The 2000 Waterfowl Hunting Season in Minnesota: A Study of Hunters' Opinions and Activities

Final Report

A cooperative study conducted by the University of Minnesota
for the Minnesota Department of Natural Resources
Division of Wildlife

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Introduction

Minnesota has the largest number of waterfowl hunters in the United States, yet quantitative information about this important clientele is limited. Hunter numbers and harvest are estimated annually by the U.S. Fish and Wildlife Service via the Federal Harvest Estimates and the Minnesota Department of Natural Resources through its Small Game Hunter Survey, yet details of hunter activity and opinions on waterfowl management issues have not been documented.

Minnesota participated in the North American Duck Hunter Survey (Ringelman 1997), and Minnesota hunter responses have been compared to those in rest of the United States (Lawrence and Ringelman, 2001). Hunter satisfaction is important, and while the DNR is primarily a regulatory agency, maintaining waterfowl hunter numbers over the long term will depend upon a satisfied clientele.

Development of annual waterfowl hunting regulations must be within the frameworks established by the U.S. Fish and Wildlife Service, yet there is some latitude within those frameworks to adjust season structure based upon unique state characteristics and hunter preference. A Saturday opening day, youth waterfowl hunt, and customized regulations are examples of regulations that could be modified by hunter preference. Also, hunter responses will provide a better understanding of where the Division of Wildlife needs to focus Information and Education efforts.

Study Purpose and Objectives

This study was conducted to provide baseline information on waterfowl hunter demographics and attitudes in Minnesota with the purpose of identifying hunter preferences/opinion on various waterfowl hunting, management, and regulations issues and to measure hunter satisfaction.

The specific objectives of this study are to:

1. Describe hunter effort in Minnesota in 2000 including: groups of species and seasons hunted; number of days hunted, effort during weekdays, weekends, and opening weekend; distance traveled in Minnesota to hunt; management regions hunted; and whether public or private land was hunted.
2. Describe hunting satisfaction with waterfowl (duck and goose) hunting in Minnesota in 2000 and identify activities and experiences affecting hunting satisfaction.
3. Determine Minnesota waterfowl hunters' support for Youth Waterfowl Hunt;
4. Determine Minnesota waterfowl hunters' opinions concerning management strategies for maintaining waterfowl numbers;
5. Determine Minnesota waterfowl hunters' opinions on duck bag limits.
6. Determine Minnesota waterfowl hunters' opinions on September goose hunting options.
7. Determine Minnesota waterfowl hunters' opinions and use of battery-operated duck decoys.
8. Determine general characteristics of waterfowl hunters in Minnesota.

The questions used to address each objective are provided in the survey instrument (Appendix A) and discussed in more detail in the subsequent sections.

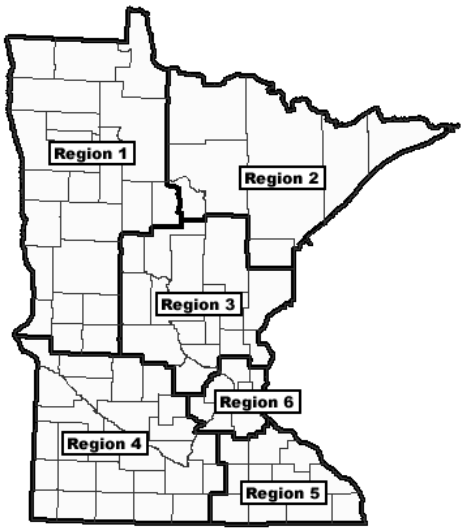
Introduction

Methods

Sampling

The population of interest in this study included all Minnesota residents 16 years of age and older who hunted waterfowl in Minnesota in 2000. The sampling frame used to draw the study sample was the Minnesota Department of Natural Resource's (DNR) Electronic Licensing System (ELS). A stratified random sample of Minnesota residents in the ELS was drawn. Individuals included in the sample had either 1) purchased a state waterfowl stamp in Minnesota or 2) were over the age of 64 or under 18, did not purchase a state waterfowl stamp but reported through the Harvest Information Program (HIP). The study sample was stratified by the six DNR management regions based on the residence of the individuals as determined by their zip code. The target sample size was n = 400 for each region (n = 2400 statewide). An initial stratified random sample of 4,196 individuals was drawn from the ELS, or approximately 700 from each of the six management regions (Figure 1).

Figure 1. Minnesota DNR Regions.



Data Collection

Data were collected using a mail-back survey questionnaire following a process outlined by Dillman (1978) to enhance response rates. This process involved constructing a questionnaire that is relatively easy to do, personalized cover letters, and multiple contacts with the targeted respondents. Potential study respondents were contacted 3 times between March 19, 2001 and April 11, 2001. In the initial contact, a cover letter, survey questionnaire, and postage-paid return envelope were mailed to all potential study participants. The cover letter was addressed to the respondent, explained the purpose of the study, and made a personal appeal for them to complete and return the survey questionnaire. Approximately seven days later, a postcard was sent to all potential study participants reminding them of the study and encouraging them to reply. Three weeks after the first mailing a third mailing that included a personalized cover letter and replacement questionnaire with postage-paid return envelope was sent to all individuals with valid addresses who had not yet replied. Returned surveys were collected through May 15, 2001.

Introduction

Survey Instrument

The data collection instrument was a 12-page (10 pages of questions), self-administered survey questionnaire (Appendix A). The questionnaire addressed the following topics:

1. Background and length of experience as a waterfowl hunter;
2. Hunting experiences during the 2000 Minnesota waterfowl hunting seasons including species hunted, days hunted, distance traveled to hunt, management region most often hunted, and types of land (public vs. private) hunted;
3. Satisfaction with duck and goose hunting including general experience, harvest, and regulations; personal trends in hunting satisfaction for ducks and geese; and activities and experiences important to hunting satisfaction;
4. Opinions concerning waterfowl management issues including Youth Waterfowl Hunting Day, strategies for reducing harvest rate and holding waterfowl in Minnesota, split seasons and zones, duck bag limits, and battery-operated decoys;
5. Opinions about early Canada goose season and areas hunted during regular Canada goose season;
6. Sources of information about waterfowl seasons and hunting;
7. Background information about hunting outside Minnesota and group membership.

Additionally, information concerning age and gender of respondents was obtained from the ELS database.

Data Entry and Analysis

Data were professionally keypunched and the data were analyzed on a PC using the Statistical Program for the Social Sciences (SPSS/PC+ 10.0). For the statewide level basic descriptive statistics and frequencies were computed. Regional level results were compared using one-way analysis of variance and cross-tabulations.

Survey Response Rate

Of the 4,196 questionnaires mailed, 319 were undeliverable or sent to individuals who returned responses indicating that they purchased a waterfowl stamp but did not hunt waterfowl, resulting in 3,877 valid addresses. A total of 2,454 waterfowl hunters completed and returned the questionnaire, resulting in an overall response rate of 63.3%. Response rates for each region are summarized in Table I-1.

Table I-1: Response rates for each management region

	Initial Sample Size	Number Invalid	Valid Sample Size	Number Completed and Returned	% Response Rate
Region 1	699	57	642	395	61.5
Region 2	699	58	641	387	60.4
Region 3	699	56	643	403	62.7
Region 4	700	43	657	427	65.0
Region 5	699	49	650	411	63.2
Region 6	700	56	644	431	66.9

Because of the relatively high response rate and uniformity of responses across regions, a complete non-response check was not necessary. A comparison of respondents to non-respondents on age and gender

indicate no significant differences on gender but do indicate an age bias in response. The average age of respondents was significantly older than the population of waterfowl hunters in each management region of the state. Weights correcting this bias were calculated and applied to the data. However, while there were a few statistically significant differences between the weighted and un-weighted data, weighting the data did not change results beyond the margin of error for the survey and the effect size of all differences were quite small. For this reason, data were not weighted for age bias in any of the results reported here (see section 8 for respondent/study population age comparison).

Population Estimates

Statewide Estimates

The study sample was drawn using a stratified random sample with region of residence defining the 6 study strata. For this reason the data had to be weighted to reflect the proportion of the population residing in each region when making statewide estimates. Table I-2 summarizes the statewide population proportions for each region.

Regional Estimates

At the regional level, estimates were calculated based either on the region of residence or on the region most often hunted depending on the specific question asked. Estimates based on the region of the state respondents most often hunted waterfowl were made for participation in hunting seasons, birds bagged, days hunted, and satisfaction and motivation questions. For these estimates, the data were first weighted to reflect the proportion of hunters from each region based on residence (proportions listed in Table I-2).

Table I-2: Proportion of state waterfowl stamp purchasers by region of residence in Minnesota.

Region of Residence	Proportion of State Waterfowl Stamp Purchasers in each Region age 18-64	
	Frequency	Proportion
Region 1	17,038	0.140
Region 2	8,032	0.066
Region 3	22,637	0.186
Region 4	21,907	0.180
Region 5	8,884	0.073
Region 6	43,205	0.355
Statewide	121,703	100.0

Section 1: Experiences during the 2000 Waterfowl Hunt

Findings:

Results for Part 2 of the waterfowl hunter survey are reviewed below. This section of the survey focused on hunting experiences during the 2000 Minnesota waterfowl hunting seasons. Only individuals who had hunted in Minnesota in 2000 completed this section of the survey.

Regional estimates for participation in various seasons are presented both by region of residence and region most often hunted. Regional estimates for participation, harvest, days hunted, and hunting on private and public lands were made based on the region most often hunted. Other regional estimates were made based on region of residence of the hunters.

Waterfowl Seasons Hunted in Minnesota in 2000

Respondents were first asked to report if they had actually hunted waterfowl at anytime in Minnesota in 2000. Statewide 90.5% of the survey respondents indicated they had hunted waterfowl in 2000 and there were no significant differences in participation rates across region of residence (Table 1-1). Respondents who had hunted in 2000 were next asked if they had hunted for ducks and Canada geese during the Early September, Regular, and Late December seasons. At the statewide level, 92.6% of actual waterfowl hunters in 2000 indicated they had hunted ducks while 72.3% had hunted Canada geese during the regular season. Approximately, 4 out of 10 respondents hunted Canada geese during the early season, while fewer than 1 in 10 hunted Canada geese during the late season (9.0%) or other geese (6.9%). Chi-square significance tests indicated that across the management regions, a larger proportion of waterfowl hunters residing in Region 2 hunted ducks than in other management regions, but significantly smaller proportions hunted Canada geese during the early or regular seasons in Region 2. Hunters in Region 5 were much more likely to hunt Canada geese during the late season than hunters in other regions (Table 1-1, Table 1-2).

Harvest

For each season in which they hunted, respondents were asked to report the number of ducks or geese they personally bagged. The statewide estimate of the average number of ducks each hunter harvested during the season was 9.81 (Table 1-4). Hunters reported an average of 2.79 geese during the early season, 2.58 during the regular season, and 1.99 during the late season. For all Canada goose seasons combined, hunters reported an average of 4.06 Canada geese for the year. An average harvest of 2.43 geese was reported by hunters targeting "other" geese.

Results of ANOVA indicate that on average hunters residing in Regions 1, 2, and 4 shot significantly more ducks than hunters in other regions. In the early Canada goose season, the average number of geese harvested by hunters from Region 1 was significantly more than hunters from other regions. During the regular Canada goose season, hunters from Region 5 averaged more geese than hunters from the other regions (Table 1-4). Across the three Canada goose seasons, hunters living in Regions 1 and 5, averaged more than 5 geese for the year, while hunters living in Regions 2 and 6 shot 3 or fewer Canada geese on average. Based on these average harvest estimates (Table 1-4) and hunter numbers (Table 1-3), the estimated statewide harvests for ducks and geese are reported in Table 1-5 along with estimated harvests by region of residence.

Average days hunting ducks and geese

Respondents were next asked to report the number of days they primarily hunted for ducks; primarily hunted for geese; and hunted for both ducks and geese. Statewide, hunters average 4.2 days hunting primarily for ducks, 2.8 days hunting primarily for geese, and 4.8 days hunting both ducks and geese. Hunters in Region 2 averaged more days (7.1 days) hunting primarily ducks than hunters in other regions, but fewer days hunting primarily geese (1.1 days) or both ducks and geese (2.9 days) than hunters in any of the other regions (Table 1-6).

Average days hunting weekends and weekdays

Next, respondents were asked to report the number of days they hunted on weekends or holidays and weekdays. On average hunters spent more days hunting on weekends and holidays (6.8 days) than during the week (4.1). This trend was the same in each management region (Table 1-7).

Hunting opening weekend

Approximately two-thirds of waterfowl hunters statewide hunted opening Saturday (63.2%) or Sunday (69.7%) during the 2000 duck season (Table 1-8). A smaller percentage of hunters in Regions 2 (54.8%), 5 (54.7%), and 6 (47.5%) than the other 3 regions (~65%) hunted opening Saturday, and the percentage of hunters in Region 5 (58.6%) who hunted on opening Sunday was also smaller than in the other management regions (~70%).

Distance most often traveled and longest distance traveled

Respondents were asked to indicate how far they traveled from their residence to the area they most often hunted and the longest distance they traveled from their residence to hunt waterfowl in 2000. Responses to these two questions were recorded on a scale of: less than 5 miles, 5-25 miles, 26-50 miles, 51-100 miles, 101-200 miles, and more than 200 miles. One in 5 (20.1%) hunters typically traveled less than 5 miles to hunt waterfowl, and another one-third (32.6%) traveled 5-25 miles. About 1 in 10 traveled 26-50 miles or 51-100 miles, while almost 1 in 5 (18.0%) traveled 101-200 miles. About 5% traveled more than 200 miles within the state in order to hunt waterfowl. Hunters in Regions 1, 3, 4 and 5 typically traveled the shortest distances, while almost half the hunters in Region 6 most often traveled at least 101 miles to hunt waterfowl (Table 1-9).

Approximately one-third of waterfowl hunters never traveled more than 25 miles (9.3% < 5 miles; 24.1% ≤ 25miles) in 2000. About 3 out of 10 traveled 26-50 miles (13.8%) or 51-100 miles (15.2). More than a third traveled greater than 100 miles at least once in 2000 to hunt waterfowl (26.2% 101-200 miles; 11.4% > 200 miles). A much larger proportion (66.4%) of hunters from Region 6 traveled more than 100 miles at least once in 2000 to hunt waterfowl than hunters living in any other region (Table 1-10).

Regions Hunted

Statewide

Across the state, Region 1 (27.7%), Region 4 (27.7%) and Region 3 (23.4%) were hunted most often by the largest proportions of waterfowl hunters. Less than 10% of the state waterfowl hunters reported that they most often hunted in Region 6 (8.1%), Region 2 (6.7%) or Region 5 (6.4%) (Table 1-11).

Regional

Very large majorities of waterfowl hunters residing in Region 1 (93.5%) and Region 4 (91.2%) hunted in their home regions. Also about 7 out 10 hunters residing in Region 2 (69.5%), Region 3 (67.4%), and Region 5 (71.7%) reported that they hunted most often in their home region. In contrast, waterfowl hunters from Region 6 were more likely to hunt in Region 1 (25.4%), Region 2 (25.7%), and Region 4 (21.4%) than in their home region (21.1%) (Table 1-11).

Number of areas hunted

Respondents were also asked if they hunted: the same area every time, 2-5 different areas during the fall, or more the 5 areas during the fall. A large majority (90.6%) hunted either one area (36.4%) or 2-5 different areas (54.2%). Less than 10% of waterfowl hunters hunt more than 5 areas (9.5%). There are no significant differences in this pattern among the six management regions in the state (Table 1-12).

Hunting on private and public lands

Finally, respondents were asked if they hunted waterfowl mostly on privately owned areas; mostly on public access areas (with Wildlife Managements Areas, Waterfowl Production Areas, and waters with public access listed as examples); or both public and private about the same. Across the state 42.5% hunted mostly on private lands, while 33.8% hunted mostly on public lands. The remaining 23.6% hunted on both public and private lands about the same amount. There were significant differences among the regions concerning the degree to which hunters used public versus private lands (Table 1-13) with hunters in Region 2 (60.1%) more likely than hunters in other regions to hunt on public lands. Conversely, a larger percentage of hunters in Regions 1 (49.4%) and 6 (49.7%) hunted mostly on private lands.

Table 1-1: Proportion of hunters participating in different waterfowl hunts by region of residence

Region of Residence	Sample Size (n)	% of hunters[1] indicating they hunted in Minnesota in 2000					
		%Who Actually Hunted in 2000	Ducks	Canada Geese Early September	Canada Geese Regular Season	Canada Geese Late Season	Other Geese
Statewide[2]	2454	90.5	92.6	38.5	72.3	9.0	6.9
Region 1	395	90.6	92.7	49.2	75.8	7.3	9.9
Region 2	387	91.2	96.3	19.5	49.6	2.3	9.0
Region 3	403	93.8	92.3	43.4	72.4	6.5	5.7
Region 4	427	91.6	91.2	56.2	82.9	12.5	10.0
Region 5	411	90.2	89.3	27.4	72.9	21.1	5.5
Region 6	431	88.1	93.0	28.5	69.5	7.8	4.6
		χ^2=8.505 n.s.	χ^2=12.749*	χ^2=176.216***	χ^2=108.536***	χ^2=87.180***	χ^2=15.914*

Notes: [1] % for species reflects only % of respondents that actually hunted waterfowl during 2000.
[2] A stratified sample based on region of residence was drawn.

*P ≤ 0.05
**P ≤ 0.01
***P ≤ 0.001

Table 1-2: Proportion of hunters participating in different waterfowl hunts in each Region

Area most often hunted	n	% of hunters[1] indicating they hunted in Minnesota in 2000				
		Ducks	Canada Geese Early September	Canada Geese Regular Season	Canada Geese Late Season	Other Geese
Statewide	2,188	92.6	38.5	72.3	9.0	6.9
Region 1	606	93.6	43.8	73.6	5.5	8.3
Region 2	147	98.6	19.2	38.4	5.5	6.8
Region 3	511	93.0	41.8	67.8	7.7	5.7
Region 4	605	91.2	50.9	80.7	10.6	8.5
Region 5	140	88.5	27.9	70.0	22.1	4.3
Region 6	179	90.9	40.2	81.7	11.5	2.3
		χ^2=14.530*	χ^2=63.150***	χ^2=119.138***	χ^2=45.403***	χ^2=12.547*

Notes: [1] % for species reflects only % of respondents that actually hunted waterfowl during 2000
*P ≤ 0.05
**P ≤ 0.01
***P ≤ 0.001

Table 1-3: Estimate of the number of hunters participating in different waterfowl hunts

Region of Residence	N	Actually Hunted in 2000	Ducks	Canada Geese Early September	Canada Geese Regular Season	Canada Geese Late Season	Other Geese
Statewide	121,703	110,139	101,819	42,560	79,638	9,843	7,596
Region 1	17,038	15,436	14,310	7,595	11,701	1,127	1,528
Region 2	8,032	7,325	7,054	1,428	3,633	168	659
Region 3	22,637	21,234	19,599	9,215	15,373	1,380	1,210
Region 4	21,907	20,067	18,301	11,278	16,635	2,508	2,007
Region 5	8,884	8,013	7,156	2,196	5,842	1,691	441
Region 6	43,205	38,064	35,399	10,848	26,454	2,969	1,751

Table 1-4: Average number of birds bagged statewide and by region of residence

Region of Residence	Average number of birds bagged in Minnesota in 2000 per hunter for that specific season					
	Ducks	Canada Geese Early September	Canada Geese Regular Season	Canada Geese Late Season	Total Canada Geese All Seasons	Other Geese
Statewide	9.85	2.79	2.58	1.99	4.06	2.43
Region 1	10.92	3.73	3.04	1.46	5.20	2.86
Region 2	10.87	2.27	1.89	1.50	2.61	1.29
Region 3	9.26	2.99	2.47	1.50	4.02	3.33
Region 4	11.89	2.62	2.90	1.96	4.70	2.59
Region 5	9.22	3.00	3.75	2.30	5.39	2.30
Region 6	8.59	2.18	2.07	2.31	3.07	1.71
	F= 5.311***	F= 2.780*	F= 4.981***	F=0.434	F=6.094***	F = 0.700

Notes:
*$p \leq 0.05$
***$p \leq 0.001$

Table 1-5: Estimates of harvest statewide and by region of residence

Region of Residence	Ducks	Canada Geese Early September	Canada Geese Regular Season	Canada Geese Late Season	Total Canada Geese All Seasons	Other Geese
Statewide	1,002,051	118,912	205,350	19,630	343,893	18,449
Region 1	156,191	28,351	35,624	1,647	65,622	4,366
Region 2	76,688	3,243	6,863	253	10,358	851
Region 3	181,459	27,539	37,943	2,070	67,552	4,034
Region 4	217,623	29,598	48,263	4,914	82,775	5,197
Region 5	65,984	6,587	21,896	3,887	32,369	1,014
Region 6	304,106	23,595	54,761	6,859	85,215	2,987

Notes:
Estimates were only calculated for the statewide harvest and region of residence because a large percentage of hunters hunt in multiple regions, thus total seasonal harvest could not be identified at the regional level.

