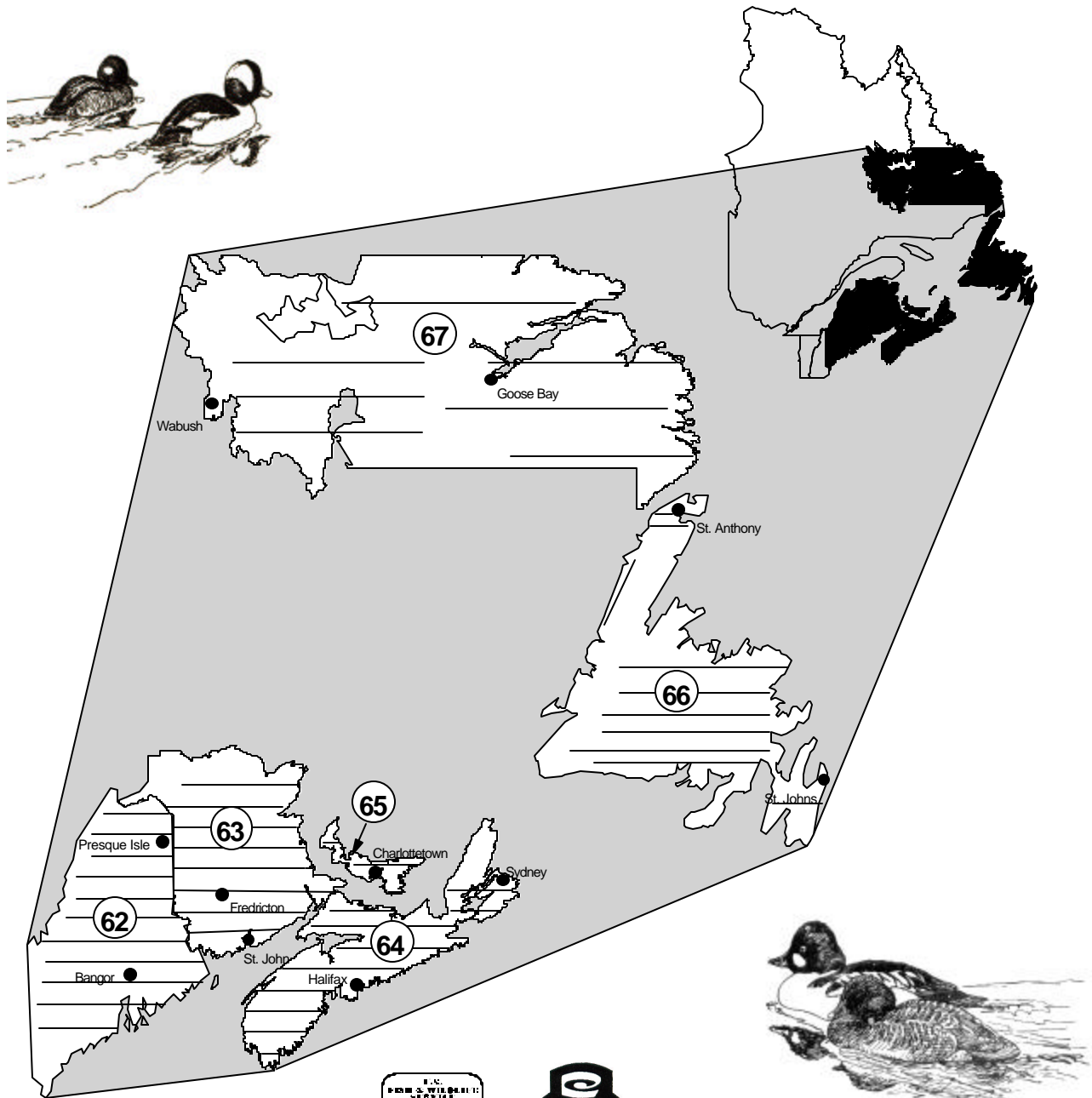


# MAINE & THE MARITIMES

## Waterfowl Breeding Population Survey

### 2001



TITLE: Waterfowl Breeding Population Survey for Maine and the Maritimes

STRATA SURVEYED: 62, 63, 64, 65, 66 and 67

DATES: May 2 through June 2, 2001

DATA SUPPLIED BY: United States Fish and Wildlife Service (USFWS)  
Canadian Wildlife Service (CWS)

Aerial Crew:

Pilot/Observer: John Bidwell, Flyway Biologist, USFWS

Observer: Marty Drut, Wildlife Biologist, USFWS

ABSTRACT

The 2001 waterfowl breeding population survey of Maine and the Maritimes was conducted from May 2 through June 2. All transects and segments were flown and comparisons made with the historical data set, which includes estimates from 1996 through 2000. This was the second operational year for the survey.

Cooler temperatures and abundant snowfall describes the winter of 2000-01. Also, a late spring delayed migration and may help explain the (-12.2%) decline in total ducks from 2000. Survey estimates for selected species, total ducks and NAP Canada geese, are listed below.

