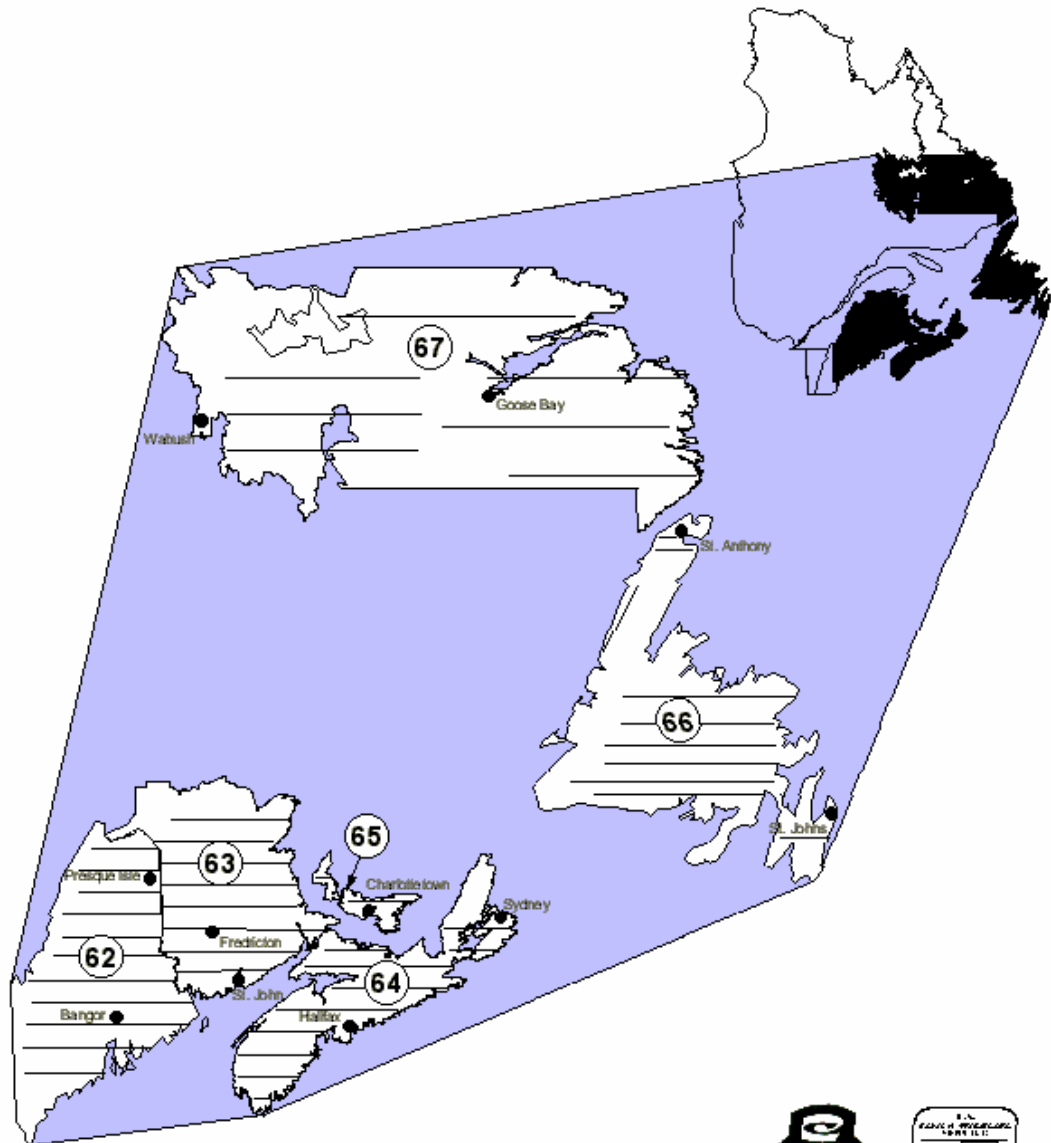


MAINE AND THE MARITIMES

Waterfowl Breeding Population Survey

2004



TITLE: Waterfowl Breeding Population Survey for Maine and the Maritimes

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

DATES: May 5 through June 6, 2004

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

Fixed Wing Crew:

Pilot/Observer: John Bidwell, Flyway Biologist, USFWS

Observer: Marty Drut, Wildlife Biologist, USFWS

ABSTRACT

The 2004 waterfowl breeding population survey of Maine and the Maritimes was conducted from May 5 through June 6. All transects and segments were flown and comparisons made with the historical data set, which includes estimates from 1996 through 2003. This was the fifth operational year for the survey.