Table 1-6: Average number of days hunting by waterfowl type

Area most often hunted	n	Mean number of days hunted during 2000 waterfowl season		
		Primarily Ducks	Primarily Geese	Both Ducks and Geese
Statewide	1,766	4.2	2.8	4.8
Region 1	479	4.0	2.5	4.4
Region 2	119	7.1	1.1	2.9
Region 3	435	3.8	2.6	4.4
Region 4	470	4.0	3.5	6.0
Region 5	114	4.7	3.5	4.6
Region 6	149	3.7	3.1	5.1
		F= 6.306***	F= 8.005***	F= 7.329***

Notes:
***p ≤ 0.001

Table 1-7: Average number of days hunting on weekends and weekdays

Area most often hunted	n	Mean number of days hunted during 2000 waterfowl season	
		Weekends/Holidays	Weekdays (Monday-Friday)
Statewide	1,765	6.8	4.1
Region 1	483	6.3	3.8
Region 2	120	6.2	3.8
Region 3	432	6.5	3.3
Region 4	471	7.8	4.9
Region 5	112	6.6	5.0
Region 6	147	6.9	4.2
		F= 6.852***	F= 6.581***

***p ≤ 0.001 **Notes:** Tables 1-6 and 1-7 provide slightly different totals for days spent hunting. This is because not all hunters provided information on both the number of weekend/weekdays spent hunting and the days spent hunting for ducks, geese or both types of birds.

Table 1-8: Participation in hunting on opening Saturday and Sunday

Area most often hunted	N	% hunting opening weekend in Minnesota	
		Opening Saturday (September 30,2000)	First Sunday (October 1, 2000)
Statewide	2,185	63.2	69.7
Region 1	603	66.5	71.8
Region 2	147	54.8	71.4
Region 3	511	65.9	67.9
Region 4	605	66.0	73.0
Region 5	140	54.7	58.6
Region 6	179	47.5	64.6
		χ^2=34.200***	χ^2=15.866**

**P ≤ 0.01
***P ≤ 0.001

Table 1-9: Distance most often traveled for waterfowl hunting

Residence of Hunter	n	% of hunters indicating distance they MOST often traveled (one-way) to hunt waterfowl in Minnesota in 2000					
		Less than 5 miles	5 - 25 miles	26 - 50 miles	51 - 100 miles	101 - 200 miles	More than 200 miles
Statewide	2,209	20.1	32.6	12.7	11.3	18.0	5.3
Region 1	357	29.1	50.7	9.2	6.4	4.2	0.3
Region 2	349	19.5	23.5	17.8	17.2	15.2	6.9
Region 3	372	28.0	33.1	9.9	11.0	14.5	3.5
Region 4	391	28.1	49.9	12.3	5.9	2.3	1.5
Region 5	366	24.9	40.2	16.7	7.9	4.9	5.5
Region 6	374	7.0	15.8	14.2	15.8	37.2	10.2
$\chi^2 = 515.594$, $p \leq 0.001$							

Table 1-10: Longest distance traveled for hunting within Minnesota

Residence of Hunter	n	% of hunters indicating the LONGEST distance they traveled (one-way) to hunt waterfowl in Minnesota in 2000					
		Less than 5 miles	5 - 25 miles	26 - 50 miles	51 - 100 miles	101 - 200 miles	More than 200 miles
Statewide	2,210	9.3	24.1	13.8	15.2	26.2	11.4
Region 1	356	16.3	39.6	21.6	12.4	7.9	2.2
Region 2	349	10.0	17.8	15.2	19.2	24.6	13.2
Region 3	372	11.3	26.3	10.5	17.7	25.5	8.6
Region 4	391	11.8	37.9	19.4	16.9	8.7	5.4
Region 5	367	12.5	36.0	17.7	11.4	10.4	12.0
Region 6	375	3.2	8.0	8.3	14.1	46.9	19.5
$\chi^2 = 457.225$, $p \leq 0.001$							

Table 1-11: Regional distribution of hunting across Minnesota

Residence of Hunter	n	% of hunters indicating the region they MOST OFTEN hunted in Minnesota in 2000					
		Region 1	Region 2	Region 3	Region 4	Region 5	Region 6
Statewide	2,203	27.7	6.7	23.4	27.7	6.4	8.1
Region 1	356	93.5	0.6	2.8	3.1	< .01	< .01
Region 2	348	16.7	69.5	9.2	3.4	0.3	0.9
Region 3	371	19.7	2.2	67.4	8.6	0.5	1.6
Region 4	387	3.4	0.8	2.6	91.2	0.8	1.3
Region 5	367	3.0	1.6	1.9	18.3	71.7	3.5
Region 6	374	25.4	3.7	25.7	21.4	2.7	21.1
χ^2 =4843.118, p≤.0.001							

Table 1-12: Hunting in multiple areas

Area most often hunted	n	% indicating the number of areas they hunted in Minnesota in 2000		
		Same area every time	2-5 different areas	More than 5 areas
Statewide	2,184	36.4	54.2	9.5
Region 1	606	38.4	51.3	10.2
Region 2	147	40.1	47.6	12.2
Region 3	510	35.5	56.5	8.0
Region 4	606	35.3	54.3	10.4
Region 5	140	37.1	54.3	8.6
Region 6	175	32.0	61.7	6.3
χ^2 = 12.148, n.s.				

Table 1-13: Hunting on private and public lands

Area most often hunted	n	% indicating the number of areas they hunted in Minnesota in 2000		
		Mostly on privately owned	Mostly on public access areas	Both public and private about the same
Statewide	2,162	42.5	33.8	23.6
Region 1	601	49.4	29.1	21.5
Region 2	143	20.3	60.1	19.6
Region 3	503	43.5	33.4	23.1
Region 4	601	38.6	32.9	28.5
Region 5	139	41.0	38.1	20.9
Region 6	175	49.7	30.9	19.4
χ^2 = 72.231, p < 0.001				

Section 2: Satisfaction with the 2000 Waterfowl Hunt

Findings:

Study participants were asked to rate their satisfaction with their general waterfowl hunting experience on a 7-point scale where 1 = Very Dissatisfied, 2 = Moderately Dissatisfied, 3 = Slightly Dissatisfied, 4 = Neither, 5 = Slightly Satisfied, 6 = Moderately Satisfied, and 7 = Very Satisfied. They were also asked to rate hunting experiences, harvest, and hunting regulations for both ducks and geese separately using the same response scale. Estimates at the regional level for these satisfaction questions are based on the region the respondents indicated that they most often hunted.

Satisfaction with General Waterfowl Hunting Experience

Statewide almost two-thirds of hunters (65.6%) reported being satisfied with their general waterfowl hunting experiences, with a little less than one-third expressing dissatisfaction (30.4%). The overall mean satisfaction score statewide was 4.77. While the mean satisfaction score did not vary significantly across the management regions, there were significant differences in the pattern of responses (χ^2= 50.902, $p \leq 0.01$). A smaller proportion of Region 4 hunters (14.5%), reported being very satisfied compared to hunters in other regions (Table 2-1).

Satisfaction with Duck Hunting

Statewide

Statewide a large majority (71.0%) of ducks hunters were satisfied (slightly, moderately, or very) with their duck hunting experience in 2000. Of these about 1 in 4 (27.3%) were very satisfied. Conversely, 23.2% were dissatisfied (slightly, moderately, or very), with fewer than 1 in 10 (7.4%) very dissatisfied with their duck hunting experience. However, many fewer respondents were satisfied with their duck hunting harvest. One-half (50.1%) of the respondents were dissatisfied with their duck harvest, while only 4 out of 10 were satisfied and only 1 in 10 (9.0)% were very satisfied with their duck harvest. Satisfaction with the duck hunting regulations was higher than satisfaction with harvest, with 56.5% of respondents satisfied with the regulations. Of these, almost half (45.6%) were moderately or very satisfied with the duck hunting regulations (Tables 2-2, 2-3, 2-4).

The mean score for duck harvest satisfaction (mean = 3.75) was significantly lower than the mean scores for experience (mean = 5.09, $t = 32.215$, $p < 0.001$) or regulations (mean = 4.80, $t = 21.947$, $p < 0.001$). The mean satisfaction score for experience was also significantly higher than for regulations ($t = 6.530$, $p < 0.001$).

There was a significant positive relationship ($r = 0.315$, $p < 0.001$) between the number of ducks bagged and the satisfaction with the duck hunting harvest. This means that as the number of ducks bagged increases, satisfaction slightly increases.

Regional

There was a significant difference in mean satisfaction scores for the duck hunting experience ($F = 2.461$, $p = 0.031$) across the 6 regions with hunters in Region 2 having the highest score (mean = 5.41) and Region 4 the lowest (mean = 4.88). There were no significant differences across the management regions on satisfaction with duck hunting harvest or regulations (Tables 2-2, 2-3, 2-4).

Section 2: Satisfaction with the 2000 Waterfowl Hunt

Satisfaction with Goose Hunting

Statewide

Most goose hunters were satisfied (66.4%) with their general goose hunting experience statewide, with slightly more than half reporting they were moderately (25.6%) or very (26.4%) satisfied (Table 2-5). About half of the goose hunters indicated they were satisfied with the goose hunting regulations with 19.7% moderately satisfied and 21.0% very satisfied (Table 2-7). Most goose hunters were less satisfied with their harvest, however. A total of 43.4% reported being dissatisfied with their harvest with 12.5% moderately dissatisfied and 18.2 very dissatisfied (Table 2-6).

No statistically significant correlations were found between the actual number of geese bagged and satisfaction with the goose hunting harvest. Other factors besides the number of geese bagged appear to have a greater impact on satisfaction with the goose hunting harvest for 2000.

Regional

Unlike duck hunters, goose hunters' satisfaction levels varied significantly from region to region (Tables 2-5, 2-6, 2-7). Overall goose hunters in Regions 5 and 6 had the highest mean satisfaction scores for both general experience (Region 5 mean = 5.31, Region 6 mean = 5.40) and harvest (Region 5 = 4.18, Region 6 = 4.44), while hunters in Region 2 (experience = 4.90, harvest = 3.92) and 4 (experience = 4.72, harvest = 3.72) had the lowest mean scores. For regulations, satisfaction ranged from 4.30 for Region 4 to 5.07 for Region 5.

Comparison of Duck Hunting and Goose Hunting

There was no difference between duck hunters (mean = 5.09) and goose hunters (mean = 4.99) statewide on satisfaction with experience ($t = 1.669$, $p = 0.092$). Ducks hunters, however, were less satisfied with their harvest (duck mean = 3.75, goose mean = 3.97; $t = 3.145$, $p < 0.001$), and more satisfied with hunting regulations (duck mean = 4.80, goose mean = 4.55; $t = 5.669$, $p < 0.000$) than goose hunters. While these were statistically significant differences, the substantive differences between mean scores were small.

Changes in Satisfaction Levels

Hunters were also asked if their overall level of satisfaction for duck hunting and goose hunting had decreased or increased in the past 3 hunting seasons and since they had begun hunting ducks and geese. Responses were recorded on a 5-point scale on which 1 = Greatly decreased, 2 = Decreased, 3 = Stayed the same, 4 = Increased, and 5 = Greatly increased.

About one-half (51.9%) of duck hunters in the state indicated their overall level of satisfaction with duck hunting had decreased in the past 3 years prior to the study and only 16.0% indicated their satisfaction had increased (Table 2-8). Similarly, 63.2% indicated that their satisfaction had decreased since they began hunting (Table 2-9). There were no notable differences in these changes across region of residence in the state.

About one-third of goose hunters indicated their satisfaction had declined in the past 3 years (31.9%) or since they began goose hunting in the state (32.0%). There were no differences in changes in satisfaction levels across region of residence (Tables 2-9, 2-11).

There was a significant negative correlation ($r = -0.365$, $p < 0.001$) between total years of hunting experience in Minnesota and the change in levels of satisfaction for hunting ducks in Minnesota. This indicates that as the number of years of experience increases, the satisfaction rate decreases slightly. In contrast, no statistically significant correlations were found between total years of hunting experience in Minnesota and the change in the level of satisfaction for hunting geese in Minnesota over time. Other factors besides total years of experience hunting in Minnesota may have greater effect on the change in satisfaction over time.

Satisfaction Levels of Minnesota Waterfowl Hunters Compared to other Hunters

While an increasing number of state and national studies are being conducted on waterfowl hunting activities, these studies typically have not asked basic satisfaction level of the hunters (e.g, Pierce et al. 1996, Ringelman 1997). Recent studies conducted in Missouri, however, have asked respondents to rate their hunting experience on a scale of "poor, " "fair," "good," and "excellent." In 1996, 10.3% of Missouri resident waterfowl hunter rated their overall waterfowl hunting experience as "excellent, " 43.3% rated their experience as "good," 32.4% rate it "fair,"and 10.7% rated it "poor" (Humburg et al., no date). In South Dakota, the satisfaction level of waterfowl hunters was measured using the same question and 7-point scale used in the study reported here (Gigliotti, Personal Communication). The mean satisfaction scores for resident South Dakota Waterfowl hunters were: 1998 = 4.42; 1999 = 4.48; and 2000 = 4.49 on a 7-point scale were 1 = very dissatisfied and 7 = very satisfied. In 2000, the mean score for satisfaction with the general waterfowl hunting experience in Minnesota (mean = 4.77) was higher than in South Dakota, with both duck and goose hunting satisfaction rated slightly higher when asked separately (duck = 5.09, goose = 4.99).

On a broader level, Vaske and others (Vaske et al. 1982) summarized and compared satisfaction ratings of consumptive and non-consumptive recreationists, but these data are now quite dated and the scale used was "poor" to "excellent" and not satisfaction level. There are currently no other published summary documents comparing hunting satisfaction levels across locations or activities, although dozens of single hunting activity studies have been completed nationwide. Table 2-12 summarizes a few recent results from a variety of hunting activities in different states for comparison to waterfowl hunters in Minnesota. Except for Colorado deer hunters in 1992 and 1993 and Alaskan moose hunters in 1997, Minnesota duck and goose hunters can be characterized as less satisfied with their experience. More telling is that the ratings for Colorado deer and Alaskan moose hunting experiences when managers were aware that large numbers of hunters were complaining about hunting opportunities. For example, Colorado had recently reduced the deer hunting season to 3 days (Barro and Manfredo 1996), and Alaska had instituted restrictions on bull moose harvest (Fulton 1999).

Without additional satisfaction trend information on waterfowl hunting in Minnesota and other states, it is difficult to accurately categorize the satisfaction level for Minnesota duck and goose hunters as "low" or "high", but the < 70% is a bit lower than most other studies of hunting activities. Given that many hunting activities nationwide have satisfaction levels in which 75-85% of participants indicate that they are slightly to very satisfied, tracking the trend in waterfowl hunting satisfaction in future years and identifying the factors affecting satisfaction is an important consideration for the MnDNR.

Section 2: Satisfaction with the 2000 Waterfowl Hunt

Importance of Activities/Experiences on Satisfaction

Statewide

Responses from the statewide sample are summarized in Table 2-13. Enjoying nature and the outdoors was reported as "very" or "extremely" important to waterfowl hunting satisfaction by almost all respondents (97.3%), and 92.4% of respondents rated good behavior among other waterfowl hunters as "very" or "extremely" important. Getting away from crowds of people was reported as "very" or "extremely" important by 87.2% of respondents. Over 70% of respondents also rated seeing lots of ducks and geese (79.6%), hunting with friends (75.3%), reducing tensions and stress (72.9%), and hunting with family (71.1%) as very or extremely important to waterfowl hunting satisfaction. Over half of the respondents believed hunting areas open to the public (69.1%), developing skills and abilities (64.2%), thinking about personal values (63.6%), using hunting equipment (63.3%), access to a lot of different hunting areas (59.9%), hunting with a dog (55.7%), having a long duck season (53.9%), and getting information about hunting seasons and conditions (50.8%) were very or extremely important.

Getting food (17.0%), getting the limit (11.0%), and a large daily duck limit (12.3%) were reported as very or extremely important to waterfowl hunting satisfaction by a much smaller percentage of respondents.

Regional

Bonferroni adjusted ANOVA results indicated no significant differences among the regions most often hunted for ratings of importance of the different experiences and motivations (Table 2-14).

Actualization of Activities and Experiences

For individuals who indicated that an activity/experience was "very" or "extremely" important, the degree to which that experience actually happened for them during the 2000 waterfowl hunting season was examined (Table 2-15). The sample sizes in Table 2-15 reflect only those hunters that reported the activities/experiences as "very" or "extremely" important.

Activities for which actualization "largely" or "very much" occurred for those who found it "very" or "extremely" important included: enjoying nature and the outdoors (92.8%), hunting with friends (87.0%), using equipment (85.4%), reducing stress and tension (82.4%), thinking about personal values (82.3%), hunting with a dog (80.4%), and hunting with family (73.2%).

While relatively few hunters reported a large daily duck limit (12.3%) or getting their limit (11.0%) was "very" or "extremely" important to their hunting satisfaction, most hunters that did also indicated that a large daily duck limit (57.3%) and getting their limit (53.9%) was "not at all" or only "slightly" true for them during the 2000 season.

Larger percentages of hunters reported bagging ducks and geese (37.7%) and seeing a lot of ducks and geese (79.6%) as "very" or "extremely" important to hunting satisfaction, but almost half indicated that bagging ducks and geese (47.8%) and seeing a lot of ducks and geese (49.1%) occurred "not at all" or only "slightly" for them in 2000.

Section 2: Satisfaction with the 2000 Waterfowl Hunt

Table 2-1: Satisfaction with the general waterfowl hunting experience for the 2000 season

Area most often hunted	n	% of hunters[1] indicating that level of satisfaction: Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Mean[2]
Statewide	1,783	8.8	10.2	11.4	4.0	15.3	30.8	19.5	4.77
Region 1	495	9.1	8.5	10.5	5.5	12.5	32.3	21.6	4.88
Region 2	114	9.6	7.9	10.5	3.5	20.2	26.3	21.9	4.83
Region 3	429	7.7	11.4	14.9	4.4	14.5	28.7	18.4	4.66
Region 4	484	10.3	12.8	9.5	3.3	15.5	34.1	14.5	4.61
Region 5	113	8.0	10.6	8.8	2.7	15.9	29.2	24.8	4.95
Region 6	148	6.1	5.4	12.8	2.0	21.6	26.4	25.7	5.08
χ^2 =50.902 $p \leq 0.01$									

Notes:
[1] This table does not include those respondents who did not hunt in Minnesota in 2000.

[2] F = 2.183 (p = 0.054) for one-way ANOVA comparing means among regions. No significant differences. Mean is based on the following scale: 1 = Very Dissatisfied; 2 = Moderately Dissatisfied; 3 = Slightly Dissatisfied, 4 = Neither; 5 = Slightly Satisfied; 6 = Moderately Satisfied; 7 = Very Satisfied.

Table 2-2: Satisfaction with the duck hunting experience for the 2000 season

Area most often hunted	n	% of hunters[1] indicating that level of satisfaction: Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Mean[2]
Statewide	1,977	7.4	8.0	7.8	5.8	14.6	29.1	27.3	5.09
Region 1	560	7.3	7.1	7.5	6.3	11.8	30.5	29.5	5.17
Region 2	144	5.6	6.9	6.3	3.5	14.6	28.5	34.7	5.41
Region 3	460	6.5	7.0	8.9	5.4	19.1	27.6	25.4	5.08
Region 4	532	9.4	9.6	7.9	6.2	14.3	29.1	23.5	4.88
Region 5	121	6.6	7.4	6.6	5.8	13.2	29.8	30.6	5.22
Region 6	160	5.6	10.0	7.5	5.6	14.4	28.1	28.8	5.12
χ^2 = 30.328, n.s.									

