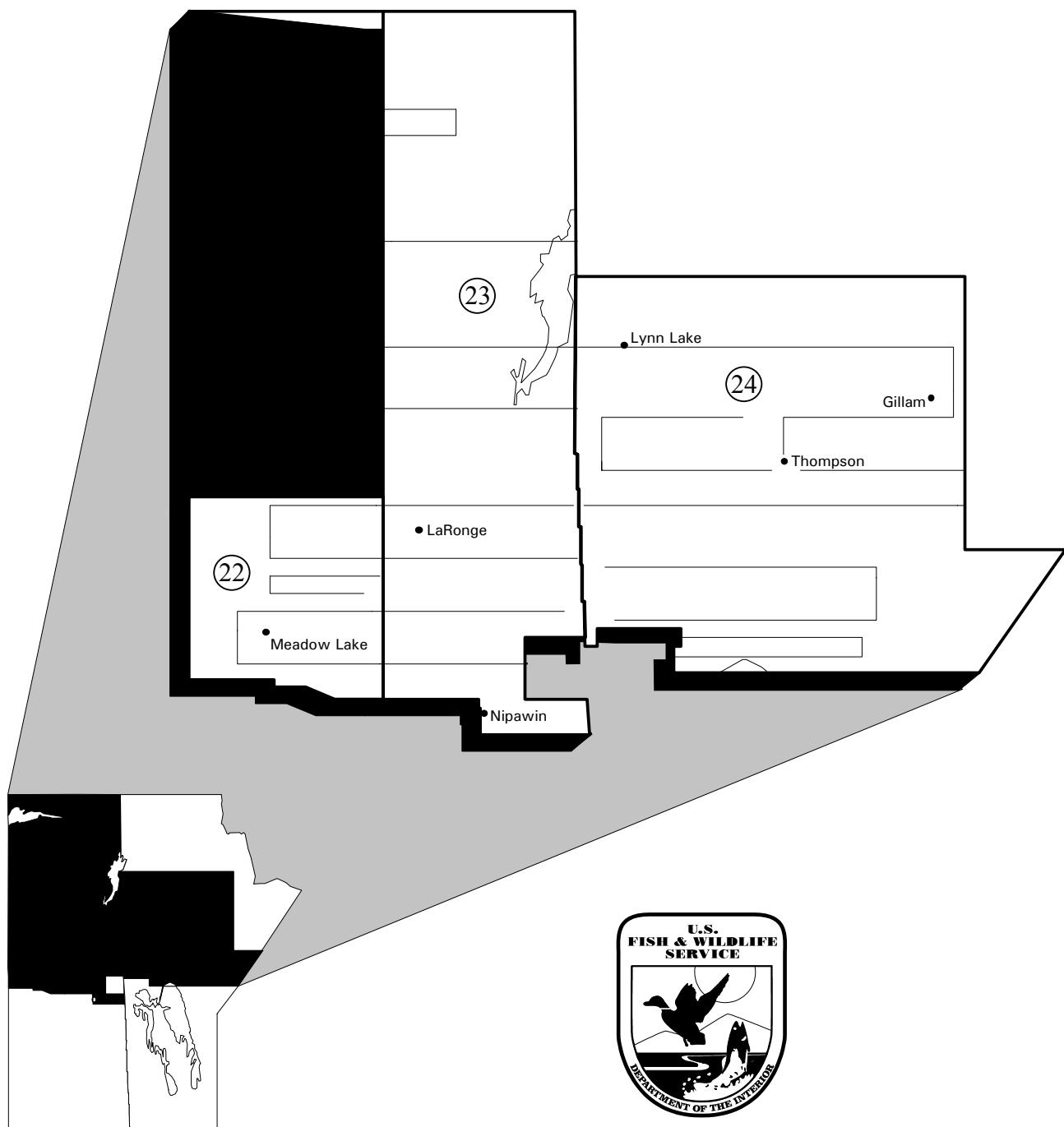


NORTHERN MANITOBA AND NORTHERN SASKATCHEWAN

Waterfowl Breeding Population Survey

2004



The data presented in this report are preliminary and subject to further editing. Final estimates will be available from the U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, Maryland 20708

Waterfowl Breeding Population Survey: Northern Manitoba, Northern Saskatchewan

STRATA SURVEYED: 21-24

DATES: May 14-June 5, 2004

DATA SUPPLIED BY: U. S. Fish and Wildlife Service

AERIAL CREW

Pilot/Observer	Fred Roetker, Flyway Biologist Division of Migratory Bird Management Lafayette, LA
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ABSTRACT: Waterfowl numbers were mixed in northern Saskatchewan and northern Manitoba. Mallard numbers were 18.5% above 2003 values. Results from selected species are listed below:

	Estimates in thousands	% change from 2003	% change from 10 yr. mean	% change from 1955-03 mean
Mallard	723.4	18.5%	- 6.6%	-10.9%
Wigeon	140.9	-25.0%	-17.2%	-30.6%
GW-Teal	328.7	23.1%	42.9%	115.4%
Scaup	553.5	70.5%	59.2%	22.8%
Ringneck	374.3	17.2%	21.3%	50.1%

METHODS: The procedures followed in conducting this survey are contained in the Standard Operating Procedures for Aerial Breeding Population and Habitat Surveys in North America, Section III, revised 1987. Waterfowl data were collected using an aerial onboard computerized recording system designed to attribute each waterfowl observation with a respective latitude/longitude location. Observations were then logged along with sample details, i.e., strata transects, segments, time, and climatic conditions. This survey system began testing in Alaska during 1996 and has been gradually been implemented in each survey crew area since. During this transition, the Migratory Bird Management Office elected to redesign the sampling of stratum 25. This effort, effective during the 1998 and 1999 surveys, was intended to more appropriately sample the number and distribution of breeding waterfowl across the stratified habitat type. Historically, nine segments were concentrated in the Saskatchewan River delta and were not all oriented on latitude. Data from this stratum was included in the northern Manitoba report. In the new design, all thirty segments have been oriented on latitude with only five segments in the river delta area. There are now a total of five transects evenly distributed throughout the stratum, however, the sampling area is still identical to the historic survey. Direct comparisons of the 1998-2003 and historic data should be made only after evaluating this design change. Beginning with the May 2000 survey, the Migratory Bird Office elected to report Stratum 25 data in the Southern Manitoba Waterfowl Breeding Population Survey report since the southern Manitoba crew typically flies Stratum 25 and collects the data. Historic tables and graphs in this report have been adjusted to accommodate this change.