The winter of 2003-04 was generally colder than normal for most southern parts of the survey area but warmer than normal in Labrador. Precipitation was below normal in Maine and Labrador but normal to above normal in the Maritimes and Newfoundland. Spring break-up

Species	2004 estimates in thousands	% change from 2003	% change from 1996-2003 mean
Mallard	24.2	71.2	0.6
American black duck	239.3	24.1	0.6
American wigeon	17.0	-38.4	-21.1
American green-winged teal	323.5	46.2	62.8
Northern pintail	28.6	42.9	119.8
Ring-necked duck	192.8	102.4	24.0
Goldeneyes	111.1	-6.5	3.4
Bufflehead	16.7	36.5	29.6
Scoters	52.3	124.8	82.6
Mergansers	65.6	-11.8	-19.9
Total Ducks	1115.7	35.0	14.4
Canada goose	234.6	53.2	13.7
NAP Canada goose TIB (Strata 66 and 67)	197.2	47.9	12.3
NAP Canada goose TIP (Strata 66 and 67)	67.8	11.5	-1.9

progressed normally in Maine, the Maritimes and Newfoundland but was delayed in Labrador. Waterfowl breeding chronology was normal with good single/pair ratios noted in strata 64 through 67. Few flocked birds were observed except at the beginning of the survey in strata 62 and 63. Most species were dispersed and on territories. Indices are above 2003 estimates for all species except American wigeon, Goldeneyes, mergansers and scaup. Survey estimates for selected species, total ducks and North Atlantic Population (NAP) Canada geese are listed on the previous page.

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 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 year's data was adjusted using pooled visibility correction factors for Strata 62 and 63 through 67. Stratum 62 has a data set including the years 1995-2004 while Strata 63-67 have data sets including the years 1996-2004. 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 fifth consecutive year. Because of increased interest and concern over American black duck and NAP Canada goose populations, DMBM has made a commitment to maintain the same aerial crew for at least another three years. Consequently, statistical analysis of population data will improve with each future survey.

A Partenavia (P68C-TC) aircraft (N766) was used for this survey, which began May 5 and continued through June 6. Twenty days and 101.4 flight hours were needed to complete all 331 segments shown in Table 2 (Survey Design). The eastern 6.0 miles of 62-06-04 and the western 3.6 miles of 62-06-03 were eliminated from the survey because of strong gusty winds over mountainous terrain. Under the current year design, Table 2 depicts an adjustment to stratum 62's expansion factor. The only significant weather delay was encountered in Labrador and that actually worked to our advantage because of late spring conditions.

Traditionally, the survey is flown from Maine (Stratum 62) through New Brunswick (Stratum 63) then northeast to Labrador (Stratum 67). Within each stratum, transects are flown from south to north except in Nova Scotia (Stratum 64) and Prince Edward Island (Stratum 65). Stratum 65 only contains 6 segments and is normally flown in one day, from north to south. 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 duck breeding chronology, weather and flight safety factors.

WEATHER AND HABITAT

Maine: November and December were mild with above normal precipitation. In fact, in December, thirty inches of snow fell which was the highest monthly record for the season. January through March recorded below normal precipitation and below normal temperatures. Snow pack was light during late winter and there was no significant spring flooding. Break-up started during the second week of April and by the third week had progressed well into to the north. Warm temperatures in late April and early May resulted in complete thawing of all lakes, ponds and wetlands. Spring phenology was normal and excellent habitat was available for breeding waterfowl.

Maritimes: New Brunswick, Prince Edward Island and Nova Scotia had normal precipitation in November and slightly above normal precipitation in December. January through March averaged above normal precipitation with below normal temperatures. It seems most weather systems tracked south of Maine and then intensified in the Maritimes. Warm temperatures in late April and early May led to complete spring break-up. Agricultural activities were normal and no evidence of flooding was observed except along the St John River in New Brunswick. Large flocks of mixed species were noted there, but nothing unusual from previous years. Some of these ducks are breeders, but our survey design does not allow a complete inventory of this riverine habitat. In general, excellent conditions were available in the Maritimes for breeding waterfowl.