Notes:
[1] This table does not include those respondents who did not hunt ducks in Minnesota in 2000.

[2] F = 2.461 (p = 0.031) for one-way ANOVA comparing means. Mean is based on the following scale: 1 = Very Dissatisfied; 2 = Moderately Dissatisfied; 3 = Slightly Dissatisfied, 4 = Neither; 5 = Slightly Satisfied; 6 = Moderately Satisfied; 7 = Very Satisfied.

Section 2: Satisfaction with the 2000 Waterfowl Hunt

Table 2-3: Satisfaction with the duck hunting harvest for the 2000 season

Area most often hunted	n	% of hunters[1] indicating that level of satisfaction: Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Mean[2]
Statewide	1,981	18.3	15.5	16.3	8.2	15.4	17.3	9.0	3.75
Region 1	556	16.7	13.8	13.8	10.4	16.0	19.1	10.1	3.93
Region 2	142	19.7	22.5	16.2	9.2	7.7	19.7	4.9	3.43
Region 3	464	18.8	16.4	16.6	8.0	17.2	14.0	9.1	3.67
Region 4	535	21.1	13.5	17.2	6.7	14.2	18.3	9.0	3.71
Region 5	123	17.1	13.8	18.7	6.5	15.4	18.7	9.8	3.83
Region 6	161	13.0	20.5	18.6	6.2	19.3	14.3	8.1	3.74
$\chi^2 = 43.155$, n.s.									

Notes:
[1] This table does not include those respondents who did not hunt ducks in Minnesota in 2000.

[2] $F = 1.853$ ($p = 0.103$). Mean is based on the following scale: 1 = Very Dissatisfied; 2 = Moderately Dissatisfied; 3 = Slightly Dissatisfied, 4 = Neither; 5 = Slightly Satisfied; 6 = Moderately Satisfied; 7 = Very Satisfied.

Table 2-4: Satisfaction with the duck hunting regulations for the 2000 season

Area most often hunted	n	% of hunters[1] indicating that level of satisfaction: Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Mean[2]
Statewide	1,945	6.4	6.5	10.7	19.8	11.1	24.9	20.5	4.80
Region 1	548	6.6	7.8	10.6	20.4	10.9	26.3	17.3	4.70
Region 2	141	8.5	7.8	13.5	24.1	7.1	20.6	18.4	4.52
Region 3	456	5.9	4.2	11.6	20.2	10.3	27.0	20.8	4.88
Region 4	524	7.1	6.3	10.5	18.1	12.0	23.9	22.1	4.82
Region 5	120	3.3	3.3	11.7	17.5	12.5	28.3	23.3	5.11
Region 6	156	5.1	10.9	6.4	20.5	12.8	19.2	25.0	4.83
$\chi^2 = 36.719$, n.s.									

Notes:
[1] This table does not include those respondents who did not hunt ducks in Minnesota in 2000.

[2] $F = 1.953$ ($p = 0.083$). Mean is based on the following scale: 1 = Very Dissatisfied; 2 = Moderately Dissatisfied; 3 = Slightly Dissatisfied, 4 = Neither; 5 = Slightly Satisfied; 6 = Moderately Satisfied; 7 = Very Satisfied.

Table 2-5: Satisfaction with the goose hunting experience for the 2000 season

Area most often hunted	n	% of hunters[1] indicating that level of satisfaction: Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Mean[2]
Statewide	1,770	7.3	7.0	9.3	10.0	14.4	25.6	26.4	4.99
Region 1	493	8.1	5.9	8.5	10.3	14.6	25.2	27.4	5.03
Region 2	74	5.4	10.8	8.1	14.9	10.8	24.3	25.7	4.90
Region 3	413	5.3	5.6	10.4	13.1	15.3	20.8	29.5	5.08
Region 4	530	10.8	8.7	9.6	7.5	14.9	28.9	19.6	4.72
Region 5	108	4.6	5.6	6.5	9.3	13.9	30.6	29.6	5.31
Region 6	152	2.0	7.9	9.9	7.2	11.2	25.7	36.2	5.40
$\chi^2 = 62.777$ $p \leq 0.001$									

Notes:
[1] This table does not include those respondents who did not hunt geese in Minnesota in 2000.

[2] F = 4.419 (p = 0.001). Mean is based on the following scale: 1 = Very Dissatisfied; 2 = Moderately Dissatisfied; 3 = Slightly Dissatisfied, 4 = Neither; 5 = Slightly Satisfied; 6 = Moderately Satisfied; 7 = Very Satisfied.

Table 2-6: Satisfaction with the goose hunting harvest for the 2000 season

Area most often hunted	n	% of hunters[1] indicating that level of satisfaction: Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Mean[2]
Statewide	1,774	18.2	12.5	12.7	11.7	14.0	17.8	13.1	3.97
Region 1	495	16.8	13.3	13.1	10.7	13.3	20.0	12.7	4.02
Region 2	75	17.3	12.0	14.7	13.3	10.7	22.7	9.3	3.92
Region 3	414	14.5	13.8	14.0	15.5	12.8	15.0	14.5	4.02
Region 4	527	25.2	11.2	10.6	10.2	15.9	16.3	10.4	3.72
Region 5	108	16.7	8.3	13.9	13.0	13.9	18.5	15.7	4.18
Region 6	155	10.3	13.5	12.9	8.4	14.8	20.0	20.0	4.44
$\chi^2 = 56.036$ $p \leq 0.01$									

Notes:
[1] This table does not include those respondents who did not hunt geese in Minnesota in 2000.

[2] F = 3.531 (p = 0.004). Mean is based on the following scale: 1 = Very Dissatisfied; 2 = Moderately Dissatisfied; 3 = Slightly Dissatisfied, 4 = Neither; 5 = Slightly Satisfied; 6 = Moderately Satisfied; 7 = Very Satisfied.

Section 2: Satisfaction with the 2000 Waterfowl Hunt

Table 2-7: Satisfaction with the goose hunting regulations for the 2000 season

Area most often hunted	n	% of hunters[1] indicating that level of satisfaction: Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Mean[2]
Statewide	1,774	10.3	7.8	10.9	19.6	10.8	19.7	21.0	4.55
Region 1	495	12.5	7.5	10.3	19.8	11.7	19.6	18.6	4.43
Region 2	75	8.0	10.7	12.0	25.3	4.0	22.7	17.3	4.42
Region 3	412	5.6	6.6	10.2	21.8	11.4	20.9	23.5	4.84
Region 4	527	14.8	9.3	11.4	17.3	9.1	19.0	19.2	4.30
Region 5	109	4.6	3.7	11.9	14.7	11.9	29.4	23.9	5.07
Region 6	156	5.1	9.0	11.5	21.8	14.1	10.9	27.6	4.75
$\chi^2 = 68.239$ $p \leq 0.001$									

Notes:
[1] This table does not include those respondents who did not hunt geese in Minnesota in 2000.

[2] F = 5.845 (p = 0.000). Mean is based on the following scale: 1 = Very Dissatisfied; 2 = Moderately Dissatisfied; 3 = Slightly Dissatisfied, 4 = Neither; 5 = Slightly Satisfied; 6 = Moderately Satisfied; 7 = Very Satisfied.

Table 2-8: Overall change in duck hunter's satisfaction over the past three seasons

Residence of Hunter	n	% of hunters[1] indicating that their overall level of satisfaction has _____ over the past three years: Greatly Decreased	Decreased	Stayed the Same	Increased	Greatly Increased	Mean[2]
Statewide	2,073	17.6	34.3	32.1	13.7	2.3	2.49
Region 1	340	12.4	33.8	37.6	14.1	2.1	2.53
Region 2	333	15.9	36.9	34.8	10.5	1.8	2.55
Region 3	353	19.0	36.3	29.5	12.2	3.1	2.50
Region 4	366	21.6	30.9	30.1	15.6	1.9	2.39
Region 5	329	19.1	32.5	27.4	17.3	3.6	2.64
Region 6	352	17.0	34.9	32.7	13.4	2.0	2.50
$\chi^2 = 31.668$ $p \leq 0.05$							

Notes:
[1] This table does not include those respondents who did not hunt ducks in Minnesota in 2000.

[2] F = 1.250 (p =0.283). Mean is based on the following scale: 1 = Greatly Decreased; 2 = Decreased; 3 = Stayed the Same, 4 = Increased; 5 = Greatly Increased.

Table 2-9: Overall change in goose hunter's satisfaction over the past three seasons

Residence of Hunter	n	% of hunters[1] indicating that their overall level of satisfaction has _____ over the past three years: Greatly Decreased	Decreased	Stayed the Same	Increased	Greatly Increased	Mean[2]
Statewide	1,833	8.8	23.1	39.7	22.8	5.6	2.93
Region 1	308	7.1	24.0	39.9	23.4	5.5	2.87
Region 2	234	9.0	17.5	42.3	25.6	5.6	3.12
Region 3	325	6.5	20.0	41.2	24.0	8.3	3.12
Region 4	363	12.1	25.3	36.4	20.9	5.2	2.73
Region 5	301	8.6	15.6	42.5	25.9	7.3	3.07
Region 6	302	9.3	25.5	39.1	22.2	4.0	3.16
$\chi^2 = 31.096$, n.s.							

Notes:
[1] This table does not include those respondents who did not hunt geese in Minnesota in 2000.

[2] $F = 3.751$ ($p = 0.002$). Mean is based on the following scale: 1 = Greatly Decreased; 2 = Decreased; 3 = Stayed the Same, 4 = Increased; 5 = Greatly Increased.

Table 2-10: Overall change in duck hunter's satisfaction since they began hunting

Residence of Hunter	n	% of hunters[1] indicating that their overall level of satisfaction has _____ since they began hunting: Greatly Decreased	Decreased	Stayed the Same	Increased	Greatly Increased	Mean[2]
Statewide	2,120	26.6	36.6	17.3	14.8	4.7	2.35
Region 1	347	27.4	37.5	18.2	13.3	3.7	2.32
Region 2	337	23.7	42.7	16.0	13.6	3.9	2.31
Region 3	362	27.6	35.6	16.6	13.8	6.4	2.46
Region 4	373	26.5	34.0	18.5	16.1	4.8	2.26
Region 5	343	30.9	30.0	16.9	16.6	5.5	2.43
Region 6	358	25.4	38.0	17.0	15.4	4.2	2.36
$\chi^2 = 19.455$, n.s.							

Notes:
[1] This table does not include those respondents who did not hunt ducks in Minnesota in 2000.

[2] $F = 0.347$ ($p = 0.884$). Mean is based on the following scale: 1 = Greatly Decreased; 2 = Decreased; 3 = Stayed the Same, 4 = Increased; 5 = Greatly Increased.

Table 2-11: Overall change in goose hunter's satisfaction since they began hunting

Residence of Hunter	n	% of hunters[1] indicating that their overall level of satisfaction has _____ since they began hunting: Greatly Decreased	Decreased	Stayed the Same	Increased	Greatly Increased	Mean[2]
Statewide	1,897	11.4	20.6	22.6	29.7	15.7	3.18
Region 1	318	11.3	22.3	20.8	29.2	16.4	3.14
Region 2	245	11.4	24.9	23.7	28.6	11.4	3.08
Region 3	336	8.6	16.7	23.2	30.4	21.1	3.37
Region 4	367	13.4	19.9	22.3	30.0	14.4	3.03
Region 5	316	8.2	17.1	23.4	34.8	16.5	3.28
Region 6	315	12.7	22.5	22.9	28.6	13.3	3.26
χ^2 =28.875, n.s.							

Notes:
[1] This table does not include those respondents who did not hunt geese in Minnesota in 2000.

[2] F = 4.218 (p = 0.001). Mean is based on the following scale: 1 = Greatly Decreased; 2 = Decreased; 3 = Stayed the Same, 4 = Increased; 5 = Greatly Increased.

Table 2-12: Comparison of satisfaction levels for various recreation activities in recent years[1].

Hunting Activity (year)	Very Dissatisfied %	Slightly/Somewhat/ Moderately Dissatisfied %	Neither %	Slightly/Somewhat/ Moderately Satisfied %	Very Satisfied %
Minnesota Duck Hunters (2000)	7.4	15.8	5.8	43.7	27.3
Minnesota Goose Hunters (2000)	7.3	16.3	10.0	40.0	26.4
Colorado Elk[2] Bowhunters (1994)	11	4	-	26	59
Nationwide Hunting Overall[3] (1995)	5	10	2	33	51
Florida Hunting Overall[3] (1995)	2	13	2	48	35
Maryland Deer[3] (1992/3)	3	8	4	43	43
Vermont Grouse[3] (1996)	3	7	2	44	44
Vermont deer[3] (1996)	7	5	1	36	51
Vermont black bear[3] (1996)	7	13	6	44	31
Colorado deer[4] (1991)	8	10	3	31	48
Colorado deer [4] (1992)	26	18	3	24	29
Colorado deer[4] (1993)	23	19	1	32	25
Alaska moose[5] (1997)	15	18	19	22	27

[1]Because various studies have used 5 or 7-point scales the categories of slightly, moderately, and somewhat have been combined.
[2] Fulton et al. (1995).
[3] Duda, Bissell and Young (1998).
[4] Barro and Manfredo (1996).
[5] Fulton (1999).

Table 2-13: Importance of select activities/experiences on satisfaction with waterfowl hunting in MN

Activities & experiences	n	% of hunters indicating that this is _____ important					Mean
		Not At All Important	Slightly Important	Somewhat Important	Very Important	Extremely Important	
Enjoying nature and the outdoors	2153	0.1	0.5	2.1	22.8	74.5	4.71
Good behavior among other waterfowl hunters	2149	0.7	0.8	6.1	31.9	60.5	4.51
Get away from crowds of people	2148	1.0	2.3	9.5	26.9	60.3	4.43
Seeing a lot of ducks and geese	2153	1.2	3.4	15.8	38.9	40.7	4.15
Hunting with friends	2154	2.8	4.7	17.2	39.6	35.7	4.01
Reducing tension and stress	2149	2.9	5.5	18.6	34.2	38.7	4.00
Hunting with family	2145	8.4	5.6	14.8	32.2	38.9	3.88
Hunting areas open to public	2139	6.6	5.5	18.9	33.0	36.1	3.86
Thinking about personal values	2157	3.4	5.8	27.2	35.6	28.0	3.79
Using my hunting equipment (decoys, boats, etc.)	2168	3.9	7.6	25.1	33.4	29.9	3.78
Developing my skills and abilities	2143	4.2	5.8	25.7	37.5	26.7	3.77
Sharing my hunting skills and knowledge	2155	3.5	9.3	33.7	33.1	20.5	3.58
Access to a lot of different hunting areas	2145	8.6	9.3	22.3	36.6	23.3	3.57
Having a long duck season	2149	6.2	8.7	31.2	29.8	24.1	3.57
Hunting with a dog	2154	16.7	8.7	18.9	22.9	32.8	3.46
Getting information about hunting seasons & conditions from the DNR/USFWS	2156	6.9	11.2	31.1	32.7	18.1	3.44
Bagging ducks and geese	2122	4.1	16.4	41.8	27.8	9.9	3.23
Being on my own	2144	21.4	13.8	24.9	25.2	14.7	2.98
A large daily duck limit	2155	24.8	28.0	34.8	10.1	2.2	2.37
Getting food for myself or my family	2152	31.9	24.7	26.4	11.2	5.8	2.34
Getting your limit	2157	30.3	28.7	30.0	8.2	2.8	2.24

Notes:
The mean score of importance is based on the following scale:
1 = Not at all
2 = Slightly
3 = Somewhat
4 = Very
5 = Extremely

Table 2-14: Importance of select activities/experiences on satisfaction by region most often hunted

Activities & experiences	Average rating of importance by hunters who indicated this region as the area they hunt most often					
	Region 1	**Region 2**	**Region 3**	**Region 4**	**Region 5**	**Region 6**
(n) range of responses	*583 - 596*	*142 - 146*	*487 - 503*	*587 - 601*	*136 - 139*	*174 - 178*
Enjoying nature and the outdoors	4.71	4.63	4.74	4.69	4.72	4.73
Good behavior among other waterfowl hunters	4.52	4.40	4.52	4.52	4.44	4.59
Get away from crowds of people	4.38	4.46	4.51	4.43	4.44	4.40
Seeing a lot of ducks and geese	4.13	4.21	4.16	4.16	4.05	4.14
Hunting with friends	3.95	4.01	4.04	4.00	3.92	4.21
Reducing tension and stress	4.05	4.01	3.98	3.95	4.02	4.09
Hunting with family	3.96	3.98	3.90	3.81	3.82	3.68
Hunting areas open to public	3.71	4.00	3.87	3.94	3.95	3.94
Thinking about personal values	3.82	3.64	3.81	3.78	3.76	3.80
Using my hunting equipment (decoys, boats, etc.)	3.82	3.67	3.83	3.72	3.60	3.90
Developing my skills and abilities	3.68	3.69	3.85	3.75	3.92	3.82
Sharing my hunting skills and knowledge	3.58	3.41	3.69	3.52	3.53	3.60
Having a long duck season	3.55	3.68	3.51	3.66	3.48	3.50
Access to a lot of different hunting areas	3.48	3.47	3.55	3.65	3.63	3.65
Hunting with a dog	3.54	3.54	3.45	3.38	3.56	3.37
Getting information about hunting seasons & conditions from the DNR/USFWS	3.37	3.17	3.54	3.46	3.44	3.53
Bagging ducks and geese	3.23	3.33	3.24	3.21	3.23	3.21
Being on my own	2.92	3.02	3.05	3.00	2.96	2.89
A large daily duck limit	2.40	2.39	2.40	2.33	2.36	2.34
Getting food for myself or my family	2.30	2.36	2.50	2.28	2.34	2.25
Getting your limit	2.27	2.29	2.28	2.19	2.24	2.23

Notes:
The mean score of importance is based on the following scale:
1 = Not at all
2 = Slightly
3 = Somewhat
4 = Very
5 = Extremely

Table 2-15: Actualization of select activities/experiences for hunters who indicated that activity/experience as being "very" or "extremely" important[1]

Activities & experiences	% of all hunters in this category	n[1]	% of hunters indicating that the degree to which each happened or was true for them during the 2000 season: Not at all	Slightly	Some-what	Largely	Very Much	Mean
Enjoying nature and the outdoors	97.3	2050	0.2	1.0	6.0	32.3	60.5	4.52
Hunting with friends	75.3	1584	1.1	2.6	9.3	42.8	44.2	4.26
Using my hunting equipment (decoys, boats, etc.)	63.3	1342	0.9	2.7	11.0	42.5	42.9	4.24
Reducing tension and stress	72.9	1529	0.7	2.7	14.3	42.8	39.6	4.18
Hunting with a dog	55.7	1168	7.2	2.9	9.4	26.3	54.1	4.17
Thinking about personal values	63.6	1340	0.6	2.5	14.6	51.5	30.8	4.09
Hunting with family	71.1	1489	6.0	5.0	15.7	31.7	41.5	3.98
Get away from crowds of people	87.2	1830	2.6	9.5	18.8	31.7	37.3	3.92
Sharing my hunting skills and knowledge	53.6	1118	2.2	5.5	31.6	42.0	18.7	3.70
Developing my skills and abilities	64.2	1351	1.4	7.0	32.3	41.6	17.7	3.67
Being on my own	39.9	833	4.2	12.1	21.0	38.9	23.9	3.66
Getting information about hunting seasons & conditions from the DNR/USFWS	50.8	1067	5.2	11.9	29.0	38.5	15.4	3.47
Good behavior among other waterfowl hunters	92.4	1942	4.1	12.5	29.5	39.7	14.2	3.47
Getting food for myself or my family	17.0	350	7.3	13.5	30.2	32.3	16.8	3.38
Hunting areas open to public	69.0	1444	5.6	13.3	34.7	33.6	12.8	3.35
Having a long duck season	54.0	1132	6.2	13.6	32.2	35.4	12.6	3.35
Access to a lot of different hunting areas	59.9	1252	11.0	26.4	37.0	20.0	5.6	2.83
Seeing a lot of ducks and geese	79.6	1676	18.7	30.4	26.0	15.9	8.9	2.66
Bagging ducks and geese	37.7	778	16.9	30.9	35.2	12.6	4.4	2.57
Getting your limit	11.0	222	33.1	20.8	23.4	15.3	7.5	2.43
A large daily duck limit	12.3	252	33.0	24.3	28.4	11.7	2.5	2.26

Note:
[1] Sample sizes reflect only those hunters who indicated the particular experience was "very" or "extremely" important to them.

