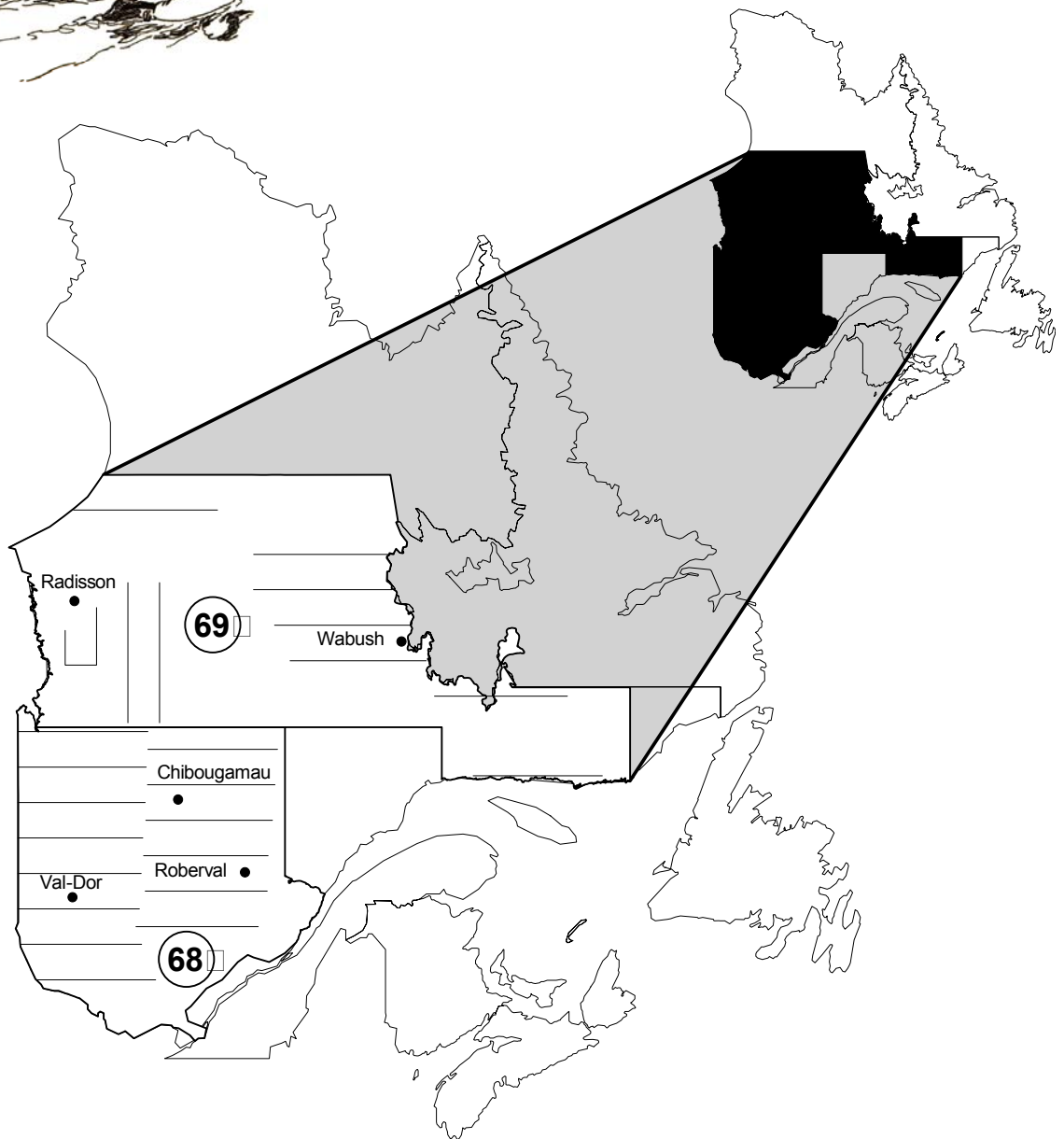


# CENTRAL QUEBEC

## Waterfowl Breeding Population Survey

### 2004



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.

**2004 Waterfowl Breeding Pair Population Survey central and northern  
Quebec  
May 2004  
Strata Surveyed 68 & 69  
Survey Conducted and Data Supplied by  
United States Fish & Wildlife Service**

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**Abstract**

Although originally initiated in 1996 in conjunction with the Black Duck Joint Venture (NAWMP), 2004 marks the fifth year that Strata 68 & 69 will be included in the operational Aerial Waterfowl Breeding Ground Population and Habitat Survey in North America. Due to changes in the survey design, and lack of historical data, direct comparisons of these estimates to previous years are complex. Nonetheless, 2003 marked record high numbers of black ducks up 63.3 % from 2003. Mallards decreased by 35.9% from 2003. Numbers of Canada geese increased significantly up 154.3% from those observed in 2003.