Newfoundland and Labrador: In Newfoundland snow was late to arrive and temperatures were mild in November and December. Snowfall on the Avalon Peninsula was about average, while central Newfoundland had areas of record precipitation. Labrador had below normal snow pack and temperatures were above normal most of the winter. Spring break-up progressed normally for Newfoundland and waterfowl were dispersed and on territories. Labrador, however, had an extremely late spring. Above the 1500 foot elevation mark lakes, ponds and wetlands were completely frozen with only a few of the shallower ponds showing any shoreline thawing. Early breeders had to compete for open habitat at lower elevations, but were well dispersed. Habitat conditions were excellent in Newfoundland but, as a result of the late spring and reduced habitat availability, were only classified as good in Labrador.

BREEDING POPULATION ESTIMATES

Table 1 lists data for the 2004 breeding waterfowl population while the long-term population estimates can be found in Appendix 1. Population index graphs for individual species are found in Figure 1. The overall duck population estimate for 2004 is the second highest of record at 1,115,700. It is (+35%) above the 2003 index and (+14.4%) above the long term (1996-2003) mean. American black ducks are up (+24.1%) from 2003 and slightly above the long term mean (+0.6%). There were significant increases over 2003 in ring-necked duck (+102.4%), scoters (+124.8%), American green-winged teal (+46.2%) and northern pintail (+42.9%). The only duck species to show declines from 2003 were American wigeon (-38.4%), scaups (-77.2%), Goldeneyes (-6.5%) and mergansers (-11.8%).

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 indicates that the Total Indicated Pairs (TIP) index of 67,814 is (+11.5%) above the 2003 index, but (-1.9%) below the 1996-2003 mean. Total Indicated Birds (TIB) increased to 197,238, which is (+47.9%) above 2003 and (+12.3%) above the long-term mean. If each stratum is examined independently, TIP's were up significantly in Labrador, but geese will probably be unproductive because of the late spring. Newfoundland, however, had excellent habitat conditions and although the TIP's are less than 2003, productions should be good. The percent singles in both strata were similar: 44% in Newfoundland and 42% in Labrador.

CONCLUSIONS

Most waterfowl species showed significant increases in 2004. During the winter of 2003-04 lakes, ponds and wetlands were fully charged. Spring break-up was normal except for Labrador, so waterfowl, generally, had excellent habitat for breeding. More grouped observations were made in stratum 62 and 63, which indicates timing was probably about one week early. However in strata 64 through 67 single and pair observations were dominant, indicating good survey timing. Production for 2004 should be above the 2003 level.

Funding was not available in 2004 for helicopter VCF surveys. Weather conditions are very unpredictable in the Atlantic Provinces during May. For example, in 2003 strong gusty winds dominated the entire month while in 2004 a more docile weather pattern was the norm. These differences have significant effects on observer visibility and can only be corrected with helicopter VCF. With the increased interest in NAP Canada geese and black ducks, funding for VCF surveys should be a future priority.

ACKNOWLEDGEMENTS

I would like to thank Bruce Turner, Scott Gilliland, Keith Chaulk 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. Finally, I would like to thank Wildlife Biologist Marty Drut for completing another successful survey.

Submitted by: John Bidwell, Flyway Biologist

July 12, 2004

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TABLES

Table 2. Survey design for Maine and the Maritimes, May 2004.

Survey Design	Stratum						Total
	62	63	64	65	66	67	
Square miles in stratum	32,203.0	27,874.0	21,180.0	2,225.0	42,248.0	84,608.0	210,338.0
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	96.70	108.67	98.06	82.41	132.23	250.69	141.21
Current Year Design							
Square miles in stratum	32,203.0	27,874.0	21,180.0	2,225.0	42,248.0	84,608.0	210,338.0
Square miles in sample	330.6	256.5	216	27	319.5	337.5	1,487.1
Linear miles in sample	1,322.4	1,026	864	108	1,278	1,350	5,948.4
Number transects in sample	11	8	10	3	10	7	49
Number segments in sample	74	57	48	6	71	75	331
Expansion factor	97.40	108.67	98.06	82.41	132.23	250.69	141.44

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
66	2002	27	50	63	77	217	132.2316	2.73	9,747	18,050	22,743	27,796	78,335
66	2003	33	50	4	83	170	132.3795	2.73	11,926	18,070	1,446	29,996	61,437
66	2004	34	42	19	76	171	132.2316	2.73	12,274	15,162	6,859	27,435	61,730

