

THE 2017 WATERFOWL HUNTING SEASON IN MINNESOTA

A study of hunters' opinions and activities



2017 Minnesota Waterfowl Stamp

Final Report

A cooperative study conducted by:

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



The 2017 Waterfowl Hunting Season in Minnesota: A Study of Hunters' Opinions and Activities

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Executive Summary

This study of the 2017 Minnesota waterfowl-hunting season was conducted to assess waterfowl hunters’:

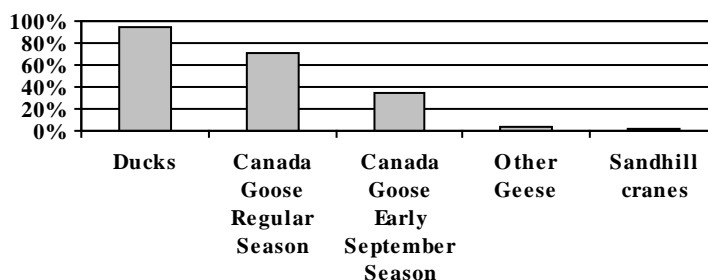
- participation and activities,
- satisfaction,
- motivations,
- involvement with the activity, and
- attitudes about waterfowl management.

The survey was distributed to 3,600 waterfowl hunters in a statewide sample stratified by region, along with 900 pictorial stamp buyers, and 900 crane permit buyers. The number of full-length survey respondents for the three samples were: 1,661 for the statewide sample, 425 for the pictorial sample, and 415 for the crane sample. Total response numbers including shortened, nonresponse surveys were: 1842 for the statewide sample, 486 for the pictorial sample, and 457 for the crane sample. After adjusting for undeliverable surveys and invalid respondents, the response rate for the full-length survey was 49% for all three samples, and the response rates including respondents to the shortened, nonresponse survey was 53% for the crane sample, 54% for the statewide sample, and 55% for the pictorial sample. The executive summary focuses on results for the statewide sample; results for all study samples are detailed in the report.

Experiences

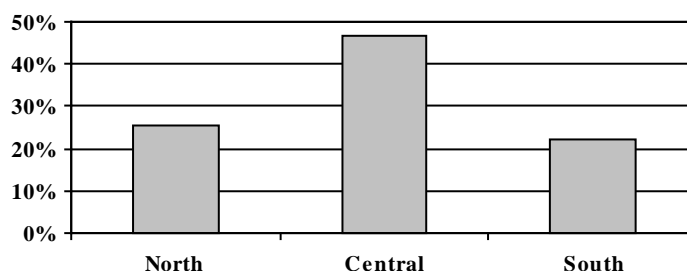
Just less than 9 of 10 survey respondents (87%) hunted waterfowl during the 2017 Minnesota season. Respondents who had hunted for waterfowl in 2017 were asked if they had hunted for ducks, Canada Geese during the early and regular seasons, and other geese. Responses ranged from 94% for ducks to only 2% for sandhill cranes (Figure S-1).

Figure S-1: Percentage of Hunters Participating in Activities in 2017



Hunters who reported pursuing ducks, Canada geese, or other geese reported bagging an average of 11.0 ducks, 6.4 Canada geese, and 1.6 “other” geese, respectively, over the course of the 2017 Minnesota season. Respondents hunted an average of 6.8 days on weekends and holidays, and 4.1 days during the week. Approximately two-thirds (64%) of waterfowl hunters statewide hunted on the opening Saturday.

Figure S-2: Most Frequent Hunting Destination in 2017



Survey recipients were asked to report the number of days they hunted in the different zones in the state. About 4 in 10 (39%) hunted only in the central zone, with 26% hunting only in the north zone, and 19% hunting only in the south duck zone. Nearly half of respondents hunted most frequently in the central zone (47%), with 26% hunting most frequently in the north zone, and 22%

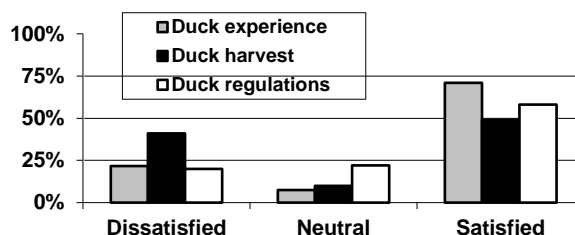
hunting most frequently in the south zone (Figure S-2). Respondents were fairly evenly divided in the land types where they hunted waterfowl; 44% hunted mostly privately owned areas, 39% hunted mostly public access areas, and 18% hunted public and private areas about the same.

Satisfaction

Over two-thirds of hunters (69%) reported being satisfied with their general waterfowl-hunting experience. Younger hunters and hunters who had been hunting for fewer years reported higher levels of satisfaction.

Nearly three-fourths (71%) of respondents were satisfied with their 2017 duck-hunting experience (Figure S-3). Nearly half of respondents (49%) were satisfied with their duck-hunting harvest. Satisfaction with duck-hunting regulations was between satisfaction levels for experience and harvest. A larger proportion of hunters were dissatisfied with their harvest compared to the proportion dissatisfied with the experience or regulations. About one in five respondents felt neither satisfied nor dissatisfied about the duck-hunting regulations, compared to 10% or fewer for duck-hunting experience or harvest. There was a significant positive relationship between the number of ducks bagged and satisfaction with duck-hunting harvest.

