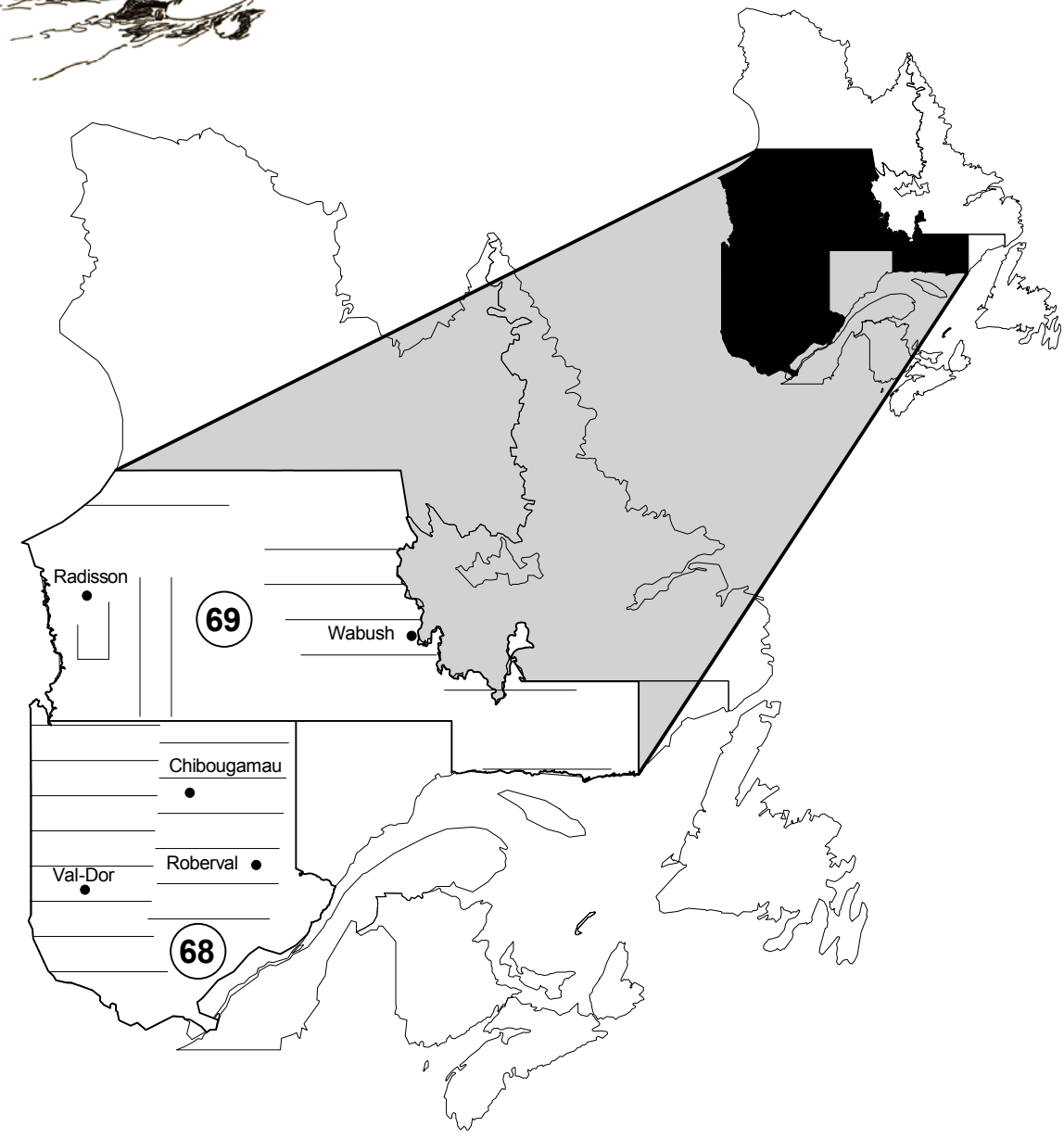
CENTRAL QUEBEC

Waterfowl Breeding Population Survey

2001



The data presented in this report are preliminary. Final estimates are available from the U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Patuxent Wildlife Research Center, Laurel, Maryland 20708-4016.