* 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
67	2002	14	36	67	50	167	250.6904	2.73	9,581	24,638	45,854	34,219	114,292
67	2003	34	11	15	45	105	250.6904	2.73	23,269	7,528	10,266	30,797	71,860
67	2004	25	34	80	59	198	250.6904	2.73	17,110	23,269	54,751	40,379	135,508

* 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
2002	9,747	18,050	22,743	27,796	78,335
2003	11,926	18,070	1,446	29,996	61,437
2004	12,274	15,162	6,859	27,435	61,730
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
2002	9,581	24,638	45,854	34,219	114,292
2003	23,269	7,528	10,266	30,797	71,860
2004	17,110	23,269	54,751	40,379	135,508
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
2002	19,328	42,687	68,596	62,016	192,628
2003	35,195	25,598	11,711	60,793	133,298
2004	29,383	38,431	61,610	67,814	197,238

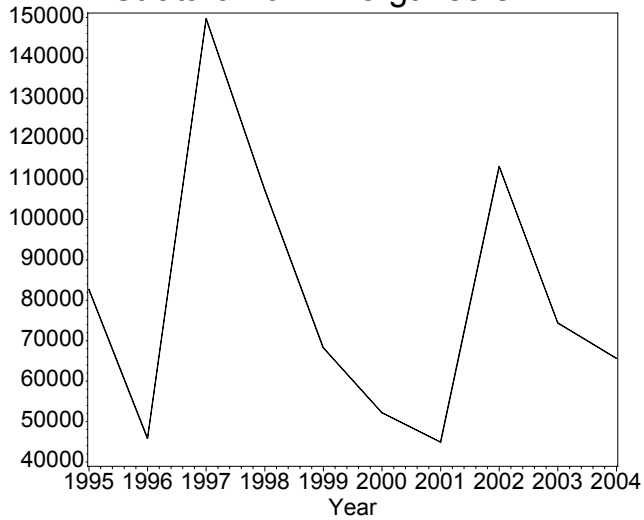
* Total indicated pairs = Singles + Pairs

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

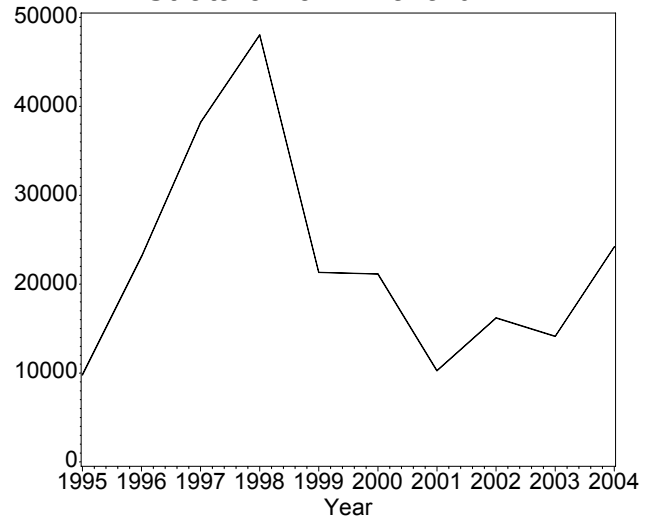
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FIGURES