WEATHER AND HABITAT CONDITIONS: A late spring break-up occurred over most of the region. In the most southwestern part of the survey area near Big River and Meadow Lake, Saskatchewan, the break-up was near normal. However, throughout the remainder of the area, this spring will be regarded as one of the later break-ups in recent years much like the exceptionally late spring that occurred in 2002. Wetland conditions across most of northern Saskatchewan were good. Most small riverine habitat is stabilized by beavers, and ideal ponds were abundant throughout many drainages. Similar to last year, water levels on many wetlands in northern Manitoba were below optimal. Especially near Thompson, in the heart of stratum 24, lower than average winter and spring precipitation reduced flows in small streams to the point that many beaver ponds were dry or quite recessional. Larger lakes and rivers in northern Manitoba continue to be below normal levels. This was especially evident along the Nelson River below the Jenpeg hydroelectric dam. The Nelson flows through several large lakes such as Cross Lake where exposed rocks associated with the low water offered miles and miles of shoreline loafing habitat. Nearby upland meadows should offer stable nesting opportunities. The low water in northern Manitoba rivers and lakes should not adversely impact waterfowl nesting, however the critical conditions that persist along the small streams and beaver ponds will probably limit production from these typically ideal habitats.

BREEDING POPULATION ESTIMATES: Table 1 presents breeding waterfowl population data along with comparisons to 2003, the 1993 to 2003 average, and the 1955-2003 average. Appendix 1 presents earlier waterfowl breeding estimates.

CONCLUSIONS: Breeding waterfowl numbers were mixed in 2004. Habitat conditions ranged from mostly good in Saskatchewan to fair across much of northern Manitoba. The low water levels in many small streams and beaver ponds in northern Manitoba may limit production potential.

Table 1. Status of waterfowl breeding population estimates (thousands, adjusted for visibility bias) by species and stratum with comparisons against the previous year, the previous 10-year mean, and the long-term mean for Northern Saskatchewan and Northern Manitoba.

Species/Ponds	Stratum					% Change From					
	21	22	23	24	2004 Total	2003 Total	10-Year Mean	Long-Term Mean	2003	10-Year Mean	Long-Term Mean
Ducks											
Dabblers											
Mallard	69.7	109.5	183.8	360.4	723.4	610.4	774.8	811.9	18.5%	-6.6%	-10.9%
Am. black duck	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.6	--	-100.0%	-100.0%
Gadwall	0.0	13.3	0.0	3.0	16.4	19.0	12.6	16.1	-13.8%	29.7%	1.8%
Am. wigeon	22.6	16.7	22.0	79.7	140.9	188.0	170.1	203.0	-25.0%	-17.2%	-30.6%
Am. green-winged teal	34.1	21.8	104.6	168.2	328.7	267.1	230.1	152.6	23.1%	42.9%	115.4%
Blue-winged teal	2.9	14.6	9.1	12.2	38.7	148.4	106.3	176.6	-73.9%	-63.5%	-78.1%
N. shoveler	1.5	13.2	0.0	3.5	18.2	3.7	23.8	22.9	397.3%	-23.5%	-20.7%
N. pintail	1.8	1.9	2.4	3.5	9.6	5.2	11.0	24.6	85.0%	-12.3%	-60.8%
Subtotal	132.6	191.0	321.8	630.5	1275.9	1241.7	1329.1	1409.4	2.8%	-4.0%	-9.5%
Divers											
Redhead	0.3	1.1	4.9	0.5	6.9	15.1	7.8	11.8	-54.1%	-11.7%	-41.3%
Canvasback	2.3	11.4	8.2	9.0	30.9	5.0	13.5	25.5	522.6%	128.6%	21.0%
Scaups	86.9	111.4	122.0	233.2	553.5	324.6	347.7	450.6	70.5%	59.2%	22.8%
Ring-necked duck	42.3	26.6	106.0	199.5	374.3	319.3	308.6	249.4	17.2%	21.3%	50.1%
Goldeneyes	31.4	45.3	21.2	152.9	250.7	265.2	288.9	159.8	-5.4%	-13.2%	57.0%
Bufflehead	51.2	36.1	93.1	99.1	279.5	246.5	200.0	135.5	13.4%	39.7%	106.2%
Ruddy Duck	0.0	0.0	0.0	0.0	0.0	15.7	4.9	5.9	-100.0%	-100.0%	-100.0%
Subtotal	214.3	231.8	355.5	694.2	1495.8	1191.4	1171.4	1038.6	25.6%	27.7%	44.0%
Miscellaneous											
Long-tailed duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	-100.0%
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	--	-100.0%	-100.0%
Scoters	18.0	0.0	23.3	83.6	124.9	57.4	59.0	56.4	117.7%	111.5%	121.4%
Mergansers	61.0	25.9	134.8	220.1	441.8	203.5	224.8	176.3	117.1%	96.5%	150.6%
Subtotal	79.0	25.9	158.1	303.6	566.7	260.8	283.9	232.8	117.3%	99.6%	143.4%
Total Ducks	425.9	448.7	835.5	1628.3	3338.4	2694.0	2784.5	2680.7	23.9%	19.9%	24.5%
Canada Goose	38.3	14.5	55.2	107.7	215.7	170.2	169.1	96.4	26.8%	27.6%	123.7%
Am. coot	1.6	72.9	0.0	0.0	74.4	6.1	36.9	58.4	1115.5%	101.9%	27.4%

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

Species/Ponds	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Ducks										
Dabblers										
Mallard	572.4	724.4	504.1	904.6	757.9	388.1	430.4	422.2	396.3	511.6
Am. black duck	0.0	0.0	0.0	0.0	2.7	3.6	2.4	10.1	1.6	13.4
Gadwall	1.0	1.0	5.6	0.0	25.7	1.0	34.3	9.9	9.4	8.5
Am. wigeon	105.4	22.9	45.8	23.6	86.6	123.2	104.0	112.4	103.8	147.2
Am. green-winged teal	53.0	35.6	12.3	0.0	76.2	10.7	7.8	27.2	26.5	75.2
Blue-winged teal	13.8	35.9	33.5	143.4	92.6	40.8	13.8	170.8	169.9	305.4
N. shoveler	4.2	1.9	0.0	2.6	19.7	0.0	0.0	9.0	5.8	55.4
N. pintail	21.0	48.0	17.8	9.4	44.6	11.4	111.7	12.8	32.3	33.3
Subtotal	770.7	869.8	619.2	1083.6	1105.9	578.8	704.2	774.4	745.6	1150.0
Divers										
Redhead	30.4	0.0	1.0	0.0	0.0	21.1	6.2	11.4	12.8	30.2
Canvasback	22.3	22.5	0.0	2.3	45.9	13.3	43.4	5.9	42.7	154.4
Scaups	449.2	228.2	779.6	359.9	449.5	131.5	215.2	239.2	277.3	312.5
Ring-necked duck	113.2	46.3	0.0	0.0	2.5	23.1	36.7	90.4	193.1	140.6
Goldeneyes	57.3	1.2	6.4	191.1	489.5	219.8	136.9	126.6	62.3	39.3
Bufflehead	45.9	15.7	18.8	27.4	26.9	124.8	28.0	54.6	39.8	30.0
Ruddy Duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.8	9.9	0.1
Subtotal	718.3	313.8	805.9	580.7	1014.3	533.6	466.5	551.9	638.0	707.0
Miscellaneous										
Oldsquaw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Scoters	12.1	6.8	71.8	26.7	100.5	5.5	44.4	33.9	13.9	39.5
Mergansers	160.2	51.5	35.7	89.3	77.2	75.0	40.6	99.7	125.7	73.7
Subtotal	172.3	58.3	107.6	116.1	177.7	80.5	85.0	133.7	139.5	113.2
Total Ducks	1661.4	1241.9	1532.6	1780.4	2297.9	1192.9	1255.7	1459.9	1523.2	1970.3
Canada Goose	71.3	65.5	48.7	53.1	147.2	26.5	94.8	17.4	15.7	42.6
Am. coot	0.0	0.0	0.0	0.0	22.5	7.9	0.0	5.5	17.3	6.3