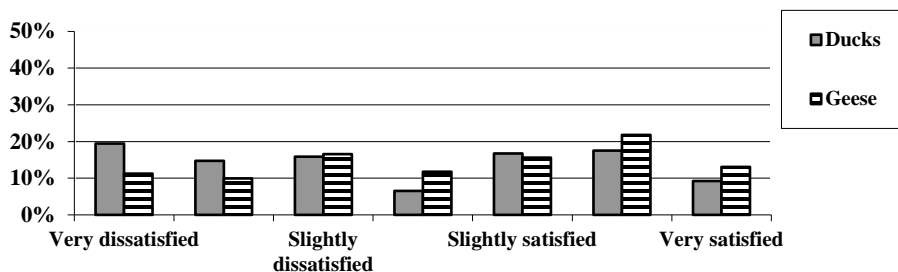
Figure S-3: Satisfaction With Duck Hunting in 2017



Nearly two-thirds of goose hunters (63%) were satisfied with their general goose-hunting experience, and about half respondents were satisfied with goose harvest (48%) and regulations (53%). The number of geese bagged had a positive influence on satisfaction with goose-hunting harvest.

Hunters were also asked about their satisfaction with waterfowl habitat where they hunted, and the number of ducks and geese seen in the field. About two-thirds of respondents were satisfied with habitat. Results for satisfaction with ducks and geese seen in the field are shown in Figure S-4.

Figure S-4: Satisfaction With the Number of Ducks and Geese Seen in the Field

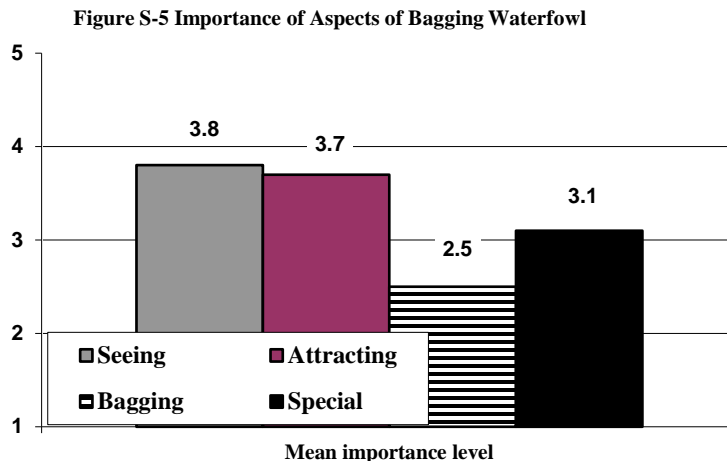


Importance of, Involvement in, and Motivations for Waterfowl Hunting

Respondents were asked how important waterfowl hunting was to them. About half of respondents (49%) indicated that it was “one of my most important recreational activities.” Over one-fourth (28%) indicated that it was “no more important than my other recreational activities,” while 10% indicated that it was “my most important recreational activity,” 11% indicated that it was “less important than my other recreational activities,” and 2% indicated that it was “one of my least important recreational activities”

Respondents also rated statements related to their involvement with waterfowl hunting. Respondents agreed most strongly that: (a) waterfowl hunting provides me with the opportunity to be with friends, (b) waterfowl hunting is one of the most enjoyable things I do, and (c) I enjoy discussing waterfowl hunting with my friends. There was less agreement that: (a) a lot of my life is organized around waterfowl hunting and (b) waterfowl hunting has a central role in my life.

Respondents were asked to report how important 15 aspects of bagging waterfowl hunting were to them, then rate how much these 15 experiences happened during the 2017 Minnesota waterfowl season. An exploratory factor analysis of the importance of aspects of bagging waterfowl found four factors: (a) seeing ducks and geese, (b) attracting waterfowl with decoys and calls, (c) bagging a lot of waterfowl, and (d) specialized aspects of bagging waterfowl. The importance of these four factors is shown in Figure S-5.



Youth Waterfowl Hunting Day

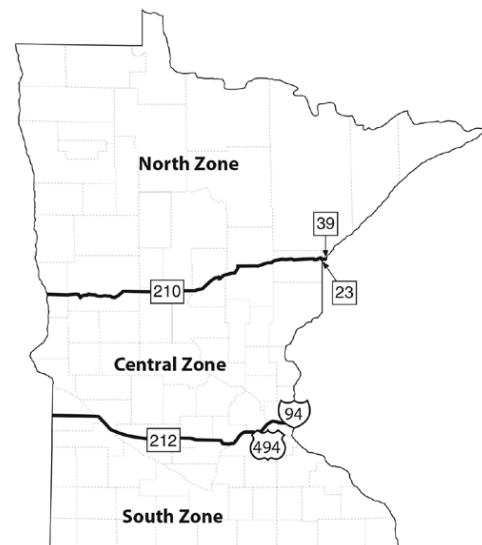
Youth Waterfowl Hunting Day has been somewhat controversial in Minnesota (Smith, 2002). However, survey results show continued support for the day. Overall, 73% of respondents support the youth hunt, with 46% strongly supporting it.

