

WATERFOWL HUNTING IN MINNESOTA

**A study of new waterfowl hunters'
opinions and activities**



White-winged scoter

Final Report

A cooperative study conducted by:

Minnesota Cooperative Fish and Wildlife Research Unit
Minnesota Department of Natural Resources

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A study of new waterfowl hunters' opinions and activities

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Executive Summary

This study of new Minnesota waterfowl hunters was conducted to assess:

- the hunters' backgrounds,
- their waterfowl hunting effort and satisfaction with hunting in Minnesota in 2005,
- hunters' introduction to waterfowl hunting,
- waterfowl-hunting involvement/commitment and motivations,
- changes in quality and problems associated with hunting in Minnesota, and
- participation in other hunting activities.

The survey was distributed to 825 Minnesota residents who purchased a Minnesota waterfowl stamp in either 2004, 2005, or both 2004 and 2005, but *did not* purchase a waterfowl stamp *prior* to these years. Of the 825 questionnaires mailed, 22 were undeliverable or otherwise invalid. Of the remaining 803 surveys, a total of 314 full-length surveys were returned along with 90 one-page nonresponse surveys, resulting in an overall response rate of 50.6%. Approximately half (52.9%) of the full survey respondents identified themselves as new waterfowl hunters. Over half of these young waterfowl hunters were less than 30 years old, and nearly 15% of them were female.

Experiences

Over three-fourths (81.3%) of the new waterfowl hunters had hunted in Minnesota during the 2005 season. Of those who hunted during the season, most respondents hunted for ducks and for Canada Geese during the regular season (Figure S-1).

On average respondents bagged about 6 ducks, 8 Canada Geese (during early, regular, and late seasons combined), and 0.2 other geese during the season. Most respondents indicated that they bagged waterfowl some of the times they went hunting (Figure S-2).

On average, respondents hunted 9.9 days during the season, including 6.5 weekend days/holidays and 4.9 weekdays. About half of the respondents hunted on opening weekend.

Respondents spent about half of their days (45.0%) hunting with friends, 29.4% with family, 18.2% with both friends and family, and 7.3% of days alone.

Figure S-1: Percentage of respondents who hunted in specific hunts in 2005.

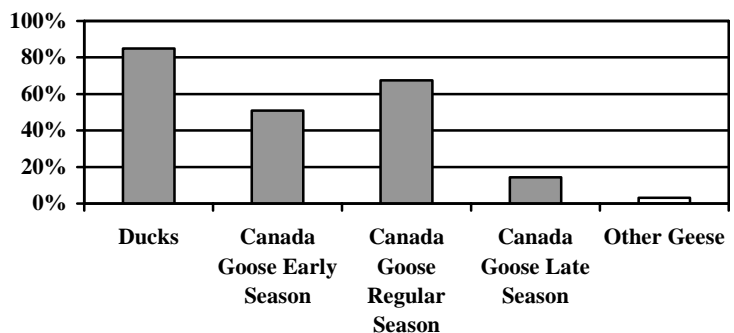
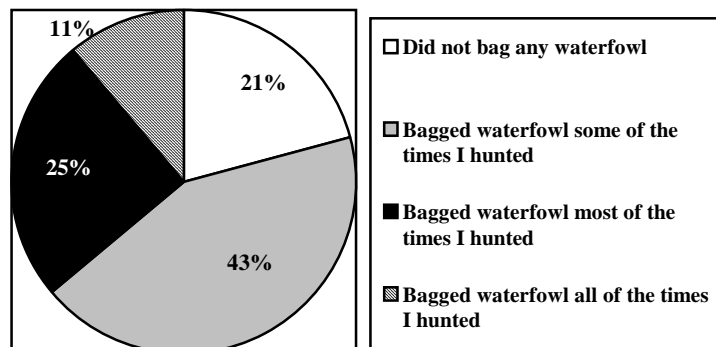


Figure S-2: How often respondents bagged waterfowl in 2005



Satisfaction

About three-fourths (76.7%) of these new waterfowl hunters were satisfied with the general waterfowl-hunting experience. They were generally satisfied with different aspects Minnesota duck and goose hunting (Figure S-3). Respondents were, however, neutral about their duck harvest. New waterfowl hunters were neutral (3.9 on a 7-point scale) about the number of ducks they saw in the field.

They were slightly satisfied

with the number of geese they saw in the field ($\bar{x}=4.7$). On average, respondents to this survey were more satisfied with the general waterfowl-hunting experience; the duck and goose hunting experience, harvest, and regulations; and the number of ducks and geese seen in the field than were respondents to the statewide survey (Schroeder et al., 2007).

Introduction to Waterfowl Hunting

Most respondents had been introduced to waterfowl hunting by friends or their father (Figure S-4). About one-fifth of the respondents (21.3%) had participated in Youth Waterfowl Hunting Day as a youth. About three-fourths of respondents (74.2%) indicated that their father is, or was, a hunter.

Interests in hunting, shooting, and/or wildlife were seen as the most important factors for becoming a waterfowl hunter (Figure S-5).

Competing interests, lack of opportunities to hunt waterfowl, and lack of access to places to hunt waterfowl were seen as the factors that most limited respondents' ability to start waterfowl hunting (Figure S-6).

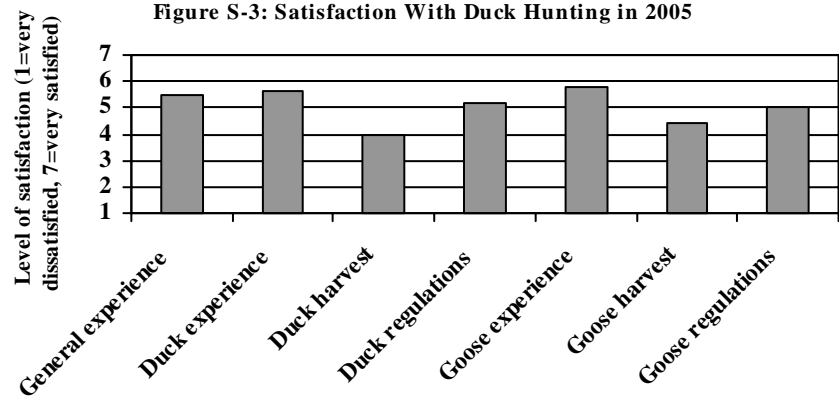


Figure S-4: Introduction to Waterfowl Hunting by whom

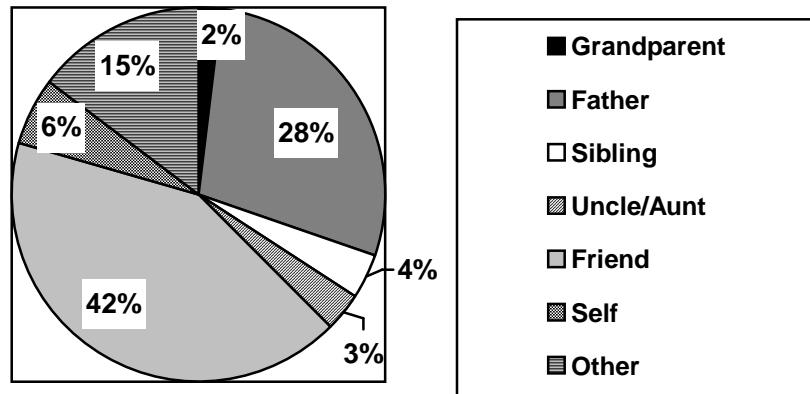


Figure S-5: Factors important to becoming a waterfowl hunter

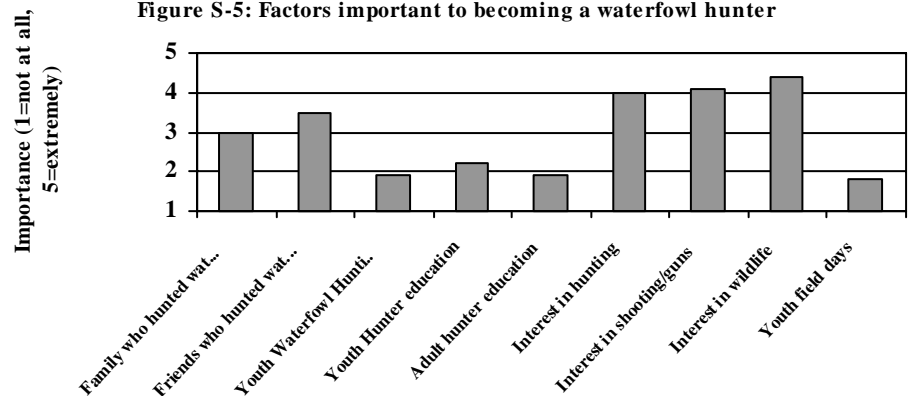


Figure S-6: Factors limiting starting waterfowl hunting

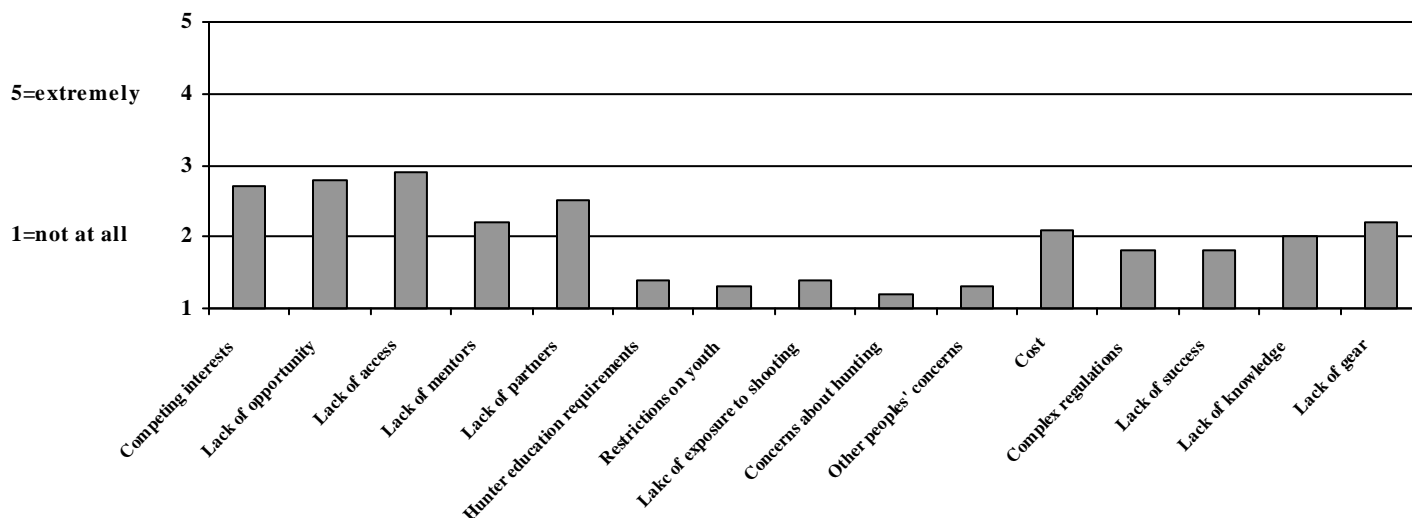
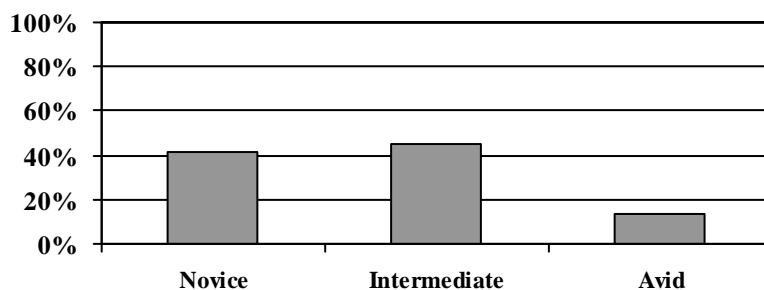


Figure S-7: Humburg classifications of sample of new waterfowl hunters

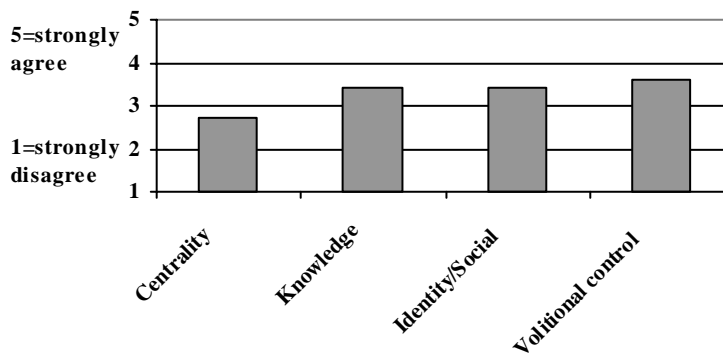


Motivations and Involvement

Waterfowl hunters have been classified based on the number of days spent in the field during a season (Humburg, 2002). This system classifies hunters who spend 5 days or less as novices, those who spend 6-19 days as intermediate, and those who spend 20 or more days as avid. Based on these classifications, 41.8% of respondents are novices, with 45.1% classified as intermediate and 13.1% as avid (Figure S-7).

This sample of new waterfowl hunters suggests that they are less-engaged in the activity of waterfowl hunting than average waterfowl hunters surveyed following the 2005 hunting season. We asked survey recipients how important waterfowl hunting was to them. Most respondents (41.6%) indicated that it was “no more important than my other recreational activities.” About one-fourth (28.6%) indicated that “it is one of my most important recreational activities.” Only 4.5% indicated that “it is my most important recreational activity.” Over half of the respondents to the 2005 survey of all Minnesota waterfowl hunters reported that waterfowl hunting was one of their most important recreational activities (Schroeder et al., 2007). Similarly, 61.4% of respondents indicated that they were casual waterfowl hunters, as opposed to active (26.1%) or committed (12.4%). Likewise, 43.5% identified themselves as novice hunters, compared to intermediate (40.3%), advanced (14.9%), or expert (1.3%). Respondents were also asked how much they spent on waterfowl hunting each year. The majority of respondents (62.3%) indicated that they spent \$250 or less on waterfowl hunting each year, compared to 33.8% who spent \$251 to \$1,000, and 3.8% who spent between \$1,001 and \$5,000.