Species/Ponds	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Ducks										
Dabblers										
Mallard	719.7	453.0	1363.3	1221.0	1368.1	1834.2	869.6	724.6	849.6	540.0
Am. black duck	2.6	1.5	7.8	5.8	0.0	1.1	0.0	0.0	0.0	0.0
Gadwall	26.4	22.6	51.3	48.6	46.8	28.9	7.7	18.3	22.5	9.7
Am. wigeon	185.9	178.3	143.4	321.0	345.3	532.7	379.9	240.0	252.1	168.4
Am. green-winged teal	67.1	58.3	80.6	68.1	138.1	102.6	134.2	111.7	99.7	119.8
Blue-winged teal	88.6	65.3	170.9	613.5	392.2	421.7	49.9	78.4	83.6	39.6
N. shoveler	38.1	26.8	10.3	27.0	40.2	50.4	19.6	14.9	10.0	7.3
N. pintail	18.1	22.7	27.9	48.5	58.3	72.7	42.7	14.9	23.7	14.1
Subtotal	1146.6	828.5	1855.6	2353.4	2389.0	3044.3	1503.7	1202.8	1341.2	898.9
Divers										
Redhead	29.6	11.6	27.4	49.4	12.7	49.6	11.3	5.2	7.5	0.8
Canvasback	33.1	25.0	42.1	55.2	18.3	99.4	5.0	11.7	40.0	3.1
Scaups	388.7	232.9	395.7	481.9	537.6	693.3	357.6	652.4	521.4	628.0
Ring-necked duck	172.1	239.5	184.2	277.0	242.1	393.0	338.7	221.6	139.1	110.7
Goldeneyes	62.6	66.6	13.8	39.3	141.5	213.4	107.5	89.4	155.6	103.8
Bufflehead	30.7	42.3	57.5	150.0	107.0	122.6	172.7	148.7	111.9	128.1
Ruddy Duck	7.9	5.0	12.4	37.1	1.3	10.0	0.0	3.9	1.0	0.0
Subtotal	724.8	622.8	733.1	1089.8	1060.5	1581.4	992.8	1133.0	976.5	974.4
Miscellaneous										
Oldsquaw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Scoters	17.2	39.6	33.2	81.0	126.7	35.5	46.3	92.3	60.0	37.2
Mergansers	138.9	68.1	159.3	118.6	153.5	144.4	100.6	118.9	125.8	128.8
Subtotal	156.0	107.7	192.5	199.6	280.2	179.9	146.9	211.2	185.7	166.0
Total Ducks	2027.4	1559.0	2781.2	3642.8	3729.6	4805.6	2643.5	2547.0	2503.4	2039.3
Canada Goose	96.3	44.6	77.8	69.7	119.7	48.2	57.9	48.7	29.6	29.1
Am. coot	15.5	8.2	29.3	193.7	20.5	47.9	17.3	13.6	41.7	7.8