Study respondents were asked if they took any youth hunting on Minnesota's 2017 Youth Waterfowl Hunting Day, and 12% reported participating. Those respondents who participated in Youth Waterfowl Hunting Day reported escorting an average of 1.8 youths. Based on the percentages provided by the survey, it is estimated that 18,027 youths participated in the youth waterfowl hunt in 2017.

Management Strategies

Respondents were asked to indicate their opinion about the 6-duck bag limit, 2-hen mallard bag limit, and 3-wood duck bag limit. About two-thirds of respondents felt the 6-duck bag limit was about right, with 4% indicating that it was too low, 12% too high, and 16% no opinion. Similarly, about two-thirds of respondents felt the 2-hen mallard bag limit was about right, compared to 7% too low, 14% too high, and 16% no opinion. Nearly two-thirds of respondents felt the 3-wood duck bag limit was about right, compared to 15% who felt it was too low, 8% who thought it was too high, and 14% who had no opinion.

Respondents were asked to indicate their level of support for eight management strategies. Respondents reported the most support for using a North, Central, and South duck zone and allowing open-water hunting on a few (5-10) larger lakes or rivers during the regular waterfowl season. Respondents reported the least support for restricting the use of motorized decoys.



Season Dates and Splits

Respondents were asked to select the area of the state where season dates were most important to them using the map shown. The largest proportion (45%) selected the central region, followed by north (24%), and south (21%). Another 10% had no preference

Study participants were asked to select between a straight season, one of two split seasons, or no preference for a 60-day duck season in 2018. A substantially greater proportion of respondents from the North region preferred a straight season (58% compared to 16-30% for other regions). A substantially greater proportion of respondents from the South region preferred the split season with the later season closing dates (about 43% compared to 7-16% for other regions).

Study participants were asked to select a preferred season opening date. Statewide, respondents were fairly evenly split with 39% favoring the Saturday nearest September 24 and 41% favoring the Saturday nearest October 1, with 20% reporting no preference. Increased proportions of respondents from the Central and North regions preferred the earlier opening date, while increased proportions of respondents from the Metropolitan and South regions preferred the later opening date.

Sandhill Crane Hunting in Minnesota

Respondents were asked to indicate their level of support for five possible changes to sandhill crane hunting in Minnesota. On average, statewide, respondents were supportive of all five possible changes, with greatest support for expanding the size of the current crane zone and expanding sandhill crane hunting to a new hunting zone in the central/eastern part of the state. Respondents from the central and north regions were somewhat more supportive of changes to sandhill crane hunting, compared to respondents from the metropolitan and south regions. Respondents from the crane permit sample were significantly more supportive of changes compared to the statewide and pictorial samples.

Comparison with Earlier Study Results

Respondents reported significantly higher satisfaction levels for the 2017 season than for the 2000, 2005, 2007, 2010, 2011, and 2014 seasons. Satisfaction was not significantly different from the 2002 season. Support for Youth Waterfowl Hunting Day in 2017 was significantly higher than for previous survey years. Reported memberships in Ducks Unlimited, Delta Waterfowl, the Minnesota Waterfowl Association, and local sportsmen's clubs were lower in 2017 than in 2014, but similar to levels seen in previous study years.

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Introduction

Minnesota has generally been in the top 3 states for number of waterfowl hunters in the United States, however waterfowl hunter numbers have declined by one-third since we began conducting surveys of Minnesota waterfowl hunters in 2000. Minnesota participated in the North American Duck Hunter Survey (Ringelman 1997) and Minnesota hunter responses were compared to those in other States (Lawrence and Ringelman 2001). More recently, reports documenting hunter activity and opinions following the 2000, 2002, 2005, 2007, 2010, 2011, and 2014 waterfowl hunting seasons were completed (Fulton et al. 2002, Schroeder et al. 2004, 2007a, 2008, 2012a, 2012b, 2015). In addition, a series of surveys looking at hunter recruitment and retention were completed following the 2005 waterfowl hunting season (Schroeder et al. 2007b,c,d) and a study of former waterfowl hunters was completed following the 2009 season (Schroeder et al. 2011). Results from some of these studies have been published in peer-reviewed journals (Schroeder et al. 2006, 2012c, 2013, 2014, 2017, under review). Information from these studies has been used to inform management decisions.

We originally planned on completing the statewide survey at 3-year intervals, but we have made exceptions. We conducted a survey in 2002 instead of 2003 to obtain current estimates of spinning-wing decoy use, and a limited survey was conducted following the 2007 waterfowl hunting season to evaluate changes in daily bag limits. We conducted a survey following the 2010 waterfowl season, but changes in waterfowl hunting regulations in 2011 (earlier opening date, shooting hours, bag limit and zone changes) necessitated the need for an additional hunter survey. It has been 3 years since the last survey. In addition to monitoring changes in hunter satisfaction, there was also a need to determine waterfowl hunter opinions on current zones and sandhill crane hunting, and collect more data on hunter involvement, motivations, and agency trust.