Section 3: Characteristics and Opinions on Youth Waterfowl Hunting Day

Findings:

All study participants were provided a brief background statement about the Youth Waterfowl Hunting Day before their support/opposition and other opinions concerning this issue were assessed (See Appendix A Part 4. of the study instrument).

Support/Opposition to the Youth Waterfowl Hunting Day

Respondents were first asked the degree to which they support or oppose the concept of the Youth Waterfowl Hunting Day on the following scale: "Strongly Support", "Support", "Undecided or Neutral", "Oppose" and "Strongly Oppose". Results are summarized in Table 3-1. Overall, 65.8% of respondents statewide supported the youth hunting day with 44.1% strongly supporting it. In contrast, 21.1% opposed the hunt, with 11.7% strongly opposed.

Respondents were next asked if the Minnesota DNR should offer a Youth Waterfowl Hunt. As summarized in Table 3-2, 63.2% of waterfowl hunters statewide said "yes", while 21.4% responded "no" with the remaining 15.4% undecided. Those that responded "yes" were asked if the hunt should be 1 day, 2 days, or Don't Know (Table 3-3). A majority (57.1%) of respondents recommended 2 days, however, this represents only about 1/3 of total hunters.

Although support was strong across all regions, a slightly smaller percentage of hunters from Region 3, Region 4, and Region 6 supported the hunt ($\chi^2 = 45.755$, $p < 0.001$) and were less likely to feel that the DNR should offer the hunt ($\chi^2 = 29.404$, $p < 0.001$). Across all regions, a majority of hunters who answered the question preferred a 2-day hunt.

Participation in Youth Waterfowl Hunting Day as a mentor

Everyone was asked if they had participated in the Youth Waterfowl Hunting Day in Minnesota as a mentor, and, if they had, whether or not any of the youths continued to waterfowl hunt after the age of 15. Tables 3-4 and 3-5 provide a summary of responses to these questions. Statewide 1 out of 4 hunters (26.1%) reported participating in the program as a mentor at some point in time, with participation rate highest in Region 4 (36.6%) and lowest in Region 6 (17.6%, $\chi^2 = 42.573$, $p < 0.001$). About 7 out of 10 mentors (69.6%) indicated that the youths they mentored continued to hunt waterfowl after the age of 15. This finding did not significantly vary across management regions.

Participation in 2000

All study respondents also were asked if they took any youths hunting on the Youth Waterfowl Hunting Day in Minnesota in 2000 (Table 3-6). Statewide, 16.4% reported participating, with the highest participation rate among residents of Region 4 (23.5%) and the lowest in Region 6 (10.4%, $\chi^2 = 30.709$, $p < 0.001$).

Those that did mentor on Youth Waterfowl Hunting Day were asked how many youths they took, the number of ducks and geese harvested, and the relationships of the youths to them.

Statewide, mentors took an average 1.60 youths hunting on the Youth Waterfowl Hunting Day with most mentors taking only boys (85.8%). Those who took youths were about equally likely to take their own children as other children (Table 3-7). Based on the percentages provided by the survey, it is estimated that 31,935 youths participated in the Youth Waterfowl Hunt in 2000 (Table 3-8).

On average, 2.73 ducks and 0.35 geese were harvested by each mentored group of youths (Table 3-9). Estimates of total harvest for the mentored youth groups based on these averages are reported in Table 3-10.

Influence of Youth Waterfowl Hunting Day on Regular Season Duck and Goose Hunting Success

Finally, everyone in the study was asked if they believed the Youth Waterfowl Hunt decreases duck and goose hunting success during the regular season opener. They could respond "Strongly Agree", "Agree", "Undecided", "Disagree", and "Strongly Disagree". Statewide, 34.7% agreed that the hunt decreases duck hunting success, 41.1% of hunters did not believe the hunt affected duck hunting success, and 24.3% were undecided. A total of 24.0% agreed the youth waterfowl hunt decreases goose hunting success for the regular season opener, 47.0% did not believe it affected goose hunting success, and 29.0% were undecided (Tables 3-11, 3-13).

Among those who support the Youth Waterfowl Hunting Day, only 15.4% felt it decreased duck hunting success on the regular season opener and 9.4% felt it decreased goose hunting success. In contrast, 86.4% of those who oppose the Youth Waterfowl Hunting Day felt it decreased duck hunting success and 65.3% felt it decreased goose hunting success (Tables 3-12, 3-14).

Section 3: Characteristics and Opinions on Youth Waterfowl Hunting Day

Table 3-1: Do you support the concept of a Youth Waterfowl Hunting Day?

Residence of Hunter	n	% of hunters indicating that they _____ the concept of a Youth Waterfowl Hunting Day:					
		Strongly Oppose	Oppose	Un-decided / Neutral	Support	Strongly Support	Mean[1]
Statewide	2,430	11.7	9.4	13.0	21.7	44.1	3.77
Region 1	391	10.7	7.7	10.2	18.9	52.4	3.95
Region 2	384	9.4	7.6	10.9	18.2	53.9	4.00
Region 3	398	12.3	9.5	15.1	25.1	37.9	3.67
Region 4	425	11.8	11.1	12.9	22.4	41.9	3.72
Region 5	404	7.4	6.9	11.6	22.5	51.5	4.04
Region 6	428	13.1	10.0	13.8	21.3	41.8	3.69
$\chi^2 = 45.755$ $p \leq 0.001$							

[1]F = 6.197 (p < 0.001). Mean is based on the following scale: 1 = Strongly oppose; 2 = Oppose; 3 = Undecided, 4 = Support; 5 = Strongly support.

Table 3-2: Should the MN DNR offer a Youth Waterfowl Hunt?

Residence of Hunter	n	% of hunters answering _____:		
		NO	Undecided	YES
Statewide	2,422	21.4	15.4	63.2
Region 1	389	18.5	11.3	70.2
Region 2	380	17.4	13.2	69.5
Region 3	397	22.4	17.1	60.5
Region 4	425	22.1	13.9	64.0
Region 5	404	16.1	12.1	71.8
Region 6	427	23.4	18.0	58.5
$\chi^2 = 29.404$ $p \leq 0.001$				

Table 3-3: How long should the Youth Waterfowl Hunt be?

Residence of Hunter	n	% of hunters[1] answering _____:		
		1 Day	2 Days	Don't Know
Statewide	1,635	32.9	57.1	10.0
Region 1	280	25.0	63.2	11.8
Region 2	268	28.0	62.7	9.3
Region 3	248	27.8	62.1	10.1
Region 4	280	39.3	53.2	7.5
Region 5	297	32.0	55.2	12.8
Region 6	262	37.0	53.1	9.9
$\chi^2 = 24.249$ $p \leq 0.01$				

Notes:
[1] Only those hunters who indicated that the DNR should offer an YWH answered this question.

Section 3: Characteristics and Opinions on Youth Waterfowl Hunting Day

Table 3-4: Have you participated in the Youth Waterfowl Hunt as a mentor?

Residence of Hunter	n	% of hunters answering _____: YES	NO
Statewide	2,423	26.1	73.9
Region 1	392	31.6	68.4
Region 2	381	28.6	71.4
Region 3	395	27.3	72.7
Region 4	424	36.6	63.4
Region 5	404	25.5	74.5
Region 6	427	17.6	82.4
$\chi^2 = 42.573$, $p \leq 0.001$			

Notes:
A mentor is defined as a hunter who has taken youth(s) hunting on the Youth Waterfowl Hunting Day for the 2000 season or an earlier year.

Table 3-5: Influence of Youth Waterfowl Hunt mentorship on continued hunting after age 15

Residence of Hunter	n	% of mentors indicating that youth they mentored continued to hunt after age 15
Statewide	750	69.6
Region 1	133	75.2
Region 2	123	69.9
Region 3	119	67.2
Region 4	169	74.6
Region 5	121	70.2
Region 6	85	62.4
$\chi^2 = 10.506$, n.s.		

Table 3-6: Participation in Youth Waterfowl Hunting Day (Sept., 2000)

Residence of Hunter	n	% of all hunters who indicated that they took youth hunting on YWHD in 2000
Statewide	2,419	16.4
Region 1	393	20.9
Region 2	380	17.4
Region 3	394	17.5
Region 4	425	23.5
Region 5	403	14.9
Region 6	424	10.4
$\chi^2 = 30.709$, $p \leq 0.001$		

Table 3-7: Composition of hunting party for 2000 Youth Waterfowl Hunting Day

	Region						
	Statewide	**1**	**2**	**3**	**4**	**5**	**6**
% of all hunters who were mentors for YWHD	16.4	20.9	17.4	17.5	23.5	14.9	10.4
% of mentors who took boys only	85.8	85.0	78.8	85.3	89.8	88.2	83.8
% of mentors who took sons only	38.3	37.5	34.8	36.8	33.7	47.5	44.2
% of mentors who took other boys only	34.7	35.0	27.3	42.6	38.8	32.2	25.6
% of mentors who took sons and other boys only	12.8	12.5	16.7	5.9	17.3	8.5	14.0
% of mentors who took girls only	6.5	7.6	10.6	10.3	6.1	3.4	2.3
% of mentors who took daughters only	5.2	6.3	7.6	8.8	4.1	3.4	2.3
% of mentors who took other girls only	1.2	1.3	1.5	1.5	2.0	< 0.1	< 0.1
% of mentors who took daughters and other girls only	0.1	< 0.1	1.5	< 0.1	< 0.1	< 0.1	< 0.1
% of mentors who took both boys & girls	7.7	7.5	10.5	4.4	4.0	8.5	14.0
% of mentors who took sons & daughters only	3.4	5.0	3.0	2.9	2.0	1.7	4.7
% of mentors who took other boys & girls only	3.3	2.5	3.0	< 0.1	1.0	5.1	9.3
% of mentors who took other combinations of girls and boys	1.0	< 0.1	4.5	1.5	1.0	1.7	< 0.1
Average # of youths taken[1]	1.60	1.57	1.76	1.66	1.54	1.48	1.62
Average # of sons	.68	.72	.72	.63	.65	.69	.70
Average # of daughters	.09	.11	.14	.16	.05	.07	.05
Average # of other boys	.74	.68	.72	.82	.77	.58	.75
Average # of other girls	.05	.04	.12	.01	.03	.08	.09

Statewide n = 421
Region 1 n = 82
Region 2 n = 66
Region 3 n = 69
Region 4 n = 100
Region 5 n = 60
Region 6 n = 44

Notes:
[1] The total average # of youths does not equal the sum of the total averages for the four types of youth. This is due to some cases where the Mentor indicated total youth taken on the hunt, but did not indicate the individual numbers of sons, daughters, or other boys and girls in their group.

Table 3-8: Estimate of the number of youth participating in Youth Waterfowl Hunting Day

Residence of Hunter	Total adult hunters for entire season	% of adult hunters as mentors in the 2000 YWHD	Total Mentors in the 2000 YWHD	Average # of youth with a mentor	Estimate of Total youth participating in YWHD
Statewide	121,703	16.4	19,959	1.60	31,935
Region 1	17,038	20.9	3,561	1.57	5,591
Region 2	8,032	17.4	1,398	1.76	2,460
Region 3	22,637	17.5	3,961	1.66	6,576
Region 4	21,907	23.5	5,148	1.54	7,928
Region 5	8,884	14.9	1,324	1.48	1,959
Region 6	43,205	10.4	4,493	1.62	7,279

Notes:
Statewide estimates and the sum of regional estimates differ due to rounding. These estimates are based on mentors who purchased a duck stamp license (18-64 years of age). HIP participant mentors 65+ years of age are not included in the estimates.

The number of respondents varies due to the use of multiple questions. Please refer to the preceding tables for this information.

Table 3-9: Average duck/goose harvest by youths on Youth Waterfowl Hunting Day

Residence of Hunter	n (for ducks)	n (for geese)	Average # of ducks harvested by youth on YWHD	Average # of geese harvested by youth on YWHD
Statewide	317	251	2.73	0.35
Region 1	65	50	3.20	0.39
Region 2	56	42	2.32	0.25
Region 3	53	45	2.35	0.35
Region 4	79	59	3.29	0.34
Region 5	48	35	1.90	0.22
Region 6	37	31	2.41	0.42

Notes:
These are averages per group of youth (all youths with one mentor), **NOT** for individual youths.

Table 3-10: Estimated duck/goose harvest by youths on Youth Waterfowl Hunting Day

Residence of Hunter	Total hunters	% who took youths hunting on YWHD	Estimated number of YWHD hunting groups	Average # of ducks harvested by youth groups on YWHD	Average # of geese harvested by youth on YWHD	Estimate of total ducks harvested by youth on YWHD	Estimate of total Geese harvested by youth on YWHD
Statewide	121,703	16.4	19,959	2.73	0.35	54,228	7,053
Region 1	17,038	20.9	3,561	3.20	0.39	11,395	1,389
Region 2	8,032	17.4	1,398	2.32	0.25	3,243	350
Region 3	22,637	17.5	3,961	2.35	0.35	9,308	1,386
Region 4	21,907	23.5	5,148	3.29	0.34	16,937	1,750
Region 5	8,884	14.9	1,324	1.90	0.22	2,516	291
Region 6	43,205	10.4	4,493	2.41	0.42	10,828	1,887

The number of respondents varies due to the use of multiple questions. Please refer to the preceding tables for this information. Statewide estimates vary from the sum of the individual regional estimates due to errors in rounding.

Table 3-11: Opinions on the influence of Youth Waterfowl Hunting Day on duck hunting success on the regular opener

Residence of Hunter	N	% of hunters indicating that they _____ that the YWHD decreases duck hunting success on the regular season waterfowl opener: Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Mean
Statewide	2,416	16.5	24.6	24.3	17.6	17.1	3.06
Region 1	392	18.9	27.0	22.4	16.3	15.3	3.18
Region 2	382	22.3	24.3	24.3	17.5	11.5	3.28
Region 3	395	12.4	23.5	26.1	19.5	18.5	2.92
Region 4	425	16.0	27.1	19.8	18.1	19.1	3.03
Region 5	401	19.5	28.7	27.9	13.0	11.0	3.33
Region 6	421	16.2	22.1	25.7	17.8	18.3	3.00
$\chi^2 = 48.029$, p ≤ 0.001							

[1] $F = 6.306$ ($p < 0.001$). Mean is based on the following scale: 1 = Strongly disagree; 2 = Disagree; 3 = Undecided, 4 = Agree; 5 = Strongly agree.

Table 3-12: Opinions on the Youth Waterfowl Hunting Day influence on the duck opener by mentor status and support

	n	% of hunters indicating that they _____ that the YWHD decreases duck hunting success on the regular season waterfowl opener:				
		Strongly Disagree	Disagree	Un-decided	Agree	Strongly Agree
Mentors	627	26.3	29.0	18.5	14.5	11.6
Non-mentors	1772	13.1	23.1	26.4	18.6	18.8
$\chi^2 = 92.605$, $p < 0.001$						
Those who support YWHD	1581	24.3	35.1	25.2	12.6	2.8
Those who do not support YWHD	313	1.2	2.3	10.1	23.2	63.2
Those who are undecided about supporting YWHD	513	2.2	7.7	42.8	33.9	13.4
$\chi^2 = 1359.069$, $p < 0.001$						

Table 3-13: Opinions on the influence of Youth Waterfowl Hunting Day on goose hunting success on the regular opener

Residence of Hunter	n	% of hunters indicating that they _____ that the YWHD decreases goose hunting success on the regular season waterfowl opener:					
		Strongly Disagree	Disagree	Un-decided	Agree	Strongly Agree	Mean
Statewide	2,418	18.3	28.7	29.0	12.6	11.4	3.30
Region 1	391	22.5	29.7	25.8	11.5	10.5	3.42
Region 2	382	21.2	28.3	30.9	11.0	8.6	3.42
Region 3	396	13.4	30.8	32.6	13.9	9.3	3.25
Region 4	423	17.7	32.4	22.9	14.4	12.5	3.28
Region 5	402	22.4	32.6	28.1	9.2	7.7	3.53
Region 6	424	18.2	24.5	31.4	12.5	13.4	3.21
$\chi^2 = 45.343$, $p \leq 0.001$							

[1]$F = 4.129$ ($p < 0.001$). Mean is based on the following scale: 1 = Strongly disagree; 2 = Disagree; 3 = Undecided, 4 = Agree; 5 = Strongly Agree.

Table 3-14: Opinions on the Youth Waterfowl Hunting Day influence on the goose opener by mentor status and support

Residence of Hunter	n	% of hunters indicating that they _____ that the YWHD decreases goose hunting success on the regular season waterfowl opener:				
		Strongly Disagree	Disagree	Un-decided	Agree	Strongly Agree
Mentors	630	27.8	35.2	21.1	9.2	6.7
Non-mentors	1,772	15.1	26.5	31.8	13.8	12.9
$\chi^2 = 96.991, p < 0.001$						
Those who support YWHD	1,586	26.2	37.4	26.9	7.8	1.6
Those who do not support YWHD	311	2.5	8.6	23.6	20.9	44.4
Those who are undecided about supporting YWHD	513	4.2	17.0	48.9	22.8	7.1
$\chi^2 = 1038.626, p < 0.001$						

Section 4: Opinions on Management Strategies

Findings:

Effectiveness of Management Strategies

Respondents were asked their opinions about the effectiveness of several management strategies used by the Minnesota DNR to reduce harvest rates on breeding waterfowl in Minnesota and hold migrant waterfowl in the state to extend hunting opportunities later in the season. These strategies include: beginning shooting hours at Noon on the opening day of duck season; ending shooting hours at 4:00 p.m. for the first part of Minnesota's waterfowl season; restrictions on open water hunting; restrictions on outboard motor use; and creating waterfowl refuges.

All respondents were asked to rate the effectiveness of each of these strategies on a 5-point scale on which 1 = Not at all Effective, 2 = Slightly Effective, 3 = Moderately Effective, 4 = Very Effective, and 5 = Extremely Effective.

Statewide

Creating waterfowl refuges was viewed as the most effective strategy (mean = 4.21), followed by restrictions on outboard motor use (mean = 3.19) and open water hunting (mean = 3.02). Beginning shooting hours at noon on opening day (mean = 2.49) and ending shooting hours at 4 p.m. (mean = 2.83) were viewed as the least effective strategies (Tables 4-1— 4-6).

Almost half (47.8%) of waterfowl hunters statewide believed that the noon opener was "not at all" (30.5%) or only "slightly" (17.3%) effective at reducing harvest or holding migrant waterfowl, and more than one-third (37.7%) felt that ending shooting at 4 p.m. was "not at all" (20.6%) or "slightly" (17.1%) effective (Tables 4-1, 4-2). In contrast over 75% of hunters believed creating refuges is a "very" (28.1%) or "extremely" (47.3%) effective strategy for reducing harvest and holding waterfowl in the state (Table 4-5).

Regional

The only strategy for which perceptions of effectiveness varied across the regions was beginning shooting at noon on opening day. Residents of Region 2 believed this strategy to be even less effective than other resident hunters in Minnesota (Table 4-2).

Support for Management Strategies

Next respondents were asked to indicate their level of support for each strategy on a 5-point scale on which 1 = Strongly Oppose, 2 = Oppose, 3 = Undecided, 4 = Support, and 5 = Strongly Support.

Statewide

Support for the strategies mirrored perceptions of their effectiveness (Tables 4-7— 4-12), with creating waterfowl refuges having the highest level of support (mean = 4.39) followed by restrictions on outboard motors (mean = 3.52) and open water hunting (mean = 3.34). The noon opener (mean = 2.93) and ending shooting at 4 p.m. (mean = 2.97) had the lowest levels of support (Table 4-12).