S-8: Involvement in waterfowl hunting



Survey participants were asked to indicate how much they agreed with 21 statements addressing their involvement in waterfowl hunting. Similar to results found in other research, we identified 4 underlying factors that may influence hunter involvement: centrality, knowledge, identity/social, and volitional control (Figure S-8). Respondents most strongly agreed with items related to volitional control and least with items related to centrality.

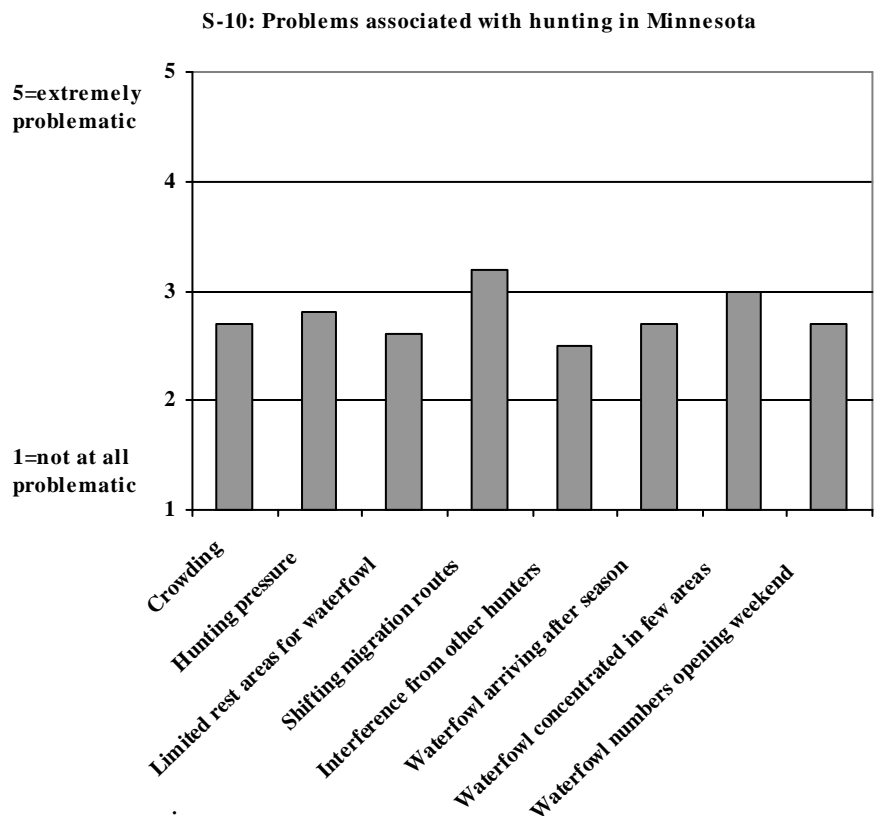
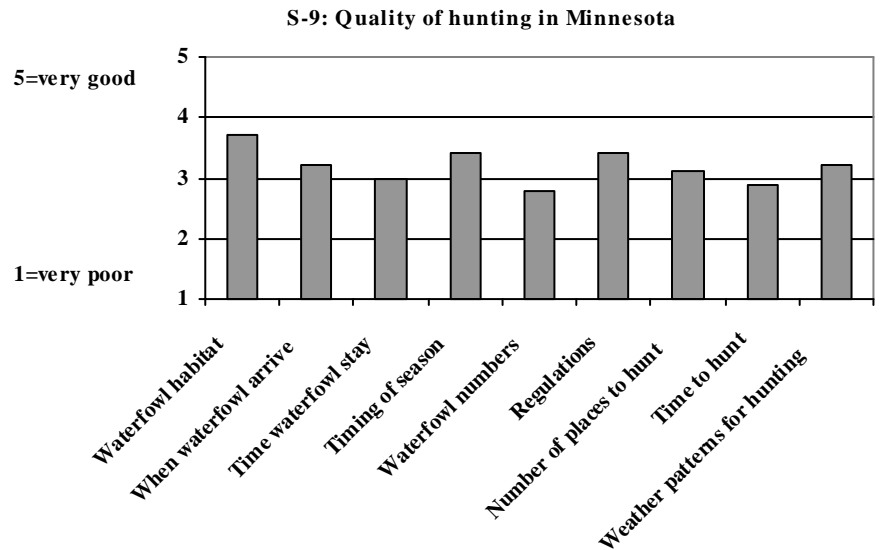
Survey recipients rated the importance of 21 experiences to their waterfowl-hunting satisfaction using a scale of 1 (not at all important) to 5 (extremely important). Respondents rated (a) enjoying nature and the outdoors ($\bar{x}=4.6$), (b) getting away from crowds of people ($\bar{x}=4.3$), and (c) good behavior among other waterfowl hunters as the most important experiences ($\bar{x}=4.3$).

Compared to statewide results, these respondents felt that several outcomes were more important including: developing skills and abilities, getting food for my family, and getting my limit (Schroeder et al., 2007). Several items were rated less important compared to statewide averages including: being on my own, hunting with family, good behavior among other waterfowl hunters, seeing a lot of ducks and geese, sharing my hunting skills and knowledge, and using my hunting equipment (Schroeder et al., 2007).

Quality of hunting in Minnesota

Respondents were asked to rate the quality of various aspects of waterfowl hunting in Minnesota. Responses were on a scale of 1 (very poor) to 5 (very good) (Figure S-9). Average responses were near neutral for most items. These respondents rated all items addressing Minnesota waterfowl-hunting quality, except for the amount of time I have to hunt waterfowl, significantly higher than respondents to the statewide survey did (Schroeder et al., 2007).

Respondents were also asked about problems associated with hunting waterfowl in Minnesota. Responses were on a scale of 1 (not at all problematic) to 5 (extremely



problematic) (Figure S-10). No extreme problems were identified.

Waterfowl Hunting in the Future

Respondents indicated their likelihood of hunting for waterfowl in Minnesota in the next 5 years, and how likely they would be to continue to hunt in Minnesota if certain events happened. On average, these new waterfowl hunters indicated that they would be somewhat likely to hunt for ducks and geese in Minnesota in the next 5 years.

Respondents rated how eight different events might affect their likelihood of continuing to hunt for waterfowl in Minnesota in the future. Moving out of state and moving out of state for college were seen as the events that would lead people to quit hunting in Minnesota.

Other Hunting Activities

The majority of respondents reported that they had hunted for deer (with firearms) (83.2%), pheasants (70.7%), grouse/woodcock (58.5%), and small game (54.5%) at some point in their lives (Figure S-12). On average, respondents who had hunted in the past had hunted for deer with firearms in 4 of the past 5 years, and for pheasants, grouse, and small game in 3 of the past 5 years.

The percentages of respondents who hunted for different types of game during the 2005 season are displayed in Figure S-12. The average number of days hunting for each type of game is shown in Figure S-13.

Figure S-11: Percentage of respondents who have hunted for different types of game

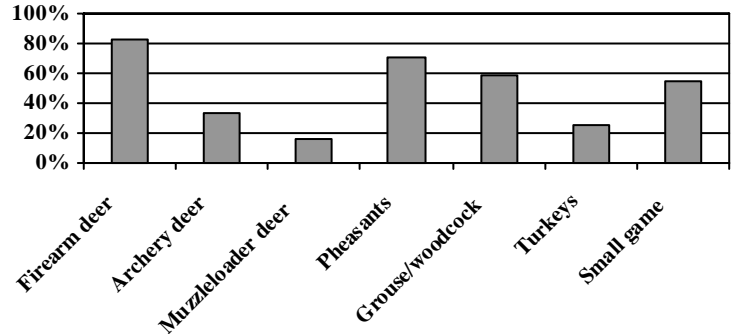


Figure S-12: Percentage of respondents who hunted for different types of game during 2005

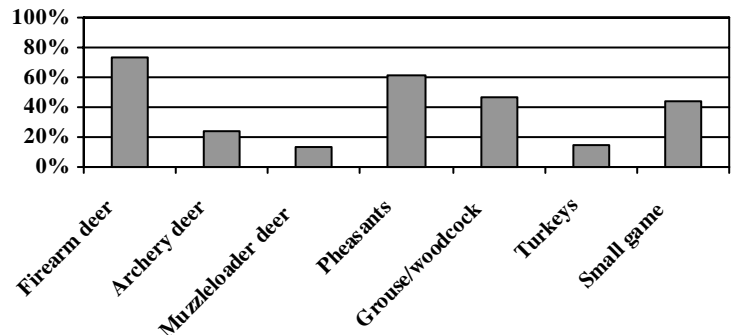


Figure S-13: Number of days respondents hunted for different types of game in 2005

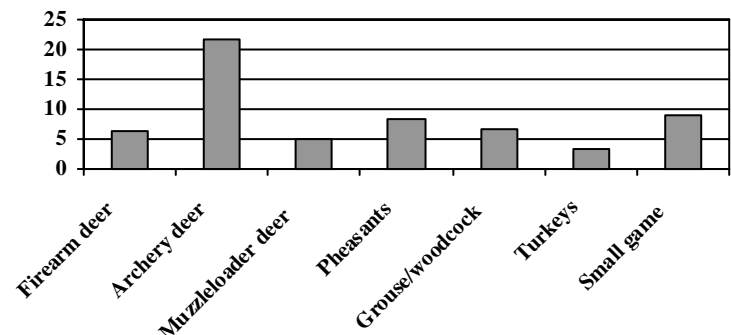


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Introduction

Minnesota usually has the largest number of waterfowl hunters in the United States, although state duck stamp sales have declined in recent years. The Minnesota Department of Natural Resources is concerned about recruitment and retention of hunters and has recently established a program to address these issues (<http://www.dnr.state.mn.us/harr/index.html>). In order to better understand this important clientele, the Minnesota Cooperative Fish and Wildlife Research Unit, in cooperation with Minnesota DNR, completed waterfowl hunter surveys following the 2000 (Fulton et al., 2002) and 2002 (Schroeder et al., 2003) hunting seasons. An additional survey was conducted following the 2005 season (Schroeder et al., 2007).

This study of new Minnesota waterfowl hunters was conducted to supplement the data gathered by the 2005 survey of Minnesota waterfowl hunters. It is intended to allow the Minnesota Department of Natural Resources better understand issues related to Minnesota waterfowl hunter retention and recruitment.

Study Purpose and Objectives

This study was conducted to provide information on new Minnesota waterfowl hunters.

The specific objectives of this study were to:

1. Describe hunters' backgrounds
2. Describe hunter effort in Minnesota in 2005 including: species and seasons hunted; number of days hunted; and effort during weekdays, weekends, and opening weekends; regions hunted; who individuals hunted with; and hunting with a paid guide.
3. Describe hunting satisfaction with waterfowl (duck and goose) hunting in Minnesota in 2005.
4. Describe hunters' introduction to waterfowl hunting.
5. Describe the waterfowl-hunting involvement/commitment and motivations.
6. Describe changes in problems associated with hunting in Minnesota.
7. Describe changes in the quality of waterfowl-hunting in Minnesota.
8. Describe opinions about Youth Waterfowl Hunting Day in Minnesota.
9. Describe ownership and use of battery-operated, spinning-wing decoys among new hunters.
10. Describe new waterfowl hunters' participation in other hunting activities.
11. Determine the general characteristics of new Minnesota waterfowl hunters.

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

Methods

Sampling

The population of interest in this study included all new Minnesota waterfowl hunters. New Minnesota waterfowl hunters were defined as individuals who had hunted waterfowl for a maximum of 1 or 2 years since they turned 18 years of age. The sampling frame used to draw the study sample was the Minnesota Department of Natural Resource's (DNR) Electronic Licensing System (ELS). A random sample of 825 people who purchased a Minnesota waterfowl stamp in either (a) 2004, (b) 2005, or (c) both 2004 and 2005, but *did not* purchase a waterfowl stamp in the previous four years (2000-2003) was drawn. ELS began in 2000.

Data Collection

Data were collected using a mail-back survey following a process outlined by Dillman (2000) to enhance response rates. We constructed a relatively straightforward questionnaire, created personalized cover letters, and made multiple contacts with the targeted respondents. Potential study respondents were contacted four times between June and September 2006. In the initial contact, a cover letter, survey questionnaire, and business-reply envelope were mailed to all potential study participants. The personalized cover letter explained the purpose of the study and made a personal appeal for respondents to complete and return the survey questionnaire. Approximately 3 weeks later, a second letter with another copy of the survey and business-reply envelope was sent to all study participants who had not responded to the first mailing. Three weeks after the second mailing a third mailing that included a personalized cover letter and replacement questionnaire with business-reply envelope was sent to all individuals with valid addresses who had not yet replied. Finally, in order to assess nonresponse bias, a 1-page survey was sent to individuals who had not responded to the earlier mailings.