**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. All aerial crew personnel were accomplished in eastern boreal waterfowl surveys. 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. For the second year in Stratum 68 and for the first time in Stratum 69, a Bell 206-L helicopter was used to calculate stratum specific visibility correction factors for applicable species. These visibility correction factors are part of an ongoing helicopter visibility bias correction study being conducted in eastern Canada, and were updated, using a Bayesian technique, with data captured from this year. Updated correction factors are applied across the eastern Canada survey area.

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

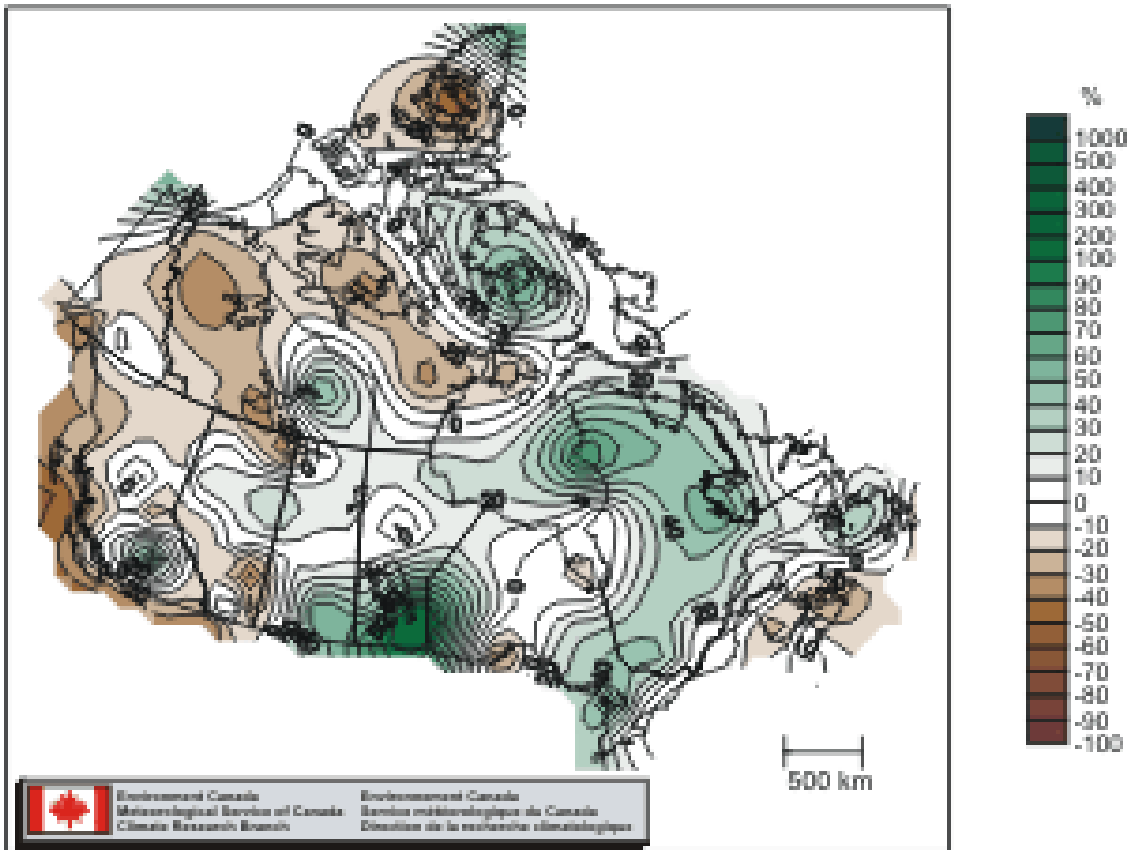
Stratum 68: Stratum 68 lies east of the Ontario border, north of the Ottawa River, west of the St. Lawrence River, and south of a line extending eastward from the southern tip of the James Bay. Topography ranges from rolling hills in the southeast to more severe terrain in the northeast, and gentle slopes 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 56<sup>th</sup> 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.