Hunters were about evenly divided in their support and opposition of both the noon opener (43.3% oppose, 43.5% support) and ending shooting hours at 4 p.m. (42.1% oppose, 44.3% support). Fewer opposed restrictions on either open water hunting (22.3%) or outboard motor use (20.7%), but relatively large percentages were undecided about either (open water restrictions 32.7%, outboard restrictions 25.6%). However, a very large majority (85.5%) supported creating waterfowl refuges (Tables 4-7 – 4-12).

Regional

Region 2 residents were less supportive of the noon opener than residents of other regions (Table 4-7). There were no other differences across the regions (Tables 4-8 – 4-12).

Support for Split Season/Zones

Respondents were also asked to indicate their level of support for the following split season/zones:
Having North and South zones in the state that would have different season dates;
Having 2 or 3 split seasons instead of one continuous waterfowl season.

Statewide

Hunters were about evenly divided among opposing (39.0%), supporting (29.4%) and being undecided (31.6%) about the idea of North and South zones with different season dates. However, most (52.3%) were opposed to split seasons, with only 22.2% supporting the idea (Tables 4-13, 4-14).

Regional

Although statistically significant differences existed, there were no substantive differences across the regions on either of these issues.

Support for restricting waterfowl hunter numbers

Finally, respondents were asked the degree to which they support or oppose a restriction on waterfowl hunter numbers on additional selected Wildlife Management Areas to improve hunting quality, again using the same response scale as before.

A larger proportion of hunters (43.5%) supported restrictions on hunter numbers than opposed such restrictions (25.6%). However, almost one-third (30.8%) were “undecided”. There were no differences in support for restrictions across the six management regions (Table 4-15).

Section 4: Opinions on Management Strategies

Table 4-1: Effectiveness of beginning shooting hours at noon on opening day of the duck season

Residence of Hunter	n	% of hunters indicating that this management strategy is _____ for reducing the harvest rate on resident breeding waterfowl and/or "holding" migrant waterfowl in the state: Not at all effective	Slightly Effective	Moderately Effective	Very Effective	Extremely Effective	Don't Know	Mean[1]
Statewide	2,420	30.5	17.3	21.4	16.6	7.1	7.0	2.49
Region 1	390	33.1	17.9	20.3	15.6	6.2	6.9	2.40
Region 2	381	41.5	14.7	17.3	12.3	6.6	7.6	2.22
Region 3	397	31.0	17.4	21.9	15.9	8.6	5.3	2.51
Region 4	423	28.6	20.6	22.7	17.7	5.7	4.7	2.49
Region 5	399	26.3	22.8	21.1	15.3	6.5	8.0	2.49
Region 6	430	29.1	14.9	21.6	17.9	7.7	8.8	2.56
$\chi^2 = 40.595$ $p \leq 0.01$								

Notes:
[1] F = 3.231 (p = 0.007). Mean is based on the following scale: 1 = Not at all effective; 2 = Slightly effective; 3 = Moderately effective, 4 = Very effective; 5 = Extremely effective. The mean does not include those who "Don't Know".

Table 4-2: Effectiveness of ending shooting hours at 4 PM for the first part of Minnesota's waterfowl season

Residence of Hunter	n	% of hunters indicating that this management strategy is _____ for reducing the harvest rate on resident breeding waterfowl and/or "holding" migrant waterfowl in the state: Not at all effective	Slightly Effective	Moderately Effective	Very Effective	Extremely Effective	Don't Know	Mean[1]
Statewide	2,421	20.6	17.1	25.0	21.4	10.4	5.4	2.83
Region 1	391	19.9	17.4	25.3	21.7	9.7	5.9	2.83
Region 2	382	27.2	17.5	19.9	20.2	9.2	6.0	2.64
Region 3	397	19.9	18.6	23.7	21.7	12.1	4.0	2.87
Region 4	423	20.6	20.3	23.2	20.3	9.7	5.9	2.77
Region 5	399	21.1	21.6	19.8	20.1	10.5	7.0	2.76
Region 6	429	20.0	13.5	28.4	22.1	10.5	5.4	2.89
$\chi^2 = 28.565$ n.s.								

Notes:
[1] F = 1.765 (p = 0.117). Mean is based on the following scale: 1 = Not at all effective; 2 = Slightly effective; 3 = Moderately effective, 4 = Very effective; 5 = Extremely effective. The mean does not include those who "Don't Know".

Table 4-3: Effectiveness of a restriction on open water hunting

Residence of Hunter	n	% of hunters indicating that this management strategy is _____ for reducing the harvest rate on resident breeding waterfowl and/or "holding" migrant waterfowl in the state: Not at all effective	Slightly Effective	Moderately Effective	Very Effective	Extremely Effective	Don't Know	Mean[1]
Statewide	2,408	12.9	17.2	24.7	19.2	12.6	13.4	3.02
Region 1	386	15.5	14.2	24.9	20.5	11.7	13.2	2.98
Region 2	379	16.6	17.7	24.5	15.3	11.3	14.5	2.85
Region 3	395	15.2	13.7	27.8	18.5	12.4	12.4	2.99
Region 4	424	12.3	18.4	27.1	20.8	11.8	9.7	3.02
Region 5	396	14.9	20.7	22.7	14.4	11.6	15.7	2.85
Region 6	428	9.8	18.7	22.2	20.1	14.0	15.2	3.12
$\chi^2 = 31.286$ n.s.								

Notes:
[1] F = 2.294 (p = 0.043). Mean is based on the following scale: 1 = Not at all effective; 2 = Slightly effective; 3 = Moderately effective, 4 = Very effective; 5 = Extremely effective. The mean does not include those who "Don't Know".

Table 4-4: Effectiveness of restrictions on outboard motor use

Residence of Hunter	n	% of hunters indicating that this management strategy is _____ for reducing the harvest rate on resident breeding waterfowl and/or "holding" migrant waterfowl in the state: Not at all effective	Slightly Effective	Moderately Effective	Very Effective	Extremely Effective	Don't Know	Mean[1]
Statewide	2,412	14.3	15.2	20.1	19.2	20.5	10.8	3.19
Region 1	388	14.4	10.8	21.9	19.6	21.9	11.3	3.27
Region 2	379	15.0	13.5	20.8	21.4	20.8	8.4	3.21
Region 3	395	16.5	14.4	19.7	16.2	23.0	10.1	3.17
Region 4	422	15.2	14.7	20.4	21.1	18.5	10.2	3.15
Region 5	399	12.5	18.8	18.0	17.5	17.3	15.8	3.10
Region 6	429	12.8	17.0	19.6	19.6	20.3	10.7	3.20
$\chi^2 = 22.667$ n.s.								

Notes:
[1] F = 0.615 (p = 0.689). Mean is based on the following scale: 1 = Not at all effective; 2 = Slightly effective; 3 = Moderately effective, 4 = Very effective; 5 = Extremely effective. The mean does not include those who "Don't Know".

Table 4-5: Effectiveness of creating waterfowl refuges

Residence of Hunter	n	% of hunters indicating that this management strategy is _____ for reducing the harvest rate on resident breeding waterfowl and/or "holding" migrant waterfowl in the state: Not at all effective	Slightly Effective	Moderately Effective	Very Effective	Extremely Effective	Don't Know	Mean[1]
Statewide	2,418	1.7	4.2	13.6	28.1	47.3	5.1	4.21
Region 1	388	1.3	5.2	14.4	31.2	43.0	4.9	4.15
Region 2	381	2.4	5.8	13.9	28.9	40.4	8.7	4.09
Region 3	397	2.8	3.8	18.1	25.4	45.3	4.5	4.12
Region 4	423	1.4	4.7	11.8	29.1	48.7	4.3	4.24
Region 5	399	2.3	6.0	12.5	27.3	46.4	5.5	4.16
Region 6	430	1.2	3.0	12.1	27.9	50.7	5.1	4.31
$\chi^2 = 26.953$ n.s.								

Notes:
[1] $F = 2.677$ ($p = 0.020$). Mean is based on the following scale: 1 = Not at all effective; 2 = Slightly effective; 3 = Moderately effective, 4 = Very effective; 5 = Extremely effective. The mean does not include those who "Don't Know".

Table 4-6: Statewide comparison of the effectiveness of the five strategies studied

Strategy	Statewide Mean[1]
Beginning shooting hours at Noon on the opening day of duck season	2.49
Ending shooting hours at 4 PM for the first part of MN's waterfowl season	2.83
Restrictions on open water hunting	3.02
Restrictions on outboard motor use	3.19
Creating waterfowl refuges	4.21

Notes:
[1] $F = 632.330$ ($p < 0.001$). Mean is based on the following scale: 1 = Not at all effective; 2 = Slightly effective; 3 = Moderately effective, 4 = Very effective; 5 = Extremely effective. The mean does not include those who "Don't Know".

Table 4-7: Support for beginning shooting hours at Noon on the opening day of duck season

Residence of Hunter	n	% of hunters indicating that they _____this management strategy: Strongly Oppose	Oppose	Undecided[1]	Support	Strongly support	Mean[2]
Statewide	2,419	21.2	22.1	13.2	29.3	14.2	2.93
Region 1	390	23.3	23.8	12.8	28.2	11.8	2.81
Region 2	383	28.5	25.1	11.5	25.8	9.1	2.62
Region 3	398	20.1	22.9	15.1	29.4	12.6	2.91
Region 4	422	18.2	22.3	12.8	31.8	14.9	3.03
Region 5	399	15.8	15.8	19.0	32.8	16.5	3.19
Region 6	427	22.2	21.5	11.7	28.3	16.2	2.95
$\chi^2 = 55.650$, $p \leq 0.001$							

Notes:

[1] The question originally provided the respondent with the opportunity to indicate that they were "undecided" and "don't know". Since these responses are essentially identical, those who answered with "Don't Know" were recoded as "Undecided"

[2] $F = 7.670$ ($p < 0.001$). Mean is based on the following scale: 1 = Strongly oppose; 2 = Oppose; 3 = Undecided, 4 = Support; 5 = Strongly support.

Table 4-8: Support for ending shooting hours at 4 PM for the first part of MN's waterfowl season

Residence of Hunter	n	% of hunters indicating that they _____this management strategy: Strongly Oppose	Oppose	Undecided[1]	Support	Strongly support	Mean[2]
Statewide	2,418	18.1	24.0	13.6	31.6	12.7	2.97
Region 1	391	19.7	26.1	14.3	28.6	11.3	2.86
Region 2	384	25.0	25.8	11.5	26.3	11.5	2.73
Region 3	395	16.7	24.6	14.2	33.4	11.1	2.98
Region 4	422	15.9	22.3	15.4	32.9	13.5	3.06
Region 5	397	16.9	23.4	15.9	31.7	12.1	2.89
Region 6	429	18.2	23.5	12.1	32.2	14.0	3.00
$\chi^2 = 25.554$, n.s.							

Notes:

[1] The question originally provided the respondent with the opportunity to indicate that they were "undecided" and "don't know". Since these responses are essentially identical, those who answered with "Don't Know" were recoded as "Undecided".

[2] $F = 3.155$ ($p = 0.008$). Mean is based on the following scale: 1 = Strongly oppose; 2 = Oppose; 3 = Undecided, 4 = Support; 5 = Strongly support.

Table 4-9: Support for restrictions on open water hunting

Residence of Hunter	n	% of hunters indicating that they _____this management strategy: Strongly Oppose	Oppose	Undecided[1]	Support	Strongly support	Mean[2]
Statewide	2,416	8.1	14.2	32.7	28.4	16.5	3.34
Region 1	387	10.9	14.5	30.5	28.2	16.0	3.24
Region 2	381	8.9	16.5	33.6	24.7	16.3	3.23
Region 3	398	8.8	15.6	31.7	28.9	15.1	3.26
Region 4	423	8.7	15.4	30.3	30.5	15.1	3.28
Region 5	399	8.5	14.0	34.8	28.1	14.5	3.26
Region 6	428	6.1	12.4	34.8	28.0	18.7	3.41
$\chi^2 = 16.607$, n.s.							

n = 2,423

Notes:

[1] The question originally provided the respondent with the opportunity to indicate that they were "undecided" and "don't know". Since these responses are essentially identical, those who answered with "Don't Know" were recoded as "Undecided".

[2] F = 1.360 (p = 0.236). Mean is based on the following scale: 1 = Strongly oppose; 2 = Oppose; 3 = Undecided, 4 = Support; 5 = Strongly support.

Table 4-10: Support for restrictions on outboard motor use.

Residence of Hunter	n	% of hunters indicating that they _____this management strategy: Strongly Oppose	Oppose	Undecided[1]	Support	Strongly support	Mean[2]
Statewide	2,417	7.8	12.9	25.6	29.4	24.3	3.52
Region 1	390	7.9	11.8	23.8	29.5	26.9	3.56
Region 2	381	10.5	15.0	21.3	27.0	26.2	3.44
Region 3	398	8.3	15.3	25.1	27.1	24.1	3.43
Region 4	420	7.9	14.3	23.8	31.9	22.1	3.46
Region 5	399	8.8	11.5	31.8	28.3	19.5	3.38
Region 6	429	6.8	11.2	27.0	30.1	24.9	3.55
$\chi^2 = 28.068$, n.s.							

Notes:

[1] The question originally provided the respondent with the opportunity to indicate that they were "undecided" and "don't know". Since these responses are essentially identical, those who answered with "Don't Know" were recoded as "Undecided".

[2] F = 1.313 (p = 0.256). Mean is based on the following scale: 1 = Strongly oppose; 2 = Oppose; 3 = Undecided, 4 = Support; 5 = Strongly support.

Section 4: Opinions on Management Strategies

Table 4-11: Support for creating waterfowl refuges

Residence of Hunter	n	% of hunters indicating that they _____this management strategy: Strongly Oppose	Oppose	Undecided[1]	Support	Strongly support	Mean[2]
Statewide	2,421	1.4	2.4	10.7	29.8	55.7	4.39
Region 1	391	0.5	3.8	11.8	29.4	54.5	4.34
Region 2	380	1.1	3.9	13.4	30.8	50.8	4.26
Region 3	399	2.3	2.0	10.3	31.6	53.9	4.33
Region 4	423	1.4	1.7	9.0	31.9	56.0	4.39
Region 5	400	1.5	2.8	10.0	29.8	56.0	4.36
Region 6	428	1.4	2.1	11.0	27.8	57.7	4.38
$\chi^2 = 19.893$, n.s.							

Notes:

[1] The question originally provided the respondent with the opportunity to indicate that they were "undecided" and "don't know". Since these responses are essentially identical, those who answered with "Don't Know" were recoded as "Undecided".

[2] F = 1.160 (p =0.326). Mean is based on the following scale: 1 = Strongly oppose; 2 = Oppose; 3 = Undecided, 4 = Support; 5 = Strongly support.

Table 4-12: Comparison of the level of support for the five strategies studied

Strategy	Statewide Mean[1]
Beginning shooting hours at Noon on the opening day of duck season	2.93
Ending shooting hours at 4 PM for the first part of MN's waterfowl season	2.97
Restrictions on open water hunting	3.34
Restrictions on outboard motor use	3.52
Creating waterfowl refuges	4.39

Notes:

[1] F = 675.991 (p < 0.001). Mean is based on the following scale: 1 = Strongly oppose; 2 = Oppose; 3 = Undecided, 4 = Support; 5 = Strongly support.

Table 4-13: Support for having North and South zones in the state that would have different season dates

Residence of Hunter	n	% of hunters indicating that they _____this management strategy: Strongly Oppose	Oppose	Undecided	Support	Strongly support	Mean[1]
Statewide	2,422	18.3	20.7	31.6	24.0	5.4	2.77
Region 1	391	20.5	21.2	35.0	18.7	4.6	2.66
Region 2	384	16.9	20.3	27.9	28.1	6.8	2.88
Region 3	400	21.5	20.5	29.3	25.0	3.8	2.69
Region 4	421	14.7	20.4	32.3	24.7	7.8	2.90
Region 5	399	13.0	16.5	35.1	24.8	10.5	3.03
Region 6	427	19.0	21.5	31.1	24.4	4.0	2.73
$\chi^2 = 51.613$, $p \leq 0.001$							

Notes:
[1] $F = 6.359$ ($p = 0.000$). Mean is based on the following scale: 1 = Strongly oppose; 2 = Oppose; 3 = Undecided, 4 = Support; 5 = Strongly support.

Table 4-14: Support for having 2 or 3 split seasons instead of one continuous waterfowl season

Residence of Hunter	n	% of hunters indicating that they _____this management strategy: Strongly Oppose	Oppose	Undecided	Support	Strongly support	Mean[1]
Statewide	2,420	23.6	28.7	25.5	17.5	4.7	2.51
Region 1	388	28.4	32.5	23.5	12.4	3.4	2.30
Region 2	384	27.9	27.6	25.0	13.5	6.0	2.42
Region 3	400	28.3	26.8	24.0	18.0	3.0	2.41
Region 4	422	21.6	25.6	25.8	21.3	5.7	2.64
Region 5	398	21.6	21.6	27.6	20.6	8.5	2.73
Region 6	428	19.9	31.5	26.6	17.3	4.7	2.55
$\chi^2 = 57.540$, $p \leq 0.001$							

Notes:
[1] $F = 7.456$ ($p = 0.000$). Mean is based on the following scale: 1 = Strongly oppose; 2 = Oppose; 3 = Undecided, 4 = Support; 5 = Strongly support.

Table 4-15: Support for a restriction on waterfowl hunter numbers on additional selected Wildlife Management Areas to improve hunting quality

Residence of Hunter	n	% of hunters indicating that they _____this management strategy: Strongly Oppose	Oppose	Undecided	Support	Strongly support	Mean[1]
Statewide	2,429	7.0	18.6	30.8	32.1	11.4	3.22
Region 1	393	5.9	18.3	34.4	31.8	9.7	3.21
Region 2	385	8.3	16.1	34.8	30.1	10.6	3.19
Region 3	397	6.5	20.9	30.0	33.2	9.3	3.18
Region 4	423	6.9	19.9	31.4	30.5	11.3	3.20
Region 5	402	8.5	16.9	30.6	30.6	13.4	3.24
Region 6	429	7.2	17.7	28.9	33.1	13.1	3.27
$\chi^2 = 16.473$, $p \leq 0.05$							

Notes:
[1] F = 0.414 (p =0.839). Mean is based on the following scale: 1 = Strongly oppose; 2 = Oppose; 3 = Undecided, 4 = Support; 5 = Strongly support.

Section 5: Opinions on Duck Bag Limits

Findings:

How bag limits should be set

Hunters were almost evenly split between support for the "as large as possible" bag limit (45.9%) and support for some maximum bag limit (54.1%). There were no differences across the regions (Table 5-1). Among those who supported a maximum limit, the median bag limit was 6, statewide and for each region (Table 5-2). Most hunters did not believe the DNR should restrict waterfowl hunters to less than 6 ducks because some hunters felt it inappropriate to shoot that many ducks (62.5%) (Table 5-3) or to only 1 mallard hen (58.1%) (Table 5-4). Across the regions, significantly more hunters from Region 5 tended to support such social restrictions on bag limits ($\chi^2 = 31.527$, $p < 0.001$; $\chi^2 = 23.557$, $p < 0.001$) than did hunters in other regions (Tables 5-3, 5-4).

Section 5: Opinions on Duck Bag Limits

Table 5-1: Opinions of how duck bag limits should be set when duck populations are high.

Residence of Hunter	n	% of hunters indicating that the bag limit should be set as large as possible as long as duck populations will not be harmed:	% of hunters indicating that the maximum bag should not exceed a certain size:
Statewide	2,418	45.9	54.1
Region 1	377	49.3	50.7
Region 2	378	48.4	51.6
Region 3	386	47.4	52.6
Region 4	465	46.7	53.3
Region 5	389	42.7	57.3
Region 6	423	43.7	56.3
$\chi^2 = 5.466$, n.s.			

Table 5-2: For those who indicated a maximum duck bag, what should it be set at?