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

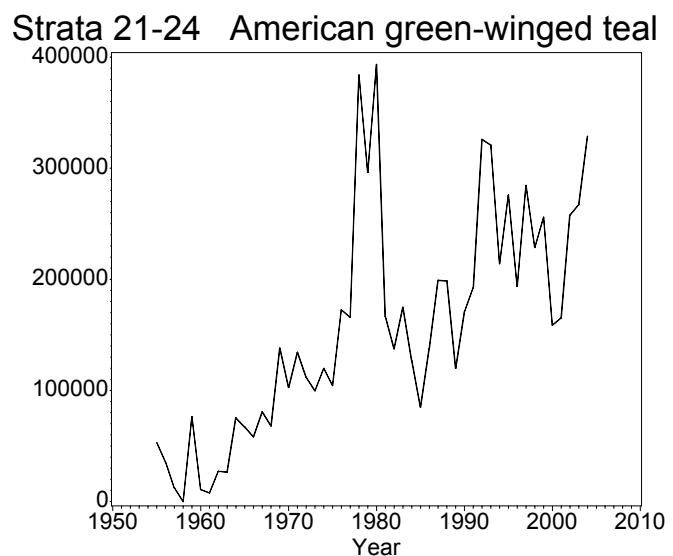
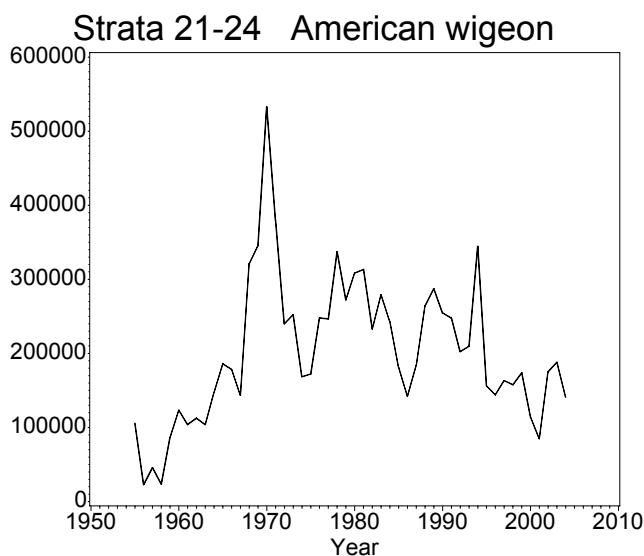
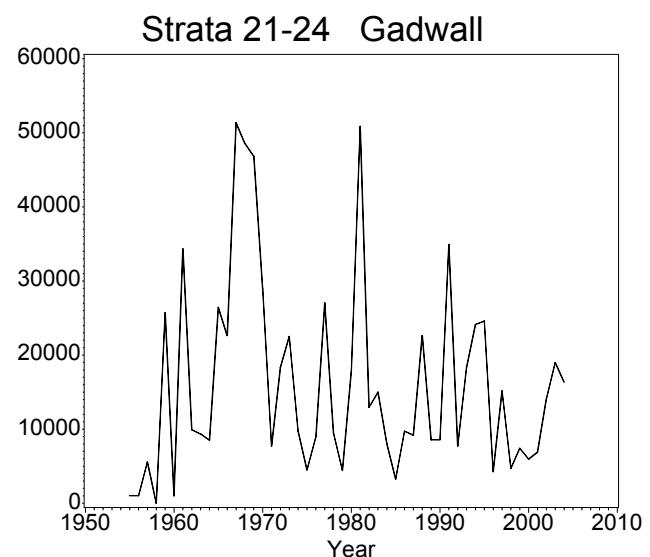
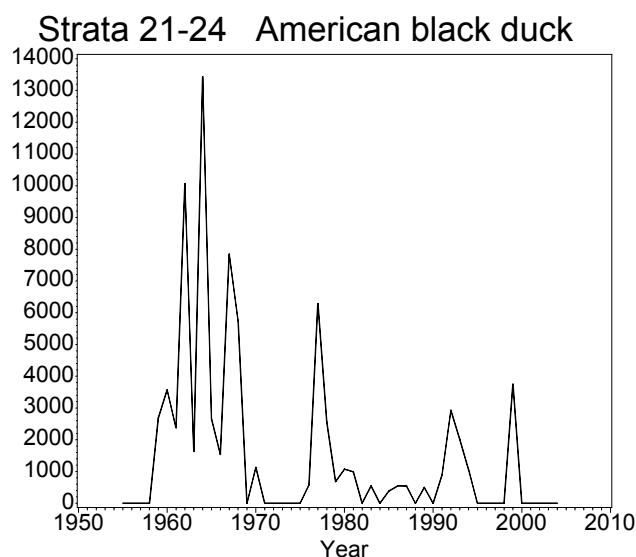
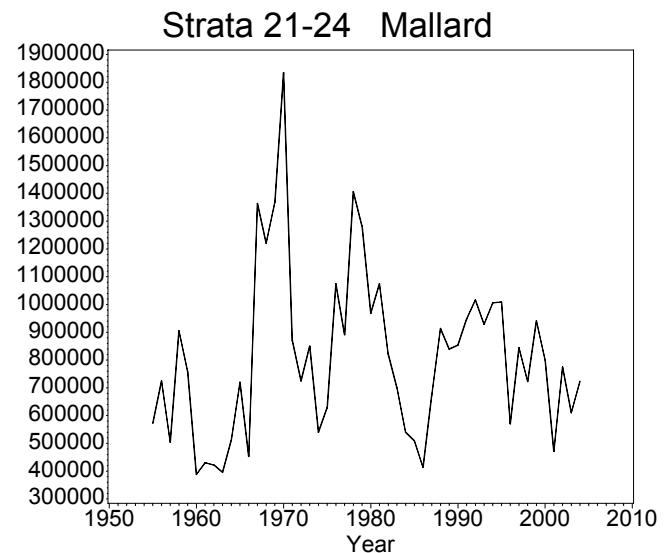
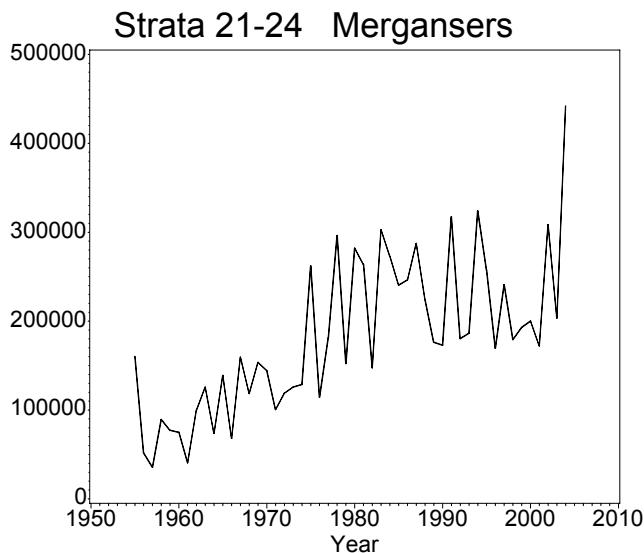
Species/Ponds	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Ducks										
Dabblers										
Mallard	628.2	1074.0	891.0	1406.0	1282.0	968.7	1074.3	821.5	700.9	539.7
Am. black duck	0.0	0.6	6.3	2.6	0.7	1.1	1.0	0.0	0.5	0.0
Gadwall	4.5	8.9	27.0	9.4	4.4	17.8	50.9	13.0	15.0	8.1
Am. wigeon	172.1	247.8	246.7	337.0	272.3	308.4	313.2	232.9	278.9	242.8
Am. green-winged teal	104.4	172.5	165.8	383.7	296.3	393.3	166.7	137.5	174.7	127.0
Blue-winged teal	119.3	311.4	293.4	291.3	111.2	253.6	376.3	160.1	65.5	148.5
N. shoveler	25.3	10.3	56.5	17.9	14.5	27.9	40.2	16.6	18.1	17.8
N. pintail	40.5	35.2	38.9	58.3	25.7	21.6	41.6	16.3	15.2	14.7
Subtotal	1094.3	1860.7	1725.6	2506.2	2007.1	1992.4	2064.0	1398.0	1268.9	1098.7
Divers										