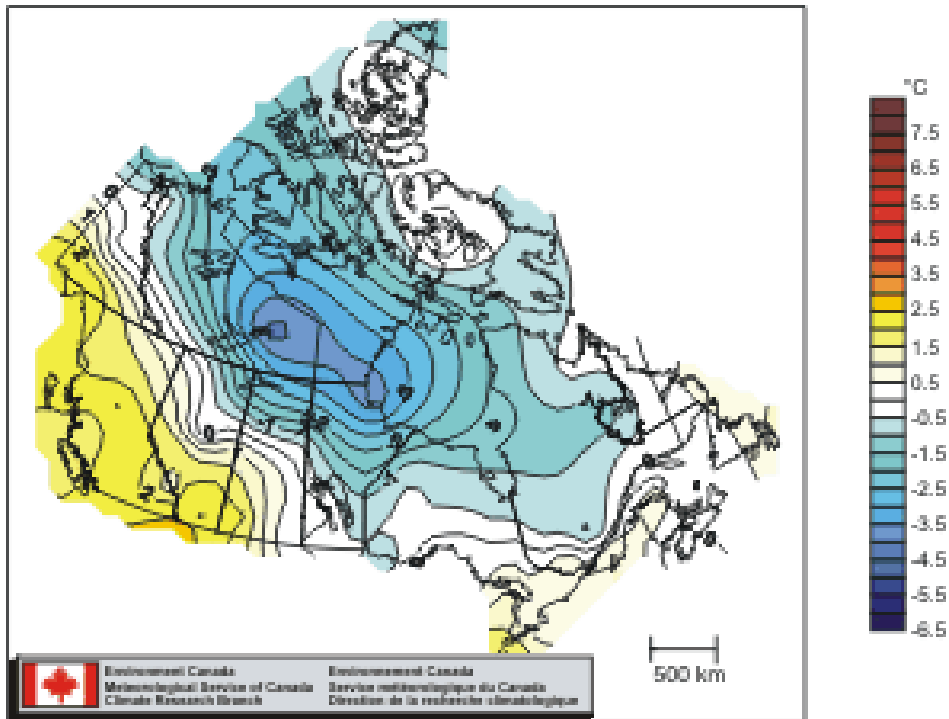
**Table 1. Survey design for central Quebec**

Survey Design	68	69
Square miles in Sample	140,307.0	190,213.0
Linear miles as Designed	2,520	1,800
Square miles as Designed	630.0	450.0
Linear miles in Sample	2,448	1,530
Square miles in Sample	612.0	382.5
Number of segments in Sample	136	85
Expansion Factor	229.26	497.29

**PRECIPITATION DEPARTURES FROM NORMAL**  
**Spring (Mar, Apr, May) 2004**  
**ANOMALIES DES PRÉCIPITATIONS PAR RAPPORT À LA NORMALE**  
**Printemps (mar, avr, mai) 2004**



TEMPERATURE DEPARTURES FROM NORMAL  
Spring (Mar, Apr, May) 2004  
ANOMALIES DE LA TEMPÉRATURE PAR RAPPORT A LA NORMALE  
Printemps (mar, avr, mai) 2004



### **Weather and Habitat Conditions**

Southern Quebec received a late spring with cooler than normal temperatures and above average precipitation. Resultant habitat conditions in south-central and southwestern Quebec, those areas from La Tuque westward to North Bay, Ontario and northward to Val d'Or and Reservoir Gouin, were wet and had sufficient cover to be more than adequate for nesting waterfowl.

Northward into central Quebec, the region surrounding Chibougamau and eastward to Chutes de Passes endured a persistent winter. Here ice and snow cover and cold winter temperatures remained until mid-May, but rapidly became ice-free and were available for nesting waterfowl in the last half of the month.

Westward, from Matagami to Moosonee, wetlands were drier, and habitats could be judged only as fair. Beaver ponds in this area continue to be poorly maintained, but more beaver ponds were occupied this year than in the previous.

The majority of Stratum 69 remained ice covered until the last week of May. Until the second week of June, ice remained on wetlands and lakes situated above 1500' msl. However, in early June, waterfowl pairs were distributed widely across the area in abundance. Those areas of extreme eastern Quebec between the north shore of the St. Lawrence and the border of Labrador provided excellent habitat for nesting pairs, and production is expected to be very good here.

### **Breeding Population Estimates**

Although the eastern Canada portions of the survey 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. Currently, six years of data have been 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 significant increases in black ducks from last year of 46.2 % and 80.2 % for strata 68 and 69 respectively. This contributed to an overall crew area increase in black ducks of 63.3 % from 2003 and the highest black duck breeding population estimate since surveys began in these areas in 1996. Concurrently, numbers of mallards decreased in Stratum 68 by (25.6 %) from 2003 and those in Stratum 69 plummeted by 65.9 %. Canada geese increased appreciably in both stratum 68 and 69 rising 126.1 % and 170.3 % respectively. This vacillation resulted in an overall crew area increase of 154.3 % from last year and up 76.9 % from the 1996-2003 mean.