Study Purpose and Objectives

This study was conducted to identify hunter preferences/opinion on regulations, seasons, daily bag limits and zones relative to their satisfaction, success, and opinions/preferences on other waterfowl hunting and management issues. Results describe how preferences/opinions vary based upon hunter characteristics. This survey also provides ongoing information on waterfowl hunter demographics and attitudes in Minnesota. Its overall purpose was to measure hunter satisfaction, and to identify hunter preferences and opinions on various waterfowl hunting, management, and regulatory issues.

The specific objectives of this study were to:

1. Describe hunter effort in Minnesota in 2017 including: species and seasons hunted; number of days hunted; effort during weekdays, weekends, and opening weekend; and management regions hunted.
2. Describe hunting satisfaction with waterfowl (duck and goose) hunting in Minnesota in 2017.
3. Examine the importance of various experiences preferences (related to bagging waterfowl) and actualization of those experience in waterfowl hunting during 2017.
4. Examine importance of and involvement in waterfowl hunting to Minnesota and intentions to participate in the future.
5. Determine Minnesota waterfowl hunters' opinions concerning bag limits and other management strategies for maintaining waterfowl numbers;
6. Determine Minnesota waterfowl hunters' opinions on season dates and split seasons.
7. Determine Minnesota waterfowl hunters' opinions changes to sandhill crane hunting.

8. Determine Minnesota waterfowl hunters' support for and participation in Youth Waterfowl Hunting Day;
9. Determine demographics of waterfowl hunters in Minnesota.
10. Examine trends in waterfowl hunters' characteristics and opinions over time.

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

Methods

Sampling

The population of interest in this study included all Minnesota residents 18 years of age and older who hunted waterfowl in the state during 2017. The sampling frame used to draw the study sample was the Minnesota Department of Natural Resources' (DNR) Electronic Licensing System (ELS). A stratified random sample of Minnesota residents in the ELS was drawn. The sample included individuals who had purchased a state waterfowl stamp in Minnesota for the 2017 season. The study sample was stratified by residence of individuals (determined by ZIP code) in four regions. The target sample size was $n = 400$ for each region ($n = 1,600$ statewide). An initial stratified random sample of 3,600 individuals, 900 from each of the four regions, was drawn from the ELS. We stratified based on 3 duck zones (North, Central, South) and the Twin Cities Metropolitan area (Figure 1).

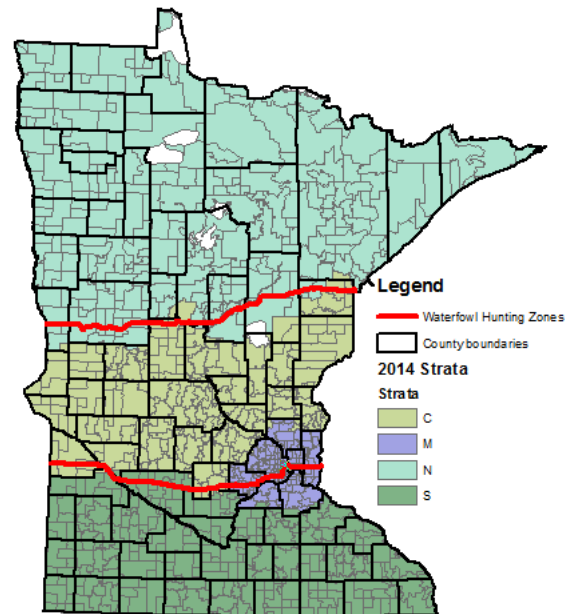


Figure 1. Zones for the 2011, 2014, and 2017 Minnesota Waterfowl Hunter Surveys.

In addition to the statewide sample, we conducted two targeted samples of individuals who purchased pictorial waterfowl stamps ($n=900$) and sandhill crane hunting permits ($n=900$).

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 January and May 2018. 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. About 3 weeks later, for the statewide and crane permit samples, we distributed a fourth mailing of the full-length survey, including a \$1 incentive to

maximize response. Finally, a shortened, 1-page survey was distributed to all three samples to gauge nonresponse bias.

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: Background and length of experience as a waterfowl hunter;
- Part 2: Hunting experiences during the 2017 Minnesota waterfowl-hunting seasons, including: species hunted, days hunted, and management zones/region(s) hunted;
- Part 3: Satisfaction with duck and goose hunting including general experience, harvest, and regulations, satisfaction with waterfowl habitat; and satisfaction with the number of ducks and geese seen in the field;
- Part 4: Motivations for waterfowl hunting;
- Part 5: Waterfowl hunting involvement
- Part 6: General waterfowl hunting information, including likelihood of waterfowl hunting in Minnesota in 2018, and opinions on bag limits;
- Part 7: Opinions concerning waterfowl management issues and special regulations;
- Part 8: Waterfowl hunting zones including zones and season dates;
- Part 9: Opinions about Youth Waterfowl Hunting Day
- Part 10: Use and regulation of battery-operated, spinning-wing decoys
- Part 11: Minnesota DNR waterfowl management; and
- Part 12: Conservation and hunting activities
- Part 13: Sociodemographics and information hunting outside Minnesota.