	For hunters who indicated a max bag limit, the % indicating that specific bag limit size:						
Max Bag limit:	Statewide	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6
1	0.2	< 0.1	< 0.1	< 0.1	1.0	0.5	< 0.1
2	1.0	1.1	< 0.1	0.5	1.0	1.4	1.4
3	3.4	3.8	1.6	6.3	3.5	6.2	1.4
4	19.3	21.7	13.0	16.2	18.3	18.1	21.7
5	21.9	19.6	19.6	21.5	24.8	19.5	22.6
6	40.6	37.5	51.6	40.3	44.6	41.4	37.7
7	1.9	1.1	1.1	0.5	2.5	1.4	2.8
8	6.8	7.6	6.0	9.4	2.5	6.2	7.5
9	0.4	< 0.1	0.5	0.5	0.5	< 0.1	0.5
10	3.7	6.5	5.4	3.7	1.0	2.9	3.8
11 – 15	0.4	0.5	0.5	0.5	0.5	1.9	< 0.1
16 – 20	0.2	< 0.1	0.5	< 0.1	< 0.1	< 0.1	0.5
21 +	0.2	0.5	< 0.1	0.5	< 0.1	<0.1	< 0.1
N	1,182	184	184	191	202	209	212
Range	1 – 30	1 – 30	1 – 18	1 – 25	1 – 13	1 – 15	1 – 20
Median	6	6	6	6	6	6	6
Mean	5.7	5.8	6.0	5.8	5.4	5.6	5.7

Section 5: Opinions on Duck Bag Limits

Table 5-3: Should the MN DNR restrict waterfowl hunters to less than 6 ducks because some hunters believe it is inappropriate to shoot that many ducks?

Residence of Hunter	n	% of hunters answering _____: NO	Undecided	YES
Statewide	2,411	62.5	18.7	18.8
Region 1	389	61.7	20.6	17.7
Region 2	382	69.9	19.1	11.0
Region 3	396	64.4	18.2	17.4
Region 4	417	58.8	21.6	19.7
Region 5	399	55.6	20.1	24.3
Region 6	428	63.8	16.4	19.9
$\chi^2 = 31.527$, $p \leq 0.001$				

Table 5-4: Should the MN DNR restrict waterfowl hunters to 1 mallard hen in the bag because some hunters believe it is inappropriate to shoot that many hen mallards?

Residence of Hunter	n	% of hunters answering _____: NO	Undecided	YES
Statewide	2,414	58.1	17.2	24.7
Region 1	389	60.4	17.5	22.1
Region 2	384	64.1	15.1	20.8
Region 3	395	62.5	16.2	21.3
Region 4	420	51.9	19.8	28.3
Region 5	398	52.8	17.3	29.9
Region 6	428	57.9	16.8	25.2
$\chi^2 = 23.557$, $p \leq 0.001$				

Section 6: Opinions on September Goose Hunt Options

Findings:

Participation in Early Canada Goose Season

Statewide 42.9% of waterfowl hunters indicated they had hunted during the early Canada goose season in September of 2000. Hunters living in Region 4 (60.1%) were most likely to have participated while hunters in Region 2 (23.9%) were least likely (Table 6-1). Of those that did participate, 33.2% had hunted in the West Goose Zone (Table 6-2) were hunting within 100 yards of surface water was allowed. Among the early goose hunters in the West Goose Zone, about half (47.2%) hunted within 100 yards of water and half (52.8%) did not.

Perceptions of the Effect of the 100 yard Rule on Hunting Success

A slight majority of hunters statewide (54.0%) believed the 100 yard rule decreases or greatly decreases goose hunting success during the early goose season. About one-quarter (25.9%) believed the rule either increases hunting success or has no effect, and the remaining 20.2% indicated they did not know what effect the rule has on early season goose hunting success (Table 6-4).

Beliefs about the impact of hunting within 100 yards of water during the early goose season were about evenly divided between those who agreed it decreases success (32.8%) during the regularly waterfowl season and those who disagreed that it decreases success (29.7%). The remaining 37.6% were undecided about the effects of hunting within 100 yards of water during the early goose season (Table 6-5).

Section 6: Opinions on September Goose Hunt Options

Table 6-1: Did you hunt geese during the 2000 early Sept. Canada goose season?

Residence of Hunter	n	% of hunters answering: NO	YES
Statewide	2,431	57.1	42.9
Region 1	393	46.1	53.9
Region 2	381	76.1	23.9
Region 3	399	51.4	48.6
Region 4	424	39.9	60.1
Region 5	405	67.7	32.3
Region 6	429	67.4	32.6
$\chi^2 = 169.656$, $p \leq 0.001$			

Table 6-2: Did you hunt in the West Goose Zone during September 2000 where hunting within 100 yards of surface water was allowed?

Residence of Hunter	n	% of hunters answering: NO	YES
Statewide	940	66.8	33.2
Region 1	199	86.7	13.3
Region 2	80	50.0	50.0
Region 3	177	73.3	26.7
Region 4	239	75.5	24.5
Region 5	116	66.7	33.3
Region 6	129	58.1	41.9
$\chi^2 = 65.406$, $p \leq 0.001$			

Notes:
Only those hunters who answered "YES" to hunting Canada geese in the 2000 early Sept. Canada goose season answered this question.

Table 6-3: How far away from surface water did you hunt while in the portion of the West Goose Zone that allows hunting within 100 yards of surface water?

Residence of Hunter	n	% of hunters answering: Within 100 yards from surface water	Greater than 100 yards from surface water
Statewide	297	47.2	52.8
Region 1	83	37.3	62.7
Region 2	9	33.3	66.7
Region 3	48	41.7	58.3
Region 4	108	51.9	48.1
Region 5	16	25.0	75.0
Region 6	33	57.6	42.4
$\chi^2 = 9.419$, $p = 0.093$			

Notes:
The above table is represents only those hunters who answered "YES" to hunting in the portion of the West Goose Zone during Sept. 2000 that allows hunting within 100 yards of the surface area.

Section 6: Opinions on September Goose Hunt Options

Table 6-4: Effect of the 100 yard from water restriction on Canada goose hunting success during the September season

Residence of Hunter	n	% of hunters indicating that this management strategy _____ Canada goose hunting success during that season: Greatly Decreases	Decreases	No Effect on Success	Increases	Greatly Increases	Don't Know	Mean[1]
Statewide	2,394	18.8	35.2	13.6	9.2	3.1	20.2	2.28
Region 1	389	15.9	37.0	15.9	12.6	3.3	15.2	2.42
Region 2	374	16.6	34.2	7.0	4.5	0.8	36.9	2.03
Region 3	390	20.3	35.4	13.6	9.5	3.1	18.2	2.26
Region 4	420	20.0	34.8	16.0	11.9	5.0	12.4	2.40
Region 5	397	14.6	31.7	12.1	9.1	2.0	30.5	2.31
Region 6	424	19.8	35.4	13.0	7.3	2.6	21.9	2.20
$\chi^2 = 36.891$ p =0.012								

Notes:
[1] F = 5.13 (p < 0.000). Mean is based on the following scale: 1 = Greatly Decreases; 2 = Decreases; 3 = No effect, 4 = Increases; 5 = Greatly increases. The mean does not include those who "Don't Know".

Table 6-5: Effect of hunting within 100 yards of surface water during the September Canada goose season on hunter success for the regular waterfowl season opener

Residence of Hunter	n	% of hunters who _____ with the statement: Hunting within 100 yards of surface water during the September Canada goose season DECREASES hunter success for the regular waterfowl season opener: Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Mean[1]
Statewide	2,395	4.9	24.8	37.6	22.8	10.0	3.08
Region 1	387	6.5	25.8	34.1	23.5	10.1	3.05
Region 2	375	4.5	17.6	51.2	19.5	7.2	3.07
Region 3	392	5.6	26.3	33.4	23.7	11.0	3.08
Region 4	420	5.7	26.7	27.4	27.4	12.9	3.15
Region 5	396	3.8	23.7	46.5	19.7	6.3	3.01
Region 6	425	3.8	24.2	41.9	20.9	9.2	3.07
$\chi^2 = 75.681$ p < 0.000							

Notes:
[1] F = 0.829 (p = 0.529). Mean is based on the following scale: 1 = Strongly Agree; 2 = Agree; 3 = Undecided, 4 = Disagree; 5 = Strongly Disagree. The Mean does not include those who "Don't Know".

Section 7: Use and Opinions on Battery Operated Wing Decoys

Findings:

Residence of hunters

Statewide, 10% of all hunters have used battery-operated duck and goose decoys with moving parts that simulate rotating wings (Table 7-1). Regionally, the percentage of all hunters with battery-operated decoy experience ranges from a low of 6% of Region 2 hunters to a high of 15% of Region 5 hunters. Twelve percent of Metro hunters (Region 6) have used these decoys, as compared to about 9% of the Non-metro hunters. However, a statistical comparison of these groups shows that there are no significant differences. In other words, the data indicates that Metro & Non-metro hunters are equally likely to have used these decoys in the past (Table 7-1).

Years hunting in Minnesota

For all hunters, the average number of years hunting waterfowl within the state is 21.7 years. For those hunters with experience using battery decoys, the average is 20.4 years, and for those who have not used battery decoys, the average is 21.9 years. Statistically, there is no difference in the average number of years hunting, which leads to the conclusion that the use of battery decoys is not influenced by the number of years hunting waterfowl in Minnesota (Table 7-2).

Duck hunting days and success during the 2000 season

As reported in Table 7-2, hunters with experience using battery decoys spent a significant number of additional days in the field hunting ducks, on average, than those hunters with no battery decoy experience (an average of 14.3 days compared to an average of 9.8 days). Success, as measured by the number of ducks bagged during the season, was higher for hunters with battery decoy experience (an average of 18.3 ducks) as compared to hunters without battery decoy experience (an average of 9.0 ducks). To remove the influence of the additional days of hunting between the two groups, a new variable was created by dividing total duck harvest by total days duck hunting for the 2000 season. The result is the number of ducks bagged per hunting day. Again, the hunters with experience using battery decoys had a higher success rate (1.41 ducks per day on average) as compared to the hunters without battery experience (1.01 ducks bagged per day on average). The average number of days, ducks bagged, and ducks bagged per day are significantly different (all t-tests had p-values < 0.001) between the hunters with and without battery decoy experience. While the data implies that battery decoys provide a greater duck per day success rate, it is not possible to conclude that the battery decoys are the reason for higher success rates. This is due to two factors: it is not known if those hunters with battery decoy experience actually used the decoys during their hunting forays in the 2000 season, and there may be other confounding variables such as hunting skill levels that influence hunting success.

Hunters' opinions on the effectiveness of battery decoys

Tables 7-3 and 7-4 provide information on the opinions of hunters regarding the effectiveness of battery decoys in bringing ducks into shooting range. Statewide, over half (52%) of all hunters do not know if the decoys are effective. Of those who have used the decoys, 22% feel the decoys are very effective, 64%

feel they are somewhat effective, 9% feel they are not effective, and 5% felt they were not able to gauge the effectiveness. There are statistically significant differences (χ^2= 252.946, p < 0.001) between those hunters who have used battery decoys and those who have not (22% versus 11% indicating that the decoys are very effective). However, the statistical test is influenced by the 58% of hunters without battery decoy experience who indicated that they did not know the effectiveness of the decoy. Table 7-4 addresses this issue by removing those hunters who did not have an opinion on the effectiveness of battery decoys. Results indicate no significant differences in opinions on effectiveness between hunters with decoy experience and hunters without decoy experience (χ^2= 1.031, p = 0.597).

Support for banning battery decoys

Table 7-5 summarizes the support for banning battery decoys if they were found to increase duck harvest rate with a possible result of shorter seasons and/or lower bag limits. Forty-one percent of hunters with battery decoy experience would support such a ban, as compared to 67% of those hunters without battery decoy experience (χ^2= 86.836, p < 0.001). The results imply that once hunters have used battery decoys, they are much less likely to support a ban on using battery decoys.

Table 7-6 measures the support for banning battery decoys regardless of their effectiveness. Overall, this is not a popular option, with about one-quarter of all hunters indicating support for such a ban. Hunters with experience using battery decoys show little support for such a ban (9%), much less than the ban support of 29% of hunters without decoy experience (χ^2= 139.617, p < 0.001).

An important consideration for support and opposition to a potential battery decoy ban is the number of hunters who indicated that they were undecided about the ban. Approximately 20% of all hunters are undecided regarding a ban when the decoys are found to be effective, and a third of all hunters are undecided on a ban on decoys regardless of their effectiveness. Opinions of the undecided hunters could easily shift with additional information about the mechanical decoys.

Section 7: Use and Opinions on Battery Operated Wing Decoys

Table 7-1: Have you used battery-operated rotating wing decoys when hunting?

Residence of Hunter	n	% of all waterfowl hunters in state	Yes (%)	No (%)
Statewide	2,434	100.0	10	90
Region 1	393	14.0	6	94
Region 2	384	6.6	11	89
Region 3	400	18.6	9	91
Region 4	425	18.0	10	90
Region 5	402	7.3	15	85
Region 6	430	35.5	12	88
χ^2 =19.003, p =0.002				
Residence of Hunter	**n**	**% of all waterfowl hunters in state**	**Yes (%)**	**No (%)**
Non-metro (Regions 1 – 5)	2,004	64.5	9.4	90.6
Metro (Region 6)	430	35.5	11.9	88.1
χ^2 = 3.566, p = 0.059				

Table 7-2: Comparison of hunter experience, length in field and success

	Experience with battery-operated decoys		
	All Hunters	**Hunters who have used these decoys**	**Hunter who have not used these decoys**
Total years hunting waterfowl in Minnesota (n = 2,380; p = 0.239)			
Mean	21.7	20.4	21.9
Median	20.0	20.0	20.0
Range	1 - 75	1 - 61	1 – 75
# of days hunting ducks in MN in 2000 (n = 1,887; p < 0.001)			
Mean	10.2	14.3	9.8
Median	8.0	10.0	8.0
Range	1 - 60	1 – 60	1 - 60
# of ducks bagged in MN in 2000 (n = 2,026; p < 0.001)			
Mean	9.85	18.3	9.0
Median	7.0	12.0	6.0
Range	0 - 200	0 - 200	0 - 150
# of ducks per hunting day (n = 1,980; p < 0.001)			
Mean	1.07	1.41	1.01
Median	0.88	1.20	0.83
Range	0 - 7	0 – 6	0 - 7

Note: Data for days hunting ducks, ducks bagged, and ducks bagged per day reflect only those hunters who went duck hunting and provided information on both the number of days spent duck hunting and the number of ducks bagged during the season.

Section 7: Use and Opinions on Battery Operated Wing Decoys

Table 7-3: How effective do you feel battery-operated rotating wing decoys are in bringing ducks into shooting range?

Experience with battery-operated decoys	% of hunters indicating that battery-operated decoys are:			
	Not effective	Somewhat effective – works sometimes	Very Effective – works most of the time	Don't Know
All hunters	4	32	12	52
Hunters who have used these decoys	9	64	22	5
Hunters who have not used these decoys	3	28	11	58
$\chi^2 = 252.946$, $p < 0.001$				

n = 2430

Table 7-4: Effectiveness of decoys gauged by hunters with an opinion

Experience with Battery-operated decoys	% of hunters indicating that battery-operated decoys are:			
	Not effective	Somewhat effective – works sometimes	Very Effective – works most of the time	Don't Know
All hunters	8	67	25	N/A
Hunters who have used these decoys	9	68	23	N/A
Hunters who have not used these decoys	8	67	26	N/A
$\chi^2 = 1.031$, $p = 0.597$				

n = 1164

Section 7: Use and Opinions on Battery Operated Wing Decoys

Table 7-5: If battery-operated rotating wing decoys are found to increase duck harvest rate and possibly lead to shorter seasons and/or lower bag limits, would you support banning their use?

Experience with battery-operated decoys	Yes (%)	No (%)	Undecided (%)
All hunters	65	17	19
Hunters who have used these decoys	41	36	23
Hunters who have not used these decoys	67	14	18
χ^2= 86.836, p = 0.000			

n = 2,438

Table 7-6: Do you believe these types of decoys should be made illegal for hunting regardless of their effectiveness?

Experience with battery-operated decoys	Yes (%)	No (%)	Undecided (%)
All hunters	27	41	33
Hunters who have used these decoys	9	75	16
Hunters who have not used these decoys	29	37	35
χ^2= 139.617, p = 0.000			

n = 2,404

Section 8: Characteristics of Waterfowl Hunters in Minnesota

Findings:

Information from the Electronic Licensing System database indicates that over one-third (35.5%) of the Minnesota residents who purchased a state duck stamp live within Region 6, encompassing the Twin cities metro area. Slightly more than half (50.6%) live within Region 1 (14.0%), Region 3 (18.6%), and Region 4 (18.0%). Smaller percentages live in Region 2 (6.6%) and Region 5 (7.3%).

The average age of the targeted study population statewide was 38.4. The average age of study respondents statewide was slightly but significantly higher 41.4 ($t = 9.763$, $p < 0.001$). Likewise, the average age of respondents in all regions was slightly but significantly older (all at $p < 0.001$) than the targeted population (Table 8-2 and 8-3). Those under the age of 30 tended to respond at a lower rate than those over the age of 40 leading to this slight age bias in the sample. The bias in age of the respondents did not substantively affect any estimates reported previously in this document, and thus, data were not weighted in calculating those estimates.

The response rate of study participants chosen due to HIP participation and not duck stamp purchase were not significantly different from stamp purchasers in similar age categories (Tables 8-2 and 8-3) with 16 and 17 year olds having a lower response rate than 65 and older hunters. Almost 90% of 16 and 17 year old HIP respondents indicated that they hunted waterfowl in 2000, which is similar to the other age categories in the study. Less than 80% of 65 and older hunters indicated that they hunted waterfowl in 2000, which is similar to 60-64 year old duck stamp purchasers (Table 8-4).

Statewide, only 1.9% of the study target population was female and 98.1% were male. These proportions were not significantly different from the study sample of 1.4% female and 98.6% male (Tables 8-5, 8-6).

At the beginning of the survey instrument, respondents were requested to identify the year they first hunted waterfowl in the state of Minnesota, how many total years they have hunted waterfowl in Minnesota, and years since 1995 that they actually hunted waterfowl in the state. Because responses to these questions are strongly correlated to age, the data were weighted to correct for the age bias for these results (Tables 8-7, 8-8, 8-9).

Statewide almost one-third (30.2%), began hunting waterfowl in Minnesota in 1990 or more recently (Table 8-7). On average, waterfowl hunters in Minnesota have been hunting in Minnesota for 19.4 years. The median of 16.0, indicates that half of the hunters have hunted 16 or more years in the state (Table 8-8). Across the regions, hunters in Region 1 (mean = 20.4; median = 18.0) and Region 2 (mean = 20.2; median = 18.0) tended to have slightly more years hunting experience in Minnesota, while hunters in Region 5 had fewer years experience (mean = 16.5; median = 11.0).

A majority (65.2%) of the waterfowl hunters statewide hunted for waterfowl in Minnesota every year during the past 5 years. Consistency of participation was highest in Region 4, where 72.4% of residents hunted every year in the past 5. In contrast, about half (52.2%) of the waterfowl hunters living in Region 5 hunted every year during the past 5 years (Table 8-9).

The most popular sources of information on the waterfowl season and hunting are DNR publications (57.2%), with newspapers (49.2%; Twin Cities 30.4%; other 18.8 %), friends (39%) and weekly/monthly outdoor publications (29.2%) other popular sources for information. Statewide, 1 in 5 (19.4%) waterfowl hunters use the DNR's website as an information source, with 1 in 4 (25.5%) waterfowl hunters in Region 6 using this information source (Table 8-10).

Section 8: Characteristics of Waterfowl Hunters in Minnesota

More than half of the waterfowl hunters reported that they belonged to a conservation/hunting organization, with more than one-third (36.0%) reporting membership in Ducks Unlimited and one out of ten reported membership in Minnesota Waterfowl Association (Table 8-11).

One in four Minnesota waterfowl hunters also hunted outside the state in 2000, with hunters residing in Region 2 (30.2%) and Region 6 (32.2%) most likely to hunt elsewhere (Table 8-13). North Dakota was the most popular destination for Minnesota hunters (13.4%), followed by South Dakota (3.1%), Saskatchewan (2.9%), and Manitoba (2.9%) (Refer to Tables 8-14, 8-15).