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

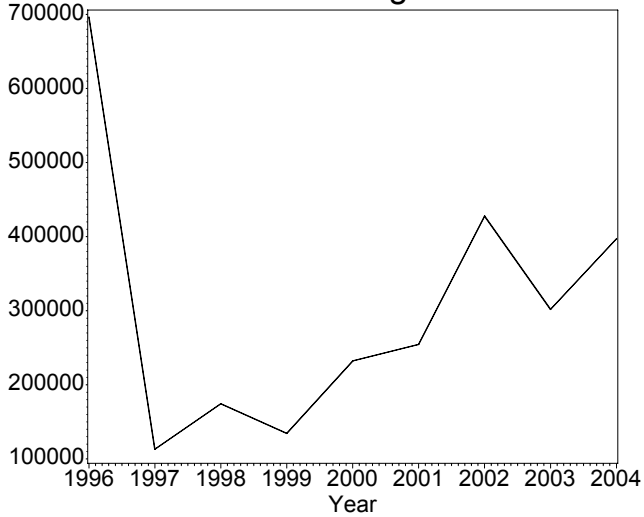
Species/Ponds	Stratum		2004 Total	% Change From	
	68	69		2003 Total	2003
Ducks					
Dabblers					
Mallard	19.4	3.0	22.4	35.0	-35.9%
Am. black duck	175.7	219.8	395.5	242.2	63.3%
Gadwall	2.8	0.0	2.8	0.0	--
Am. wigeon	5.2	0.0	5.2	36.4	-85.6%
Am. green-winged teal	73.4	94.6	168.0	70.2	139.4%
Blue-winged teal	18.9	0.0	18.9	4.7	305.9%
N. shoveler	0.0	0.0	0.0	0.0	--
N. pintail	1.2	15.7	16.9	5.9	189.5%
Subtotal	296.6	333.2	629.8	394.2	59.8%
Divers					
Redhead	0.0	0.0	0.0	0.0	--
Canvasback	0.0	0.0	0.0	0.0	--
Scaups	12.2	34.2	46.4	80.4	-42.2%
Ring-necked duck	150.2	117.5	267.7	136.7	95.9%
Goldeneyes	155.4	97.8	253.1	552.4	-54.2%
Bufflehead	6.6	4.4	11.0	31.2	-64.8%
Ruddy Duck	6.8	0.0	6.8	0.0	--
Subtotal	331.1	253.9	585.1	800.6	-26.9%
Miscellaneous					
Long-tailed duck	2.7	19.8	22.5	26.1	-13.6%
Eiders	0.0	0.0	0.0	0.0	--
Scoters	9.5	194.9	204.4	213.9	-4.4%
Mergansers	208.8	188.5	397.4	301.9	31.6%
Subtotal	221.1	403.2	624.3	541.8	15.2%
Total Ducks	848.8	990.3	1839.1	1736.7	5.9%
Canada Goose	162.1	340.1	502.2	197.5	154.3%
Am. coot	0.0	0.0	0.0	0.0	--

