	Brant
N.S.-A*	May 27, 1958	C. Bartlett	495
	May 12, 1959	C. Bartlett	530
N.S.-B*	May 24-27, 1958	B. Carter	
	May 20,23,24,26, 1959	B. Carter	
N.B.-N.S. Border Area	May, 1958	C. Bartlett B. Carter	
	April-May, 1959	C. Bartlett B. Carter	
N.B.-B**	May 6-10, 1958	B. Carter	
	May 11, 1959	B. Carter	
Totals	1958		495
	1959		530

*N.S.-A - North shore Nova Scotia from Amherst to Antigonish
B - Cape Breton Island
**N.B.-B - Saint John River

Erskine, A.J. 1961. Spring waterfowl report, Maritime Provinces. 1961. CWS, Sackville, N.B.

"No aerial coverage of Prince Edward Island is available for comparison with those of 1960. The data available from ground surveys suggested that numbers of Brant along the north shore of Nova Scotia on May 29, 1961, were equal to or greater than those present two weeks earlier in 1960. Flocks of Brant were still present in some areas on June 5, and flocks in Prince Edward Island were also late in departing."

APPENDIX V. Records of Atlantic Brant for the St. Lawrence River estuary from files of the Ste. Foy, Quebec office of the Canadian Wildlife Service

Date	Location	Brant	Observer
1922			
Spring	la Baie de Sept Isles	60,000	Rowe
1923			
Spring	la Baie de Sept Isles	40,000	Haultain
1924			
Spring	la Baie de Sept Isles	17,000	Armstrong
1926			
Spring	la Baie de Sept Isles	63,400	Scherrer
1929			
Spring	la Baie de Sept Isles	492,700	Boudreault
1931			
Spring	la Baie de Sept Isles	79,910	Petitpas
1932			
May 30	la Baie de Sept Isles	400	C. Doire
31		650	
June 1		800	
2		700	
3		800	
4		10,000	
5		20,000	
6		20,000	
7		18,000	
8		15,000	
9		4,000	
10		4,000	
11		4,000	
12		850	
13		700	
14		500	
1933			
Spring	la Baie de Sept Isles	79,500	C. Doire
1934			
June 2	la Baie de Sept Isles	250	C. Doire
3		275	
4		350	
5		350	
6		450	
7		400	

APPENDIX V. (continued)

Date	Location	Brant	Observer
1934 (cont'd.)			
June 8	la Baie de Sept Isles	500	C. Doire
9		600	
10		3,000	
11		5,000	
12		6,000	
13		10,000	
14		12,000	
15		16,000	
16		17,000	
17		16,000	
18		3,000	
19		200	
1935			
Spring	la Baie de Sept Isles and vicinity	6,500*	H.F. Lewis and C. Doire
Spring	Kamouraska	50	W. LaBrie
1936			
Late Oct. and early November	Isle Verte region	1,000	J. Levesque
1937			
May 29	la Baie de Sept Isles	96	D. Talbot
30		380	
31		440	
June 1		388	
2		308	
3		160	
4		307	
5		75	
6		104	
7		487	
8		222	
9		92	
10		50	
12		14	
14		10	
1938			
May 9	la Baie de Sept Isles	11	D. Talbot
23		175	
27		12	
28		30	
29		60	
30		42	
31		138	

* Actual count at la Baie de Sept Isles Spring, 1935 was 4,508

APPENDIX V. (continued)

Date		Location	Brant	Observer
1938 (cont'd.)				
June	1	la Baie de Sept Isles	427	D. Talbot
	2		316	
	3		375	
	4		280	
	5		340	
	6		869	
	7		718	
	8		532	
	9		204	
	10		38	
1939				
May	29	la Baie de Sept Isles	250	D. Talbot
	30		610	
	31		335	
June	1		124	
	4		342	
	5		428	
	6		780	
	7		719	
	8		1,208	
	9		910	
	10		481	
	11		186	
	16		8	
1940				
June	1	la Baie de Sept Isles	52	D. Talbot
	2		36	
	3		58	
	4		463	
	5		447	
	6		512	
	7		886	
	8		1,108	
	9		915	
	10		312	
	11		103	
1941				
May	25	la Baie de Sept Isles	38	D. Talbot
	27		263	
	29		128	
June	4		228	
	5		504	
	6		633	

APPENDIX V. (continued)

Date	Location	Brant	Observer
1941 (cont'd.)			
June 7	la Baie de Sept Isles	1,114	D. Talbot
8	la Baie de Sept Isles	763	
9	la Baie de Sept Isles	603	
10	la Baie de Sept Isles	508	
11	la Baie de Sept Isles	382	
12	la Baie de Sept Isles	178	
1942			
April 27	Havre St. Pierre	50	J. Boudreault
28	Havre St. Pierre to Longue Pointe de Mingan	15	
May 19	Quarry I. to Havre St.Pierre	250	
19	la Baie de Sept Isles	176	D. Talbot
20	la Baie de Sept Isles	70	
21	la Baie de Sept Isles	132	
22	la Baie de Sept Isles	180	
28	Betchouane to Havre St. Pierre	30	J. Boudreault
29	Havre St. Pierre to Large I.	200	
June 2	Between Baie Victor and Isle au Marteau	100	
3	Between Betchouane and Large I.	700	
3	la Baie de Sept Isles	425	D. Talbot
4	la Baie de Sept Isles	636	
5	la Baie de Sept Isles	718	
6	la Baie de Sept Isles	1,182	
6	Between Baie Victor and St. Charles Island	600	L.J. Boudreault
7	la Baie de Sept Isles	932	D. Talbot
8	la Baie de Sept Isles	796	
9	la Baie de Sept Isles	416	
9	Quarry Island	"very large number"	L.J. Boudreault
16	Between Havre St. Pierre and Large Island	600	
19	"Never saw so many Brant in his district in any previous year"		
1943			
May 2	Havre St. Pierre and vicinity	100	E. Vigneault
10	Havre St. Pierre to Longue Pointe of Mingan	20	J. Boudreault
13	la Baie de Sept Isles	62	B. Bijould
14	Havre St. Pierre and vicinity	100	E. Vigneault

APPENDIX V. (continued)

Date	Location	Brant	Observer
1943 (cont'd.)			
May 17	Havre St. Pierre to Large Island	2	J. Boudreault
17	la Baie de Sept Isles	97	B. Bijould
18	la Baie de Sept Isles	108	
19	la Baie de Sept Isles	40	
26	Betchouane Sanctuary	75	J. Boudreault
June 1	la Baie de Sept Isles	302	B. Bijould
2	la Baie de Sept Isles	238	
3	la Baie de Sept Isles	172	
4	la Baie de Sept Isles	102	
5	la Baie de Sept Isles	92	
7	Birch I. to Betchouane Sanct.	400	L.J. Boudreault
8	la Baie de Sept Isles	1,452	B. Bijould
9	la Baie de Sept Isles	1,363	
10	la Baie de Sept Isles	872	
11	la Baie de Sept Isles	603	
1973			
May 1	Upper Islands and South shore of St. Lawrence estuary (aerial survey)	1,122	A. Reed