Survey Instrument

The data collection instrument was a 12-page self-administered survey with 11 pages of questions (Appendix A). The questionnaire addressed the following topics:

- Part 1: Waterfowl-hunting background
- Part 2: 2005 Minnesota waterfowl-hunting season
- Part 3: Hunting satisfaction
- Part 4: Introduction to waterfowl hunting
- Part 5: Involvement in waterfowl hunting
- Part 6: Motivations for waterfowl hunting
- Part 7: Hunting quality
- Part 8: Youth Waterfowl Hunting Day
- Part 9: Battery-operated, spinning-wing decoys
- Part 10: Future waterfowl hunting in Minnesota
- Part 11: Other hunting activities
- Part 12: Background information

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 for Windows 12.0). We computed basic descriptive statistics and frequencies for the statewide results. Regional results were compared using one-way analysis of variance and cross-tabulations.

Survey Response Rate

Of the 825 questionnaires mailed, 22 were undeliverable or otherwise invalid. Of the remaining 803 surveys, a total of 314 full-length surveys were returned along with 90 one-page nonresponse surveys, resulting in an overall response rate of 50.6%.

Section 1: Experiences During the 2005 Waterfowl Hunt

Results for Part 2 of the waterfowl hunter survey are reviewed below. This section of the survey focused on hunting experiences during the 2005 Minnesota waterfowl-hunting seasons. Only new waterfowl hunters who hunted waterfowl in Minnesota in 2005 completed this section of the survey.

Waterfowl Seasons Hunted in Minnesota in 2005

Respondents were asked to report if they had actually hunted waterfowl in Minnesota in 2005. Over three-fourths (84.9%) of the new hunters who hunted in Minnesota during the 2005 season hunted for ducks. About two-thirds (67.5%) had hunted for Canada Geese during the regular season, with about half (50.8%) hunting for them during the early season and only 14.3% during the late season. Only 3.2% had hunted for 'other' geese (snow geese, etc.) (Table 1-1). The proportion of respondents participating in different hunts was similar to statewide rates of participation (Schroeder et al., 2007).

Harvest

For each season in which they hunted, these new waterfowl hunters were asked to report the number of ducks or geese they personally bagged. The average number of ducks harvested by respondents during the season was 5.9. They reported an average of 2.8 Canada Geese during the regular season, 6.9 during the early season, and 4.5 during the late season. They only bagged an average of 0.2 other geese (Table 1-1). On average, these respondents bagged more Canada Geese during the early season, and fewer ducks and other geese than respondents to the statewide survey did (Schroeder et al., 2007).

Respondents (n=125) were asked how often they bagged ducks or geese during most of their hunting outings. About one-fifth (20.8%) reported that they did not bag ducks or geese on any hunt. Nearly half (43.2%) reported that they bagged ducks or geese some of the times they went hunting, and 36% reported bagging waterfowl on most or all their hunts. (Table 1-2).

Average Number of Days Hunting Weekends and Weekdays

Next, respondents were asked to report the number of days they hunted in 2005 for waterfowl on weekends or holidays and weekdays. On average, new hunters spent more days hunting on weekends and holidays (\bar{x} =6.5 days) than during the week (\bar{x} =4.9 days). The average number of weekdays, weekend days, and total days hunting waterfowl was not significantly different from statewide averages (Schroeder et al., 2007).

Hunting Opening Weekend

About half of these new waterfowl hunters (n=125) hunted on the opening Saturday (Oct. 1) (54.4%) or opening Sunday (Oct. 2) (49.6%) of the Minnesota waterfowl season. Compared to statewide results, a smaller proportion of these respondents hunted during open weekend (Schroeder et al., 2007).

Areas Hunted

Respondents who had hunted for waterfowl in Minnesota during the 2005 season were asked how many days they hunted in six regions of the state. The greatest proportion of hunter days were spent in the east-central region (30.2%), the northwest region (19.3%), and the southwest region (17.5%). Less than 15% of hunter days were spent in each of the three other regions. (Table 1-3).

Section 1: Experiences During the 2005 Waterfowl Hunt

Hunting Parties

Respondents were asked to estimate the number of days during the 2005 Minnesota waterfowl season that they hunted with: (a) only friends, (b) only family member(s), (c) with a group including friends and family, and (d) alone. On average, respondents usually hunted with friends (45.0% of days) or family (29.4%), and usually did not hunt alone (7.3%) (Table 1-4).

Hunting With a Paid Guide

Nearly all respondents indicated that they never hunted with a paid guide for geese (99.2%) or ducks (100.0%) during the 2005 Minnesota waterfowl-hunting season (Table 1-5).

Section 1: Experiences During the 2005 Waterfowl Hunt

Table 1-1: New waterfowl hunters participating in different waterfowl hunts in Minnesota in 2005

	n	% of hunters ¹ indicating they hunted in Minnesota in 2005	Number bagged	S.D.	Range	
Ducks	126	84.9	5.9	8.3	0	50
Canada Geese						
- early season	126	50.8	6.9	15.3	0	102
- regular season	126	67.5	2.8	5.6	0	40
- late season	126	14.3	4.5	9.1	0	35
Other Geese	126	3.2	0.2	0.4	0	1

¹ % of respondents who were new waterfowl hunters and actually hunted waterfowl during 2005

Table 1-2: How often new hunters bagged at least one duck or goose during 2005 waterfowl-hunting outings

	N	% of hunters ¹ indicating ____ in 2005...
I did not bag ducks or geese on any hunt		20.8
I bagged ducks or geese some of the times I went hunting	125	43.2
I bagged ducks or geese most of the times I went hunting		24.8
I bagged ducks or geese all of the times I went hunting		11.2

¹ % of respondents who were new waterfowl hunters and actually hunted waterfowl during 2005

Table 1-3: Regional distribution of hunting across Minnesota

	NW	NE	EC	SW	SE	M	Total
Mean number of days	1.9	0.8	3.6	2.1	0.8	1.2	10.3
Percent of days ¹	19.1%	13.5%	30.3%	16.6%	7.8%	12.7%	100.0%

¹ Percent of days calculated by dividing number of days hunting in a region by total number of days hunting for each individual.

Table 1-4: Number of days hunting with friends, family, alone during the 2005 Minnesota waterfowl season

	n	%	Mean	SD	Range	
					Low	High
With only friends	123	45.0	4.6	6.7	0	40
With only family members		29.4	2.8	5.3	0	30
With a group including friends and family		18.2	1.9	4.5	0	30
Alone		7.3	0.9	2.8	0	16

¹ % of respondents who were new waterfowl hunters and actually hunted waterfowl during 2005

Section 1: Experiences During the 2005 Waterfowl Hunt

Table 1-5: Hunting with a paid hunting guide during the 2005 Minnesota waterfowl season

	n	% of hunters ¹ indicating they _____ hunted with a guide in North Dakota in 2005...		
		Never	Sometimes	Always
Goose hunting	125	99.2	0.0	0.8
Duck hunting	124	100.0	0.0	0.0
Wilcoxon signed rank test: Z=0.000 n.s.				

¹ % of respondents who were new waterfowl hunters and actually hunted waterfowl during 2005
n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Section 2: Satisfaction With the 2005 Waterfowl Hunt

Study participants were asked to rate their satisfaction with waterfowl hunting 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 asked to rate hunting experiences, harvest, and hunting regulations for ducks and geese separately. Respondents were also asked about their satisfaction with the number of ducks and geese seen, their likelihood of hunting waterfowl in Minnesota in the future, and the minimum number of ducks and geese they needed to bag to feel satisfied.

Satisfaction With the General Waterfowl Hunting Experience

Over three-fourths of the respondents (76.7%) reported being satisfied with the general waterfowl-hunting experience during their most recent waterfowl hunting season in Minnesota (Table 4-1). About one in ten of the respondents (12.1%) were dissatisfied and the remaining 11.2% were neither satisfied nor dissatisfied. The overall mean satisfaction score was 5.5 on a 7-point scale.

Satisfaction With Duck Hunting

More than four of five (80.7%) of these new Minnesota waterfowl hunters were satisfied (slightly, moderately, or very) with their duck-hunting experience in their most recent hunting season in the state; over one-third (36.7%) were very satisfied. However, less than half (46.4%) were satisfied with their duck-hunting harvest; 37.0% reported being dissatisfied. Satisfaction with duck-hunting regulations was higher than satisfaction with harvest, with 61.9% of respondents reporting satisfaction with the regulations. However, nearly more than one-fourth of respondents (27.6%) felt neither satisfied nor dissatisfied about the duck-hunting regulations, compared to only 9.2% who felt neutral about the duck-hunting experience and only 16.7% who felt neutral about the duck-hunting harvest. The mean scores for duck hunting experience, harvest, and satisfaction were significantly different ($F=48.566$, $p<0.001$). Duck-harvest satisfaction ($\bar{x}=4.0$) was lower than the mean scores for experience ($\bar{x}=5.6$) or regulations ($\bar{x}=5.2$) (Table 2-1).

Satisfaction With Goose Hunting

Statewide most goose hunters were satisfied (81.4%) with their general goose-hunting experience. About half (51.6%) of goose hunters were satisfied with their harvest. A similar proportion (55.6%) of goose hunters were satisfied with the regulations. The mean score for goose-harvest satisfaction ($\bar{x}=4.4$) was lower than the mean scores for experience ($\bar{x}=5.8$) or regulations ($\bar{x}=5.0$) ($F=28.065$, $p<0.001$) (Table 2-1).

Section 2: Satisfaction with the 2005 Waterfowl Hunt

Comparison of Duck Hunting and Goose Hunting

There were no significant differences in satisfaction between duck hunting and goose hunting among this sample of new waterfowl hunters (Table 2-2).

Satisfaction With Number of Ducks and Geese Seen in the Field

About half (44.4%) were satisfied with the number of ducks they had seen during their most recent Minnesota waterfowl-hunting season. Nearly two-thirds (63.6%) were satisfied with the number of geese they had seen in the field during their most recent Minnesota season (Table 2-3). Satisfaction with the number of geese seen in the field was significantly higher than satisfaction with the number of ducks seen ($t=3.584, p<0.01$).

Likelihood of Hunting Waterfowl in Minnesota in the Next Five Years

The majority of respondents indicated that they were likely to hunt ducks (83.8%) and geese (86.5%) in Minnesota in the next 5 years (Table 2-4). There was no significant difference in respondents' intention to hunt for ducks versus geese in the next 5 years.

Satisfaction and Bagging Waterfowl

Respondents reported the minimum number of ducks and geese they would need to harvest in a day and in a season to feel satisfied. The most frequent response (mode) for ducks was 2 per day with an average (mean) of 1.9 and a range of 0 to 6. For geese, the most common response was 1 per day with a mean of 1.4 and range of responses from 0 to 10 (Table 2-5)

Respondents most frequently indicated that they would need to bag 10 ducks per season to feel satisfied with a mean of 11.4 and a range from 0 to 100. For geese, respondents most commonly indicated the need to bag 1 goose per season with an average of 8.9 and a range of 0-100 (Table 2-6).

Satisfaction Compared to Statewide Results

On average, respondents to this survey were more satisfied with (a) the general waterfowl-hunting experience, (b) the duck and goose hunting experience, harvest and regulations, and (c) the number of ducks and geese seen in the field than were respondents to the statewide survey (Table 2-7) (Schroeder et al., 2007).

Section 2: Satisfaction with the 2005 Waterfowl Hunt

Table 2-1: Satisfaction with the 2005 Minnesota waterfowl-hunting season.

	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
General waterfowl hunting experience	116	0.9	3.4	7.8	11.2	18.1	30.2	28.4	5.5
Duck hunting experience	109	0.9	2.8	6.4	9.2	21.1	22.9	36.7	5.6 ³
Duck hunting harvest	108	15.7	8.3	13.0	16.7	24.1	13.0	9.3	4.0 ³
Duck hunting regulations	105	1.0	2.9	6.7	27.6	14.3	25.7	21.9	5.2 ³
Goose hunting experience	97	0.0	3.1	4.1	11.3	14.4	24.7	42.3	5.8 ⁴
Goose hunting harvest	97	11.3	6.2	12.4	18.6	19.6	13.4	18.6	4.4 ⁴
Goose hunting regulations	97	2.1	5.2	8.2	28.9	14.4	14.4	26.8	5.0 ⁴

¹ Reflects respondents who were new waterfowl hunters and actually hunted waterfowl during 2005

² 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.

³ F=48.566*** for one-way ANOVA comparing means among three types of duck-hunting satisfaction.

⁴ F=28.065*** for one-way ANOVA comparing means among three types of goose-hunting satisfaction.

n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Table 2-2: Comparison (paired sample t-test) of duck-hunting and goose-hunting satisfaction for 2005 Minnesota season

Satisfaction with... ¹	N	Mean ²
Duck-hunting experience	82	5.6
Goose-hunting experience		5.7
t=-0.791, n.s.		
Duck-hunting harvest	83	4.1
Goose-hunting harvest		4.4
p=-1.254, n.s.		
Duck-hunting regulations	81	4.9
Goose-hunting regulations		4.9
t=0.000, n.s.		

¹ Reflects respondents who were new waterfowl hunters and actually hunted both ducks and geese during 2005

² Means are 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.

n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Section 2: Satisfaction with the 2005 Waterfowl Hunt

Table 2-3: Satisfaction with number of ducks and geese seen in the field during the 2005 Minnesota waterfowl hunting season

	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Ducks	108	18.5	13.0	15.7	8.3	13.9	18.5	12.0	3.9
Geese	99	9.1	6.1	14.1	7.1	13.1	28.3	22.2	4.7
Wilcoxon signed rank test: Z=9.763***									

¹ Reflects respondents who were new waterfowl hunters and actually hunted waterfowl during 2005.

² t=3.584** paired samples t-test. 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.
n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Table 2-4: Likelihood of hunting for ducks and geese in Minnesota at some time during the next 5 years

	n	% of hunters ¹ indicating...							Mean ²
		Very unlikely	Moderately unlikely	Slightly unlikely	Neither	Slightly likely	Moderately likely	Very likely	
Ducks	117	6.8	4.3	0.9	4.3	2.6	12.0	69.2	6.1
Geese	118	5.9	1.7	1.7	4.2	3.4	17.8	65.3	6.1
Wilcoxon signed rank test: Z=0.099 n.s.									