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

Data Entry and Analysis

Data were keypunched and the data were analyzed on a PC using the Statistical Program for the Social Sciences (SPSS for Windows 21). We computed basic descriptive statistics and frequencies for the statewide, pictorial, and crane samples. The three research strata and regional results were compared using one-way analysis of variance and cross-tabulations.

Survey Response Rate

Of the 3,600 questionnaires mailed in the statewide sample, 134 were undeliverable or otherwise invalid. Of the remaining 3,466 surveys, a total of 1,661 full-length surveys were returned, resulting in a response rate of 48.6%. An additional 181 hunters returned the shortened survey, used to gauge nonresponse bias, for a total response rate of 54%. Of the 900 questionnaires mailed in the pictorial sample, 18 were undeliverable or otherwise invalid. Of the remaining 882 surveys, a total of 425 full-length surveys were returned, resulting in a response rate of 48.6%. An additional 61 hunters returned the shortened survey for a total response rate of 55%. Of the 900 questionnaires mailed in the crane permit sample, 38 were undeliverable or otherwise invalid. Of the remaining 862 surveys, a total of 415 full-length surveys were returned, resulting in a response rate of 48.7%. An additional 42 hunters returned the shortened survey for a total response rate of 53%. Response rates for each region are summarized in Table I-1. Please note that the chart of response rates for each management region does not include 1 survey that was returned without an identification number. This survey was included in statewide results but could not be included in regional analyses.

Table I-1: Response rates for each management region

	Initial sample size	Number invalid	Valid sample size	Full-length surveys returned	Full-length survey response rate %	Shortened surveys returned	Total surveys returned	Full-length survey response rate %
Statewide	3,600	134	3,466	1661	48.7%	196	1,842	53.6%
CENTRAL	900	35	865	396	45.8%	49	445	51.4%
METRO	900	35	865	427	49.4%	51	478	55.3%
NORTH	900	39	861	398	46.2%	45	443	51.5%
SOUTH	900	25	875	440	50.3%	51	491	56.1%
CRANE	900	38	862	415	48.7%	43	458	53.1%
PICTORAL	900	18	882	425	48.6%	61	486	55.1%

The average age of respondents (44.5 years) was significantly older than the population of waterfowl hunters ($\bar{x} = 39.7$) ($t = 13.143^{***}$). People over 50 returned the survey at a significantly higher rate than younger people. Weights correcting this age bias were calculated and applied to the data. While there were a few statistically significant differences between the weighted and unweighted data, weighting the data did not change results beyond the margin of error for the survey and the effect size of all differences were minimal. For this reason, data were not weighted for age bias in any of the results reported here (see section 9 for respondent/study population age comparison).

Population Estimates

Statewide Estimates

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

Regional Estimates

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

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

Region of residence	Proportion of resident state waterfowl stamp purchasers in each region age 18 and older	
	Frequency ¹	Proportion
CENTRAL	22,993	28.2%
METRO	26,207	32.2%
NORTH	17,704	21.7%
SOUTH	14,516	17.8%
Statewide ²	81,420	100%

¹ Source: DNR license database

² The statewide total is not equal to the total number of waterfowl stamps sold. The number in the table reflects the sample population for the study, which excluded nonresident stamp buyers and individuals less than 18 years of age. The number shown in the table reflects the customer count rather than the stamp count. Customers can purchase more than one stamp.

Section 1: Experiences During the 2017 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 2017 Minnesota waterfowl-hunting seasons. Only individuals who hunted waterfowl in Minnesota in 2017 completed this section of the survey.

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

Waterfowl Seasons Hunted in Minnesota in 2017

Respondents were first asked to report if they had actually hunted for waterfowl in Minnesota in 2017. Statewide 87% of the survey respondents indicated that they had hunted waterfowl in 2017. There were no significant differences in participation rates by region of residence (Table 1-1). Respondents who had hunted in 2017 were next asked if they had hunted for ducks, and Canada Geese during the early September and regular seasons. At the statewide level, 94% of actual waterfowl hunters in 2017 indicated they had hunted ducks while 72% had hunted Canada Geese during the regular season, and 35% hunted Canada Geese during the early September season. Less than 5% of respondents hunted "other" geese, and 2% targeted sandhill cranes. Statewide, 22% of respondents hunted ducks exclusively and 6% hunted geese exclusively.

Looking at differences in participation based on region of residence, smaller proportions of hunters from the north and south regions hunted for ducks compared to hunters from the central and metro regions (Table 1-1). A smaller proportion of waterfowl hunters residing in the metropolitan area hunted for Canada Geese during the early September goose season. Smaller proportions of hunters from the metro and north regions hunted during the regular Canada Goose season. Looking at differences based on where respondents hunted, a greater proportion of hunters targeted ducks in the central region compared to the north and south regions (Table 1-2).

Looking at differences in participation by research strata, a smaller proportion of hunters from the crane sample hunted for ducks compared to hunters from statewide and pictorial samples (Table 1-1). A much larger proportion of hunters from the crane sample targeted Canada Geese during both early and regular seasons, other geese, and sandhill cranes, compared to hunters from the statewide and pictorial samples.