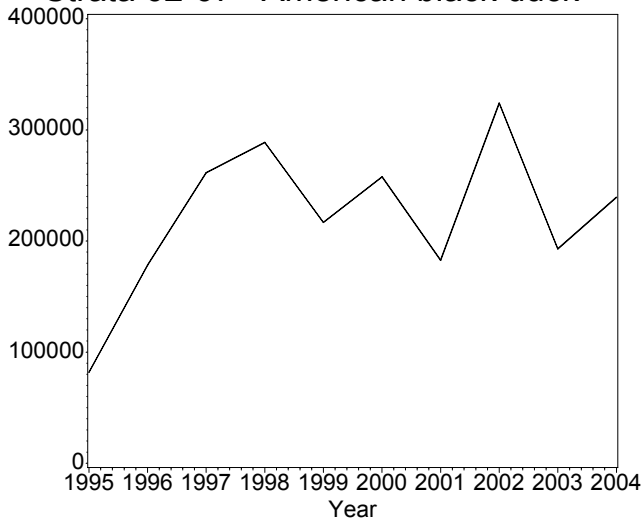
Strata 62-67 Mergansers



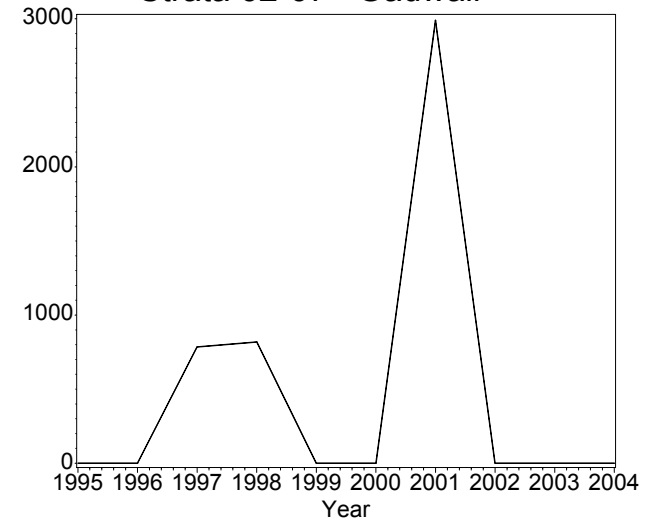
Strata 62-67 Mallard



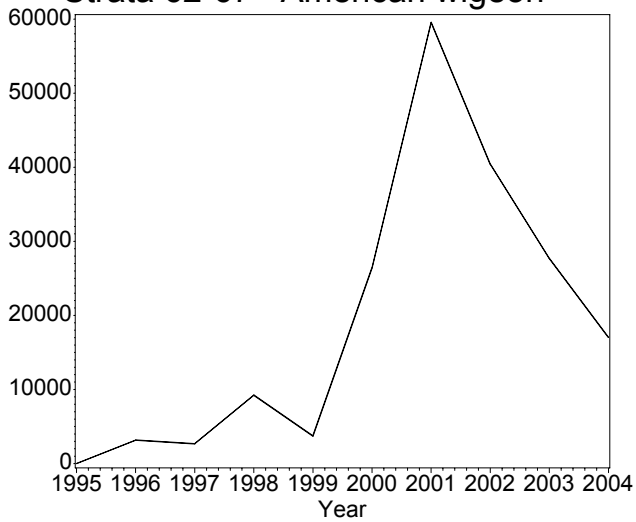
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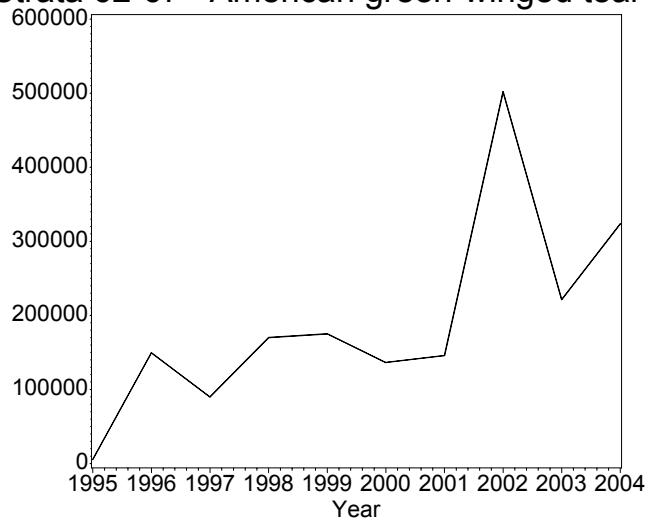
Strata 62-67 Gadwall