¹ Reflects respondents who were new waterfowl hunters and actually hunted waterfowl during 2005.

² t=0.294 n.s. paired samples t-test. Mean is based on the following scale: 1 = very unlikely; 2 = moderately unlikely; 3 = slightly unlikely, 4 = neither; 5 = slightly likely 6 = moderately likely; 7 = very likely.
n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Table 2-5: Minimum number of ducks and geese needed to harvest in a day to feel satisfied

	n	Mean number	Mode	Range	
				Low	High
Ducks	117	1.9	2	0	6
Geese	121	1.4	1	0	10
		t=3.685***			

n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Table 2-6: Minimum number of ducks and geese needed to harvest in a season to feel satisfied

	N	Mean number	Mode	Range	
				Low	Low
Ducks	114	11.4	10	0	100
Geese	121	8.9	1	0	100
		t=2.584*			

n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Section 2: Satisfaction with the 2005 Waterfowl Hunt

Table 2-7: Mean satisfaction compared to statewide results

	N	Mean	Statewide mean ¹	t
General waterfowl hunting experience	116	5.5	4.2	9.602***
Duck hunting experience	109	5.6	4.4	9.243***
Duck hunting harvest	108	4.0	3.1	5.214***
Duck hunting regulations	105	5.2	4.4	5.627***
Goose hunting experience	97	5.8	4.8	7.021***
Goose hunting harvest	97	4.4	3.9	2.595*
Goose hunting regulations	97	5.0	4.4	3.443**
Number of ducks seen	108	3.9	2.5	7.028***
Number of geese seen	99	4.8	4.4	2.385*

¹ Schroeder et al., 2007

n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Section 3: Introduction to Waterfowl Hunting

Introduction to Waterfowl Hunting

We asked respondents who had introduced them to waterfowl hunting. Options included: (a) grandparent, (b) father, (c) mother, (d) sibling, (e) uncle or aunt, (f) friend, (g) organized class or group, (h) self, or (i) other. Nearly half (41.9%) had been introduced to waterfowl hunting by a friend. More than one-fourth (28.4%) had been introduced by their father. Over one-tenth of the respondents selected “other” for their response. Some key other responses included spouse/partner and sons (Table 3-1).

Parents’ Attitudes About Waterfowl Hunting

Respondents answered questions about their father’s and mother’s attitudes about waterfowl hunting. Nearly half of respondents (47.7%) indicated that their father is, or was, a waterfowl hunter. About one-fourth (26.5%) indicated that their father is, or was, a hunter but did not hunt waterfowl. Most of the remaining respondents indicated that while their father didn’t hunt that he approved of hunting. Nearly two-thirds of respondents indicated that their mother did not hunt, but approved of waterfowl hunting. About one-fifth (20.9%) indicated that their mother did not hunt, but tolerated hunting. About 10% of respondents indicated that their mother hunted; 4.6% indicated that their mother hunted waterfowl and 5.9% indicated that their mother hunted other types of game (Table 3-2).

Youth Waterfowl Hunting Day

The large majority (83.3%) of these new waterfowl hunters supported the concept of Youth Waterfowl Hunting Day; 52.0% strongly supported the concept and 31.3% supported it (Table 3-3). Over one-fifth (21.3%) of respondents (n=155) had participated in Youth Waterfowl Hunting Day as a youth. Most (87.1%) of the 31 respondents who had participated in Youth Waterfowl Hunting Day had bagged ducks or geese during the youth hunt. On average, these respondents reported significantly more support for Youth Waterfowl Hunting Day compared to the respondents to the statewide survey (Schroeder et al., 2007). Only 62.8% of statewide respondents supported the concept of Youth Waterfowl Hunting Day (Schroeder et al., 2007).

Factors Related to Becoming a Waterfowl Hunter

Respondents were asked to rate nine factors on how important they were to the individual becoming a waterfowl hunter. Responses were on a scale of 1=not at all important to 5=extremely important. Three items were rated very to extremely important: (a) personal interest in wildlife and/or nature (\bar{x} =4.4), (b) personal interest in shooting and/or guns (\bar{x} =4.1), and (c) personal interest in waterfowl hunting (\bar{x} =4.0). Two items were rated somewhat to very important: (a) friends who hunted waterfowl (\bar{x} =3.5) and (b) family members who hunted waterfowl (\bar{x} =3.0). The factor ‘hunting education programs for youth’ was rated slightly to somewhat important (\bar{x} =2.2). The other factors, (a) Youth Waterfowl Hunting Day (\bar{x} =1.9), (b) hunting education programs for adults (\bar{x} =1.9), (c) youth field days with sporting groups (\bar{x} =1.8), were rated not at all to slightly important (Table 3-4).

Section 3: Introduction to Waterfowl Hunting

Factors That Limited Becoming a Waterfowl Hunter

Respondents were asked to rate 15 factors on how limiting they were to the individual becoming a waterfowl hunter. Responses were on a scale of 1=not at all limiting to 5=extremely limiting. Four items were rated slightly to somewhat limiting: (a) lack of access to places to hunt waterfowl (\bar{x} =2.9), (b) lack of opportunity to hunt waterfowl (\bar{x} =2.8), (c) competing interests (\bar{x} =2.7), and (d) lack of people to go waterfowl hunting with (\bar{x} =2.5). Five items were slightly limiting: (a) lack of hunting mentors/teachers (\bar{x} =2.2), (b) lack of necessary gear (\bar{x} =2.2), (c) lack of knowledge of waterfowl-hunting techniques (\bar{x} =2.0), (d) complexity of hunting regulations (\bar{x} =1.8), and (e) lack of hunting success (\bar{x} =1.8). The other five factors, (a) hunter education requirements (\bar{x} =1.4), (b) lack of exposure to shooting and/or guns (\bar{x} =1.4), (c) regulations/restrictions on youth hunting (\bar{x} =1.3), (d) other people's concerns about hunting and/or guns (\bar{x} =1.3), and (e) personal concerns about hunting and/or guns (\bar{x} =1.2), were not seen as limiting (Table 3-5).

Section 3: Introduction to Waterfowl Hunting

Table 3-1: Who introduced you to hunting?

Sample size (n)	Grand-parent	Father	Mother	Sibling	Uncle/aunt	Friend	Class/group	Self	Other ¹
155	1.9	28.4	0.0	3.9	3.2	41.9	0.0	5.8	14.8

¹ n=23 (n=11 spouse or partner; n=4 son; n=3 brother-in-law; n=2 whole family/everybody; n=1 cousin; n=1 step dad)

Table 3-2: Parents' attitudes toward waterfowl hunting.

	Sample size (n)	He/she is, or was, a waterfowl hunter.	He/she is, or was, a hunter, but did not hunt waterfowl.	He/she did not hunt, but approved of hunting.	He/she did not hunt, but tolerated hunting.	He/she did not hunt and discouraged hunting.	I do not know.
Father	155	47.7	26.5	16.1	3.9	1.9	3.9
Mother	153	4.6	5.9	61.4	20.9	1.3	5.9
Marginal Homogeneity Test=8.446***							

n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

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

n	% of hunters indicating that they _____ the concept of Youth Waterfowl Hunting Day:					Mean ¹
	Strongly oppose	Oppose	Undecided/ neutral	Support	Strongly support	
150	4.7	2.7	9.3	31.3	52.0	4.2

¹Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided; 4 = support; 5 = strongly support.

Table 3-4: How important were the following factors to you becoming a waterfowl hunter?

Factor	N	% of hunters indicating _____ important					Mean ¹
		Not at all	Slightly	Somewhat	Very	Extremely	
Personal interest in wildlife and/or nature	152	1.3	2.0	10.5	27.0	59.2	4.4
Personal interest in shooting and/or guns	154	4.5	5.8	11.7	27.9	49.4	4.1
Personal interest in waterfowl hunting	153	3.3	5.2	25.5	24.2	41.8	4.0
Friends who hunted waterfowl	153	13.1	5.9	20.3	36.6	24.2	3.5
Family members who hunted waterfowl	151	29.8	8.6	17.9	19.9	23.8	3.0
Hunting education programs for youth	141	51.8	13.5	13.5	10.6	10.6	2.2
Hunting education programs for adults	140	61.4	9.3	13.6	7.1	8.6	1.9
Youth Waterfowl Hunting Day	138	63.8	7.2	14.5	7.2	7.2	1.9
Youth field days with sporting groups	139	66.2	10.1	9.4	5.8	8.6	1.8

¹ Mean is based on the scale: 1 = not at all unimportant, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important.

Section 3: Introduction to Waterfowl Hunting

Table 3-5: How much did the following factors limit your starting waterfowl hunting?

Factor	N	% of hunters indicating					Mean ¹
		Not at all	Slightly	Somewhat	Very	Extremely	
Lack of access to places to hunt waterfowl	153	24.8	13.7	28.8	15.7	17.0	2.9
Lack of opportunity to hunt waterfowl	152	23.7	11.8	38.2	17.8	8.6	2.8
Competing interests	150	24.7	12.7	36.7	19.3	6.7	2.7
Lack of people to go waterfowl hunting with	153	33.3	20.9	22.2	14.4	9.2	2.5
Lack of necessary gear	152	42.8	17.1	23.0	12.5	4.6	2.2
Lack of hunting mentors/teachers	152	46.0	15.1	21.7	10.5	6.6	2.2
Cost of participating in hunting	151	45.7	19.9	20.5	9.9	4.0	2.1
Lack of knowledge of waterfowl hunting techniques	152	46.7	20.4	19.1	11.2	2.6	2.0
Complexity of hunting regulations	150	61.3	14.7	14.7	4.7	4.7	1.8
Lack of hunting success	149	53.7	20.1	16.1	8.7	1.3	1.8
Hunter education requirements	149	75.8	13.4	6.0	2.7	2.0	1.4
Lack of exposure to shooting and/or guns	152	78.9	9.2	7.9	3.3	0.7	1.4
Regulations/restrictions on youth hunting	149	79.2	10.7	7.4	2.0	0.7	1.3
Other people's concerns about hunting and/or guns	149	81.9	11.4	5.4	0.0	1.3	1.3
Personal concerns about hunting and/or guns	151	88.1	6.0	4.0	2.0	0.0	1.2

¹ Mean is based on the scale: 1 = not at all unimportant, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important.

Section 4: Motivations for and Involvement in Waterfowl Hunting

Humburg (2002) classified waterfowl hunters based on their number of days in the field during a season. He classified hunters who spent 5 days or less as novices, those who spent 6-19 days as intermediate, and those who spent 20 or more days as avid. Based on days of hunting in Minnesota and these classifications, 41.8% of respondents are novices, with 45.1% classified as intermediate and 13.1% as avid. Schroeder and colleagues (2007) found that, based on their total days of waterfowl hunting in Minnesota, 34.5% of Minnesota waterfowl hunters were novice hunters, with 51.8% intermediate and 13.7% avid hunters. This suggests that these new Minnesota waterfowl hunters are somewhat less avid hunters than the general population of Minnesota waterfowl hunters.

Motivations

Respondents were asked to report how important 21 aspects of waterfowl hunting were to them using the scale 1=not at all important to 5=extremely important (Table 4-1). The three most important items were: (a) enjoying nature and the outdoors ($\bar{x}=4.6$), (b) getting away from crowds of people ($\bar{x}=4.3$) and (c) good behavior among other waterfowl hunters ($\bar{x}=4.3$). The four least important items were: (a) getting food for my family ($\bar{x}=2.2$), (b) being on my own ($\bar{x}=2.2$), (c) getting my limit ($\bar{x}=2.2$), and (d) a large daily duck bag limit ($\bar{x}=2.2$). The other fourteen items were rated between 3 (somewhat important) and 4 (very important) on the 5-point scale. Compared to statewide results, these respondents felt that several outcomes were more important including: (a) developing skills and abilities, (b) getting food for my family, and (c) getting my limit (Table 4-2). Several items were rated less important compared to statewide averages including: (a) being on my own, (b) hunting with family, (c) good behavior among other waterfowl hunters, (d) seeing a lot of ducks and geese, (e) sharing my hunting skills and knowledge, and (f) using my hunting equipment.

Experiences During Most Recent Waterfowl Season

After rating the importance of 21 aspects of waterfowl hunting, respondents were then asked to report their experience during their most recent waterfowl season related to these aspects. Response was on the scale 1=not at all to 5=very much (Table 4-3). Two items were rated between 4 and 5 on the 5-point scale: enjoying nature and the outdoors ($\bar{x}=4.4$) and getting away from crowds of people ($\bar{x}=4.1$). Two items were rated between 1 and 2: a large daily duck bag limit ($\bar{x}=1.7$) and getting my limit ($\bar{x}=1.9$). All other items were rated between 2 and 4.

Importance-Performance Analysis of Motivations and Experiences

Marketing researchers use importance-performance analyses to examine customer satisfaction with aspects of products and services (Martilla & James, 1977). This easily understood technique identifies aspects where organizations should devote more attention and areas that may be consuming too many resources. Using this method we identified six items that fall under the “concentrate here” quadrant of the importance-performance chart (Figure 4-1): (a) access to a lot of different hunting areas, (b) having a long duck season, (c) hunting areas open to the public, (d) hunting with a dog, (e) seeing a lot of ducks and geese, and (f) sharing my hunting skills and knowledge. Looking at this list of items, it appears that DNR could emphasize their efforts on improving access to hunting areas and increasing the number of ducks and geese that hunters see in the field.