2001 Waterfowl Breeding Pair Population Survey Central and Northern Quebec

May 2001

Strata Surveyed 68 & 69

Survey Conducted and Data Supplied by
United States Fish & Wildlife Service

Aerial Crews

Pilot/Observer James S. Wortham, USFWS
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Abstract

Initiated in conjunction with the Black Duck Joint Venture (NAWMP), 2001 marks the second year that Strata 68 & 69 will be included in the operational Aerial Waterfowl Breeding Ground Population and Habitat Survey in North America. Due to recent changes in the survey design, and lack of historical data, direct comparisons of these estimates to previous years are complex and are discouraged. However, as compared to 2000, data does indicate significant increases (161.0 %) in nesting black ducks across the region, increases (27.7 %) in mallard numbers, and a 78.3 % increase in numbers of Canada geese.

Methods

The procedures followed in conducting this survey are detailed in the Standard Operating Procedures for Aerial Waterfowl Breeding Ground Population and Habitat Survey, Section III, revised April 1987, April 2000. The pilot/observer and observer were experienced in surveying these strata and have flown these areas three and two years respectively. In 1997, the northern portions of Stratum 68 were separated and expanded to form Stratum 69. However, these areas were not flown during the 1997 survey season due to forest fires. Stratum 69 was again expanded in 2000, and survey transects were added increasing the overall sampling effort within this stratum.

A Cessna U206F fixed-wing aircraft equipped with amphibious floats was used for the survey. Visibility corrections were obtained using pooled data from an ongoing helicopter visibility bias correction study being conducted in eastern Canada. Calculated correction factors are applied across the eastern survey area, and 2001 marks the eighth crew to be assessed.

Beginning in 1998, waterfowl and habitat data were collected using an aerial onboard digital recording system designed to attribute each waterfowl observation with a respective location recorded as a latitude/longitude coordinate. Each data point

(observation) is then logged along with the sample details, i.e. strata, transect, and segment, time, climatic conditions, and location.

Habitat Descriptions

Stratum 68: Stratum 68 lies east of the Ontario border, north of the Ottawa River, west of the St. Lawrence River, and south of a line extending eastward from the southern tip of the James Bay. Topography ranges from rolling hills in the southeast to more severe terrain in the northeast, and gentle slopes and flat areas near the James Bay. This boreal shield ecosystem is characterized predominately with hardwoods with the only significant development resulting from timber and mining activities. Wetlands consist of rivers and smaller drainages, numerous lakes and beaver ponds, timbered rocky marshes, and bogs.

Stratum 69: Stratum 69 lies east of the James and Hudson Bays, south of the 56th parallel, north of Sept-Isles and the north shore of the St. Lawrence Gulf, and west of Labrador. Topography in this region of the Nearctic ranges from rolling to severe, and is characterized by rocky outcroppings. Development consists of reservoirs constructed for hydroelectric generation, and some mineral and timber extraction. Wetlands consist of rivers and other drainages, man-made reservoirs, glaciated lakes and beaver ponds, some vegetated marshes and bogs.

Table 1. Survey design for central Quebec

Survey Design	68	69
Square miles in stratum	140,307.0	190,213.0
Linear miles in sample	2,502	1,800
Square miles in sample	625.5	450.0
Number of segments in sample	139	100
Expansion Factor	224.31	422.70

Weather and Habitat

During winter 2000/2001 temperatures were normal across Quebec with the exception of central and southern portions experiencing below normal temperatures from mid-December through early January. Temperatures in these regions fell once again from mid-February to early March. Precipitation amounts were normal during the winter with the exception of the extreme northern portions of the province beginning near Lac Misstassini receiving above normal amounts of snowfall with portions of the Ungava peninsula receiving up to 100% above normal. Warming trends arrived early with northern portions of the province experiencing warmer than normal temperatures from

early March throughout late May. The warming trends began later (mid-April) in the southern portions, but with equal intensity resulting in spring conditions in the forested regions of Quebec being ranked in the top ten warmest on record.