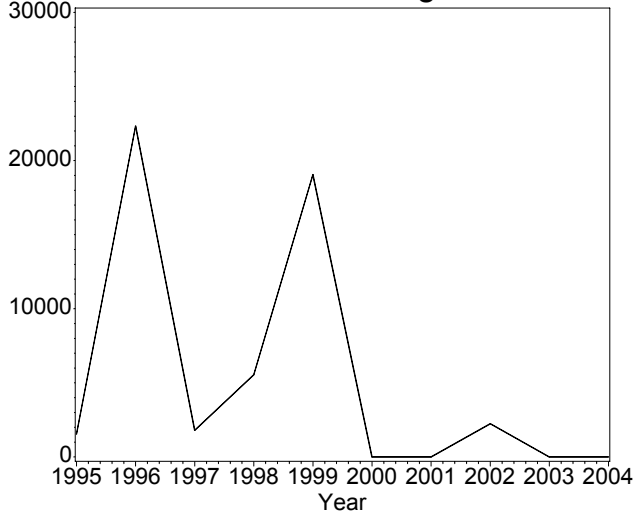
Strata 62-67 American wigeon



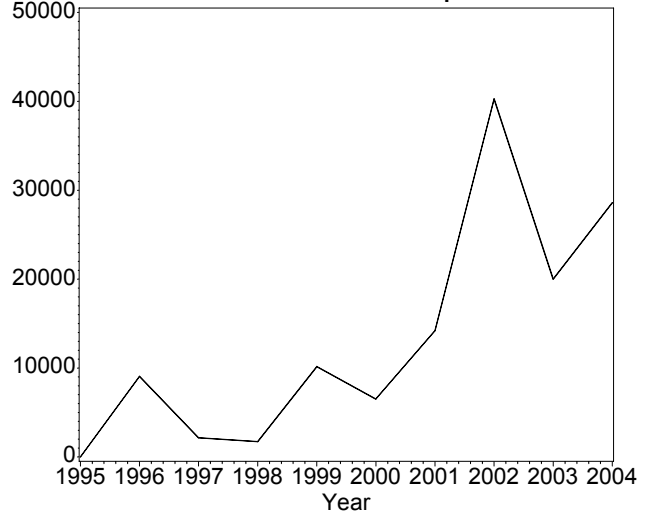
Strata 62-67 American green-winged teal



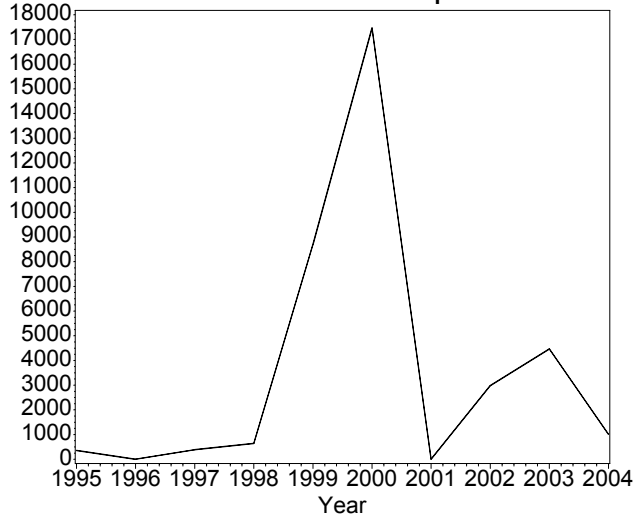
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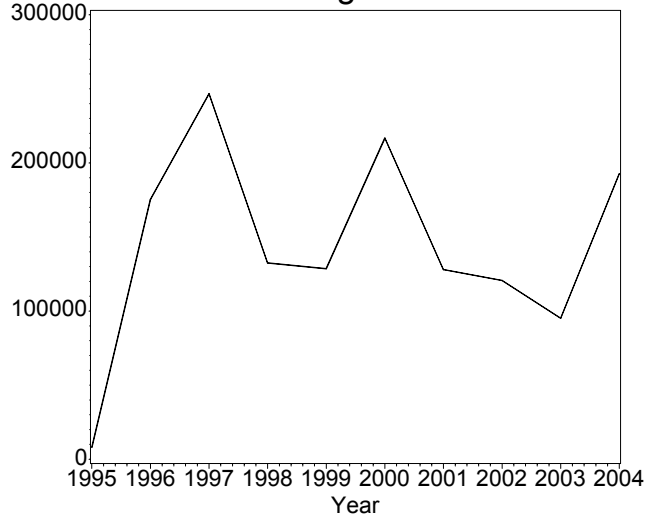
Strata 62-67 Northern pintail