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

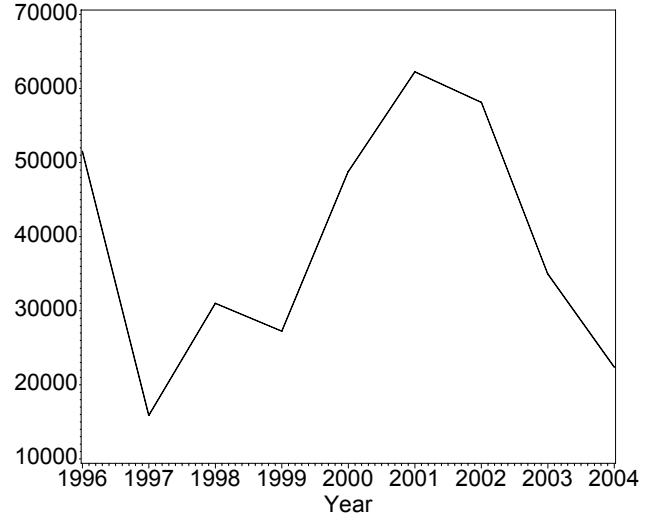
Species/Ponds	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ducks									
Dabblers									
Mallard	51.5	15.9	31.0	27.2	48.8	62.3	58.2	35.0	22.4
Am. black duck	279.6	104.5	169.7	168.2	60.2	157.1	211.7	242.2	395.5
Gadwall	0.0	0.0	0.0	3.6	2.7	12.3	12.0	0.0	2.8
Am. wigeon	0.0	0.0	53.4	40.3	11.4	5.1	34.3	36.4	5.2
Am. green-winged teal	148.4	33.6	74.3	92.6	20.0	32.1	44.2	70.2	168.0
Blue-winged teal	0.0	0.0	0.0	24.3	13.8	4.6	23.0	4.7	18.9
N. shoveler	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0	0.0
N. pintail	0.0	0.0	1.9	13.5	0.0	4.5	2.2	5.9	16.9
Subtotal	479.5	154.0	330.3	369.7	161.6	278.0	385.6	394.2	629.8
Divers									
Redhead	0.0	0.0	0.0	1.4	1.4	0.0	0.0	0.0	0.0
Canvasback	0.0	0.0	0.0	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	114.2	80.4	46.4
Ring-necked duck	222.4	163.0	107.3	134.8	277.7	113.5	46.5	136.7	267.7
Goldeneyes	257.6	97.8	539.2	380.4	722.3	802.4	719.9	552.4	253.1
Bufflehead	0.0	0.0	4.5	7.0	18.7	24.8	26.4	31.2	11.0
Ruddy Duck	0.0	0.0	0.0	1.3	4.0	5.3	0.0	0.0	6.8
Subtotal	480.0	260.9	657.4	544.1	1109.7	1033.8	906.9	800.6	585.1
Miscellaneous									
Oldsquaw	0.0	0.0	14.2	55.8	57.3	36.2	43.7	26.1	22.5
Eiders	0.0	0.0	0.0	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	266.6	213.9	204.4
Mergansers	696.4	113.0	174.4	134.5	232.3	254.6	427.7	301.9	397.4
Subtotal	696.4	198.7	286.7	191.3	455.0	457.8	738.1	541.8	624.3
Total Ducks	1655.9	613.6	1274.4	1105.1	1726.4	1769.6	2030.6	1736.7	1839.1
Canada Goose	432.0	6.2	93.0	613.4	220.8	393.7	315.0	197.5	502.2
Am. coot	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0