Table 8-1: Residence of Waterfowl Stamp Buyers

Residence of Hunter	# of licensed MN waterfowl hunters	% of all MN waterfowl hunters
Region 1	17038	14.0
Region 2	8032	6.6
Region 3	22637	18.6
Region 4	21907	18.0
Region 5	8884	7.3
Region 6	43205	35.5
Total	121703	100.0

Source: DNR license database

Table 8-2: Age of Study Population

Residence of Hunter	16-17	18-19	20 - 29	30 - 39	40 - 49	50 - 59	60 - 64	65 +	Average age
Statewide	8.3	5.1	20.9	21.8	21.5	10.8	4.3	7.2	38.4
Region 1	9.6	6.3	20.3	16.9	21.1	9.9	5.9	10.0	38.8
Region 2	10.0	3.9	18.9	20.9	20.8	11.6	4.0	9.9	39.3
Region 3	8.3	6.0	24.0	21.9	20.6	9.6	3.7	5.9	36.7
Region 4	12.3	6.2	20.9	16.6	21.8	11.9	2.2	8.0	37.2
Region 5	10.6	6.9	24.6	19.7	18.0	9.3	4.0	7.0	36.3
Region 6	4.9	3.4	19.0	27.1	23.0	11.4	5.3	5.9	39.3

Source: DNR license database

Table 8-3: Age of Respondents

Residence of Hunter	n	16-17	18-19	20 – 29	30 – 39	40 – 49	50 - 59	60 - 64	65 +	Average age
Statewide	2,454	5.4	3.7	15.6	21.8	25.1	14.0	5.9	8.5	41.4
Region 1	395	7.2	3.6	14.3	16.4	25.3	13.3	7.9	12.0	42.7
Region 2	387	6.8	1.6	14.6	21.4	25.3	14.4	6.3	9.7	42.4
Region 3	403	5.0	4.2	18.9	23.9	22.1	13.2	5.2	7.5	40.2
Region 4	427	9.0	5.5	17.1	15.9	25.8	14.7	3.1	9.0	40.0
Region 5	411	6.4	6.4	16.4	21.3	23.0	12.5	4.9	9.3	40.3
Region 6	431	2.6	2.6	13.8	25.9	26.6	14.7	7.0	7.0	42.4

Table 8-4: Proportion of age categories actually hunting waterfowl in Minnesota in the year 2000

Age Category	% No	% Yes	Chi-Square
16-17	11.6	88.4	
18-19	7.6	92.4	
20-29	3.9	96.1	
30-39	5.9	94.1	
40-49	9.2	90.8	
50-59	9.4	90.6	
60-64	21.0	79.0	
65+	21.3	78.7	78.580, p <0.001

Table 8-5: Gender of Target Population

Residence of Hunter	% Female	% Male
Statewide	1.9	98.1
Region 1	1.3	98.7
Region 2	4.7	95.3
Region 3	2.4	97.6
Region 4	1.9	98.1
Region 5	1.6	98.4
Region 6	1.4	98.6

Source: DNR license database

Table 8-6: Gender of Respondents

Residence of Hunter	n	% Female	% Male
Statewide	2,436	1.4	98.6
Region 1	391	1.3	98.7
Region 2	383	3.1	96.9
Region 3	402	1.7	98.3
Region 4	422	0.9	99.1
Region 5	409	1.0	99.0
Region 6	429	1.2	98.8

Table 8-7: What year the hunter first hunted waterfowl

Year/decade	% of hunters from that area who indicated that they first hunted waterfowl (not necessarily in Minnesota) in that year or decade:						
	Statewide	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6
N	2,374	386	375	393	413	391	416
2000	2.6	2.4	2.3	2.0	1.7	3.4	2.8
1999	2.7	0.9	2.6	2.5	2.0	3.1	3.8
1998	3.0	1.0	2.8	3.0	2.2	4.9	3.8
1997	3.3	4.2	4.6	1.7	2.3	4.4	3.0
1996	3.2	2.1	3.0	3.6	3.1	6.8	2.6
1995	4.0	5.9	4.3	5.4	5.6	3.6	1.8
1990 – 1994	11.4	11.6	11.8	14.2	12.8	10.8	9.0
1980's	18.7	17.0	17.9	16.0	18.1	19.7	21.0
1970's	21.0	18.9	18.7	24.9	20.2	16.0	21.7
1960's	15.7	18.5	17.9	13.1	17.0	13.5	15.4
1950's	9.0	9.5	7.9	8.5	9.8	8.0	9.0
1940's	4.3	6.1	4.5	3.2	4.1	4.1	4.3
1930's	1.0	1.7	1.5	0.9	0.6	1.1	0.8
1920's	0.1	< 0.1	0.2	< 0.1	0.1	0.5	0.1
Before 1920	<0.1	< 0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1

Table 8-8: Number of years hunting waterfowl in Minnesota

# of years	% of hunters from that area who indicated that they have been hunting in Minnesota for _____ years:						
	Statewide	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6
N	2,375	378	372	394	413	393	425
1	3.1	3.3	2.7	3.7	1.7	4.8	3.2
2	3.5	2.0	3.7	3.0	2.5	5.2	4.5
3	4.1	2.0	3.6	3.2	3.6	9.5	4.6
4	4.5	4.6	5.9	4.1	3.8	5.4	4.7
5	4.5	3.6	5.2	5.1	5.3	7.5	3.3
6	5.5	6.6	5.6	6.4	7.2	3.9	4.2
7	2.8	4.9	1.9	2.8	3.5	3.2	1.8
8	2.6	3.6	2.2	4.0	2.0	2.0	1.9
9	1.5	1.6	1.3	1.7	1.4	2.2	1.4
10 – 19	22.7	19.0	19.1	20.1	21.9	19.4	27.1
20 – 29	18.7	21.2	18.6	19.7	16.3	14.8	19.1
30 – 39	14.3	12.2	17.8	15.9	17.1	11.6	12.9
40 – 49	7.1	9.3	6.9	6.0	9.3	6.6	5.9
50 – 59	4.0	5.2	3.6	3.7	2.7	2.6	4.6
60 – 69	0.9	0.6	1.8	0.7	1.4	1.3	0.7
70 +	0.1	0.3	< 0.1	< 0.1	0.2	< 0.1	0.1
Mean	19.4	20.4	20.2	19.1	20.2	16.5	19.2
Median	16.0	18.0	18.0	16.0	16.0	11.0	16.0

Note: Actual number years were collected for each hunter and used in computation of the means and medians. Data are presented in categorical form in the table for 10+ years to simplify the table.

Table 8-9: Hunting in the last five years

Residence of Hunter		% of hunters who hunted that particular year:						
	n	1995	1996	1997	1998	1999	Hunted every year	Did not hunt during any of these years
Statewide	2,454	73.6	76.7	80.7	85.7	88.5	65.2	7.1
Region 1	395	73.9	75.9	82.0	86.5	86.8	69.3	9.4
Region 2	387	71.0	75.5	80.9	85.9	87.7	65.8	7.6
Region 3	403	74.6	76.3	80.8	86.8	87.8	66.2	5.5
Region 4	427	74.8	78.8	83.0	89.6	92.7	72.4	5.6
Region 5	410	58.9	63.9	69.8	78.8	84.4	52.2	9.3
Region 6	431	69.3	73.0	77.0	82.1	88.1	61.7	7.4

Table 8-10: Information sources used by hunters

Information source	Statewide	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6
n	2,421	392	383	397	423	402	424
DNR News releases and publications	57.2	57.7	50.7	59.7	58.9	55.5	56.4
Twin Cities daily newspapers (Star Tribune, Pioneer Press)	30.4	14.8	6.8	27.0	23.4	17.7	49.1
Other newspapers	18.8	29.3	39.4	19.1	23.2	22.1	7.8
Weekly/monthly outdoor publications	29.2	22.4	26.4	25.2	28.4	34.3	34.0
Television/radio	13.4	15.8	13.3	13.1	13.5	9.7	13.2
Friends and other individuals	39.0	37.0	41.3	39.0	40.2	38.3	38.9
Minnesota DNR computer website	19.4	11.0	18.5	18.6	15.6	18.2	25.5
Other Internet sources	5.3	3.8	5.0	4.0	2.4	5.5	8.0

Table 8-11: Membership in hunting-related groups

Hunting-related group	% of hunters indicating membership in that group:						
	Statewide	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6
n	2,419	388	382	398	423	401	427
Ducks Unlimited	36.0	34.3	35.1	32.7	34.8	37.2	39.1
Minnesota Waterfowl Association	11.2	9.0	8.4	9.3	10.9	8.0	14.3
Local Sportsman's club	16.2	25.8	12.0	15.3	23.2	20.4	9.4
Other national/statewide conservation/hunting organizations	14.8	13.9	18.1	14.6	10.9	16.5	16.4
Not a member	46.4	44.6	49.2	49.0	45.2	44.6	46.1

Note: "not a member of any conservation/hunting organization" was not a direct question. It was determined by counting those respondents who did not indicate they were members of any of the four group categories.

Table 8-12: List of other conservation and hunting organizations mentioned by hunters

ACI	GOPHER CAMP FIRE HUTCHINSON	MUSKIES INC	SAFETY INSTITUTE
AFT	GREEN-GROVE ROD & GUN CLUB	N AMERICAN DEER HUNTER	SATF
AMATEUR TRAPSHOOTING ASSOCIATION	GROVER SOCIETY		SCI
ANGLING ANN	HIGH PLAIN SPORTMANS CLUB	NAHC	SD WILDLIFE FEDERATION
ARBOR FOUNDATION	HUNTERS UNLIMITED	NAT WILD TURKEY FED	SHARPTAIL GROUSE SOCIETY
AUDUBON	IZAAK WALTON LEAGUE	NAT WILDLIFE FEDERATION	SIERRA CLUB
BASSMASTERS	KCCC MANKATO	NATIONAL FISHING ASSOCIATION	TED NUGENT UNITED SPORTS
BLUFFLANDS WHITETAIL ASSOCIATION	LAKE MINNEWAWA ASSOCIATION	NATIONAL HUNTERS ASSC	TIP
BRSC	LSSA	NATIONAL WILD TURKEY FEDERATION	TNUSA
BUCKMASTER	MINNESOTANS FOR RESPONSIBLE RECREATION	NATURE CONSERVANCY	TROUT UNLIMITED
CALIFORNIA WATERFOWL ASSOC	MN CONSERVATION FEDERATION	NAVHDA	TURKEY FEDERATION
CDHA	MN DARKHOUSE & ANGLING ASSOC	NORMAN COUNTY ROD AND GUN CLUB (LOCAL)	TURKEY UNLIMITED
CERT.YOUTH SFTY TRNG INSTR	MN DEER HUNTER ASSOCIATION	NORTH AMERICAN FISHING CLUB	TVAHC
COLORADO ELK	MN DUCK & GOOSE CALLERS ASSOCIATION	NORTH AMERICAN HUNTING CLUB	US FISH
CONV LEAGUE	MN FIREARMS	NORTH AMERICAN VERSITILE HUNTING	VARMIT HUNTERS
CORNELL LAB	MN HUNTING SPANIEL ASSO	NRA	VHA
CRP LAND	MN PARKS & TRAILS COUNCIL	NRA FIREARM SAFETY INSTITUTION	WARD BURTON WILDLIFE FOUNDATION
DEFENDERS OF WILDLIFE	MN PHEASANTS INC	NTA	WATERFOWL USA
DELTA WATERFOWL FEDERATION	MN SHARPTAILED GROUSE SOCIETY	PERSONAL CONSERVATION EFFORTS	WHITETAILED DEER-BLUE WATER CHAPTER
DNR SAFETY INSTRUCTOR	MN SPORTSMAN	PHEASANTS FOREVER	WILDLIFE FOREVER
DOCKHOUSE	MN TRAILHOUND ASSC	PVF	WILDLIFE MGMT INSTITUTE
DUCK AND GOOSE CALLERS ASSOC	MN TRAPPERS ASSOC	QU	THE WILDLIFE SOCIETY
DUCKS UNLIMITED CANADA	MN WILDLIFE SOCIETY	QUESTION CLUB	WINGS
DU SPONSOR	MSAA	ROCKY MOUNTAIN ELK FOUNDATION	
FRIENDS OF THE WETLANDS	MT LAND REL	RUFFED GROUSE SOCIETY	
GOOSE UNLIMITED	MTA	SAFARI CLUB	

Table 8-13: Did you hunt in a state or province outside of Minnesota in 2000?

Residence of Hunter	n	Yes	No
Statewide	2,394	25.3	74.7
Region 1	387	19.9	80.1
Region 2	378	30.2	69.8
Region 3	392	25.0	75.0
Region 4	418	16.3	83.7
Region 5	396	21.0	79.0
Region 6	423	32.2	67.8

Table 8-14: Most popular hunted areas outside of Minnesota for hunting waterfowl

Residence of Hunter	n	Most popular hunted area outside of MN	% of all hunters who hunted that area in 2000	Average # of days spent hunting that area in 2000
Statewide	2,394	North Dakota	13.4	6.1
Region 1	387	North Dakota	13.4	5.9
Region 2	378	North Dakota	15.6	6.3
Region 3	392	North Dakota	14.5	6.9
Region 4	418	North Dakota	7.2	5.9
Region 5	396	North Dakota	9.6	5.8
Region 6	423	North Dakota	16.3	6.3

Table 8-15: List of areas hunted outside of Minnesota in 2000 by MN hunters

State/Province	% of all MN hunters who hunted that area in 2000	Average # of days spent hunting that area in 2000
n	2,399	
Did not hunt outside of MN	74.7	Not applicable
North Dakota	13.4	6.1
South Dakota	3.1	6.3
Canada - Saskatchewan	2.9	7.8
Canada - Manitoba	2.9	6.0
Iowa	1.5	9.1
Wisconsin	1.1	10.1
Canada - Ontario	1.0	7.5
Canada - general	0.6	7.4
Arkansas	0.5	5.7
Montana	0.5	5.8
Nebraska	0.4	6.7
Missouri	0.2	3.6
Kansas	0.2	5.8
Oklahoma	0.2	26.7
Michigan	0.2	3.6
Colorado	0.1	2.5
Illinois	0.1	5.1
Alaska	0.1	5.1
California	0.1	4.3
Washington	0.1	3.4
Arizona	0.1	Not available
Maryland	0.1	3.0
New York	0.1	5.0
North Carolina	0.1	Not available
Rhode Island	0.1	4.0
Virginia	0.1	20.0
Canada - New Brunswick	0.1	7.0
Canada - Alberta	0.1	8.2
New Jersey	0.1	13.2
Argentina	< 0.05	6.0
Netherlands	< 0.05	3.0
Indiana	< 0.05	Not available
Maine	< 0.05	Not available
South Carolina	< 0.05	Not available
Texas	< 0.05	Not available
Wyoming	< 0.05	Not available

Notes:
Hunters could indicate that they hunted in more than one state. Consequently, the total percent of hunters is greater than 100 %.

Some respondents indicated that they had hunted in certain states or countries, but did not provide information on the number of days they hunted in that state, or provided the total days hunting for multiple states. For those cases, the respondent is recognized as hunting in another state or country, but the average number of days is not available.

Section 9: Comparison of 1995/96 and 2000 Hunter Survey Findings

Findings:

In 1996, the Minnesota DNR participated in a survey of duck hunters in 23 states to learn more about duck hunters' experiences and opinions regarding the 1995/96 hunt (Ringelman 1997, Lawrence and Ringelman, 2001). Some of the questions asked in that survey are either identical or similar to questions asked in the 2000 waterfowl study. For those questions, a comparison of responses from Minnesota residents is provided below.

The average age of respondents to both surveys was approximately 41 years of age and was not significantly different between the studies (Table 9-1). The proportion of male and female respondents was very similar across the two studies and accurately reflects the proportion of waterfowl hunters in the state that are female (Table 9-2). There were also no significant differences between the two sets of study respondents concerning the average number years hunting waterfowl (Table 9-3). The number of days spent hunting waterfowl differed significantly, however, the estimates in 2000 were likely inflated because hunters were asked to make two separate estimates of hunting days: one for weekends and one for weekdays (Table 9-4).

Reported harvest did vary significantly ($\chi^2 = 185.633, p < 0.001$) between the two studies with a larger percentage of hunters in 2000 (14.7%) reporting that they did not bag any ducks during the season compared to hunters in 1995/96 (5.3%). Also, a larger percentage of hunters in 1995/1996 (41.1%) reported bagging more than 10 ducks during the season than hunters in 2000 (31.9%). These differences may be due to how the samples were selected in the two studies. The study sample in 1996 went only to hunters who had responded to a small game hunter survey indicated they had hunted ducks which may have created a "successful hunter" bias in the study sample.

In 2000, Minnesota waterfowl hunters were less supportive (54.1%) of setting maximum bag limits for ducks when their populations are high than were waterfowl hunters in 1995/96 (62.5%). Also, for those hunters that supported a maximum bag limit, the mean preferred size of the limit was significantly larger ($t = 6.279, p < 0.001$) in 2000 (5.7 ducks) than in 1995/96 (5.3 ducks).

Section 9: Comparison of 1995/96 and 2000 Hunter Survey Findings

Table 9-1: Age of hunters: 1995/96 and 2000 findings

Study year	N	Average age (years)	Range (years)	t-test
1995/96 hunters	448	40.9	15 - 82	1.732, p = 0.083
2000 hunters	2,454	41.4	16 - 88	

Table 9-2: Gender of hunters: 1995/96 and 2000 findings

Study year	n	Male	Female
1995/96 hunters	462	98.3	1.7
2000 hunters	2,438	98.6	1.4

Table 9-3: Number of years hunting ducks/waterfowl: 1995/96 and 2000 findings

Study year	n	Average number of years hunting ducks/waterfowl	t-test
1995/96 hunters (ducks)	457	22.9	-1.121, p =0.262
2000 hunters (waterfowl)	2,376	22.5	

Table 9-4: # of days hunting waterfowl: 1995/96 and 2000 findings

Study year	n	Average number of days hunting waterfowl	t-test
1995/96 hunters (waterfowl)	463	10.7	4.07, p <0.001
2000 hunters	1,895	11.6	

Table 9-5: # of ducks bagged: 1995/96 and 2000 findings

Study year	1995/96 hunters (%)	2000 hunters (%)	
n	458	1959	
Bagged none	5.3	14.7	
Bagged 1 – 10	53.6	45.4	
Bagged more than 10	41.1	31.9	χ^2 = 185.633, p <0.001

Table 9-6: Opinions of how duck bag limits should be set when duck populations are high

Study year	1995/96 hunters (%)	2000 hunters (%)	
n	461	1,272	
% of hunters indicating that the bag limit should be set as large as possible as long as duck populations will not be harmed:	37.5	45.9	
% of hunters indicating that the maximum bag should not exceed a certain size:	62.5	54.1	$\chi^2 = 38.403$, $p < 0.001$
Average recommended maximum bag limit	5.3 ducks	5.7 ducks	$t = 6.729$, $p < 0.001$
Most often mentioned maximum duck bag limit	5 ducks (45 % of all hunters)	6 ducks (41 % of all hunters)	

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Appendix A: Survey Instrument

THE 2000 WATERFOWL HUNTING SEASON IN MINNESOTA

A study of hunters' opinions and activities

A cooperative study conducted by the University of Minnesota for the Minnesota Department of Natural Resources

Your help on this study is greatly appreciated!

Please return your completed questionnaire in the enclosed envelope. The envelope is self-addressed and no postage is required. Thanks!

Appendix A: Survey Instrument

Part 1. Your Waterfowl Hunting Background

The following set of questions will provide information on your background and length of experience as a waterfowl hunter.

Q1. What year did you first hunt waterfowl (not necessarily in Minnesota)?
If uncertain please estimate. _____

Q2. How many total years have you hunted waterfowl in Minnesota?_____

Q3. For the previous 5 years, please indicate which years you hunted waterfowl in Minnesota (CHECK ALL THAT APPLY)?

___1995 ___1998

___1996 ___1999

___1997 ___ DID NOT HUNT DURING ANY OF THESE YEARS

Q4. Did you hunt waterfowl during the year 2000? (PLEASE CHECK ONE)

- ❑ NO ⟶ **SKIP TO PART 4, QUESTION Q19**
- ❑ YES (PLEASE COMPLETE PARTS 2 AND 3 OF THE QUESTIONNAIRE)

Part 2. Your 2000 Waterfowl Hunting Season

Next we have a few questions about your hunting experiences during the 2000 waterfowl season in Minnesota. If you DID NOT hunt waterfowl in Minnesota in 2000 please skip to question Q19. Thanks!