Redhead	3.1	17.0	8.8	7.0	7.6	10.0	27.0	8.0	22.9	7.7
Canvasback	16.1	22.9	28.8	12.4	8.6	24.3	44.9	19.8	13.5	16.5
Scaups	584.6	435.6	470.4	548.8	889.9	435.8	404.1	459.3	738.4	430.5
Ring-necked duck	207.2	279.6	187.2	266.6	167.1	332.8	445.2	283.3	284.1	352.2
Goldeneyes	81.0	242.5	182.5	85.6	66.1	48.8	331.8	110.0	163.6	105.5
Bufflehead	109.2	203.8	147.5	190.2	189.4	148.0	177.5	121.9	221.3	108.6
Ruddy Duck	0.0	4.3	0.7	4.9	4.0	3.4	27.1	1.5	17.1	0.0
Subtotal	1001.1	1205.7	1026.0	1115.6	1332.7	1003.1	1457.6	1003.8	1460.9	1021.0
Miscellaneous										
Oldsquaw	0.0	0.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Scoters	52.6	78.6	89.2	88.3	78.9	108.9	86.4	119.2	198.0	64.0
Mergansers	262.1	114.3	181.3	296.3	152.3	282.0	263.8	147.5	302.6	273.0
Subtotal	314.7	193.6	271.6	384.6	231.2	390.9	350.2	266.7	500.6	337.0
Total Ducks	2410.1	3260.1	3023.2	4006.3	3571.0	3386.4	3871.8	2668.5	3230.4	2456.6
Canada Goose	31.1	66.3	50.5	168.1	116.4	80.3	96.8	52.6	93.6	64.9
Am. coot	21.0	50.2	228.5	55.9	12.6	324.3	526.1	33.3	24.5	94.8