Section 4: Motivations for and Involvement in Waterfowl Hunting

Importance of and Financial Investment in Waterfowl Hunting

Respondents answered a number of questions related to the importance of waterfowl hunting in their lives. One question asked respondents to select one of five statements that indicated how important waterfowl hunting was to them. The majority of respondents (41.6%) indicated that waterfowl hunting was “no more important than my other recreational activities” (Table 4-4). Waterfowl hunting was less important to these respondents than to respondents to the statewide survey (Schroeder et al., 2007). Respondents were also asked to indicate if they were casual, active, or committed waterfowl hunters. They were provided brief descriptions of these definitions. The majority of respondents (61.4%) identified themselves as casual waterfowl hunters (Table 4-5). Next, we asked respondents to indicate if they were novice, intermediate, advanced, or expert waterfowl hunters, without any definition of these terms. Similar proportions of respondents identified themselves as novice (43.5%) and intermediate (40.3%) waterfowl hunters. Less than 20% of respondents identified themselves as either advanced (14.9%) or expert (1.3%) waterfowl hunters (Table 4-6).

Respondents were asked to report how much they spent on waterfowl hunting each year using the categories 1=\$250 or less, 2=\$251-1,000, 3=\$1,001-5,000 and 4=over \$5,000 (Table 4-7). The majority of respondents (62.3%) indicated that they spent \$250 or less on waterfowl hunting each year (Table 4-7). We asked respondents if they had purchased equipment that they use exclusively for waterfowl hunting, and 63.4% indicated that they had (Table 4-8). We asked those respondents who had purchased equipment exclusively for waterfowl hunting to estimate the total replacement cost for all of this equipment. The response categories were the same as those used for the question addressing annual spending on waterfowl hunting. About one-third of respondents indicated that the replacement cost for their waterfowl hunting equipment was \$250 or less (34.7%) or between \$251 and \$1,000 (34.7%) (Table 4-9).

Involvement/Commitment to Waterfowl Hunting

Respondents were asked to rate 21 items addressing their involvement and commitment to waterfowl hunting, using the scale 1=strongly disagree to 5=strongly agree (Table 4-10). Factor analysis identified four dimensions of waterfowl hunting; (a) centrality, (b) identity/social, (c) knowledge, and (d) volitional control. Respondents most strongly agreed with items related to volitional control ($\bar{x}=3.6$), identity/social ($\bar{x}=3.4$), and knowledge factors ($\bar{x}=3.4$); while they identified least with items related to centrality ($\bar{x}=2.7$).

Ten items loaded on the *centrality* factor (Table 4-9, $\alpha=0.918$, $\bar{x}=2.7$). Centrality items included a range of items that indicated new hunters ties to waterfowl hunting, such as (a) waterfowl hunting is one of the most enjoyable things I do, (b) I find that a lot of my life is organized around waterfowl hunting, (c) waterfowl hunting has a central role in my life and, (d) I have acquired equipment that I would not use if I quit waterfowl hunting. New waterfowl hunters did not relate as strongly to centrality as the other three factors.

Six items loaded on the *identity/social* factor (Table 4-9, $\alpha=0.818$, $\bar{x}=3.4$). Identity items included: (a) I enjoy discussing waterfowl hunting with my friends (b) when I am waterfowl hunting, others see me the way I want them to see me (c) you can tell a lot about a person when you see them waterfowl hunting, (d) when I am waterfowl hunting I can really be myself, and similar items.

Three items loaded on the *knowledge* factor (Table 4-9, $\alpha=0.817$, $\bar{x}=3.4$). Knowledge items were: I am knowledgeable about waterfowl hunting and I don't really know much about waterfowl hunting (reversed), and I consider myself an educated consumer regarding waterfowl hunting ($\bar{x}=3.4$).

Section 4: Motivations for and Involvement in Waterfowl Hunting

Two items loaded on the *volitional control* factor (Table 4-9, $r=0.525$, $\bar{x}=3.6$). Control items included (a) the decision to go waterfowl hunting is primarily my own and (b) the decision to go waterfowl hunting is not entirely my own (reversed).

Section 4: Motivations for and Involvement in Waterfowl Hunting

Table 4-1: Motivations for waterfowl hunting: Importance of...

	n	% of hunters indicating _____ important					Mean ¹
		Not at all	Slightly	Somewhat	Very	Extremely	
Enjoying nature and the outdoors	148	0.0	0.7	6.1	27.7	65.5	4.6
Getting away from crowds of people	147	0.7	4.1	15.0	27.2	53.1	4.3
Good behavior among other waterfowl hunters	148	2.0	2.7	11.5	35.1	48.6	4.3
Hunting with friends	148	4.1	6.8	20.9	36.5	31.8	3.9
Reducing tension and stress	148	6.8	3.4	25.7	29.1	35.1	3.8
Developing my skills and abilities	149	4.0	5.4	23.5	43.6	23.5	3.8
Hunting areas open to the public	147	9.5	4.1	23.8	33.3	29.3	3.7
Seeing a lot of ducks and geese	148	4.1	7.4	26.4	35.8	26.4	3.7
Access to a lot of different hunting areas	150	6.7	14.7	24.0	35.3	19.3	3.5
Thinking about personal values	147	7.5	7.5	34.0	32.0	19.0	3.5
Hunting with family	149	12.8	7.4	29.5	23.5	26.8	3.4
Hunting with a dog	148	17.6	12.8	23.0	15.5	31.1	3.3
Using my hunting equipment (decoys, boats, etc.)	148	12.8	16.2	31.1	23.0	16.9	3.2
Sharing my hunting skills and knowledge	148	10.8	13.5	39.2	24.3	12.2	3.1
Having a long duck season	146	14.4	15.1	29.5	24.0	17.1	3.1
Bagging ducks and geese	149	13.4	17.4	32.2	25.5	11.4	3.0
Getting information about hunting seasons and conditions from the DNR or US Fish and Wildlife Service	148	14.2	20.9	27.7	23.6	13.5	3.0
Getting my limit	147	38.1	23.8	25.9	6.1	6.1	2.2
A large daily duck bag limit	150	40.0	20.0	28.7	6.7	4.7	2.2
Being on my own	149	40.3	17.4	23.5	16.8	2.0	2.2
Getting food for my family	148	41.2	16.9	24.3	11.5	6.1	2.2

¹ Mean is based on the scale: 1 = not at all unimportant, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

Section 4: Motivations for and Involvement in Waterfowl Hunting

Table 4-2: Mean importance of outcomes compared to statewide results

	N	Mean	Statewide mean ¹	+/-	t
Enjoying nature and the outdoors	148	4.6	4.6		n.s.
Getting away from crowds of people	147	4.3	4.4		n.s.
Good behavior among other waterfowl hunters	148	4.3	4.4	-	2.311*
Hunting with friends	148	3.9	4.0		n.s.
Reducing tension and stress	148	3.8	3.8		n.s.
Developing my skills and abilities	149	3.8	3.6	+	2.583*
Hunting areas open to the public	147	3.7	3.8		n.s.
Seeing a lot of ducks and geese	148	3.7	4.0	-	3.216**
Access to a lot of different hunting areas	150	3.5	3.5		n.s.
Thinking about personal values	147	3.5	3.7		n.s.
Hunting with family	149	3.4	4.0	-	5.296***
Hunting with a dog	148	3.3	3.4		n.s.
Using my hunting equipment (decoys, boats, etc.)	148	3.2	3.5	-	3.606***
Sharing my hunting skills and knowledge	148	3.1	3.5	-	3.912***
Having a long duck season	146	3.1	3.2		n.s.
Bagging ducks and geese	149	3.0	3.0		n.s.
Getting information about hunting seasons and conditions from the DNR or US Fish and Wildlife Service	148	3.0	3.1		n.s.
Getting my limit	147	2.2	2.0	+	2.385*
A large daily duck bag limit	150	2.2	2.1		n.s.
Being on my own	149	2.2	3.0	-	7.425***
Getting food for my family	148	2.2	1.9	+	2.904**

¹ Schroeder et al., 2007

n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Section 4: Motivations for and Involvement in Waterfowl Hunting

Table 4-3: Motivations for waterfowl hunting: Did it happen?

	n	% of hunters indicating it happened....					Mean ¹
		Not at all	Slightly	Somewhat	Very	Extremely	
Enjoying nature and the outdoors	144	0.7	3.5	9.7	24.3	61.8	4.4
Getting away from crowds of people	143	2.8	6.3	21.0	21.0	49.0	4.1
Reducing tension and stress	144	6.9	5.6	25.7	29.9	31.9	3.7
Hunting with friends	145	7.6	11.7	17.9	24.8	37.9	3.7
Good behavior among other waterfowl hunters	144	6.3	11.1	31.3	29.9	21.5	3.5
Developing my skills and abilities	145	5.5	8.3	47.6	24.8	13.8	3.3
Using my hunting equipment (decoys, boats, etc.)	143	12.6	14.0	28.0	26.6	18.9	3.3
Thinking about personal values	143	8.4	9.8	41.3	24.5	16.1	3.3
Hunting with family	145	26.2	12.4	21.4	15.2	24.8	3.0
Hunting areas open to the public	140	16.4	15.7	40.0	17.9	10.0	2.9
Hunting with a dog	142	35.2	12.7	14.8	14.8	22.5	2.8
Seeing a lot of ducks and geese	144	16.0	22.9	34.0	18.8	8.3	2.8
Having a long duck season	140	17.9	17.9	44.3	12.9	7.1	2.7
Sharing my hunting skills and knowledge	144	18.8	25.7	31.3	19.4	4.9	2.7
Getting information about hunting seasons and conditions from the DNR or US Fish and Wildlife Service	143	21.0	23.1	34.3	16.8	4.9	2.6
Access to a lot of different hunting areas	147	24.5	31.3	26.5	11.6	6.1	2.4
Getting food for my family	143	28.7	28.0	33.6	4.9	4.9	2.3
Bagging ducks and geese	146	32.9	30.8	26.0	6.8	3.4	2.2
Being on my own	144	40.3	18.8	25.7	11.1	4.2	2.2
Getting my limit	142	52.8	19.7	17.6	4.9	4.9	1.9
A large daily duck bag limit	146	61.0	17.8	16.4	2.7	2.1	1.7

¹ Mean is based on the scale: 1 = not at all unimportant, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important.

Section 4: Motivations for and Involvement in Waterfowl Hunting

Table 4-4: How important is waterfowl hunting to you?

N	% of hunters indicating...				
	...my most important recreational activity	...one of my most important recreational activities	...no more important than my other recreational activities	...less important than my other recreational activities	...one of my least important recreational activities.
154	4.5	28.6	41.6	14.9	10.4

Table 4-5: What type of waterfowl hunter do you consider yourself?

N	% of hunters indicating...		
	Casual	Active	Committed
153	61.4	26.1	12.4

Table 4-6: How would you describe your waterfowl-hunting skills?

N	% of hunters indicating...			
	Novice	Intermediate	Advanced	Expert
154	43.5	40.3	14.9	1.3

Table 4-7: How much do you spend on waterfowl hunting each year?

N	% of hunters indicating...			
	\$250 or less	\$251-\$1,000	\$1,001-\$5,000	Over \$5,000
154	62.3	33.8	3.8	0.0

Table 4-8: If you have purchased equipment that you use exclusively for waterfowl hunting, estimate the total replacement cost for all equipment used exclusively for waterfowl hunting.

N	% of hunters indicating...			
	\$250 or less	\$251-\$1,000	\$1,001-\$5,000	Over \$5,000
95	34.7	34.7	27.4	3.2

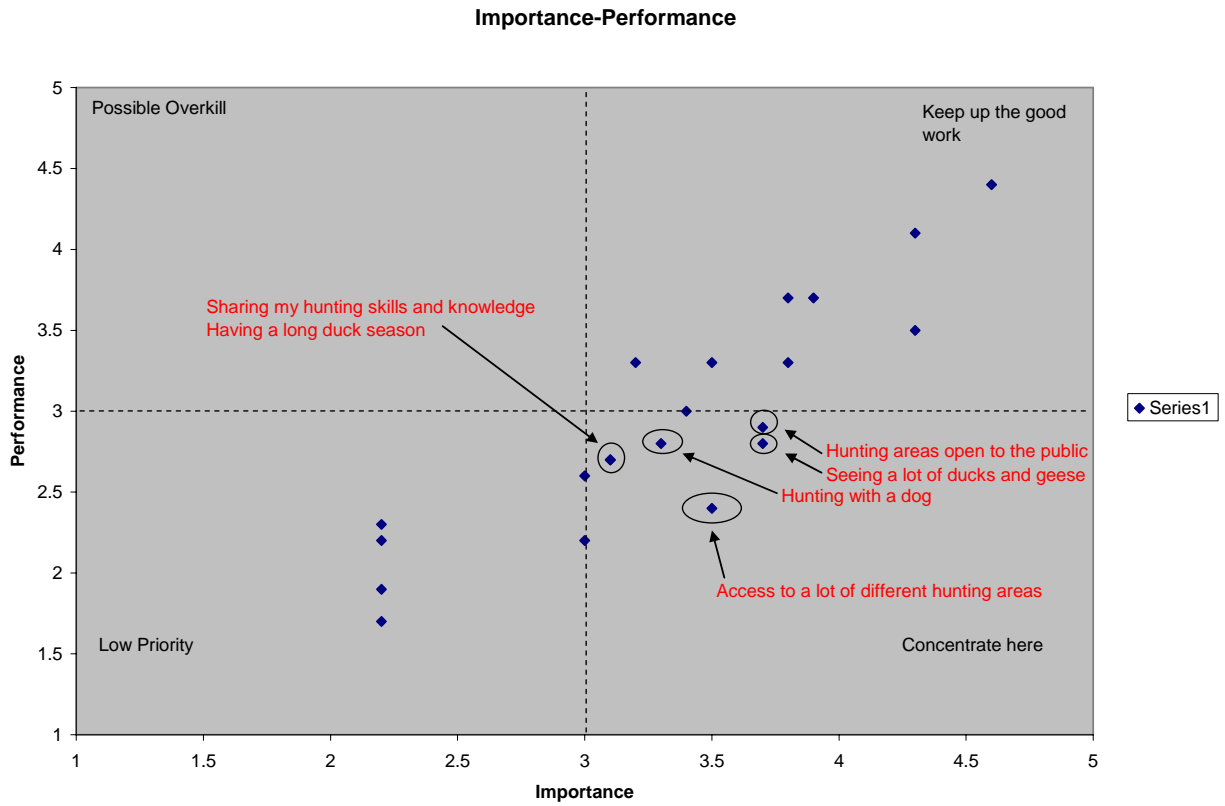
Section 4: Motivations for and Involvement in Waterfowl Hunting