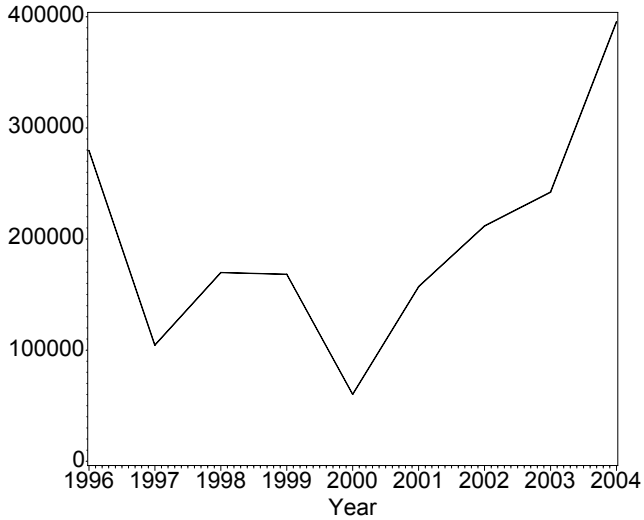
Strata 68-69 Mergansers



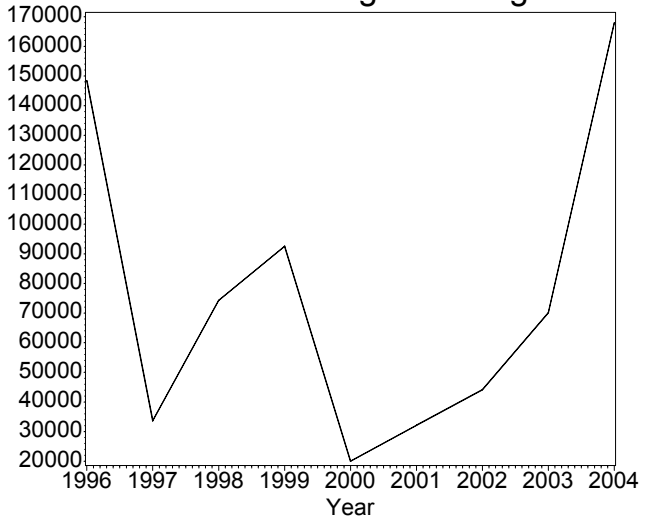
Strata 68-69 Mallard



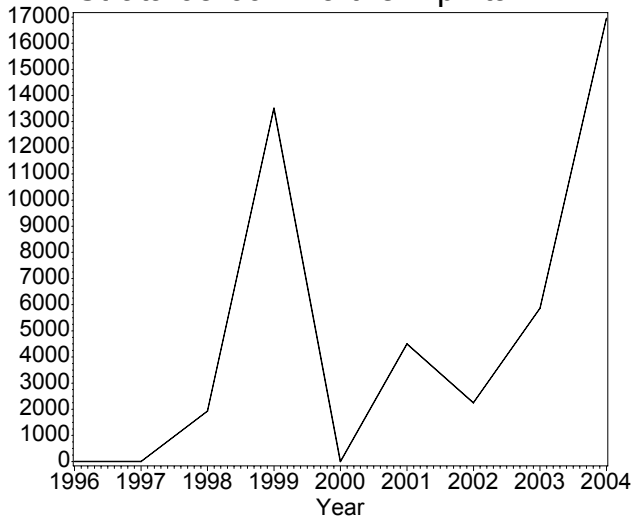
Strata 68-69 American black duck



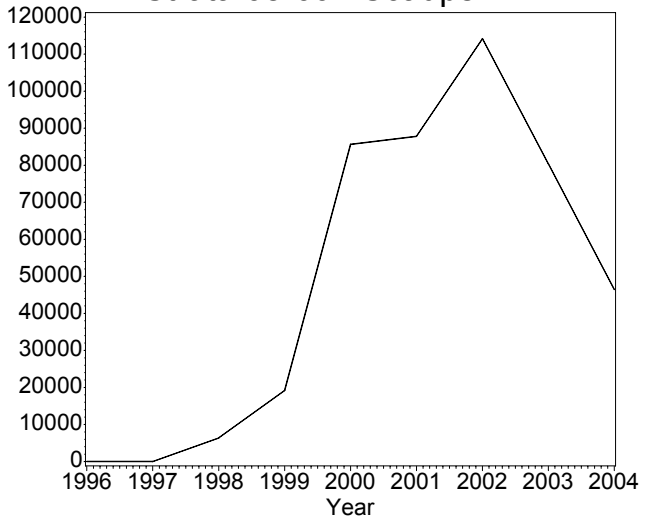