Harvest

For each season in which they hunted, respondents were asked to report the number of ducks or geese they personally bagged. The statewide estimate of the average number of ducks each hunter harvested during the season was 11.0 (Table 1-4). Hunters reported an average of 6.4 Canada Geese during the early September season, and 4.3 during the regular season. For all Canada Goose seasons combined, goose hunters bagged a total of 6.9 Canada Geese for the year. On average, hunters harvested 1.6 "other" geese and 0.4 sandhill cranes.

Results of ANOVA indicate that, on average, hunters residing in the metropolitan region, shot significantly fewer Canada Geese during the regular season and in total (Table 1-4). Based on the average

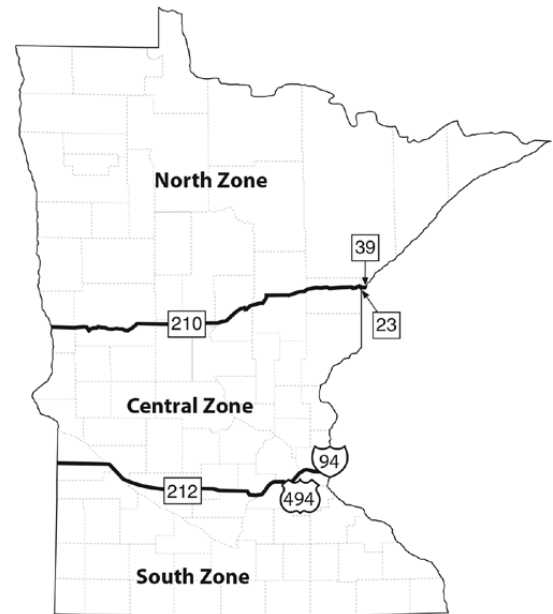
harvest estimates (Table 1-4) and the estimated hunters participating in different hunts (Table 1-3), the estimated statewide harvests and harvest by region are reported in Table 1-5.

Average Number of Days Hunting Weekends and Weekdays

Next, respondents were asked to report the number of days they hunted on weekends or holidays and weekdays. On average, hunters spent more days hunting on weekends and holidays (6.8 days) than during the week (4.1 days) (Table 1-6). Hunters from the crane sample hunted a significantly greater number of weekdays and total days compared to hunters from the statewide and pictorial samples.

Hunting Opening Saturday

Approximately two-thirds of waterfowl hunters statewide hunted opening Saturday (64%) during the 2017 duck season (Tables 1-7, 1-8). There was no significant difference by region of residence or study strata in participation in hunting on the opening Saturday (Table 1-7). However, a smaller proportion of individuals hunting in the northern region hunted during opening weekend (Table 1-8).



Zones Hunted

Respondents were asked to indicate which zones they hunted in during the season (see map) (Table 1-9). About 4 in 10 (39%) hunted only in the Central Duck Zone, with 26% hunting only in the North Duck Zone, and 19% hunting only in the South Duck Zone. About 8% of respondents hunted in both the North and Central Duck Zones, and about 6% hunted in both the Central and South Duck Zones. Less than 5% hunted in both the North and South Duck Zones or in all three zones.

Respondents were asked to indicate the number of days they hunted in each of the zones (see map) (Tables 1-10). Statewide, hunters hunted the most days in the Central Zone ($M = 4.7$) with fewer days of hunting in the North Zone ($M = 2.5$) and the South Zone ($M = 2.4$). Nearly half of respondents (47%) hunted most often in the Central Duck Zone, with 26% hunting most often in the North Zone, and 22% hunting most often in the South Zone (Table 1-11).

Hunting Privately Owned Versus Public Access Land

Respondents were asked if they had hunted mostly on privately owned areas, mostly on public access areas, or public and private about the same, during the 2017 season (Table 1-12). More respondents (44%) hunted mostly on privately owned areas, compared to 39% who hunted mostly on public access areas, and 18% who hunted public and private areas about the same.

Hunting Techniques Used

Respondents were asked how much they used a variety of hunting techniques for targeting ducks and geese during the 2017 season. Means for all activities are shown in Table 1-13. On average, hunters reported using duck/goose calls and decoying birds over water as the techniques used most often for targeting both ducks and geese. Frequencies for each technique for ducks are presented in Tables 1-14 to

Section 1: Experiences During the 2017 Waterfowl Hunt

1-24, and frequencies for each technique for geese are presented in Tables 1-25 to 1-35. There were few significant differences by region of residence in hunting techniques employed. However, there was greater use of decoying of geese over land by residents from the north region, while this technique was less frequently used by residents from the metro area (Table 1-27). There were more substantive differences in use of different techniques based on study strata. Hunters from the crane sample reported less decoying birds over water (Tables 1-15, 1-26) and more decoying birds over land (Tables 1-16, 1-27). They also employed more pass shooting (Table 1-25) and calls (Table 1-33) for geese. Hunters from the pictorial sample reported increased hunting for ducks with a retrieving dog, while crane hunters used dogs somewhat less (Table 1-23).