Table 4-9: Involvement with and commitment to waterfowl hunting

	N	% of respondents who...					Mean ²
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Centrality:							
Waterfowl hunting interests me.	152	0.0	2.6	9.9	57.9	29.6	4.1
I have acquired equipment that I would not use if I quit waterfowl hunting.	151	2.0	8.6	29.8	41.7	17.9	3.7
Waterfowl hunting is one of the most enjoyable things I do.	152	3.9	9.9	32.9	35.5	17.8	3.5
Waterfowl hunting is important to me.	152	10.5	25.7	15.1	28.3	20.4	3.2
Even if close friends recommended another recreational activity, I would not change my preference from waterfowl hunting.	151	8.6	23.2	33.1	26.5	8.6	3.0
For me to change my preference from waterfowl hunting to another leisure activity would require major rethinking.	152	16.4	27.6	29.6	15.8	10.5	2.8
I find a lot of my life organized around waterfowl-hunting activities.	152	18.4	44.7	22.4	9.9	4.6	2.4
I find that a lot of my life is organized around waterfowl hunting.	153	28.1	33.3	24.8	11.1	2.6	2.3
Waterfowl hunting has a central role in my life.	149	24.2	32.9	31.5	9.4	2.0	2.3
Compared to other waterfowl hunters, I own a lot of waterfowl-hunting equipment.	152	27.6	41.4	18.4	9.2	3.3	2.2
Identity/Social:							
I enjoy discussing waterfowl hunting with my friends.	151	1.3	6.0	21.2	53.0	18.5	3.8
When I am waterfowl hunting I can really be myself.	151	2.0	8.6	32.5	45.7	11.3	3.6
When I am waterfowl hunting, others see me the way I want them to see me.	150	8.0	8.0	39.3	33.3	11.3	3.3
You can tell a lot about a person when you see them waterfowl hunting.	152	4.6	12.5	43.4	30.3	9.2	3.3
I have close friendships that are based on a common interest in waterfowl hunting.	152	7.9	18.4	29.6	34.2	9.9	3.2
Most of my friends are in some way connected with waterfowl hunting.	151	9.3	27.2	25.8	29.1	8.6	3.0
Knowledge:							
I consider myself an educated consumer regarding waterfowl hunting.	152	1.3	13.8	36.8	39.5	8.6	3.4
I am knowledgeable about waterfowl hunting.	153	3.9	15.0	30.1	45.1	5.9	3.3
I don't really know much about waterfowl hunting	152	21.1	32.9	23.7	19.7	2.6	2.5
Volitional Control:							
The decision to go waterfowl hunting is primarily my own.	150	3.3	10.0	19.3	44.0	23.3	3.7
The decision to go waterfowl hunting is not entirely my own.	152	25.0	26.3	19.7	23.0	5.9	2.6

Section 4: Motivations for and Involvement in Waterfowl Hunting

Figure 4-1: Importance-Performance Chart for Waterfowl-Hunting Motivations



Section 5: Use of and Opinions About Battery-Operated, Spinning-Wing Decoys

Ownership and use of Battery-Operated, Spinning-Wing Decoys

Respondents were asked to indicate if they owned or used battery-operated, spinning-wing decoys. Less than one-fourth (22.1%) of respondents (n=149) owned these decoys. Similarly, only 20.1% of the respondents (n=149) reported using these decoys when hunting in Minnesota during the 2005 waterfowl season. The proportion of respondents who owned or used battery-operated, spinning-wing decoys was not significantly different from the percentages of respondents in the statewide study.

Section 6: Quality of Minnesota Waterfowl Hunting

Hunting Quality in Minnesota

Respondents were asked to respond to nine items rating the quality of waterfowl hunting in Minnesota. Response was on the scale 1=very poor to 5=very good. Ratings were close to the neutral point on the scale for most of the items. Respondents rated the waterfowl habitat where I hunt most highly ($\bar{x}=3.7$) and overall waterfowl numbers the lowest ($\bar{x}=2.8$) (Table 6-1). These respondents rated all items addressing Minnesota waterfowl-hunting quality, except for the amount of time I have to hunt waterfowl, significantly higher than respondents to the statewide survey did (Table 6-2).

Problems Associated With Hunting in Minnesota

Respondents were asked to respond to eight items addressing problems associated with waterfowl hunting in Minnesota. In general, survey respondents did not identify major problems and rated potential problems slightly less than the midpoint on the scale of 1=not at all a problem to 5=extremely a problem (Table 6-3).

Events and Continuing to Hunt Waterfowl in Minnesota

We asked respondents how likely it would be that they would continue to hunt waterfowl in Minnesota if eight possible events occurred. Response was on the scale 1=very unlikely to 7=very likely. Respondents felt that it would be slightly unlikely that they would continue to hunt waterfowl in the state if they (a) moved out of state ($\bar{x}=3.3$) or (b) went to college out of state ($\bar{x}=3.5$). On average, respondents would be slightly likely to continue to hunt waterfowl in Minnesota if (a) close friends recommend another recreational activity ($\bar{x}=4.8$) or (b) family recommends another recreational activity ($\bar{x}=4.6$). They would be slightly to somewhat likely to continue hunting if they: (a) move somewhere else in Minnesota ($\bar{x}=5.7$), (b) change jobs ($\bar{x}=5.8$), (c) change marital status ($\bar{x}=5.6$), or (d) go to college in Minnesota ($\bar{x}=5.4$) (Table 6-4).

Section 6: Quality of Minnesota Waterfowl Hunting

Table 6-1: Quality of Minnesota waterfowl hunting.

	N	% of respondents who said that quality is...					Mean ¹
		Very poor	Somewhat poor	Neutral	Somewhat good	Very good	
Waterfowl habitat where I hunt	147	2.7	14.3	18.4	40.8	23.8	3.7
Timing of waterfowl seasons	142	4.2	13.4	36.6	33.1	12.7	3.4
Ease of understanding regulations	149	4.0	13.4	35.6	30.2	16.8	3.4
Weather patterns for waterfowl hunting	139	3.6	11.5	55.4	25.2	4.3	3.2
When waterfowl are arriving in my area	140	2.1	20.7	36.4	32.1	8.6	3.2
The number of places to hunt	144	6.9	23.6	35.4	24.3	9.7	3.1
The length of time waterfowl are staying in my area	142	4.9	28.2	33.1	28.9	4.9	3.0
Amount of time I have to hunt waterfowl	150	8.7	28.0	36.7	16.7	10.0	2.9
Overall waterfowl numbers	142	14.1	28.9	29.6	19.7	7.7	2.8

¹F=11.677*** Mean based on scale: 1=very poor, 2=somewhat poor, 3=neutral, 4=somewhat good, 5=very good.
n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Table 6-2: Mean ratings of quality compared to statewide results

	N	Mean	Statewide mean ¹	+/-	t
Waterfowl habitat where I hunt	147	3.7	2.5	+	13.546***
Timing of waterfowl seasons	142	3.4	2.8	+	6.937***
Ease of understanding regulations	149	3.4	3.0	+	5.044***
Weather patterns for waterfowl hunting	139	3.2	2.5	+	9.555***
When waterfowl are arriving in my area	140	3.2	2.1	+	14.466***
The number of places to hunt	144	3.1	2.6	+	5.288***
The length of time waterfowl are staying in my area	142	3.0	2.1	+	10.966***
Amount of time I have to hunt waterfowl	150	2.9	2.8		n.s.
Overall waterfowl numbers	142	2.8	1.8	+	9.764***

¹ Schroeder et al., 2007

Mean based on scale: 1=very poor, 2=somewhat poor, 3=neutral, 4=somewhat good, 5=very good.
n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Section 6: Quality of Minnesota Waterfowl Hunting

Table 6-3: Problems in Minnesota waterfowl hunting.

	N	% of respondents who said the factor is __ a problem...					Mean ¹
		Not at all	Slightly	Somewhat	Very	Extremely	
Shifting waterfowl migration routes	125	12.8	14.4	35.2	20.0	17.6	3.2
Waterfowl concentrating on fewer areas	127	10.2	23.6	31.5	23.6	11.0	3.0
Hunting pressure	139	19.4	20.1	31.7	23.0	5.8	2.8
Waterfowl unable to find rest areas	134	24.6	20.9	34.3	12.7	7.5	2.6
Crowding at hunting areas	144	24.3	18.8	29.9	21.5	5.6	2.7
Waterfowl numbers on opening weekend	125	17.6	26.4	28.8	18.4	8.8	2.7
Waterfowl arriving after the season is closed	120	17.5	26.7	30.8	15.0	10.0	2.7
Interference from other hunters	144	26.4	23.6	27.8	13.9	8.3	2.5

¹F=3.889*** Mean based on scale: 1=not at all, 2=slightly, 3=somewhat, 4=very, 5=extremely.
n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Table 6-4: Likelihood of continuing to hunt waterfowl if the following events occur.

Event	N	% of respondents who said ...							Mean ¹
		Very unlikely	Somewhat unlikely	Slightly unlikely	Undecided	Slightly likely	Somewhat likely	Very likely	
Change in job	148	7.4	0.7	1.4	8.1	10.1	21.6	50.7	5.8
Move somewhere else in Minnesota	147	6.8	4.8	3.4	5.4	8.2	19.0	52.4	5.7
Change in marital status	148	9.5	2.7	2.0	10.8	6.1	19.6	49.3	5.6
Go to college in Minnesota	145	11.7	0.7	1.4	15.2	6.9	17.2	46.9	5.4
Close friends recommend another recreational activity	149	15.4	4.7	2.7	18.1	10.1	16.1	32.9	4.8
Family recommends another recreational activity	146	17.1	6.8	3.4	17.1	11.0	15.1	29.5	4.6
Go to college out of state	145	34.5	4.8	4.8	22.8	8.3	12.4	12.4	3.5
Move out of state	147	36.1	12.2	5.4	13.6	10.2	12.9	9.5	3.3

¹F=67.164*** Mean based on scale: 1=very unlikely, 2=somewhat unlikely, 3=slightly unlikely, 4=undecided, 5=slightly likely, 6=somewhat likely, 7=very likely.
n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Section 7: Other Hunting Activities

Participation in Other Hunting Activities

Respondents were asked to indicate if they had ever hunted for: (a) deer with a firearm, (b) deer with archery, (c) deer with a muzzleloader, (d) pheasants, (e) grouse/woodcock, (f) turkeys, or (g) small game (doves, rabbits, squirrels, fox). If they had done the type of hunting, they were asked to indicate how many of the past 5 years that they had hunted. Then they were asked to indicate if they had done that kind of hunting in Minnesota during the 2005 season, and, if so, how many days they had hunted during that previous season.

More than half of the respondents had hunted for: (a) deer with a firearm (83.2%), (b) pheasants (70.7%), (c) grouse/woodcock (58.5%), and (d) small game (54.5) at some point in the past. About one-third of respondents had hunted for deer using archery (33.8%), and about one-fourth had hunted for turkey (25.2%). Only 15.4% had ever hunted for deer using a muzzleloader. On average respondents had hunted 4 of the previous 5 years for deer using firearms. They had hunted approximately 3 of the previous 5 years for pheasants, grouse/woodcock, and small game. They had hunted less than 2 of the previous 5 years for the other types of game (Table 7-1).

Nearly three-fourths of the respondents (72.8%) had hunted for deer using a firearm during the 2005 Minnesota season. Nearly two-thirds (61.9%) had hunted for pheasants during 2005. Nearly half had hunted for grouse/woodcock (46.1%) or small game (44.4%) during the previous season. About one-fourth (23.9%) had hunted for deer using archery. Less than 20% of respondents had hunted for turkeys (14.0%) or deer using a muzzleloader (12.7%) during the 2005 season. Of respondents who hunted for a type of game during 2005, individuals spent the greatest average number of days hunting for deer using archery (\bar{x} = 21.7 days). On average, during 2005 respondents hunted 9.0 days for small game, 8.2 days for pheasants, 6.6 days for grouse/woodcock, 6.2 days for deer using firearms, 4.9 days for deer using muzzleloaders, and 3.5 days for turkey (Table 7-2).

Section 7: Other Hunting Activities

Table 7-1: Participation in other hunting activities, ever in the past.

	N	% yes ¹	N	If yes, how many of the past 5 years did you hunt that type of game?						Mean ²
				0	1	2	3	4	5	
Deer - firearm	149	83.2	123	2.4	8.9	5.7	8.9	8.9	65.0	4.0
- archery	136	33.8	60	30.0	18.3	8.3	11.7	6.7	25.0	1.0
- muzzleloader	130	15.4	42	54.8	19.0	11.9	2.4	0.0	11.9	1.1
Pheasants	147	70.7	108	8.3	11.1	18.5	20.4	3.7	36.1	3.2
Grouse/woodcock	142	58.5	90	11.1	15.6	17.8	8.9	4.4	42.2	3.0
Turkeys	143	25.2	53	34.0	37.7	7.5	5.7	0.0	15.1	1.4
Small game (doves, rabbits, squirrels, fox)	143	54.5	86	12.8	5.8	22.1	10.5	3.5	45.3	3.2

¹Cochran's Q=154.533***

²F=13.729***

n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Table 7-2: Participation in other hunting activities, in 2005.