The timing of spring conditions were near average or slightly earlier throughout most of the province. Consequently, the timing of surveys were judged to be near perfect in both strata. Habitat conditions varied across the province. Generally poor habitat conditions dominated the area enclosed from just north of Montreal to southwest of Roberval and the Lac St. Jean region to Val d'Or. Lakes and reservoirs in this area contain extremely low water levels, and many smaller marshes are dry or retain only minimal water levels. In addition, there is a notable decrease in availability of beaver pond habitat this year with many former ponds having been abandoned entirely.

Habitat conditions improved consistently in the central and northern portions of the province. From Val d'Or to Chibougamau, conditions were slightly dry, but adequate for nesting and brood rearing. The James Bay lowlands and the shoreline regions from Moosonee to north of Kuujjuarapik were judged to be excellent with abundant water, but little flooding. The remainder of the survey area from Chibougamau/Mistassini area northeast to Schefferville and east to the northern shore of the Gulf of St. Lawrence to Natasquan was characterized as having good habitat conditions with sufficient water levels and seasonable conditions.

Weather forecasts for the summer months predict slightly higher than average temperatures across the province. Central and western portions of Quebec are expected to receive greater than normal rainfall

Breeding Population Estimates

Although the eastern Canada portions of the survey are this year are included in the operational North American survey, only limited assumptions can be made about waterfowl populations at this point. During 2000, survey effort was increased by adding several transects and expanding the northern boundary of stratum 69. However, 2001 marks only four years of data obtained within this stratum. Several more years of data will be needed before meaningful comparisons can be made.

Information on population estimates can be seen in the following tables. Notable outcomes include an increase in black ducks from last year of 67.6 % and 490.2 % for strata 68 and 69 respectively. This contributed to an overall crew area increase in black ducks of 161.0 % from 2000 to nearly equal a calculated 5-year mean (1996 – 2000). Numbers of mallards increased by 36.7 % from last year in stratum 68 augmenting an overall crew area increase of 27.7 % from 2000 and a 78.6 % increase from the 1996-2000 mean. Canada geese in stratum 68 increased 608.5 % from 2000, and conversely decreased 44.0 % within stratum 69. This fluctuation resulted in an overall crew area increase of 78.3 % from last year and 44.2 % from the 1996-2000 mean.

Table 2. Status of waterfowl breeding population estimates (thousands, adjusted for visibility bias) by species and stratum.

	Stratum (2001)		
Species/Ponds	68	69	2001 Total
Ducks			
Dabblers			
Mallard	56.3	6.0	62.3
Am. black duck	78.6	78.5	157.1
Gadwall	12.3	0.0	12.3
Am. wigeon	5.1	0.0	5.1
Am. green-winged teal	14.2	17.9	32.1
Blue-winged teal	4.6	0.0	4.6
N. shoveler	0.0	0.0	0.0
N. pintail	0.0	4.5	4.5
Subtotal	171.1	106.8	278.0
Divers			
Redhead	0.0	0.0	0.0
Canvasback	0.0	0.0	0.0
Scaups	20.9	67.0	87.8
Ring-necked duck	62.1	51.4	113.5
Goldeneyes	272.7	529.8	802.4
Bufflehead	24.8	0.0	24.8
Ruddy Duck	5.3	0.0	5.3
Subtotal	385.7	648.1	1033.8
Miscellaneous			
Oldsquaw	0.0	36.2	36.2
Eiders	0.0	0.0	0.0
Scoters	5.9	161.2	167.1
Mergansers	121.5	133.0	254.6
Subtotal	127.4	330.4	457.8
Total Ducks	684.2	1085.4	1769.6
Canada Goose	293.3	100.4	393.7
Am. coot	2.1	0.0	2.1