Species	2001 estimates in thousands	% change from 2000	% change from 1996-2000 mean
Mallard	10.3	-51.5	-66.2
American black duck	182.6	-29.2	-24.1
American wigeon	59.5	125.4	558.8
American green-winged teal	145.9	6.9	1.2
Northern pintail	14.2	117.7	139.7
Ring-necked duck	127.9	-41.0	-28.9
Goldeneye	149.6	164.2	65.3
Bufflehead	25.3	97.2	149.4
Scoters	11.6	-30.5	-60.5
Mergansers	44.9	-13.9	-46.9
<b>Total Ducks</b>	<b>801.5</b>	<b>-12.2</b>	<b>-15.4</b>
Canada goose	155.9	-20.8	-30.5
NAP Canada goose (Strata 66 and 67)	129.3	-26.4	-31.9

## METHODS

Methods for conducting this survey are described in the Standard Operating Procedures for Aerial Waterfowl Breeding Ground Population and Habitat Surveys in North America, Section III, revised 1987. Waterfowl data was collected using Hodges (2001) Voice/GPS (record and transcribe) survey system designed to georeference each observation. Transcribed raw data was error checked and compiled for transmission to the Population and Habitat Assessment Section (PHAS) of the United States Fish and Wildlife Service (USFWS), Division of Migratory Bird Management (DMBM).

This years data was adjusted with pooled visibility correction factors for Strata 62 and 63 through 67. This is the second operational survey for Strata 62 through 67, however it must be noted that comparisons are made with a minimum of historical data. Stratum 62 has a data set from 1995-2001 while Strata 63-67 have data sets from 1996-2001. A discussion of North Atlantic Population (NAP) Canada geese is included with Total Indicated Pairs (TIP) and Total Indicated Birds (TIB) listed in Table 5.

Crew leader John Bidwell, Biologist/Pilot and observer Marty Drut, Wildlife Biologist worked together for a second consecutive year. Because of increased interest and concern over American black duck and NAP Canada goose populations, the author suggests that the same aerial crew be maintained for at least another five years. This would certainly help with the statistical analysis of population data.

A Partenavia (P68C-TC) aircraft (N766) was used for the survey which began May 2 and continued through June 2. Twenty one days and 109.3 flight hours were needed to complete all 331 segments as shown in Table 2 (Current Year Design). Weather delays were encountered in Fredericton, New Brunswick during the middle of May and at Goose Bay, Labrador near the end of the month. Traditionally, the survey is flown from Maine (Stratum 62) north to Labrador (Stratum 67), and within each stratum, flown from south to north. The exceptions are Nova Scotia (Stratum 64) and Prince Edward Island (Stratum 65). Stratum 65 is only 6 segments and is traditionally flown from north to south, in one day, as progression is made toward Halifax, Nova Scotia. Once in Halifax (central Nova Scotia) transects for Stratum 64 are flown, first south to Yarmouth, and then north to Sydney. It should be noted that the final decision on survey design is based on weather and safety factors.

## WEATHER AND HABITAT

Weather conditions in Maine and the Maritimes for the period November 2000 to April 2001 were cool and wet. Mean temperatures ran slightly below normal but snowfall was considerably above 2000 levels and in many areas above long term averages. For example, the Avalon peninsula of Newfoundland had between 6 and 6.5 meters of snow from October through April. All other Atlantic provinces and Maine recorded heavy precipitation averaging from 2.5 to 4.6 meters of snow.

Through the end of April, spring thaw was late to arrive and snow and ice remained in most areas except coastal habitats. During the first week of May, however, above normal

temperatures (30 degrees Celsius) created rapid snow and ice melt in the inland areas of Strata 62 to 65. The thaw was so rapid that much of the snow pack evaporated creating extreme, but temporary, spring fire problems in Maine and New Brunswick. Temporary, because from May 13 to 15 a low pressure stalled over Maine and the Maritimes dumping as much as 100 millimeters of rain in a twenty four hour period in Moncton, New Brunswick and Halifax Nova Scotia. Rainfall records were broken all the way back to 1964. New Brunswick and parts of Nova Scotia went from tinder dry to flooded conditions in two days.

Winter in Labrador was about normal for precipitation and temperature. Spring thaw, however, in Newfoundland and Labrador (Strata 66 and 67) were about a week late based on long term averages. Like the Maritimes, Labrador had high temperatures (above 20 degrees Celsius) the last week of May, breaking records back to the 1940's.

Habitat condition and duck phenology appeared at least a week late throughout the survey area. Most birds were recorded as singles and pairs and large flocks of migrating birds were not noticed on transect. However, concentrations of most duck species common to the north east were noticed along the Saint John River in New Brunswick and also around coastal wetlands of all strata. In most cases these birds were not recorded because of survey design and appeared either to be late or non breeders.