Problems Encountered

Respondents were asked how frequently they encountered a variety of potential problems during the 2017 season. Means for all activities are shown in Table 1-36. On average, shifting migration routes, waterfowl concentrating on fewer areas, waterfowl arriving after the season is closed, and waterfowl numbers on opening weekend were the highest rated problems. Frequencies for each potential problem are presented in Tables 1-37 to 1-46.

Section 1: Experiences During the 2017 Waterfowl Hunt

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

Region of residence	%Who actually hunted in 2017	% of hunters ¹ indicating they hunted in Minnesota in 2017				
		Ducks	Canada Geese Early September	Canada Geese Regular Season	Other Geese	Sandhill cranes
Statewide ²	87.3%	93.9%	35.3%	71.5%	4.4%	1.6%
CENTRAL	88.0%	96.8%	38.8%	77.6%	3.2%	1.0%
METRO	86.1%	94.3%	26.9%	67.1%	4.3%	1.5%
NORTH	86.9%	91.0%	39.4%	69.0%	5.9%	3.6%
SOUTH	88.8%	92.4%	39.2%	72.5%	4.8%	0.3%
	$\chi^2=1.585$ n.s.	$\chi^2=11.032^*$ V=0.088	$\chi^2=16.831^{**}$ V=0.112	$\chi^2=10.466^*$ V=0.087	$\chi^2=2.767$ n.s.	$\chi^2=12.627^{**}$ V=0.099
CRANE	92.2%	83.4%	64.4%	84.1%	17.5%	65.1%
PICTORAL	84.6%	95.0%	30.8%	70.8%	6.3%	0.3%
	$\chi^2=11.177^{**}$ V=0.068	$\chi^2=48.830^{***}$ V=0.152	$\chi^2=110.049^{***}$ V=0.234	$\chi^2=24.340^{***}$ V=0.109	$\chi^2=68.218^{***}$ V=0.190	$\chi^2=1044.560^{***}$ V=0.734

¹ % for species reflects only % of respondents that actually hunted waterfowl during 2017.

² The first row of statistical tests compare regions from the statewide sample, and the second row compare statewide to crane and pictorial samples.

³ A stratified sample based on region of residence was drawn. Statewide data is weighted to reflect regional proportions in the population.

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

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

Area most often hunted	% of hunters ¹ indicating they hunted in Minnesota in 2017				
	Ducks	Canada Geese Early September	Canada Geese Regular Season	Other geese	Sandhill cranes
Statewide ²	93.9%	35.3%	71.5%	4.4%	1.6%
Central ³	95.6%	34.1%	73.6%	4.1%	0.8%
North	92.0%	35.0%	66.4%	5.9%	4.3%
South	93.4%	35.6%	70.6%	3.2%	0.8%
	$\chi^2=6.051^*$ V=0.067	$\chi^2=0.224$ n.s.	$\chi^2=5.765$ n.s.	$\chi^2=2.917$ n.s.	$\chi^2=22.972^{***}$ V=0.137
CRANE	83.4%	64.4%	84.1%	17.5%	65.1%
PICTORAL	95.0%	30.8%	70.8%	6.3%	0.3%
	$\chi^2=48.830^{***}$ V=0.152	$\chi^2=110.049^{***}$ V=0.234	$\chi^2=24.340^{***}$ V=0.109	$\chi^2=68.218^{***}$ V=0.190	$\chi^2=1044.560^{***}$ V=0.734

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

³ The regional data includes only respondents for the statewide sample.

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

Section 1: Experiences During the 2017 Waterfowl Hunt

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

Region of residence	N	Actually hunted in 2017	Ducks	Canada Geese Early September	Canada Geese Regular Season	Other geese	Sandhill cranes
Statewide	81420 ^{1,2}	71080	66744	25091	50822	3128	1137
CENTRAL	22993	20234	19586	7851	15701	647	202
METRO	26207	22564	21278	6070	15141	970	338
NORTH	17704	15385	14000	6062	10615	908	554
SOUTH	14516	12890	11911	5053	9345	619	39
CRANE	1073	989	825	637	832	173	644
PICTORAL	9121	7716	7331	2377	5463	486	23

¹ Source: DNR license database

² The statewide total is not equal to the total number of waterfowl stamps sold. The number reflects the sample population for the study, which excluded nonresident stamp buyers and individuals less than 18 years of age. This number reflects the customer count rather than the stamp count. Customers can purchase more than one stamp.

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

Region of residence	Average number of birds bagged in Minnesota in 2017 per hunter for that specific season					
	Ducks	Canada Geese Early September	Canada Geese Regular Season	Total Canada Geese All Seasons ²	Other Geese	Sandhill cranes
Statewide ³	11.0	6.4	4.3	6.9	1.6	0.4
CENTRAL	11.1	7.3	4.4	7.6	3.2	0.6
METRO	9.7	4.7	3.3	4.8	0.4	0.2
NORTH	12.0	7.6	6.2	9.3	1.3	0.7
SOUTH	11.8	5.8	3.8	6.3	2.4	0.0
	F = 1.9 n.s.	F = 2.2 n.s.	F = 2.9*	F = 3.7*	F = 0.9 n.s.	F = 1.7 n.s.
CRANE	13.6	13.3	6.9	15.3	1.3	0.6
PICTORAL	12.2	8.6	4.3	7.3	3.1	0.0
	F = 4.0*	F = 8.0***	F = 5.2**	F = 17.8***	F = 0.6 n.s.	F = 0.7 n.s.