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

Species/Ponds	1996	1997	1998	1999	2000	2001
Ducks						
Dabblers						
Mallard	51.5	15.9	31.0	27.2	48.8	62.3
Am. black duck	279.6	104.5	169.7	168.2	60.2	157.1
Gadwall	0.0	0.0	0.0	3.6	2.7	12.3
Am. wigeon	0.0	0.0	53.4	40.3	11.4	5.1
Am. green-winged teal	148.4	33.6	74.3	92.6	20.0	32.1
Blue-winged teal	0.0	0.0	0.0	24.3	13.8	4.6
N. shoveler	0.0	0.0	0.0	0.0	4.7	0.0
N. pintail	0.0	0.0	1.9	13.5	0.0	4.5
Subtotal	479.5	154.0	330.3	369.7	161.6	278.0
Divers						
Redhead	0.0	0.0	0.0	1.4	1.4	0.0
Canvasback	0.0	0.0	0.0	0.0	0.0	0.0
Scaups	0.0	0.0	6.4	19.2	85.6	87.8
Ring-necked duck	222.4	163.0	107.3	134.8	277.7	113.5
Goldeneyes	257.6	97.8	539.2	380.4	722.3	802.4
Bufflehead	0.0	0.0	4.5	7.0	18.7	24.8
Ruddy Duck	0.0	0.0	0.0	1.3	4.0	5.3
Subtotal	480.0	260.9	657.4	544.1	1109.7	1033.8
Miscellaneous						
Oldsquaw	0.0	0.0	14.2	55.8	57.3	36.2
Eiders	0.0	0.0	0.0	0.0	0.0	0.0
Scoters	0.0	85.7	98.1	1.0	165.5	167.1
Mergansers	696.4	113.0	174.4	134.5	232.3	254.6
Subtotal	696.4	198.7	286.7	191.3	455.0	457.8
Total Ducks	1655.9	613.6	1274.4	1105.1	1726.4	1769.6
Canada Goose	432.0	6.2	93.0	613.4	220.8	393.7
Am. coot	0.0	0.0	0.0	0.0	0.0	2.1