#### BREEDING POPULATION ESTIMATES

Data for the 2001 breeding waterfowl population are listed by strata and species in Table 1 and the long term population estimates can be found in Appendix 1. The overall duck population estimate for 2001 is 801,500 which is (-12.2%) less than 2000 and (-15.4%) less than the long term (1996-2000) mean. American black ducks are down (-29.2%) from 2000 to an index of 182,600 and also down (-24.1%) from the long term mean. Three dabbling species increased in 2001. American wigeon set a survey record at 59,500 which is (+125.4%) above 2000 and (+558.8%) above the long term mean. American green-winged teal also showed a moderate increase of (+6.9%) over 2000 and (+1.2%) over the long term mean. Northern pintails, primarily along the western side of Labrador, increased (+117.7%) over 2000 and (+139.7%) over the long term mean. In the diving duck category Ring-necked duck declined (-41.0%) over 2000 to an index of 127,900. This is also a (-28.9%) decrease over the long term mean. Goldeneye and Bufflehead, however, both showed increases over the 2000 index and the long term mean. In the miscellaneous category, Scoters declined in Stratum 67 to a survey low of 11,600 which is (-30.5%) below the 2000 index and (-60.5%) below the long term index. Figure 1 shows population indices for individual waterfowl species on an annual basis and can be found at the end of this report.

The North Atlantic Population (NAP) Canada geese breed in western Greenland, Labrador, Newfoundland and eastern Quebec and over-winter in southern Atlantic Canada and New England. Tables 3 and 4 present raw and expanded data for NAP Canada geese in Stratum 66 (Newfoundland) and Stratum 67 (Labrador) respectively. Table 5 summarizes and combines these data sets and shows that the Total Indicated Pairs (TIP) index is essentially unchanged from 2000 at 57,797, however, it is (-22.4%) below the 1996-2000 mean. Total Indicated Birds

(TIB) fell to 129,258 which is a (-26.4%) decline over 2000 and a (-31.9%) decline over the long term mean.

## CONCLUSIONS

A late spring and isolated flooding in New Brunswick and Nova Scotia during May could have adversely affected early nesting species, but in general habitat conditions were good throughout Maine and the Atlantic provinces. Late nesting should be successful and at least average production can be expected. The NAP Canada geese Total Indicated Bird index fell below the 2000 and the long term average, however Total Indicated Pairs remained at the 2000 level, so production should remain stable.

## ACKNOWLEDGEMENTS

I would like to thank Bruce Turner, Scott Gilliland and Myrtle Bateman of the Canadian Wildlife Service (Atlantic Region) for assistance and advice during this survey. Also, thanks to all the DMBM staff who assisted me in preparation of this final report.

Submitted by: John Bidwell, Flyway Biologist

July 18, 2001



Table 2. Survey design for Maine and the Maritimes, May 2001.

Survey Design	Stratum						Total
	62	63	64	65	66	67	
Square miles in stratum	32,202.7	27,874.5	21,179.6	2,225.21	42,248.4	84,608.8	210,339.21
Square miles in sample	333	256.5	216	27	319.5	337.5	1,489.5
Linear miles in sample	1,332	1,026	864	108	1,278	1,350	5,958
Number transects in sample	11	8	10	3	10	7	49
Number segments in sample	74	57	48	6	71	75	331
Expansion factor	96.705	108.673	98.054	82.415	132.233	250.693	141.215
<b>Current Year Design</b>							
Square miles in stratum	32,202.7	27,874.5	21,179.6	2,225.21	42,248.4	84,608.8	210,339.21
Square miles in sample	333	256.5	215.25	27	319.5	337.5	1,488.75
Linear miles in sample	1,332	1,026	861	108	1,278	1,350	5,955
Number transects in sample	11	8	10	3	10	7	49
Number segments in sample	74	57	48	6	71	75	331
Expansion factor	96.705	108.673	98.395	82.415	132.233	250.693	141.286

Table 3. North Atlantic Population Canada goose breeding survey data, stratum 66.

Stratum	Year	Raw data					Expansion factor	VCF***	Expanded data				
		Singles	Pairs	Open	TIP*	TIB**			Singles	Pairs	Open	TIP*	TIB**
66	1996	11	47	0	58	116	234.7111	2.73	7,048	30,116	0	37,164	74,328
66	1997	14	32	4	46	96	223.5344	2.73	8,543	19,528	2,441	28,071	58,584
66	1998	28	62	71	90	251	132.2316	2.73	10,108	22,382	25,630	32,489	90,609
66	1999	59	46	45	105	255	132.2316	2.73	21,299	16,606	16,245	37,904	92,053
66	2000	36	45	38	81	200	132.2316	2.73	12,996	16,245	13,718	29,240	72,198
66	2001	39	32	17	71	159	132.2316	2.73	14,079	11,552	6,137	25,630	57,398

\* Total indicated pairs = S + P

\*\* Total indicated birds = 2S + 2P + O

\*\*\* Visibility correction factor

Expanded data = (Raw data) x (Expansion factor) x VCF



Table 4. North Atlantic Population Canada goose breeding survey data, stratum 67.