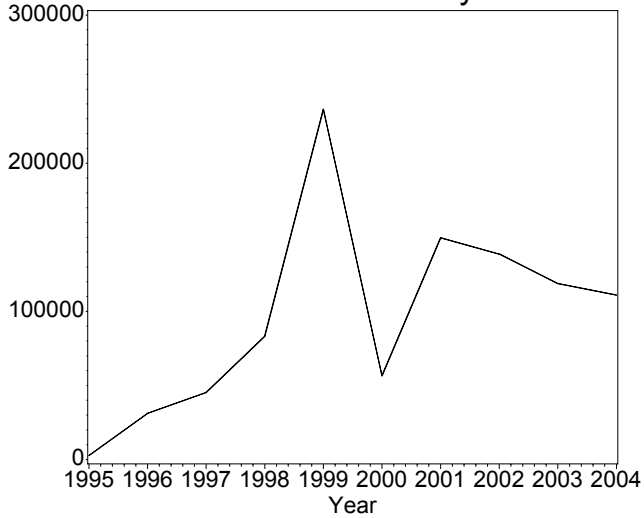
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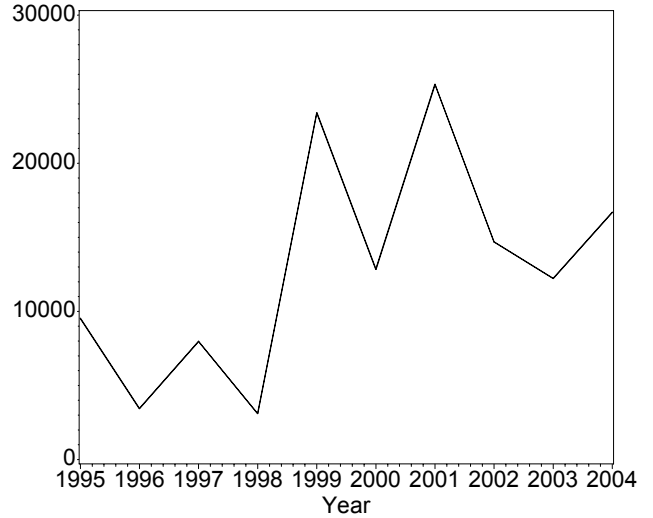
Strata 62-67 Ring-necked duck