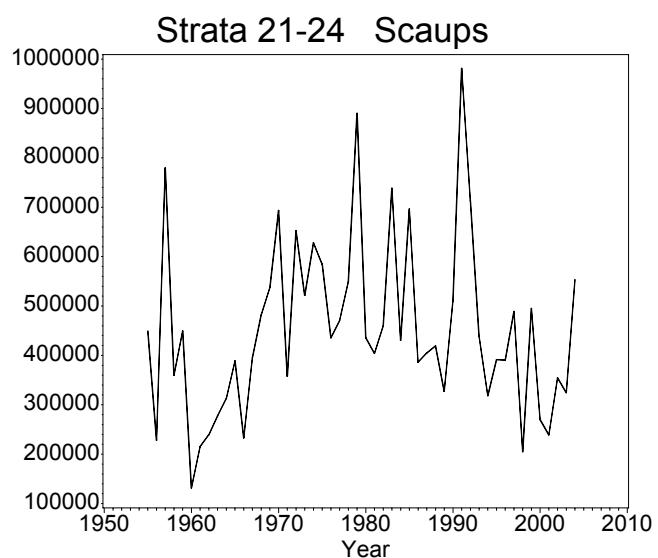
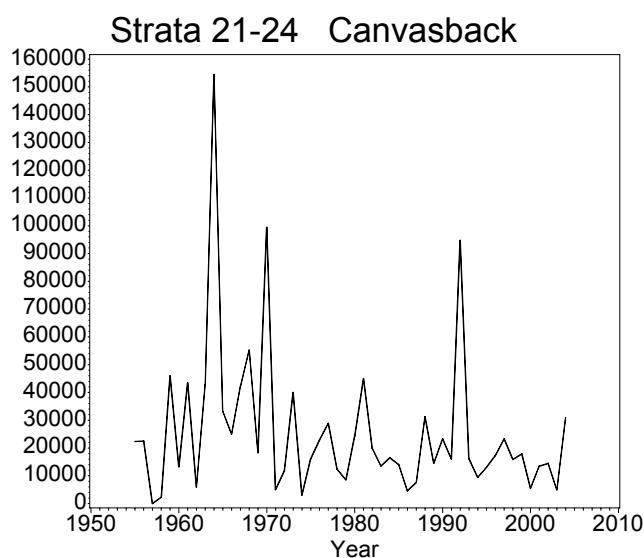
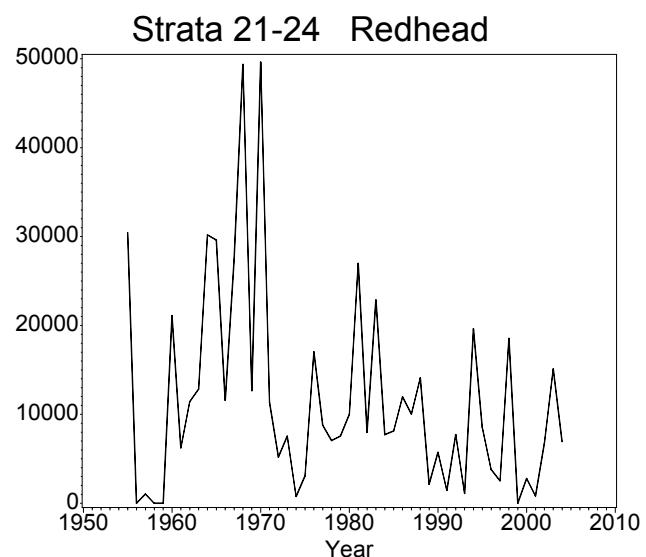
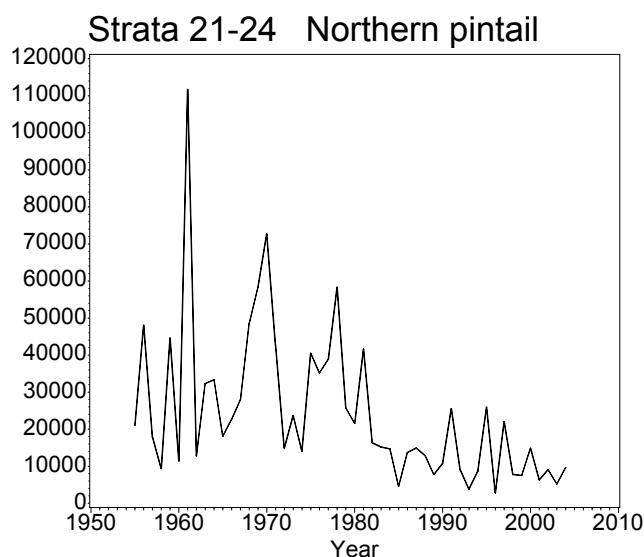
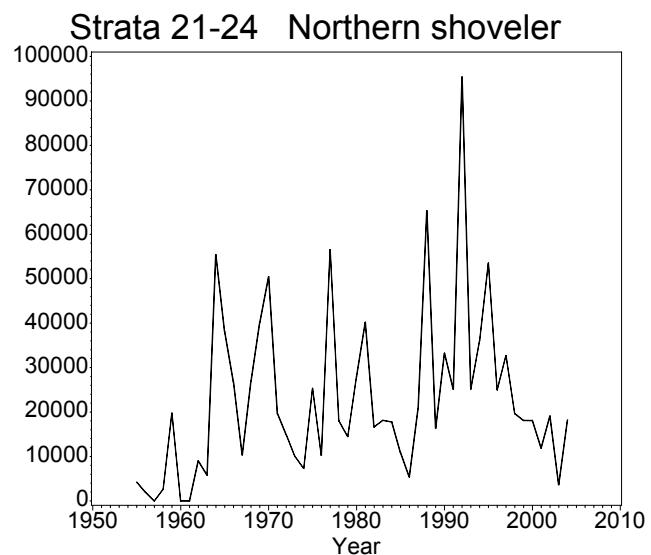
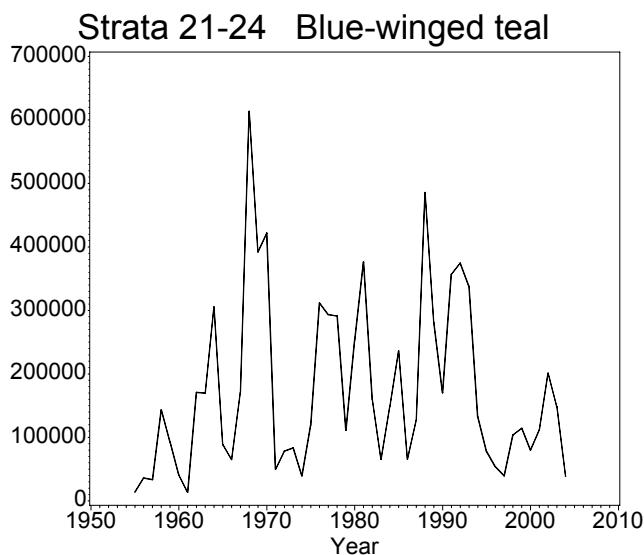
Species/Ponds	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Ducks										
Dabblers										
Mallard	509.6	413.9	673.5	913.1	839.1	853.9	947.9	1016.1	928.7	1005.7
Am. black duck	0.4	0.5	0.5	0.0	0.5	0.0	0.9	2.9	2.0	1.1
Gadwall	3.3	9.7	9.2	22.6	8.6	8.6	34.9	7.7	18.4	24.1
Am. wigeon	180.8	142.2	183.8	264.1	287.2	254.5	247.8	202.4	209.7	344.3
Am. green-winged teal	84.9	137.9	199.1	198.6	119.9	170.6	192.3	325.9	320.9	214.1
Blue-winged teal	236.1	65.9	127.0	485.6	281.1	170.4	357.0	374.4	338.0	132.2
N. shoveler	10.9	5.4	20.7	65.3	16.3	33.2	25.1	95.4	25.2	36.0
N. pintail	4.6	13.7	14.9	12.9	7.8	10.7	25.5	9.1	3.8	8.6
Subtotal	1030.5	789.3	1228.6	1962.1	1560.4	1502.0	1831.5	2033.8	1846.8	1766.1
Divers										
Redhead	8.1	12.0	10.0	14.1	2.1	5.7	1.4	7.7	1.1	19.6
Canvasback	14.1	4.6	7.5	31.2	14.6	23.3	16.1	94.7	16.1	9.5
Scaups	696.1	386.2	404.8	419.0	327.1	509.8	981.1	713.3	438.1	318.3
Ring-necked duck	341.5	288.5	445.0	291.2	181.0	278.3	332.6	834.5	373.0	323.1
Goldeneyes	66.4	236.8	145.7	39.6	40.9	57.1	104.4	328.7	178.4	112.6
Bufflehead	102.3	116.8	103.9	86.9	131.4	174.4	171.7	365.8	286.4	163.1
Ruddy Duck	0.7	5.2	5.1	2.8	5.7	28.8	10.7	7.2	0.0	0.0
Subtotal	1229.2	1049.9	1122.0	884.8	702.9	1077.4	1618.0	2351.9	1293.1	946.1
Miscellaneous										
Oldsquaw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Scoters	47.8	21.6	52.3	25.1	19.8	23.2	44.0	17.6	34.1	46.6
Mergansers	240.4	246.2	287.3	224.1	176.2	173.1	317.2	180.3	186.4	323.8
Subtotal	288.2	267.8	339.5	249.2	196.0	196.3	361.2	197.9	220.5	370.3
Total Ducks	2548.0	2107.1	2690.2	3096.2	2459.3	2775.7	3810.8	4583.7	3360.3	3082.6
Canada Goose	90.7	90.8	112.0	126.3	115.1	127.6	102.1	110.5	133.9	127.1
Am. coot	20.1	16.9	169.1	158.8	129.9	33.2	95.6	17.1	25.7	23.5