Stratum	Year	Raw data					Expansion factor	VCF***	Expanded data				
		Singles	Pairs	Open	TIP*	TIB**			Singles	Pairs	Open	TIP*	TIB**
67	1996	12	50	37	62	161	368.6623	2.73	12,077	50,322	37,239	62,400	162,038
67	1997	22	29	30	51	132	261.1358	2.73	15,684	20,674	21,387	36,358	94,103
67	1998	19	11	52	30	112	261.1358	2.73	13,545	7,842	37,071	21,387	79,845
67	1999	45	41	6	86	178	250.6904	2.73	30,797	28,060	4,106	58,857	121,820
67	2000	13	29	67	42	151	250.6904	2.73	8,897	19,847	45,854	28,744	103,342
67	2001	20	27	11	47	105	250.6904	2.73	13,688	18,478	7,528	32,166	71,860

\* Total indicated pairs = S + P

\*\* Total indicated birds = 2S + 2P + O

\*\*\* Visibility correction factor

Expanded data = (Raw data) x (Expansion factor) x VCF

**Table 5. North Atlantic Population Canada goose breeding survey data combined for Strata 66 (Newfoundland) and 67 (Labrador)**

Stratum 66 (Newfoundland)					
Year	Singles	Pairs	Grouped	TIP*	TIB**
1996	7,048	30,116	0	37,164	74,328
1997	8,543	19,528	2,441	28,071	58,584
1998	10,108	22,382	25,630	32,489	90,609
1999	21,299	16,606	16,245	37,904	92,053
2000	12,996	16,245	13,718	29,240	72,198
2001	14,079	11,552	6,137	25,630	57,398
Stratum 67 (Labrador)					
Year	Singles	Pairs	Grouped	TIP*	TIB**
1996	12,077	50,322	37,239	62,400	162,038
1997	15,684	20,674	21,387	36,358	94,103
1998	13,545	7,842	37,071	21,387	79,845
1999	30,797	28,060	4,106	58,857	121,820
2000	8,897	19,847	45,854	28,744	103,342
2001	13,688	18,478	7,528	32,166	71,860
Combined total, strata 66 and 67					
Year	Singles	Pairs	Grouped	TIP*	TIB**
1996	19,126	80,438	37,239	99,564	236,366
1997	24,227	40,202	23,828	64,429	152,687
1998	23,653	30,223	62,701	53,876	170,454
1999	52,096	44,665	20,351	96,761	213,874
2000	21,893	36,092	59,571	57,985	175,541
2001	27,766	30,030	13,665	57,797	129,258

\* Total indicated pairs = Singles + Pairs

\*\* Total indicated birds = 2 x Singles + 2 x Pairs + Grouped

Appendix 1. Long-term trend in adjusted waterfowl breeding population estimates (thousands).

Species/Ponds	1996	1997	1998	1999	2000	2001
Ducks						
Dabblers						
Mallard	23.1	38.2	48.0	21.3	21.1	10.3
Am. black duck	178.2	261.4	288.7	216.8	257.8	182.6
Gadwall	0.0	0.8	0.8	0.0	0.0	3.0
Am. wigeon	3.2	2.7	9.2	3.7	26.4	59.5
Am. green-winged teal	149.4	90.0	170.0	175.2	136.5	145.9
Blue-winged teal	22.3	1.8	5.6	19.0	0.0	0.0
N. shoveler	0.7	0.0	0.0	0.0	2.1	0.0
N. pintail	9.1	2.2	1.7	10.2	6.5	14.2
Subtotal	386.0	397.0	524.0	446.2	450.5	415.5
Divers						
Redhead	0.0	0.0	0.0	0.0	0.0	0.0
Canvasback	0.0	0.0	0.0	0.0	0.0	0.0
Scaups	0.0	0.4	0.6	8.7	17.5	0.0
Ring-necked duck	175.4	246.7	132.4	128.7	216.7	127.9
Goldeneyes	31.2	45.3	83.3	236.3	56.6	149.6
Bufflehead	3.4	8.0	3.1	23.4	12.8	25.3
Ruddy Duck	0.0	0.0	0.0	2.3	0.0	0.0
Subtotal	210.0	300.4	219.5	399.4	303.7	302.9
Miscellaneous						
Oldsquaw	1.5	0.0	1.4	0.0	0.0	0.0
Eiders	172.9	95.4	168.3	0.0	89.8	26.7
Scoters	23.3	0.0	60.7	45.8	16.6	11.6
Mergansers	45.9	149.7	107.3	68.2	52.2	44.9
Subtotal	243.6	245.0	337.7	114.0	158.6	83.1
Total Ducks	839.6	942.4	1081.2	959.6	912.7	801.5
Canada Goose	231.7	185.1	229.2	278.8	196.9	155.9
Am. coot	0.0	0.0	0.0	0.0	0.0	0.0