	N	% yes ¹	If yes, how many days?
Deer - firearm	147	72.8	6.2
- archery	138	23.9	21.7
- muzzleloader	134	12.7	4.9
Pheasants	147	61.9	8.2
Grouse/woodcock	141	46.1	6.6
Turkeys	143	14.0	3.5
Small game (doves, rabbits, squirrels, fox)	144	44.4	9.0

¹Cochran's Q=162.840***

n.s.=not significant, *p<0.05, **p<0.01, ***p<0.001

Section 8: Characteristics of New Waterfowl Hunters in Minnesota

Hunter Age and Gender

The average age of respondents who identified themselves as new waterfowl hunters was 31.8 years. Respondents' ages ranged from 17.0 to 76.0 years (Table 8-1). This was significantly younger than the age of respondents to the 2005 study of Minnesota waterfowl hunters (\bar{x} =43.2 years) (Schroeder et al., 2007). Over half of the new waterfowl hunters were less than 30 years old, with 22.3% less than 20 years, and 32.5% between 20 and 29 years (Table 8-2). Our sample was comprised of 14.6% female respondents; this proportion is significantly higher than the 2.1% of female respondents to the survey of waterfowl hunters conducted for the 2005 season (Table 8-3) (Schroeder et al., 2007).

New Waterfowl Hunters

We defined new waterfowl hunters as individuals who had hunted waterfowl for a maximum of 1 or 2 years since they had turned 18 years of age. Then we asked respondents if they considered themselves to be new waterfowl hunters. About half (52.9%) of the respondents (n=297) indicated that they were new waterfowl hunters). We included all respondents who indicated that they were new waterfowl hunters in our calculations.

Years Since Starting to Hunt Waterfowl

Respondents were asked to report the year they first hunted waterfowl in any state or country. Nearly half of the new waterfowl hunters indicated that they had begun hunting in 2004 or 2005 (Table 8-4). On average, new waterfowl hunters had first hunted waterfowl for 7.5 years ago, with responses ranging from 1 to 56 years (Table 8-5). The median and modal response was 2.0. The average number of years since starting to hunting waterfowl appears high because it includes several hunters, who identified themselves as new hunters, even though they first hunted waterfowl in the 1950s.

Hunting During the 2005 Waterfowl Season

Respondents were asked if they had hunted during the 2005 waterfowl season. Of the respondents who indicated that they were new waterfowl hunters (n=155), 81.3% indicated that they had hunted for waterfowl during the 2005 season. This proportion is significantly smaller than the 89.8% of statewide respondents who reported hunting during the 2005 season (Schroeder et al., 2007).

Membership in Conservation and Hunting Organizations

About one-fourth (24.5%) of new hunters reported membership in Ducks Unlimited with less than 3% reporting a membership in either Minnesota Waterfowl Association or Delta Waterfowl (Table 8-6). Slightly over 10% were members of local sportsman's clubs and 20% were members of other state or national conservation organizations. Over half of respondents (50.3%) did not belong to any hunting/conservation organizations. Membership in sportsman's/conservation organizations was lower than among respondents to the statewide survey (Schroeder et al., 2007).

Section 8: Characteristics of New Waterfowl Hunters

Information About Waterfowl Hunting

Respondents were asked to indicate which resources, from a list of eight, that they used to get information about waterfowl hunting. The majority (75.8%) relied on friends, family, and other individuals for information about waterfowl hunting (Table 8-7). Over one-third of these new waterfowl hunters indicated that they used Minnesota DNR news releases and publications or the Minnesota DNR Web site and weekly/monthly outdoor publications. Other major information sources were television/radio, the Minneapolis Star Tribune, or other newspapers. About two-thirds of the respondents used the Internet once in a while or frequently to look up waterfowl hunting information (Table 8-8).

Hunting Waterfowl Outside of Minnesota in 2005

About 10% (12.6%, $n=155$) of these new waterfowl hunters reported hunting for waterfowl outside of Minnesota during the 2005 season. About 40% of those who hunted outside the state hunted in North Dakota (Table 8-9). Nearly one-fifth (17.2%) of the general sample of Minnesota waterfowl hunters hunted out-of-state in 2005 (Schroeder et al., 2007).

Late Respondents

A comparison of reluctant respondents who completed a shortened survey to the early respondents who answered the full survey found that a slightly smaller proportion of late respondents considered themselves new waterfowl hunters (45.7% versus 52.9%; $t=2.468$, $p<0.05$). There was not a significant difference in the proportion of new waterfowl hunters who hunted during the 2005 season, between the respondents to the full survey and those who responded to the shortened, nonresponse survey ($t=0.697$, n.s.). There was also not a significant difference in the proportion of new waterfowl hunters who hunted outside of Minnesota during the 2005 season, between the respondents to the full survey and those who responded to the shortened, nonresponse survey ($t=1.318$, n.s.)

Section 8: Characteristics of New Waterfowl Hunters

Table 8-1: Age of new waterfowl hunters

n	Age	SD	Range	
			Low	High
157	31.8	13.3	17.0	76.0

Table 8-2: Age categories of new waterfowl hunters

Age category	N	%
0-19 years	35	22.3
20-29 years	51	32.5
30-39 years	25	15.9
40-49 years	31	19.7
50-59 years	11	7.0
60+ years	4	2.5
	157	100%

Table 8-3: Gender of new waterfowl hunters

N	% male	% female
157	85.4	14.6

Table 8-4: What year the new hunter first hunted waterfowl

Year/decade	N	% of new hunters who indicated that they first hunted waterfowl (not necessarily in Minnesota) in that year or decade:
2005	37	23.6
2004	46	29.3
2003	14	8.9
2002	3	1.9
2001	5	3.2
2000	7	4.5
1999	7	4.5
1998	5	3.2
1997	2	1.3
1996	3	1.9
1995	2	1.3
1990 – 1994	6	3.8
1980's	4	2.5
1970's	8	5.1
1960's	5	3.2
1950's	3	1.9

Section 8: Characteristics of New Waterfowl Hunters

Table 8-5: Years Since First Year Hunting Waterfowl

n	Mean years	SD	Median	Mode	Range	
					Low	High
157	7.5	11.4	2.0	2.0	1	56

Table 8-6: Membership in hunting-related groups

Hunting-related group	% yes:
Ducks Unlimited	24.5%
Delta Waterfowl	1.3%
Minnesota Waterfowl Association	2.6%
Local Sportsman's club	11.8%
Other national/statewide conservation/hunting organizations	20.4%
Not a member ¹	50.3%

¹ "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 group categories.

Table 8-7: Sources of information about waterfowl hunting

Source	% yes:
MN DNR news releases/publications	38.9
MNDNR Web site	34.4
Minneapolis Star Tribune	22.3
St. Paul Pioneer Press	5.1
Other newspapers	16.6
Weekly/monthly outdoor publications	38.2
Television/radio	28.7
Friends, family, and other individuals	75.8
Other	9.6

Table 8-8: Do you access the Internet to look up waterfowl hunting information?

	n	%
Not at all	155	31.6
Once in a while		53.5
Frequently		14.8

Section 8: Characteristics of New Waterfowl Hunters

Table 8-9: Most popular hunted areas outside of Minnesota for hunting waterfowl

n	Areas outside MN hunted	% of respondents who hunted outside MN that area in 2005	Average # of days spent hunting that area in 2005	Average # of ducks bagged in area in 2005	Average # of geese bagged in area in 2005
8	North Dakota	40.0	11.1	58.0	8.8
7	South Dakota	35.0	3.0	4.2	1.0
2	Canada	10.0	3.5	22.0	2.0
1	Wisconsin	5.0	10.0	0.0	0.0
1	Iowa	5.0			
1	Michigan	5.0			

¹ 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

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Appendix A: Survey Instrument

WATERFOWL HUNTING IN MINNESOTA

A study of new waterfowl hunters'
opinions and activities



White-winged scoter

**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!

Minnesota Cooperative Fish and Wildlife Research Unit,
Department of Fisheries, Wildlife and Conservation Biology
University of Minnesota
St. Paul, Minnesota 55108-6124
(612) 624-3479
sas@umn.edu

Appendix A: Survey Instrument

Part I. Your Waterfowl Hunting Background

We would like to know about your background and experience as a waterfowl hunter.

Q1. In what year did you first hunt waterfowl, not necessarily in Minnesota? If uncertain please estimate.

_____ year (If you have never hunted waterfowl, please enter '0' here, and return your survey.)

Q2. Are you a "new" waterfowl hunter (i.e. you have hunted waterfowl for a maximum of 1 or 2 years since you turned 18 years of age):

- No. —————→ (Please STOP here and return your survey).
 Yes. (Please CONTINUE with Q3).

Q3. Did you hunt waterfowl in Minnesota during the 2005 season? (Please check one.)

- No. —————→ (Skip to Part IV, question Q14.)
 Yes. (Please continue with Part II, Q4.)

Part II. Your 2005 Minnesota Waterfowl Hunting Season

Next we have a few questions about your hunting experiences during the 2005 Minnesota waterfowl-hunting season. (If you did not hunt waterfowl in Minnesota in 2005 please skip to question Q14.)

Q4. Please indicate whether you hunted for the following kinds of waterfowl in Minnesota in 2005. If you did hunt, estimate the total number of that kind of waterfowl you bagged (shot and retrieved).

During the 2005 waterfowl season, did you hunt <u>in Minnesota</u> for:	Please circle no or yes.		If yes, how many did you <u>personally</u> bag in Minnesota? (Write in number bagged.)
Ducks	no	yes	_____ducks
Canada Geese during:			
Early September Canada Goose Season	no	yes	_____geese
Regular Canada Goose Season (October—Early December)	no	yes	_____geese
Late Goose Season (December)	no	yes	_____geese
Other Geese (Snow Geese, etc.)	no	yes	_____geese

Q5. How often did you bag at least one duck or goose during your 2005 waterfowl-hunting outings?

- I did not bag ducks or geese on any hunt.
 I bagged ducks or geese some of the times I went hunting.
 I bagged ducks or geese most of the times I went hunting.
 I bagged ducks or geese all of the times I went hunting.

Q6. During the 2005 Minnesota waterfowl season, about how many days did you hunt on...

Weekend days or holidays: _____days

Weekdays (Monday-Friday): _____days

Q7. Did you hunt the opening Saturday (Oct. 1) of the 2005 Minnesota season? (Please check one.)

- No
 Yes

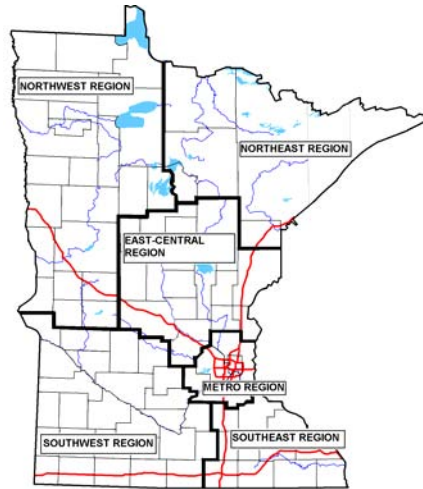
Appendix A: Survey Instrument

Q8. Did you hunt the first Sunday (Oct. 2) of the 2005 Minnesota Season? (Please check one.)

- No
 Yes

Q9. During the 2005 Minnesota waterfowl-hunting season, how many days did you hunt in each region? (See map.) Do not include days hunted during the special September or December goose seasons.

Region	Number of Days
Northwest region	_____ days
Northeast region	_____ days
East-central region	_____ days
Southwest region	_____ days
Southeast region	_____ days
Metro region	_____ days



Q10. During the 2005 Minnesota waterfowl season, about how many days did you hunt...

- With only friend(s): _____ days
 With only family member(s): _____ days
 With a group including friends and family: _____ days
 Alone: _____ days

Q11. During the 2005 Minnesota waterfowl season, did you hunt with a paid hunting guide?

- I goose hunted with a paid guide _____ never _____ sometimes _____ always
 I duck hunted with a paid guide _____ never _____ sometimes _____ always

Appendix A: Survey Instrument

Part III. Your Hunting Satisfaction

Q12. During the 2005 Minnesota waterfowl hunting season, how satisfied or dissatisfied 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

Q13. During the 2005 Minnesota waterfowl hunting season, how satisfied or dissatisfied were you with the number of ducks and geese you saw in the field? (Please circle one response for each.)

	Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	Did not hunt ducks/geese
Number of ducks <u>seen</u>	1	2	3	4	5	6	7	9
Number of geese <u>seen</u>	1	2	3	4	5	6	7	9

Part IV. Your Introduction to Waterfowl Hunting

Q14. Who introduced you to waterfowl hunting? (Check one.)

- Grandparent
- Father
- Mother
- Sibling
- Uncle or aunt
- Friend
- Organized class or group
- Self
- Other: _____ (Please specify.)

Q15. Did you participate in Youth Waterfowl Hunting Day as a youth?

- No. (If no, please skip to Q16.)
- Yes. (If yes, please answer Q15a.)

→ Q15a. If yes, did you bag any ducks or geese during the youth hunt?

- No
- Yes

Appendix A: Survey Instrument

Q16. Please check the response that best reflects your father's attitude toward waterfowl hunting. (Check one.)