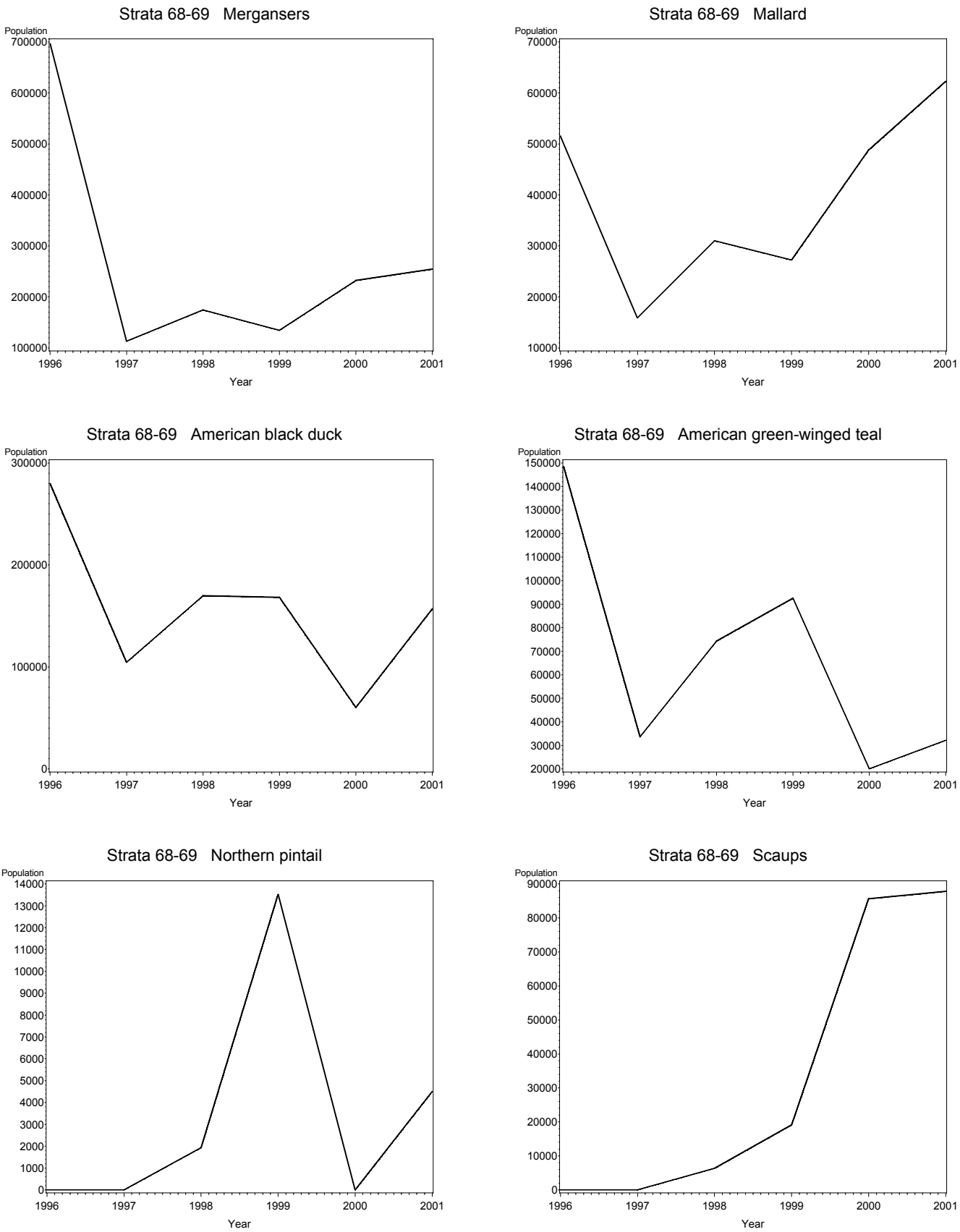
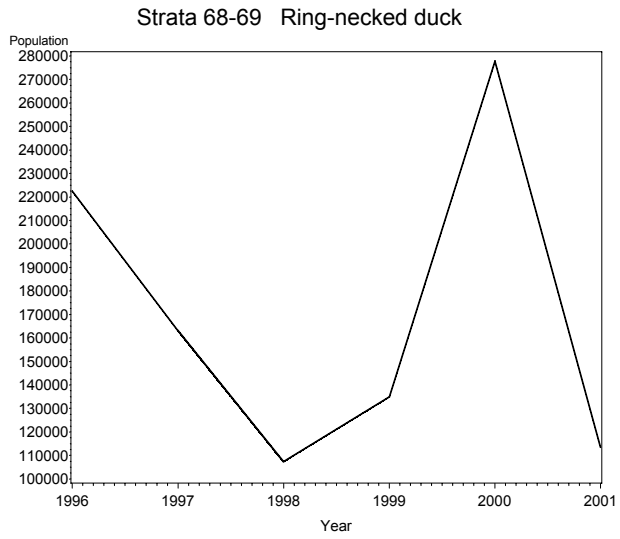
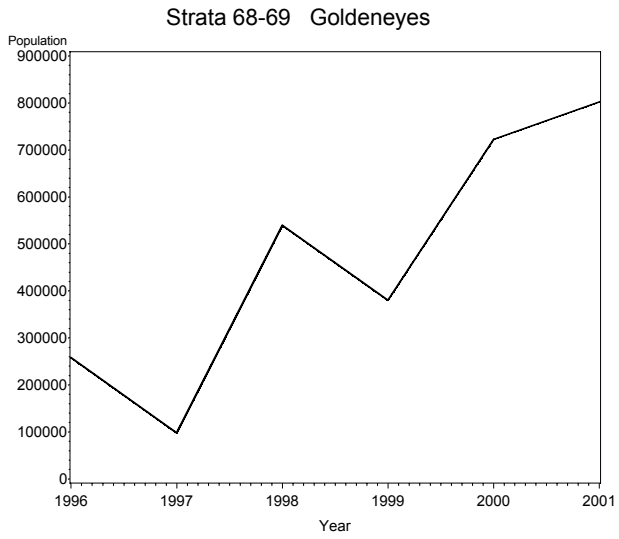