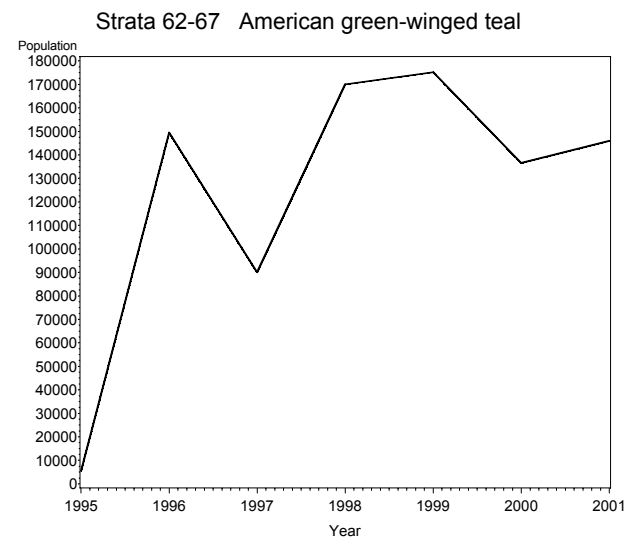
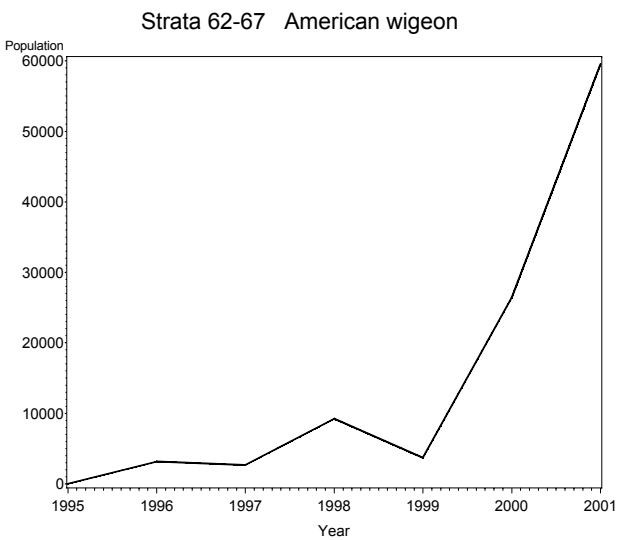
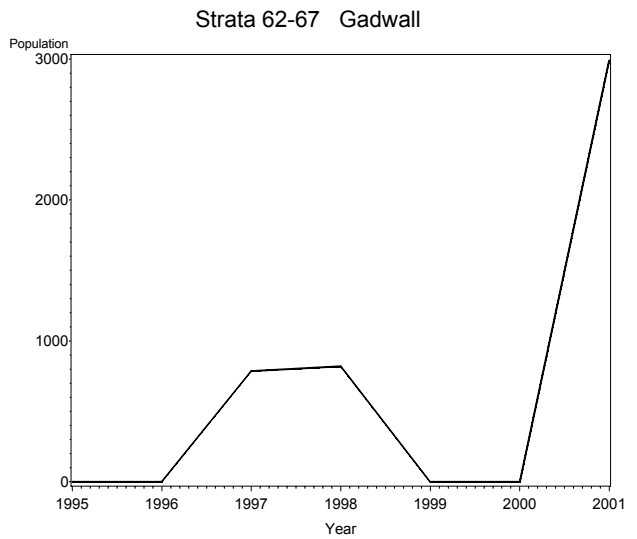
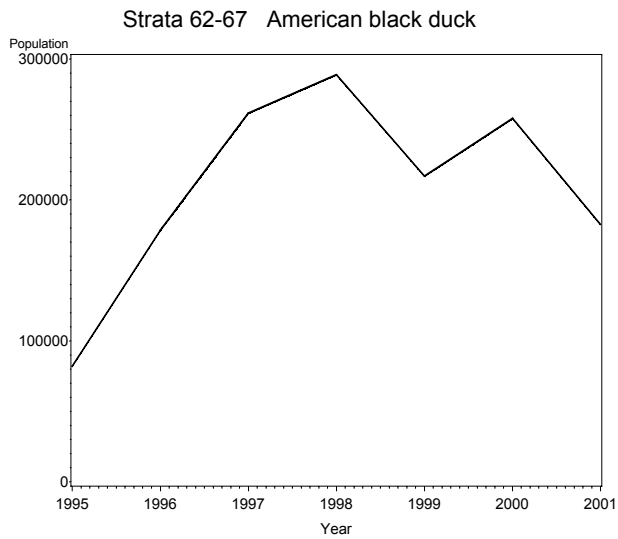
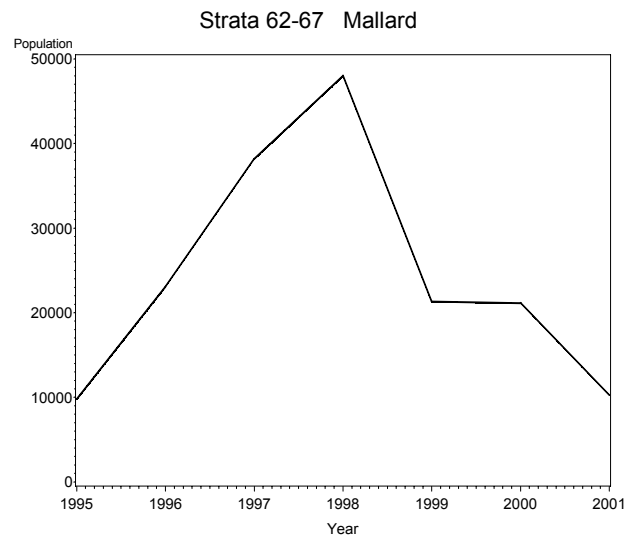
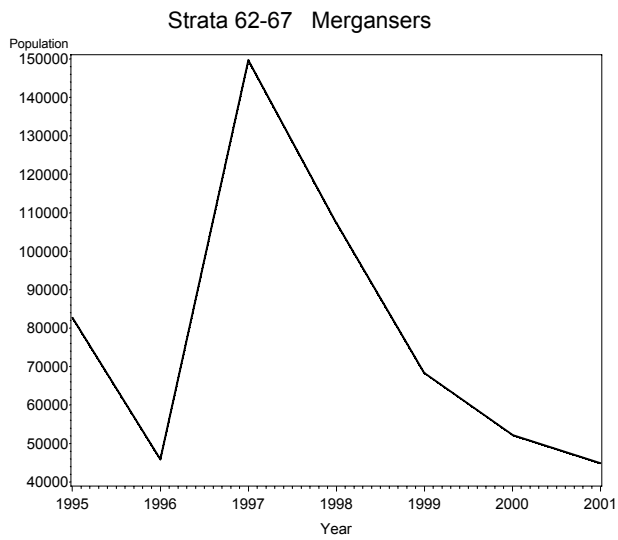