- He is, or was, a waterfowl hunter.
- He is, or was, a hunter but did not hunt waterfowl.
- He did not hunt, but approved of waterfowl hunting.
- He did not hunt, but tolerated waterfowl hunting.
- He did not hunt and discouraged waterfowl hunting.
- I do not know.

Q17. Please check the response that best reflects your mother's attitude toward waterfowl hunting. (Check one.)

- She is, or was, a waterfowl hunter.
- She is, or was, a hunter but did not hunt waterfowl.
- She did not hunt, but approved of waterfowl hunting.
- She did not hunt, but tolerated waterfowl hunting.
- She did not hunt and discouraged waterfowl hunting.
- I do not know.

Q18. How important were the following factors to you becoming a waterfowl hunter? (Circle one for each.)

	Not at all	Slightly	Somewhat	Very	Extremely	Don't know
Family members who hunted waterfowl	1	2	3	4	5	9
Friends who hunted waterfowl	1	2	3	4	5	9
Youth Waterfowl Hunting Day	1	2	3	4	5	9
Hunting education programs for youth	1	2	3	4	5	9
Hunting education programs for adults	1	2	3	4	5	9
Personal interest in waterfowl hunting	1	2	3	4	5	9
Personal interest in shooting and/or guns	1	2	3	4	5	9
Personal interest in wildlife and/or nature	1	2	3	4	5	9
Youth field days with sporting groups	1	2	3	4	5	9

Q19. How much did the following factors limit your starting waterfowl hunting? (Circle one response for each.)

	Not at all	Slightly	Somewhat	Very	Extremely	Don't know
Competing interests	1	2	3	4	5	9
Lack of opportunity to hunt waterfowl	1	2	3	4	5	9
Lack of access to places to hunt waterfowl	1	2	3	4	5	9
Lack of hunting mentors/teachers	1	2	3	4	5	9
Lack of people to go waterfowl hunting with	1	2	3	4	5	9
Hunter education requirements	1	2	3	4	5	9
Regulations/restrictions on youth hunting	1	2	3	4	5	9
Lack of exposure to shooting and/or guns	1	2	3	4	5	9
Personal concerns about hunting and/or guns	1	2	3	4	5	9
Other people's concerns about hunting and/or guns	1	2	3	4	5	9
Cost of participating in hunting	1	2	3	4	5	9
Complexity of hunting regulations	1	2	3	4	5	9
Lack of hunting success	1	2	3	4	5	9
Lack of knowledge of waterfowl hunting techniques	1	2	3	4	5	9
Lack of necessary gear	1	2	3	4	5	9

Appendix A: Survey Instrument

Part V. General Waterfowl Hunting Information

Next we have a few general questions about waterfowl hunting.

Q20. How important is waterfowl hunting to you? (Please check one.)

- It is my most important recreational activity.
- It is one of my most important recreational activities.
- It is no more important than my other recreational activities.
- It is less important than my other recreational activities.
- It is one of my least important recreational activities.

Q21. What type of waterfowl hunter do you consider yourself:

- Casual** (for example, waterfowl hunting is incidental to your other travel and outdoor interests, you only go waterfowl hunting when asked by a family member or friend, or waterfowl hunting is not a particularly important outdoor activity)
- Active** (for example, you infrequently travel away from home specifically to waterfowl hunt, or for you waterfowl hunting is an important but not exclusive outdoor activity)
- Committed** (for example, you are willing to travel on short notice to go waterfowl hunting, you purchase ever-increasing amounts of equipment to hunt waterfowl, or waterfowl hunting is a primary outdoor activity)

Q22. How would you describe your waterfowl hunting skills. (Please check one.)

- Novice
- Intermediate
- Advanced
- Expert

Q23. About how much do you spend on waterfowl hunting each year? (Estimate your annual expenditures on equipment including decoys, calls, shells, guns, travel, etc. Please check one.)

- \$250 or less
- \$251-\$1,000
- \$1,001-\$5,000
- Over \$5,000

Q24. Have you purchased equipment that you use exclusively for waterfowl hunting?

- No. (If no, please skip to Q25.)
- Yes. (If yes, please answer Q24a.)

→ **Q24a. If yes, please estimate the total replacement cost for all of your equipment used exclusively for waterfowl hunting?**

- \$250 or less
- \$251-\$1,000
- \$1,001-\$5,000
- over \$5,000

Appendix A: Survey Instrument

Q25. Please indicate how much you agree or disagree with the following statements about waterfowl hunting. Please circle one response for each:

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Waterfowl hunting is one of the most enjoyable things I do.	1	2	3	4	5
I am knowledgeable about waterfowl hunting.	1	2	3	4	5
The decision to go waterfowl hunting is primarily my own.	1	2	3	4	5
I find that a lot of my life is organized around waterfowl hunting.	1	2	3	4	5
Waterfowl hunting has a central role in my life.	1	2	3	4	5
Most of my friends are in some way connected with waterfowl hunting.	1	2	3	4	5
When I am waterfowl hunting, others see me the way I want them to see me.	1	2	3	4	5
I don't really know much about waterfowl hunting.	1	2	3	4	5
I consider myself an educated consumer regarding waterfowl hunting.	1	2	3	4	5
Waterfowl hunting interests me.	1	2	3	4	5
I have acquired equipment that I would not use if I quit waterfowl hunting.	1	2	3	4	5
You can tell a lot about a person when you see them waterfowl hunting.	1	2	3	4	5
When I am waterfowl hunting I can really be myself.	1	2	3	4	5
I enjoy discussing waterfowl hunting with my friends.	1	2	3	4	5
The decision to go waterfowl hunting is not entirely my own.	1	2	3	4	5
For me to change my preference from waterfowl hunting to another leisure activity would require major rethinking.	1	2	3	4	5
I find a lot of my life organized around waterfowl-hunting activities.	1	2	3	4	5
Even if close friends recommended another recreational activity, I would not change my preference from waterfowl hunting.	1	2	3	4	5
Waterfowl hunting is important to me.	1	2	3	4	5
I have close friendships that are based on a common interest in waterfowl hunting.	1	2	3	4	5
Compared to other waterfowl hunters, I own a lot of waterfowl-hunting equipment.	1	2	3	4	5

Q26. What is the minimum number of ducks you need to harvest in a day's hunt to feel satisfied with your harvest?

_____ ducks

Q27. What is the minimum number of ducks you need to harvest in a season to feel satisfied with your harvest?

_____ ducks

Q28. What is the minimum number of geese you need to harvest in a day's hunt to feel satisfied with your harvest?

_____ geese

Q29. What is the minimum number of geese you need to harvest in a season to feel satisfied with your harvest?

_____ geese

Appendix A: Survey Instrument

Part VI. Motivations for Waterfowl Hunting

Q30. Below is a list of possible experiences that might affect how satisfied you are with waterfowl hunting. For each one:

- Tell us how important it is to your waterfowl hunting satisfaction.
- Next, tell us the degree to which each happened during your most recent waterfowl hunting 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
Getting 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 US Fish and Wildlife Service	1	2	3	4	5	1	2	3	4	5
Getting my 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

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Part VII. Hunting Quality

Q31. Please rate the quality of various aspects of Minnesota waterfowl hunting.

	Very Poor	Somewhat Poor	Neutral	Somewhat Good	Very Good	Don't know
Waterfowl habitat where I hunt	1	2	3	4	5	9
When waterfowl are arriving in my area	1	2	3	4	5	9
The length of time waterfowl are staying in my area	1	2	3	4	5	9
Timing of waterfowl seasons	1	2	3	4	5	9
Overall waterfowl numbers	1	2	3	4	5	9
Ease of understanding regulations	1	2	3	4	5	9
The number of places to hunt	1	2	3	4	5	9
Amount of time I have to hunt waterfowl	1	2	3	4	5	9
Weather patterns for waterfowl hunting	1	2	3	4	5	9

Q32. Indicate how much of a problem the following aspects are when hunting waterfowl in Minnesota.

	Not at all	Slightly	Somewhat	Very	Extremely	Don't know
Crowding at hunting areas	1	2	3	4	5	9
Hunting pressure	1	2	3	4	5	9
Waterfowl unable to find rest areas	1	2	3	4	5	9
Shifting waterfowl migration routes	1	2	3	4	5	9
Interference from other hunters	1	2	3	4	5	9
Waterfowl arriving after the season is closed	1	2	3	4	5	9
Waterfowl concentrating on fewer areas	1	2	3	4	5	9
Waterfowl numbers on opening weekend	1	2	3	4	5	9

Part VIII. Youth Waterfowl Hunting Day

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 designate two days for the Youth Waterfowl Hunt. During this event adults accompany youth, but may not hunt waterfowl themselves. Because of the season structure in Minnesota, Youth Waterfowl Hunting Day is held before the regular waterfowl season opening. Minnesota has offered a one-day Youth Waterfowl Hunt since 1997.

Q33. Do you support or oppose the concept of Youth Waterfowl Hunting Day? (Please check one.)

- Strongly oppose
- Oppose
- Undecided or neutral
- Support
- Strongly support

Appendix A: Survey Instrument

Part IX. Battery-Operated Spinning-Wing Decoys

Q34. Do you own a battery-operated, spinning-wing decoy? (*Please check one.*)

- No
 Yes

Q35. Did you use battery-operated, spinning-wing decoys when hunting in Minnesota during the 2005 waterfowl season? (*Please check one.*)

- No
 Yes

Part X. Future Waterfowl Hunting in Minnesota

Q36. Please indicate how likely it is you will hunt ducks and geese in Minnesota at some time during the next 5 years. (*Please circle one response for each activity.*)

	Very Unlikely	Somewhat Unlikely	Slightly Unlikely	Undecided	Slightly Likely	Somewhat Likely	Very Likely
Ducks	1	2	3	4	5	6	7
Geese	1	2	3	4	5	6	7

Q37. How likely do you think it would be that you would continue to hunt waterfowl in Minnesota if any of the following events would happen to you...

	Very Unlikely	Somewhat Unlikely	Slightly Unlikely	Undecided	Slightly Likely	Somewhat Likely	Very Likely
Move out of state	1	2	3	4	5	6	7
Move somewhere else in Minnesota	1	2	3	4	5	6	7
Change in job	1	2	3	4	5	6	7
Change in marital status	1	2	3	4	5	6	7
Go to college in Minnesota	1	2	3	4	5	6	7
Go to college out of state	1	2	3	4	5	6	7
Close friends recommend another recreational activity	1	2	3	4	5	6	7
Family recommends another recreational activity	1	2	3	4	5	6	7

Appendix A: Survey Instrument

Part XI. Other Hunting Activities

Q38. Please indicate whether you have ever hunted for the following game animals. If you have hunted for a type of game, please indicate how many years during the previous 5 years that you hunted for that type of game.

Have you ever hunted <u>in Minnesota</u> for:	Please circle no or yes.	If yes, during the <u>previous 5 years</u> , how many years did you hunt for each kind of game?					
Deer - firearm	no yes	0	1	2	3	4	5
- archery	no yes	0	1	2	3	4	5
- muzzleloader	no yes	0	1	2	3	4	5
Pheasants	no yes	0	1	2	3	4	5
Grouse/woodcock	no yes	0	1	2	3	4	5
Turkeys	no yes	0	1	2	3	4	5
Small game (doves, rabbits, squirrels, fox)	no yes	0	1	2	3	4	5

Q39. Please indicate whether you hunted for the following game animals in Minnesota during 2005. If you did hunt, estimate the total number of days that you hunted.

During 2005 <u>in Minnesota</u> , did you hunt for:	Please circle no or yes.	If yes, how many days did you hunt <u>in Minnesota in 2005</u> ?
Deer - firearm	no yes	_____ days
- archery	no yes	_____ days
- muzzleloader	no yes	_____ days
Pheasants	no yes	_____ days
Grouse/woodcock	no yes	_____ days
Turkeys	no yes	_____ days
Small game (doves, rabbits, squirrels, fox)	no yes	_____ days

Part XII. About You

Q40. Are you currently a member of: (Check all that apply.)

- Ducks Unlimited
- Delta Waterfowl
- Minnesota Waterfowl Association
- Local sportsman's club
- Other national/statewide conservation/hunting organization(s) Please specify: _____

Q41. Where do you get information about waterfowl hunting? (Please check all that apply.)

- Minnesota DNR news releases and publications
- Minnesota DNR Web site
- Minneapolis Star Tribune
- St. Paul Pioneer Press
- Other newspapers
- Weekly/monthly outdoor publications
- Television/radio
- Friends, family, and other individuals
- Other: _____

Appendix A: Survey Instrument

Q42. Do you access the Internet to look up waterfowl hunting information? (Please check one.)

- Not at all
- Once in a while
- Frequently

Q43. Did you hunt for waterfowl in a state or province other than Minnesota in 2005? (Please check one.)

- No
- Yes. (Please answer question Q43a.)

→ **Q43a. If yes, list locations, number of days you hunted waterfowl, and number you personally bagged in that area during 2005:**

STATE OR PROVINCE	NUMBER OF DAYS HUNTED WATERFOWL	NUMBER OF DUCKS YOU PERSONALLY BAGGED	NUMBER OF GEESE YOU PERSONALLY BAGGED
_____	_____ days	_____ ducks	_____ geese
_____	_____ days	_____ ducks	_____ geese
_____	_____ days	_____ ducks	_____ geese

Please write additional comments below or on additional sheets. Survey results will be available in the fall of 2006 on the Minnesota Department of Natural Resources Web site, www.dnr.state.mn.us. If you have a question about the survey, contact Sue at sas@umn.edu or 612-624-3479. If you have a specific question about waterfowl hunting, please contact the Minnesota DNR at 1-888-MINNDNR.

Thank you for your participation!!