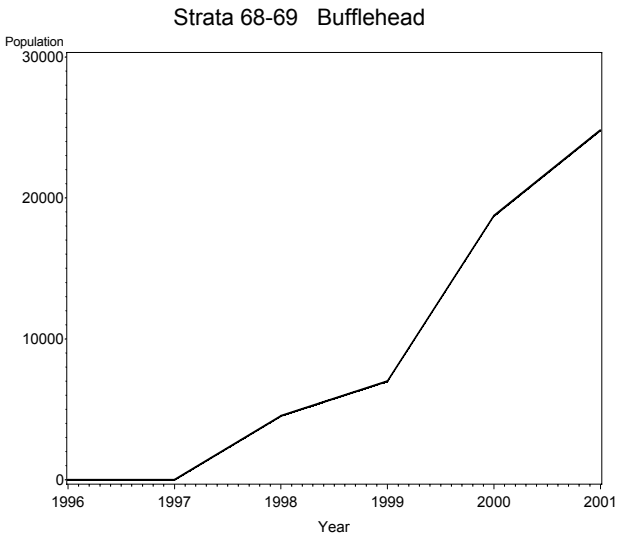
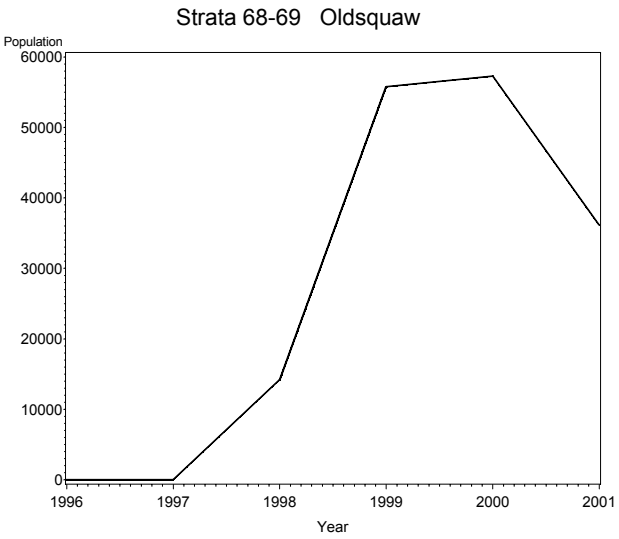