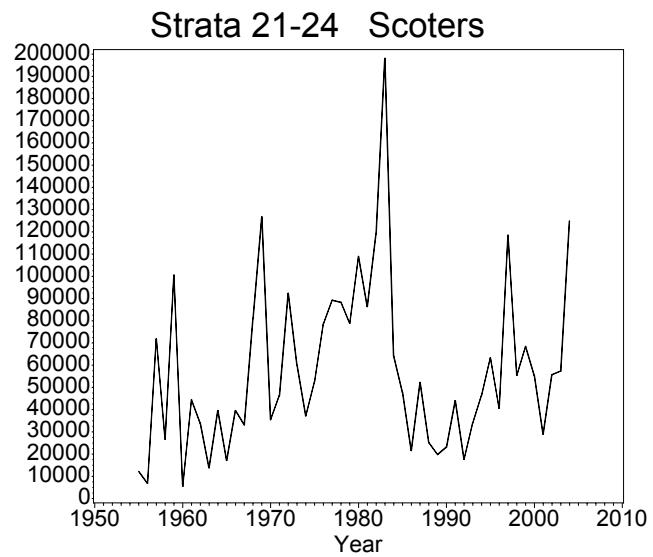
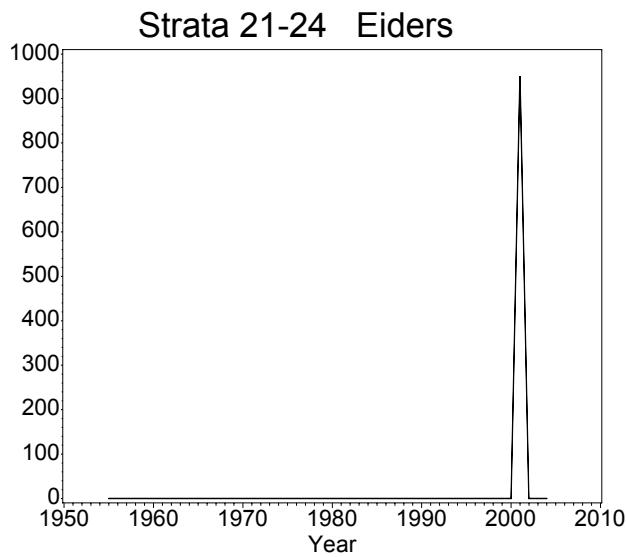
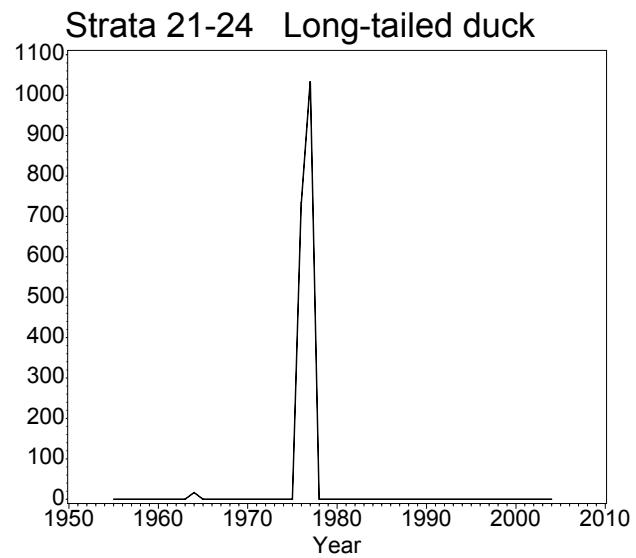
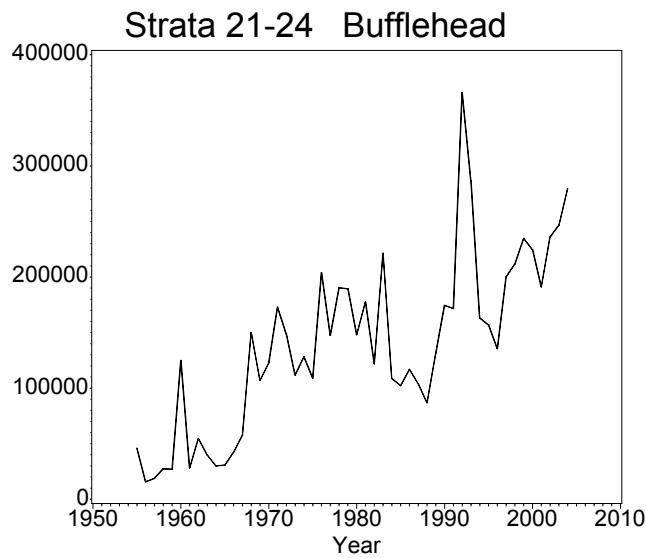
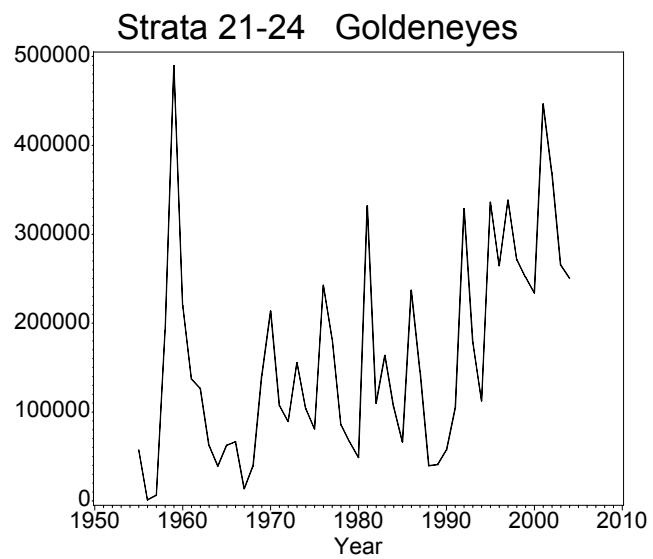
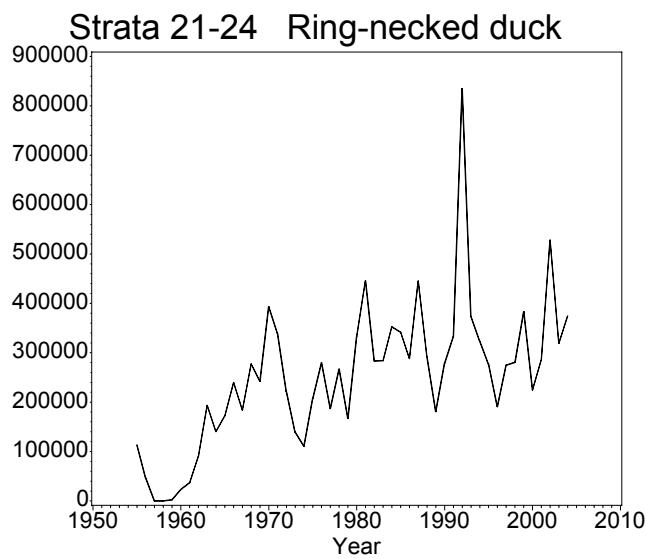
Species/Ponds	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ducks										
Dabblers										
Mallard	1008.6	570.3	843.6	722.8	940.6	800.3	471.1	774.5	610.4	723.4
Am. black duck	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0
Gadwall	24.6	4.3	15.1	4.7	7.4	6.0	6.9	14.1	19.0	16.4
Am. wigeon	156.0	144.1	163.3	157.7	173.7	114.0	84.8	175.1	188.0	140.9
Am. green-winged teal	275.7	193.6	284.4	228.6	255.8	158.7	165.2		257.7	267.1
Blue-winged teal	77.7	53.9	39.6	103.9	114.3	80.0	111.7	201.2	148.4	38.7
N. shoveler	53.5	25.0	32.7	19.6	18.1	18.1	11.9	19.1	3.7	18.2
N. pintail	25.9	2.8	22.0	7.8	7.5	14.8	6.3	9.0	5.2	9.6
Subtotal	1621.9	994.1	1400.7	1245.1	1521.1	1191.8	857.9	1450.7	1241.7	1275.9
Divers										
Redhead	8.5	3.8	2.5	18.5	0.0	2.8	0.8	6.7	15.1	6.9
Canvasback	13.1	17.2	23.2	15.9	17.9	5.5	13.5	14.5	5.0	30.9
Scaups	391.3	390.6	488.9	204.9	494.9	269.7	239.0	354.5	324.6	553.5
Ring-necked duck	276.5	191.0	274.7	280.6	383.2	224.8	285.1	527.8	319.3	374.3
Goldeneyes	335.9	264.7	338.2	271.4	251.5	234.1	446.3	368.7	265.2	250.7
Bufflehead	156.9	135.5	200.0	211.7	234.6	224.7	191.1	236.0	246.5	279.5
Ruddy Duck	5.0	2.8	9.7	0.0	3.8	0.0	5.1	7.1	15.7	0.0
Subtotal	1187.1	1005.6	1337.3	1003.0	1386.0	961.4	1180.9	1515.3	1191.4	1495.8
Miscellaneous										
Oldsquaw	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0
Scoters	63.4	40.6	118.4	55.5	68.4	55.3	29.0	55.7	57.4	124.9
Mergansers	257.3	169.6	241.0	179.1	192.9	200.0	172.3	308.5	203.5	441.8
Subtotal	320.7	210.2	359.4	234.6	261.3	255.3	202.2	364.2	260.8	566.7
Total Ducks	3129.7	2209.9	3097.4	2482.7	3168.4	2408.6	2241.0	3330.2	2694.0	3338.4
Canada Goose	136.1	169.8	109.6	143.3	286.6	168.6	165.9	213.6	170.2	215.7
Am. coot	17.6	11.8	13.6	29.6	38.0	83.9	43.0	101.5	6.1	74.4