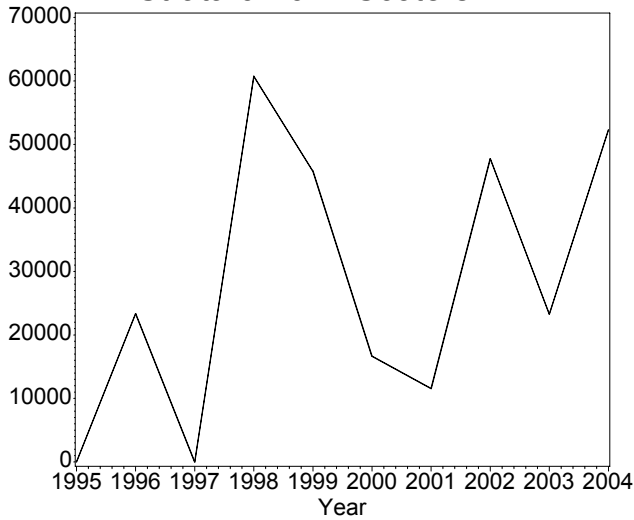
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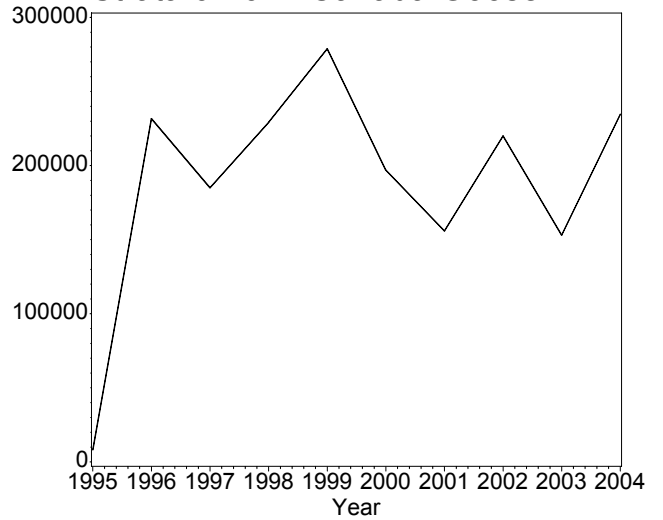
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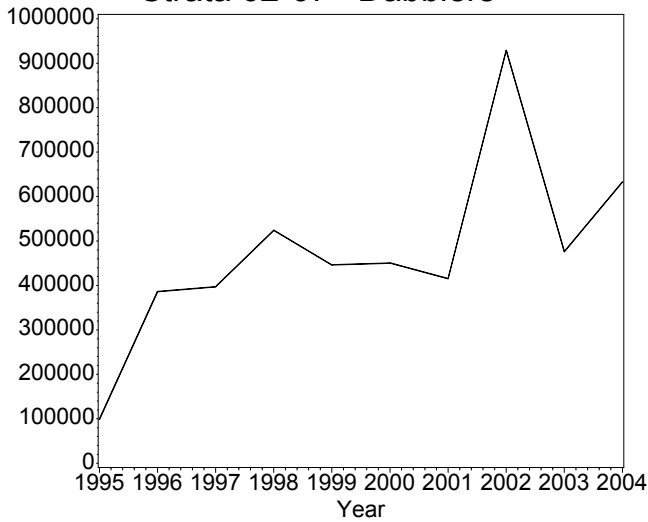
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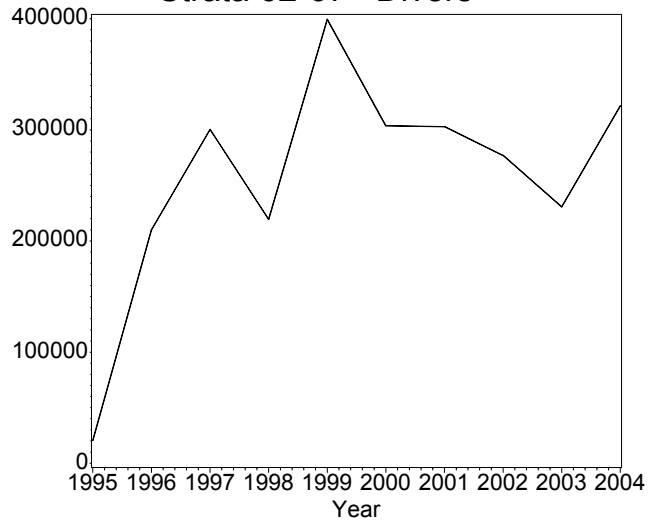
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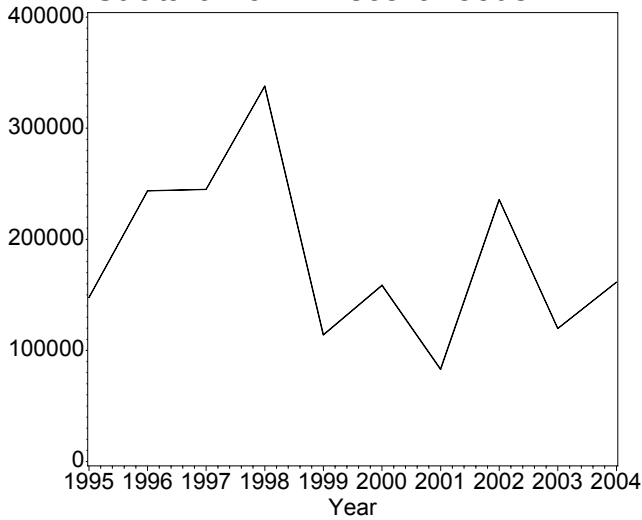
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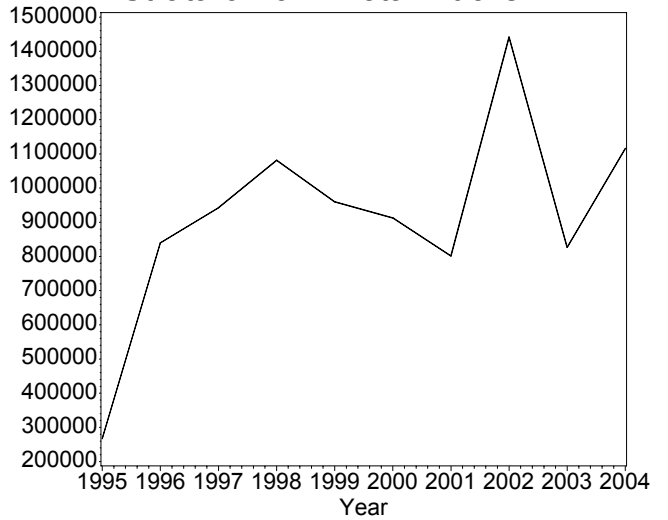
Strata 62-67 Divers



Strata 62-67 Miscellaneous



Strata 62-67 Total Ducks



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APPENDICES