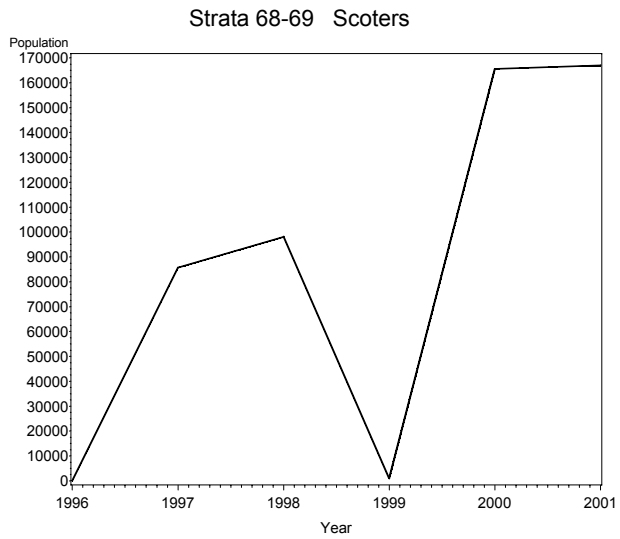
Figure 1. Population indices for the individual waterfowl species on an annual basis.

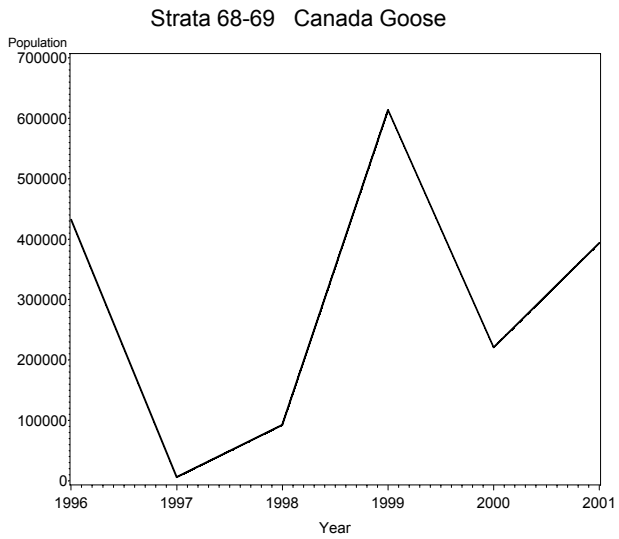












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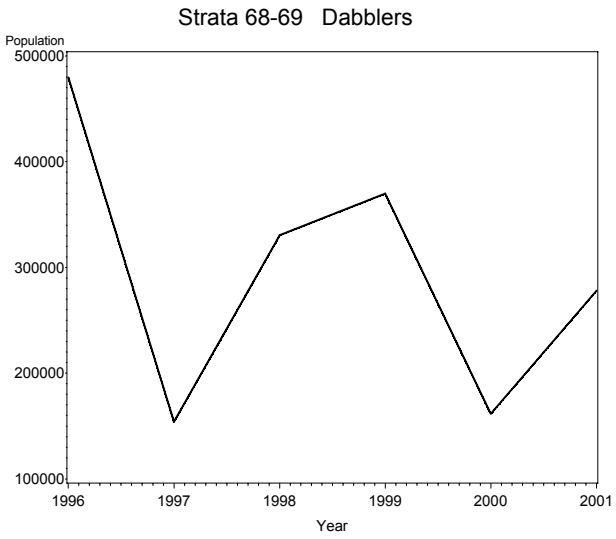

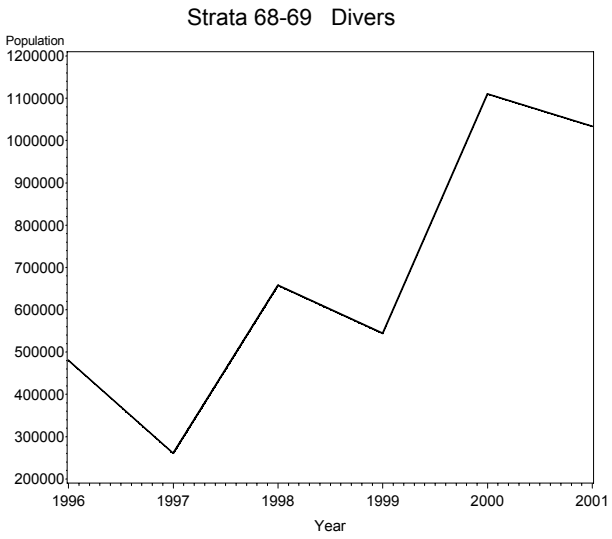

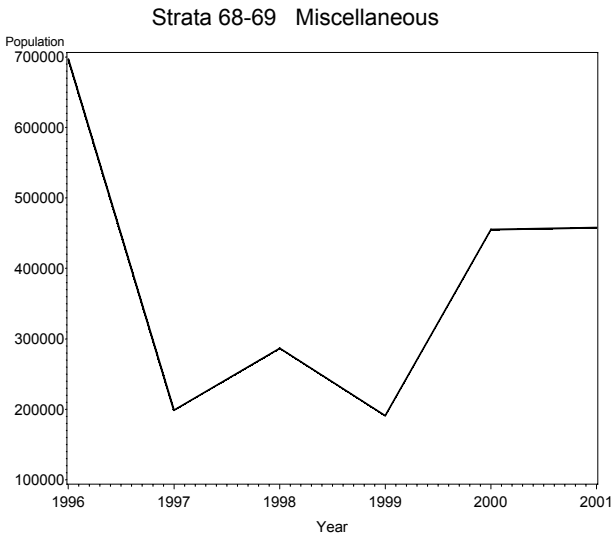

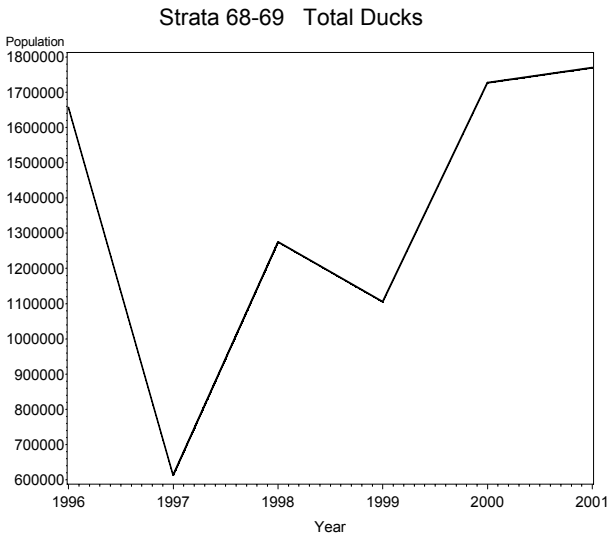

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