Figure 1. Population indices for the individual waterfowl species on an annual basis.

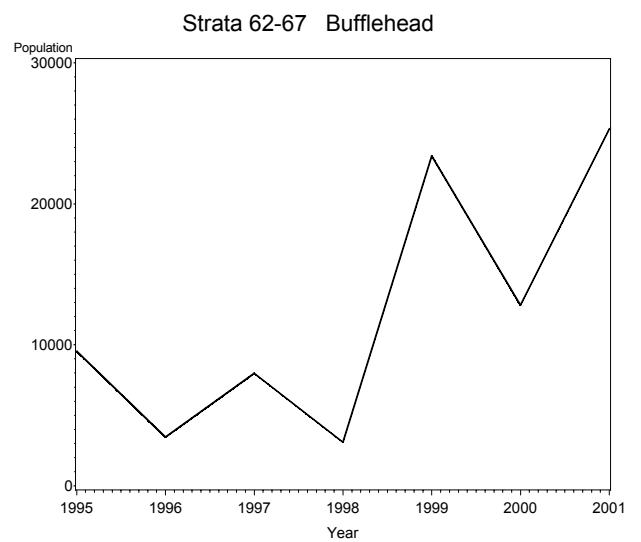
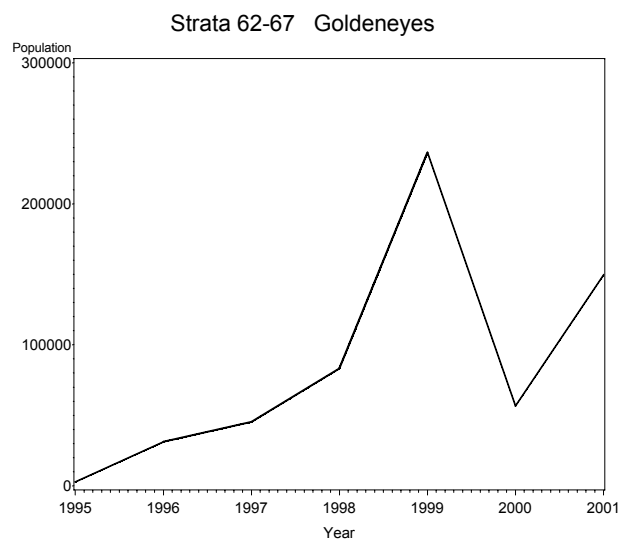