Q5. Please indicate whether you hunted for the following kinds of waterfowl **in Minnesota** in 2000. If you did hunt, please estimate the TOTAL number of that kind of waterfowl you bagged (shot and retrieved) during the 2000 waterfowl season in Minnesota.

During the 2000 Minnesota waterfowl season, did you hunt for:	**Please circle NO or YES.**		**IF YES, how many did you PERSONALLY bag in Minnesota?**
Ducks	NO	YES	_____Ducks
Canada Geese during:			
Early September Season	NO	YES	_____Geese
Regular Season (Late September—Early December)	NO	YES	_____Geese
Late (December) Season	NO	YES	_____Geese
Other Geese	NO	YES	_____Geese

Q6. Of the days you hunted for waterfowl in Minnesota during the 2000 season, how many days did you…

Primarily hunt for ducks _____ **days**

Primarily hunt for geese _____ **days**

Hunt for both ducks and geese _____ **days**

Q7. Of the total days you hunted during the 2000 Minnesota waterfowl season, about how many days did you hunt

Weekend days or holidays: _____**days**

Weekdays (Monday-Friday): _____**days**

Q8. Did you hunt the OPENING SATURDAY (September 30) of the 2000 Minnesota Season? (Shooting hours were noon - 4 PM)? (PLEASE CHECK ONE)

- ❑ YES
- ❑ NO

Q9. Did you hunt the FIRST SUNDAY (October 1) of the 2000 Minnesota Season? (Shooting hours were ½ hour before sunrise - 4 PM)? (PLEASE CHECK ONE)

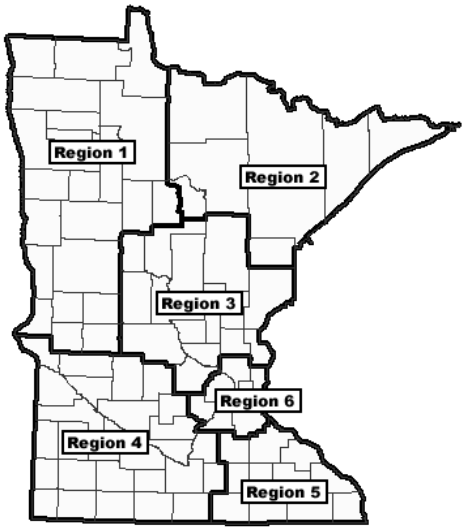
- ❑ YES
- ❑ NO

Q10. How far from your residence did you travel (**one-way)** to the area you hunted **MOST** often for waterfowl (ducks and geese) during 2000 **in Minnesota** (CHECK ONLY ONE)?

_____ Less than 5 miles
_____ 5-25 miles
_____ 26-50 miles
_____ 51-100 miles
_____ 101-200 miles
_____ More than 200 miles

Q11. What is the **LONGEST** distance from your residence that you traveled (**one-way)** to hunt for waterfowl (ducks and geese) during 2000 **in Minnesota** (CHECK ONLY ONE)?

_____ Less than 5 miles
_____ 5-25 miles
_____ 26-50 miles
_____ 51-100 miles
_____ 101-200 miles
_____ More than 200 miles



Q12. During the 2000 waterfowl hunting season in Minnesota, which Region of the state did you hunt waterfowl in most often? (PLEASE CHECK ONE)

REGION 1 _____ REGION 3 _____ REGION 5 _____
REGION 2 _____ REGION 4 _____ REGION 6 _____

Q13. During the regular duck and goose season, **in Minnesota** I hunted waterfowl at (CHECK ONE):

_____ the same area every time I hunted
_____ 2-5 different areas during the fall
_____ more than 5 areas during the fall.

Q14. During the regular duck and goose season, **in Minnesota** I hunted waterfowl (CHECK ONE):

_____ mostly on privately owned areas
_____ mostly on public access areas (Wildlife Management Areas, Waterfowl Production Areas, waters with public access, etc.)
_____ both public and private about the same

Part 3. Your Hunting Satisfaction

Q15. During the 2000 Waterfowl Hunting Season in Minnesota, how satisfied were you with the following? (**Please circle one response FOR EACH. If you did not hunt ducks or geese please circle "9" in the far right column**).

	Very Dissatisfied	Moderately Dissatisfied	Slightly Dissatisfied	Neither	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Did not hunt DUCKS/ GEESE
General Waterfowl hunting experience	1	2	3	4	5	6	7	9
DUCKS:								
hunting experience	1	2	3	4	5	6	7	9
hunting harvest	1	2	3	4	5	6	7	9
hunting regulations	1	2	3	4	5	6	7	9
GEESE:								
hunting experience	1	2	3	4	5	6	7	9
hunting harvest	1	2	3	4	5	6	7	9
hunting regulations	1	2	3	4	5	6	7	9

Q16. During the past 3 duck and goose hunting seasons in Minnesota, would you say your overall level of satisfaction, with waterfowl hunting in Minnesota has generally DECREASED OR INCREASED? (PLEASE CIRCLE ONE)

Overall level of satisfaction during past 3 hunting seasons	**Greatly decreased**	**Decreased**	**Stayed the same**	**Increased**	**Greatly Increased**	**Did not hunt DUCKS/GEESE**
Ducks	1	2	3	4	5	9
Geese	1	2	3	4	5	9

Q17. Since you first began hunting ducks and geese in the state, would you say your overall satisfaction with duck and goose hunting in Minnesota has DECREASED OR INCREASED? (PLEASE CIRCLE ONE)

Overall level of satisfaction since you began hunting	**Greatly decreased**	**Decreased**	**Stayed the same**	**Increased**	**Greatly Increased**	**Did not hunt DUCKS/GEESE**
Ducks	1	2	3	4	5	9
Geese	1	2	3	4	5	9

Q18. Below is a list of possible activities and experiences that might have affected how satisfied you were with the 2000 Minnesota Waterfowl Hunting Season. For each one:

- First tell us, how IMPORTANT each is to your overall satisfaction with the 2000 Minnesota Waterfowl Hunting Season.
- Next, please tell us the degree to which each happened or was true for you in general during the 2000 Waterfowl season.

	HOW IMPORTANT TO YOU?					DID IT HAPPEN?				
	Not at all	Slightly	Somewhat	Very	Extremely	Not at all	Slightly	Somewhat	Largely	Very Much
A large daily duck bag limit	1	2	3	4	5	1	2	3	4	5
Access to a lot of different hunting areas	1	2	3	4	5	1	2	3	4	5
Bagging ducks and geese	1	2	3	4	5	1	2	3	4	5
Being on my own	1	2	3	4	5	1	2	3	4	5
Hunting with friends	1	2	3	4	5	1	2	3	4	5
Developing my skills and abilities	1	2	3	4	5	1	2	3	4	5
Hunting with family	1	2	3	4	5	1	2	3	4	5
Enjoying nature and the outdoors	1	2	3	4	5	1	2	3	4	5
Get away from crowds of people	1	2	3	4	5	1	2	3	4	5
Getting food for my family	1	2	3	4	5	1	2	3	4	5
Getting information about hunting seasons and conditions from the DNR or U.S. Fish and Wildlife Service	1	2	3	4	5	1	2	3	4	5
Getting your limit	1	2	3	4	5	1	2	3	4	5
Good behavior among other waterfowl hunters	1	2	3	4	5	1	2	3	4	5
Having a long duck season	1	2	3	4	5	1	2	3	4	5
Hunting areas open to the public	1	2	3	4	5	1	2	3	4	5
Hunting with a dog	1	2	3	4	5	1	2	3	4	5
Reducing tension and stress	1	2	3	4	5	1	2	3	4	5
Seeing a lot of ducks and geese	1	2	3	4	5	1	2	3	4	5
Sharing my hunting skills and knowledge	1	2	3	4	5	1	2	3	4	5
Thinking about personal values	1	2	3	4	5	1	2	3	4	5
Using my hunting equipment (decoys, boats, etc.)	1	2	3	4	5	1	2	3	4	5

Part 4. General Waterfowl Hunting Issues

Several issues have been raised by some waterfowl hunters concerning the waterfowl hunting season. The following series of questions will help the Department of Natural Resources understand your opinions about these issues.

Youth Waterfowl Hunting Day

Issue: Since 1997, the U.S. Fish and Wildlife Service has allowed states to select a Youth Waterfowl Hunting Day outside the regular waterfowl season for youth age 15 and younger to take ducks and geese. Beginning in 2000, states could have 2 days for the Youth Waterfowl Hunt. During this event, adults chaperon youth, but may not hunt waterfowl themselves. Because of the season structure in Minnesota, this Youth Hunt must be held before the regular waterfowl season opening. Minnesota has offered a 1 day Youth Waterfowl Hunt since 1997.

Q19. Do you support the concept of Youth Waterfowl Hunting Day? (PLEASE CHECK ONE)

- ❑ STRONGLY SUPPORT
- ❑ SUPPORT
- ❑ UNDECIDED or NEUTRAL
- ❑ OPPOSE
- ❑ STRONGLY OPPOSE

Q20. Should Minnesota Dept. of Natural Resources offer a Youth Waterfowl Hunt? (PLEASE CHECK ONE)

- ❑ NO ⟶ **SKIP TO Q21**
- ❑ UNDECIDED ⟶ **SKIP TO Q21**
- ❑ YES (PLEASE ANSWER Q20a)

Q20a. Should the Youth hunt be: (PLEASE CHECK ONE)

- ❑ 1 DAY
- ❑ 2 DAYS
- ❑ DON'T KNOW

Q21. Have you participated in Youth Waterfowl Hunting Day in Minnesota as a mentor (taken youth hunting on this day)? (PLEASE CHECK ONE)

- ❑ YES
- ❑ NO

Q21a. If yes, have any of these youth continued waterfowl hunting after the age of 15? (PLEASE CHECK ONE)

- ❑ YES
- ❑ NO
- ❑ DON'T KNOW

Q22. Last September (2000), did you take any youths hunting on Youth Waterfowl Hunting Day? (PLEASE CHECK ONE)

- ❑ YES
- ❑ NO ⟶ **SKIP TO Q23**

Q22a. If yes, how many youths did you take? _____ Youths

Q22b. How many total waterfowl did the youths harvest? _____ ducks

_____ geese

Q22c. What was their relationship to you? (CHECK ALL THAT APPLY AND WRITE IN NUMBER OF EACH)

___SON(s) HOW MANY? _____

___DAUGHTER(s) HOW MANY? _____

___OTHER MALE HOW MANY? _____

___OTHER FEMALE HOW MANY? _____

Q23. Do you believe the Youth Waterfowl Hunting Day DECREASES DUCK HUNTING success on the regular season waterfowl opening? (PLEASE CHECK ONE)

- ❑ STRONGLY AGREE
- ❑ AGREE
- ❑ UNDECIDED
- ❑ DISAGREE
- ❑ STRONGLY DISAGREE

Q24. Do you believe the Youth Waterfowl Hunting Day DECREASES GOOSE HUNTING success on the regular season waterfowl opening? (PLEASE CHECK ONE)

- ❑ STRONGLY AGREE
- ❑ AGREE
- ❑ UNDECIDED
- ❑ DISAGREE
- ❑ STRONGLY DISAGREE

Regular Duck Season Special Regulation Packages

For over 25 years, Minnesota Department of Natural Resources has used a package of refuges, shooting hours, and other tools to reduce harvest rate on Minnesota breeding waterfowl and help hold migrant waterfowl in the state to extend hunting opportunities later in the season.

Q25. We would like to know how effective you believe these various strategies are to reducing harvest rate on resident breeding waterfowl and/or "holding" migrant waterfowl in the state. (PLEASE CIRCLE ONE)

How effective do you believe the following strategies are?	**Not at all effective**	**Slightly effective**	**Moderately effective**	**Very effective**	**Extremely effective**	**Don't know**
Beginning shooting hours at Noon on the opening day of duck season.	1	2	3	4	5	9
Ending shooting hours at 4:00 PM for the first part of Minnesota's Waterfowl Season.	1	2	3	4	5	9
Restriction on open water hunting	1	2	3	4	5	9
Restrictions on outboard motor use.	1	2	3	4	5	9
Creating waterfowl refuges.	1	2	3	4	5	9

Q26. We would also like to know if you OPPOSE or SUPPORT each of these different strategies. (PLEASE CIRCLE ONE)

Would you support or oppose the following options?	Strongly Oppose	Oppose	Undecided	Support	Strongly Support	Don't know
Beginning shooting hours at Noon on the opening day of duck season.	1	2	3	4	5	9
Ending shooting hours at 4:00 PM for the first part of Minnesota's Waterfowl Season.	1	2	3	4	5	9
Restriction on open water hunting to provide an open water refuge for waterfowl	1	2	3	4	5	9
Restrictions on outboard motor use.	1	2	3	4	5	9
Creating waterfowl refuges.	1	2	3	4	5	9

Split Seasons/Zones

Q27. In years when duck season length is less than 40 days, zones or season splits could be used to provide later hunting opportunity. Zoning involves having different hunting zones in the state that would have different season dates. Split seasons would involve changing from one continuous waterfowl season, to 2 or 3 shorter seasons separated by a few days during which hunting is not allowed. In Minnesota, the waterfowl season opens as early as allowed by the U.S. Fish and Wildlife Service. In most years, Minnesota has had a continuous duck season (no splits), although we have had a split season in the past. (PLEASE CIRCLE ONE)

Would you support or oppose the following options?	Strongly Oppose	Oppose	Undecided	Support	Strongly Support
Having North and South zones in the state that would have different season dates.	1	2	3	4	5
Having 2 or 3 split seasons instead of one continuous waterfowl season.	1	2	3	4	5

Crowding

Q28. Would you SUPPORT OR OPPOSE a restriction on waterfowl hunter numbers on additional selected Wildlife Management Areas to improve hunting quality? (PLEASE CHECK ONE)

- ❑ STRONGLY SUPPORT
- ❑ SUPPORT
- ❑ UNDECIDED
- ❑ OPPOSE
- ❑ STRONGLY OPPOSE

Duck Bag Limits

Q29. When duck populations are high, which one of the following statements best reflects your opinions about how duck bag limits should be set (check one)?

___I believe that the bag limit should be set as large as possible as long as duck populations will not be harmed → **SKIP TO Q30**

___I believe that the maximum bag should not exceed a certain size.

Q29a. If you believe the maximum bag should not exceed a certain size, please indicate what you think the maximum duck bag limit should be

_____ DUCKS (Leave blank if you feel the bag limit should be set as large as possible).

Q30. The current U.S. Fish and Wildlife framework allows 6 ducks in the daily bag because duck populations will support this level of harvest. Should Minnesota DNR restrict waterfowl hunters to less than 6 ducks because some hunters believe it is inappropriate to shoot that many ducks? (PLEASE CHECK ONE)

- ❑ YES
- ❑ UNDECIDED
- ❑ NO

Q31. The current U.S. Fish and Wildlife framework allows 2 hen mallards in the daily bag because mallard duck populations will support this level of harvest. Should Minnesota DNR restrict waterfowl hunters to 1 hen in the bag because some hunters believe it is inappropriate to shoot that many hen mallards? (PLEASE CHECK ONE)

- ❑ YES
- ❑ UNDECIDED
- ❑ NO

Battery-operated Decoys

Recently, battery-operated duck and goose decoys with moving parts that simulate rotating wings have become popular and use of these decoys is increasing in many areas.

Q32. Have you used battery-operated rotating wing decoys when hunting: (PLEASE CHECK ONE)

- ❑ YES
- ❑ NO

Q33. How effective do you feel battery-operated rotating wing decoys are in bringing ducks into shooting range? (PLEASE CHECK ONE)

- ❑ VERY EFFECTIVE (WORK MOST OF THE TIME)
- ❑ SOMEWHAT EFFECTIVE (WORK SOMETIMES)
- ❑ NOT EFFECTIVE
- ❑ DON'T KNOW

Q34. If battery-operated rotating wing decoys are found to increase duck harvest rate and lead to shorter seasons and/or lower bag limits, would you support banning their use? (PLEASE CHECK ONE)

- ❑ YES
- ❑ UNDECIDED
- ❑ NO

Q35. Do you believe these types of decoys should be made illegal for hunting regardless of their effectiveness? (PLEASE CHECK ONE)

- ❑ YES
- ❑ UNDECIDED
- ❑ NO

Part. 5. Goose Hunting

September Canada Goose Season

Q36. Did you hunt Canada geese during the 2000 early September Canada goose season? (PLEASE CHECK ONE)

- ❑ YES
- ❑ NO ⟶ **SKIP TO Q38**

Q37. Did you hunt in the West Goose Zone during September 2000 where hunting within 100 yards of surface water was allowed? (CHECK ONE)

- ❑ YES
- ❑ NO ⟶ **SKIP TO Q38**

Q37a. If you answered **YES** for question **Q37**, did you hunt: (CHECK ONE)

_____ within 100 yards from surface water

_____ greater than 100 yards from surface water

Q37b. If you answered **YES** for question **Q37**, did you travel to the West Goose Zone specifically to hunt geese within 100 years of surface water for the September season? (PLEASE CHECK ONE)

- ❑ YES
- ❑ NO

Q38. Do you believe the 100 yard from water restriction, INCREASES OR DECREASES Canada goose hunting success DURING THAT SEASON? (PLEASE CHECK ONE)

- ❑ GREATLY INCREASES
- ❑ INCREASES
- ❑ NO EFFECT ON SUCCESS
- ❑ DECREASES
- ❑ GREATLY DECREASES
- ❑ DON'T KNOW

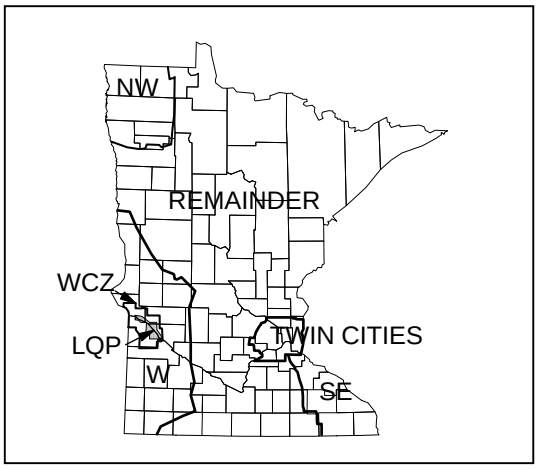
Q39. Do you believe hunting within 100 yards of surface water during the September Canada goose season DECREASES hunter success for the regular waterfowl season opener? (PLEASE CHECK ONE)

- ❑ STRONGLY AGREE
- ❑ AGREE
- ❑ UNDECIDED
- ❑ DISAGREE
- ❑ STRONGLY DISAGREE

Regular Goose Season

Q40. If you hunted in Minnesota's Regular Canada goose season (Late September - November), in what Goose zones did you hunt (see map)?

_____ Northwest (NW)
_____ Southeast (SE)
_____ Twin Cities Metro
_____ West (W)
_____ West-Central (WCZ)
_____ Lac qui Parle (LQP)
_____ Remainder-of-state



Information Sources

Q41. Where do you get annual information on the waterfowl season and hunting:

_____ DNR news releases and publications
_____ Twin Cities Daily newspapers (Star Tribune, Pioneer Press)
_____ Other newspapers
_____ Weekly/Monthly Outdoor publications
_____ Television/radio
_____ Friends and other individuals
_____ Minnesota DNR Computer Website
_____ Other Internet sources

Your Background

Q42. Did you waterfowl hunt in a state or province other than Minnesota?

❑ YES
❑ NO ⟶ **SKIP TO Q43**

Q42a. If **YES**, what areas did you hunt waterfowl:

STATE OR PROVINCE	**NO. OF DAYS HUNTED WATERFOWL**
_____	_____
_____	_____
_____	_____

Q43. Are you currently a member of: (CHECK ALL THAT APPLY)

____ Ducks Unlimited
____ Minnesota Waterfowl Association
____ Local sportsman's club
____ Other national/statewide conservation/hunting organizations (please specify)

_____

Comments: We are interested to other comments you have related to waterfowl hunting in Minnesota. Please note any additional comments below. If you have a specific question that you want answered, please contact the Department of Natural Resources at 1-888-MINNDNR.

THANK YOU FOR YOUR HELP!

Please return the completed questionnaire in the enclosed envelope.