Strata 68-69 American green-winged teal

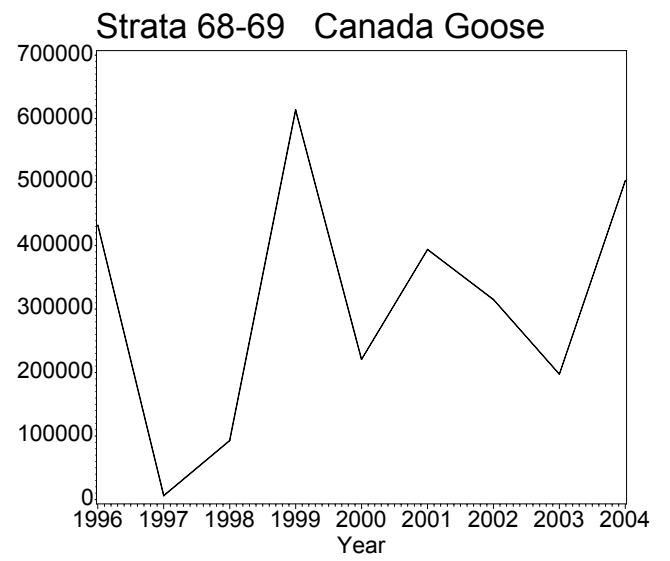
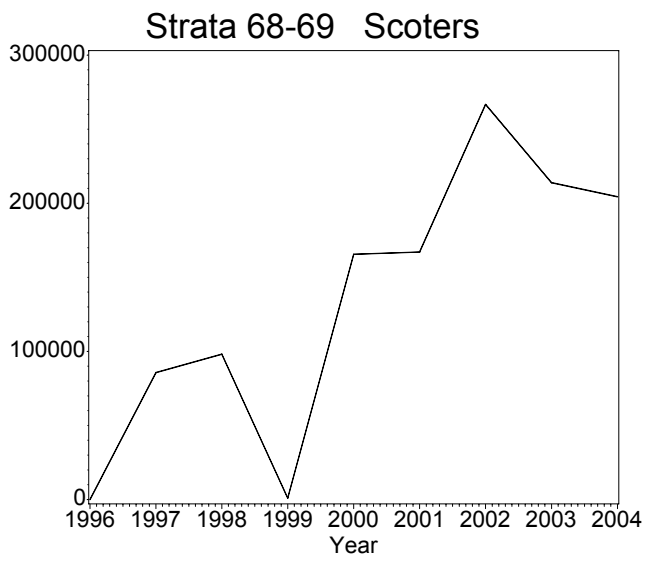
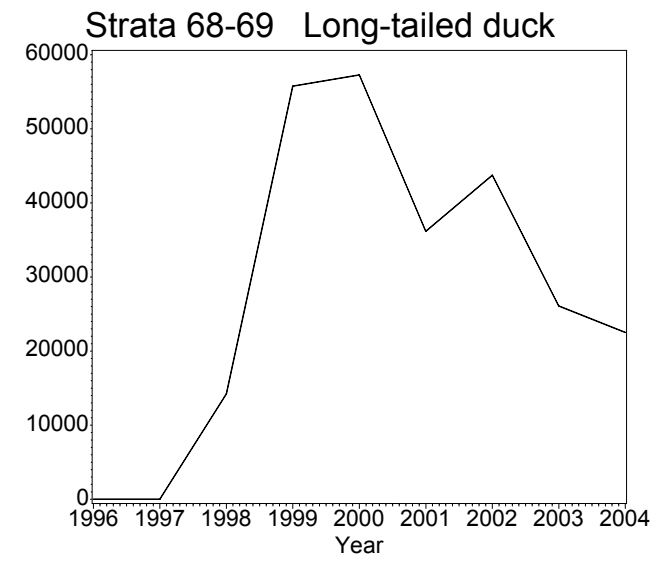
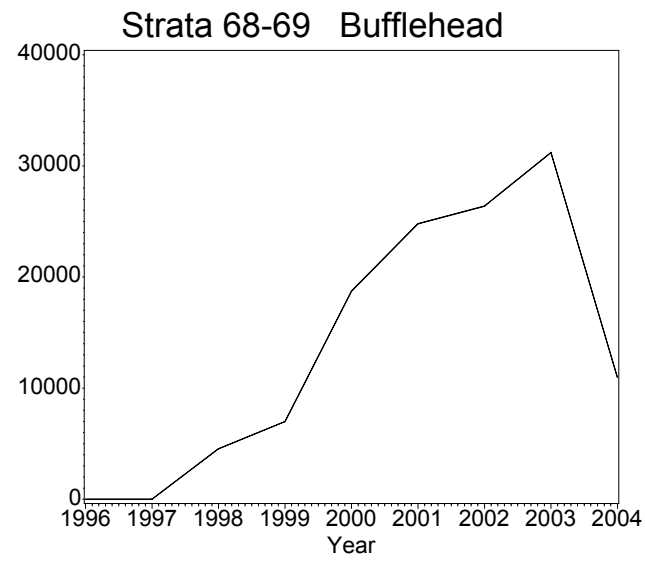
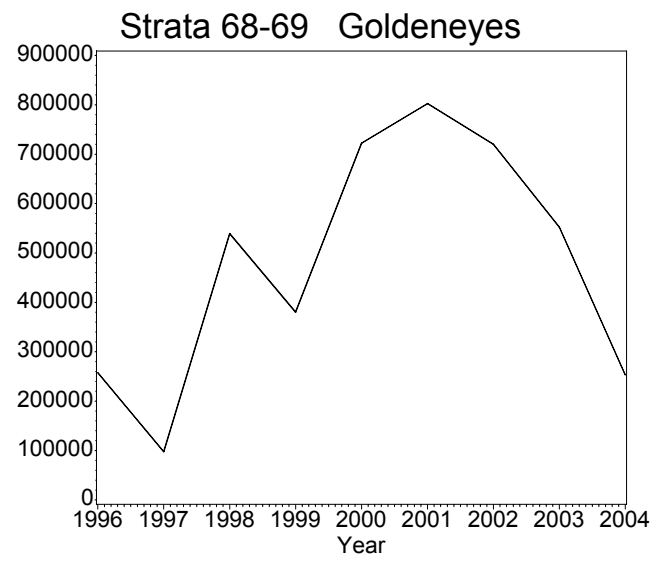
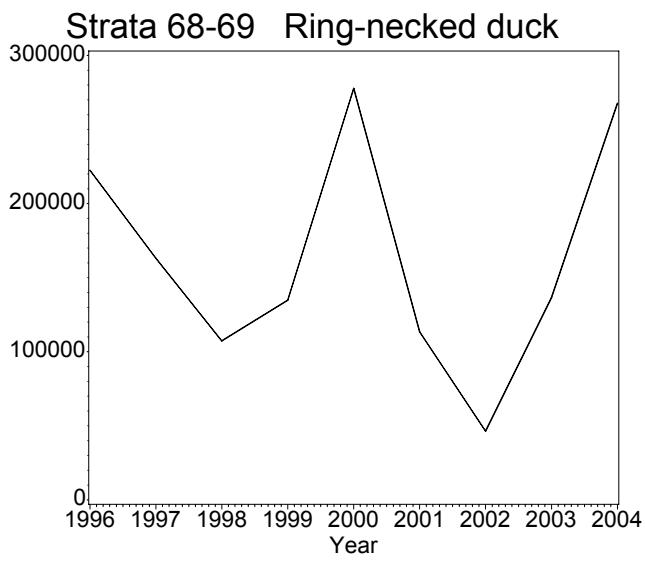