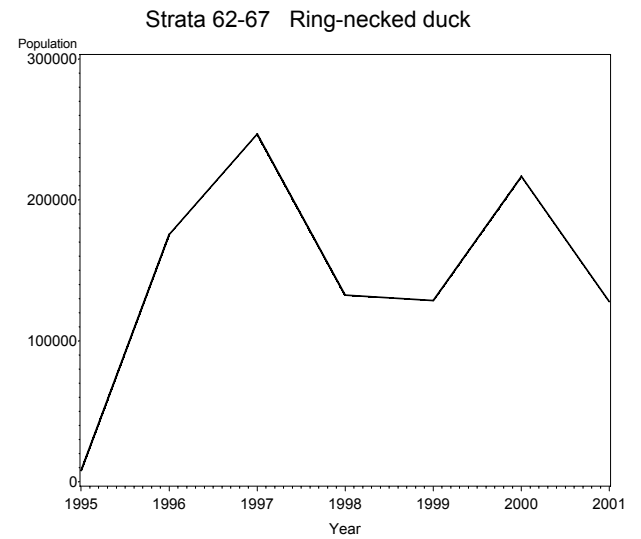
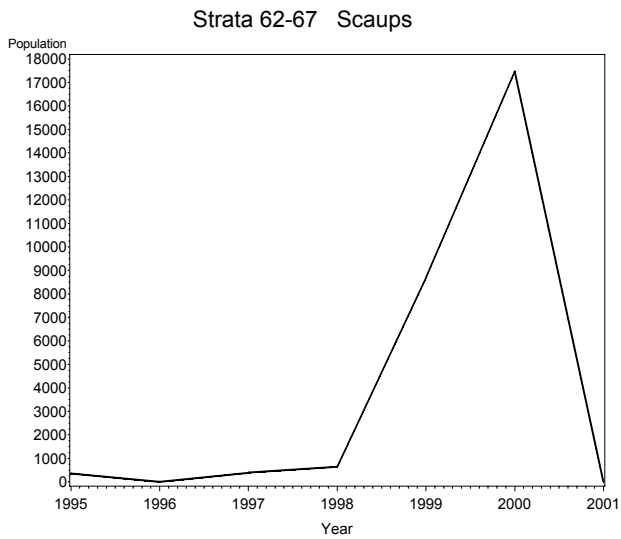
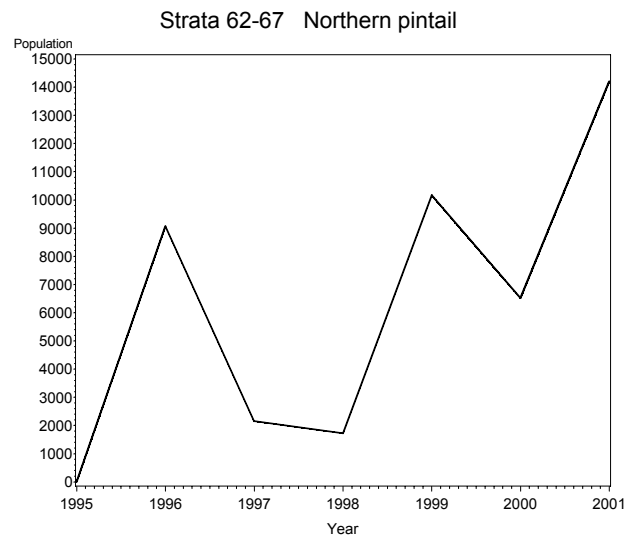
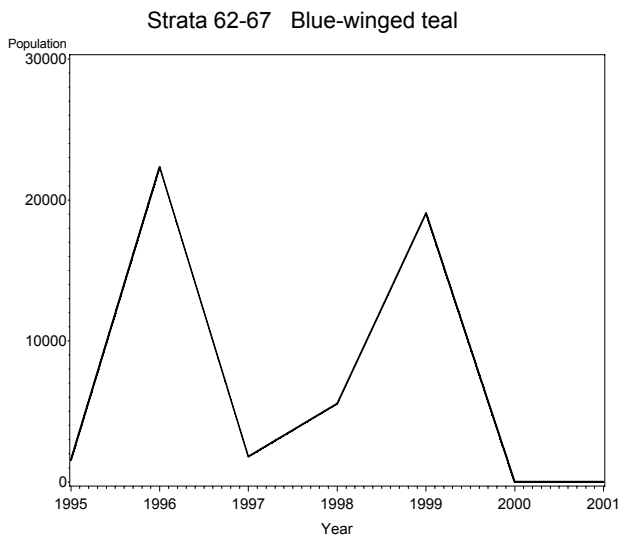