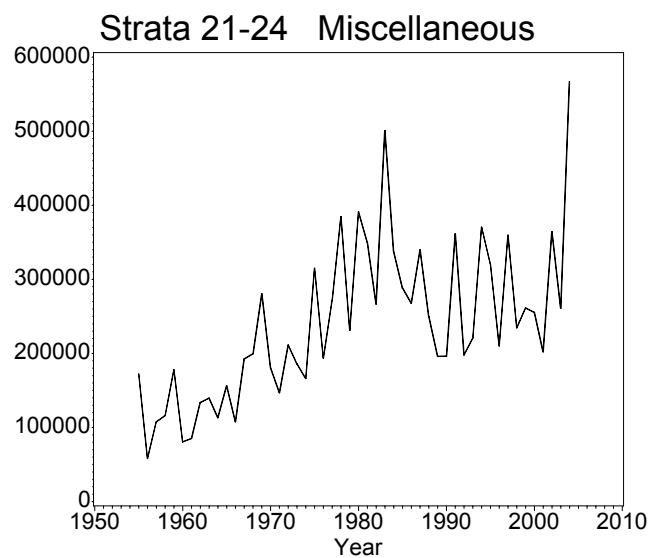
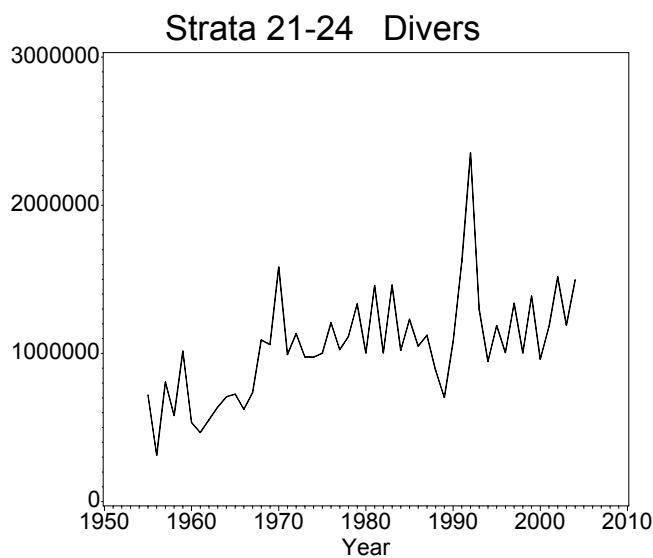
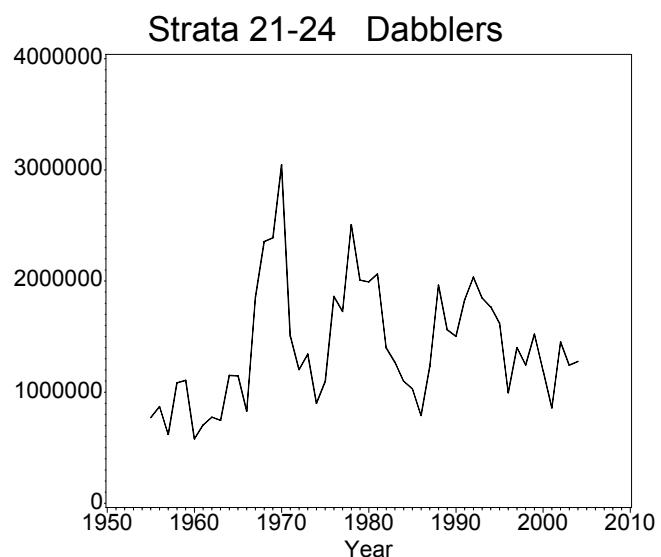
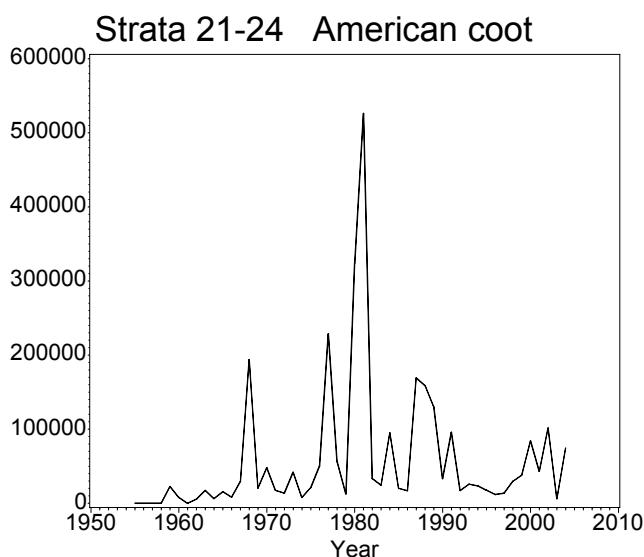
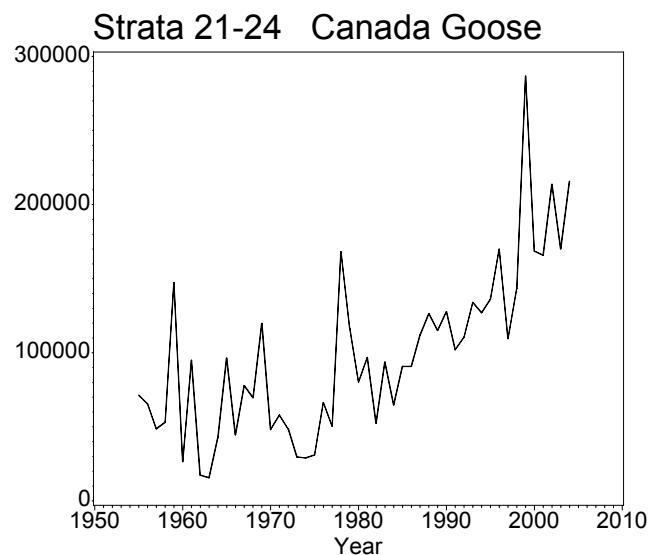
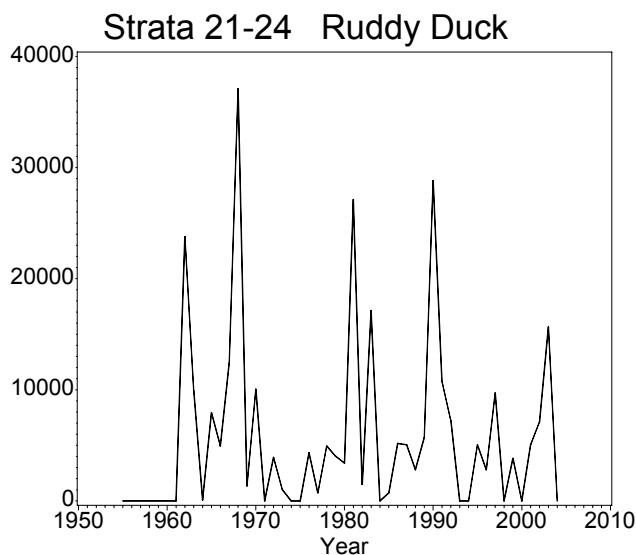
Table 2. Northern Saskatchewan, Northern Manitoba stratum data sheet, May 2004.

	Strata				
	21	22	23	24	Total
Square miles in stratum	44,922	20,278	68,320	82,966	216,486
Square miles in sample	418.5	166.5	301.5	513.0	1,399.5
Linear miles in sample	1,674	666	1,206	2,052	5,598
Number of transects in sample	11	6	9	8	34
Number of segments in sample	93	37	67	114	311
Expansion factor	107.341	121.790	226.600	161.727	
	Strata				
Current Year Design:	21	22	23	24	Total
Square mile in stratum	44,922	20,278	68,320	82,966	216,486
Square miles in sample	409.5	166.5	301.5	499.5	1,377
Linear miles in sample	1,638	666	1206	1,998	5,508
Number of transects in sample	10	6	9	8	33
Number of segments in sample	91	37	67	111	306
Expansion factor	109.7	121.8	226.6	166.1	









Strata 21-24 Total Ducks