Strata 68-69 Northern pintail

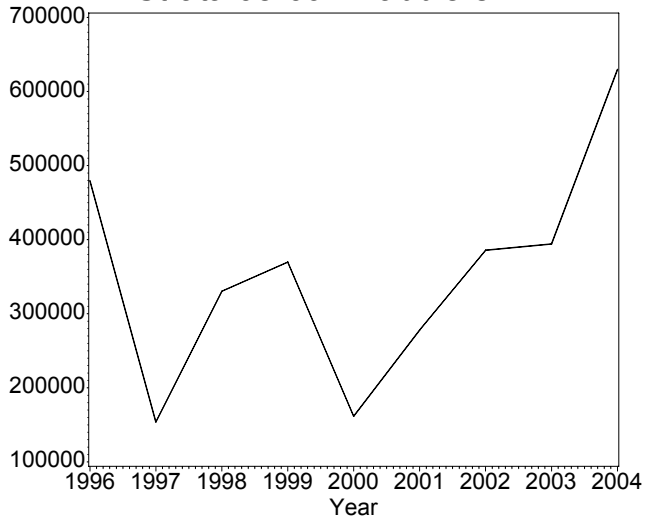


Strata 68-69 Scaups

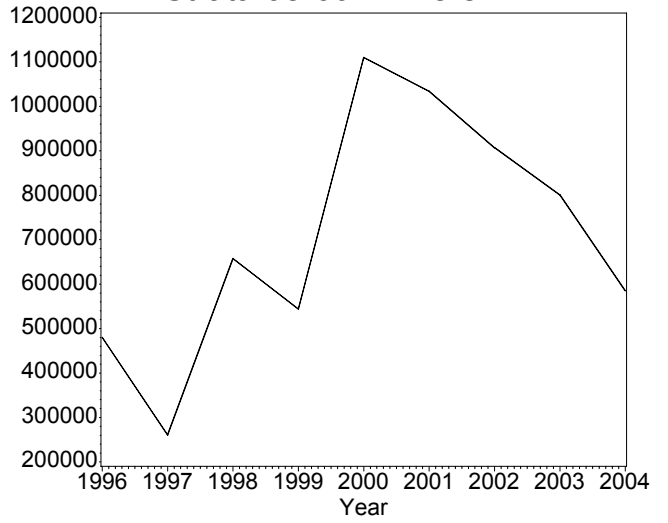




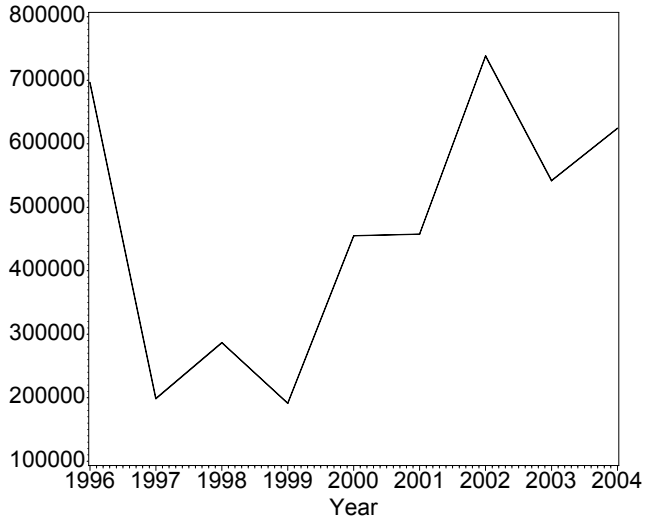
Strata 68-69 Dabblers



Strata 68-69 Divers



Strata 68-69 Miscellaneous



Strata 68-69 Total Ducks