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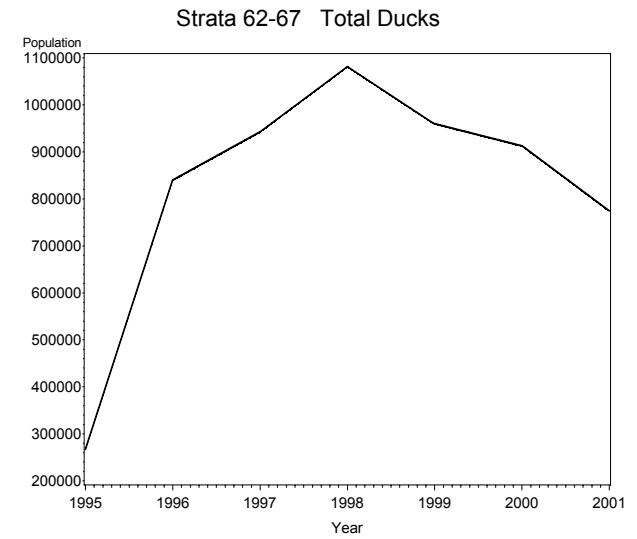
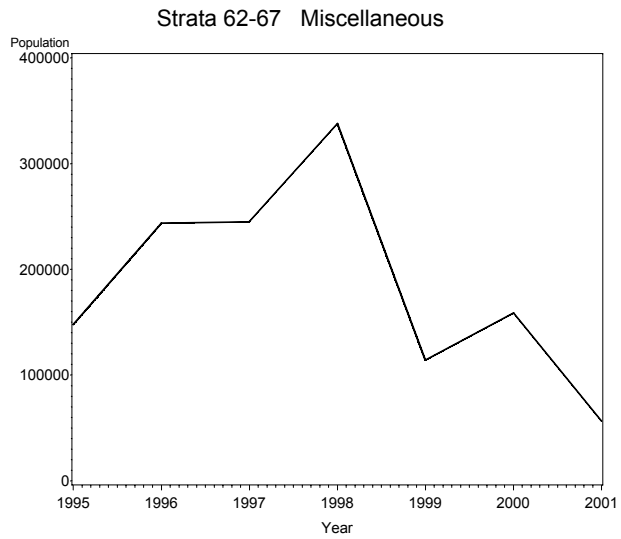
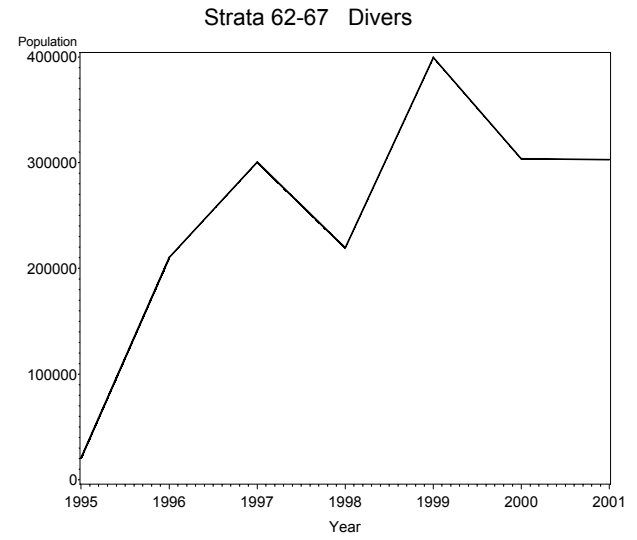
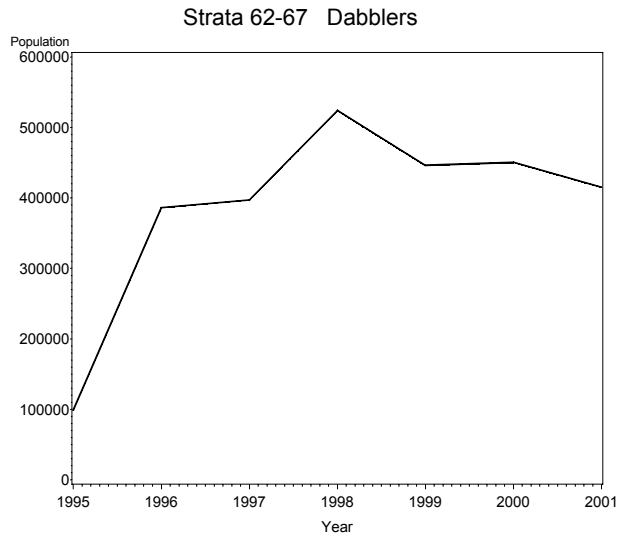
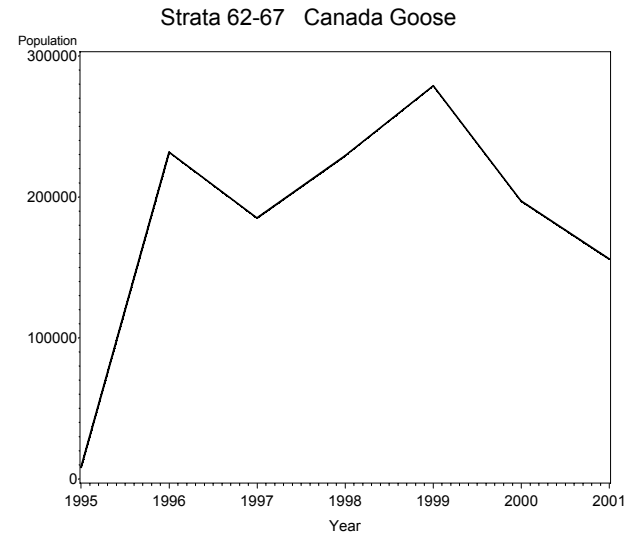
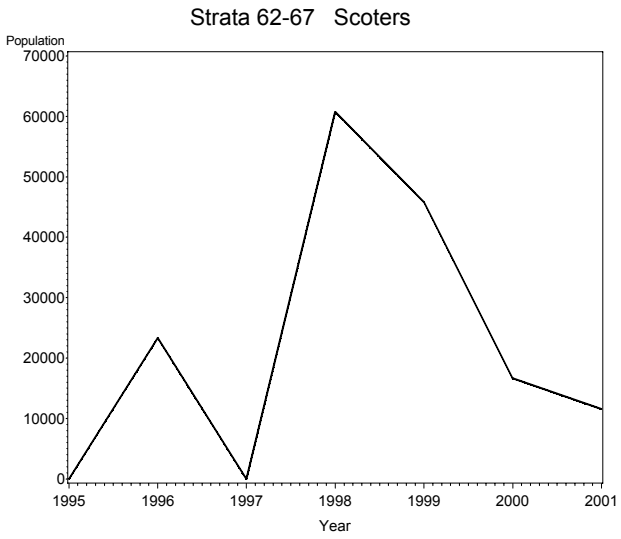


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