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² Total number of Canada Geese bagged was not asked directly on the survey. This number was calculated as a sum of the number of Canada geese bagged in all seasons, including hunters who hunted in one to three of the possible seasons for Canada Geese.

³ A stratified sample based on region of residence was drawn. Statewide data is weighted to reflect regional proportions in the population.

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

Section 1: Experiences During the 2017 Waterfowl Hunt

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

Region of residence	Ducks	Canada Geese Early September	Canada Geese Regular Season	Other geese	Sandhill cranes
Statewide	734182	160583	218534	5004	455
CENTRAL	217409	57310	69086	2072	121
METRO	206397	28528	49964	388	68
NORTH	168002	46068	65816	1180	388
SOUTH	140545	29307	35513	1485	0
CRANE	11221	8474	5741	225	386
PICTORAL	89433	20439	23492	1507	0

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

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

Table 1-6: Average number of days hunting on weekends and weekdays

Area most often hunted	Mean number of days hunted during 2017 waterfowl season		
	Weekends/Holidays	Weekdays (Monday-Friday)	Total
Statewide ²	6.8	4.1	10.0
Central ³	6.8	4.2	10.1
North	6.3	3.8	9.3
South	7.0	4.0	10.3
	F=1.9 n.s.	F=0.5 n.s.	F=1.4 n.s.
CRANE	7.4	6.6	13.0
PICTORAL	6.6	4.2	10.0
	F=1.9 n.s.	F=17.6***	F=12.5***

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

³ The regional data includes only respondents for the statewide sample.

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

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Table 1-7: Participation in hunting on opening Saturday by region of residence

Region of residence	% hunting Opening Saturday (Sept. 23, 2017)
Statewide ²	64.0%
CENTRAL	66.0%
METRO	66.3%
NORTH	59.8%
SOUTH	61.7%
	$\chi^2=4.661$ n.s.
CRANE	59.0%
PICTORAL	66.3%
	$\chi^2=4.420$ n.s.

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-8: Participation in hunting on opening Saturday by region most often hunted

Area most often hunted	% hunting opening weekend in Minnesota Opening Saturday (Sept. 23, 2017)
Statewide ²	64.0%
Central ³	68.3%
North	58.6%
South	60.7%
	$\chi^2=11.316^{**}$ V=0.092
CRANE	59.0%
PICTORAL	66.3%
	$\chi^2=4.420$ n.s.

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

³ The regional data includes only respondents for the statewide sample.

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

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Table 1-9: Hunting North and South Zones during the 2017 Minnesota Season

Residence of hunter	% of hunters...						
	Hunted only in the North duck zone	Hunted only in the Central duck zone	Hunted only in the South duck zone	Hunted in the North & Central Zones	Hunted in the Central & South Zones	Hunted in the North and South Zones	Hunted in all three zones
Statewide ²	26.0%	38.6%	18.9%	8.2%	5.5%	1.7%	1.2%
CENTRAL	9.6%	72.5%	0.6%	13.6%	2.6%	0.3%	0.9%
METRO	20.7%	41.7%	13.4%	7.8%	11.0%	3.0%	2.4%
NORTH	71.5%	17.4%	1.2%	8.1%	0.3%	0.9%	0.6%
SOUTH	7.3%	4.6%	78.2%	0.5%	6.5%	2.7%	0.3%
	$\chi^2=482.543^{***}$ V = 0.580	$\chi^2=424.318^{***}$ V = 0.544	$\chi^2=817.850^{***}$ V = 0.756	$\chi^2=45.331^{***}$ V = 0.178	$\chi^2=47.974^{***}$ V = 0.183	$\chi^2=10.926^*$ V = 0.087	$\chi^2=9.747^*$ V = 0.083
CRANE	76.8%	5.2%	1.6%	12.9%	0.5%	2.5%	0.5%
PICTORAL	26.9%	40.5%	15.1%	7.2%	5.8%	2.9%	1.4%
	$\chi^2=342.936^{***}$ V = 0.400	$\chi^2=155.863^{***}$ V = 0.270	$\chi^2=66.907^{***}$ V = 0.177	$\chi^2=9.200^*$ V = 0.066	$\chi^2=17.065^{***}$ V = 0.089	$\chi^2=2.556$ n.s.	$\chi^2=1.469$ n.s.

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² A stratified sample based on region of residence was drawn. Statewide data is weighted to reflect regional proportions in the population.

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

Table 1-10: Regional distribution of hunting across Minnesota

Residence of hunter	Mean number of days hunting by region		
	North	Central	South
Statewide ²	2.5	4.7	2.4
CENTRAL	1.1	9.1	.2
METRO	1.7	5.1	2.3
NORTH	7.5	2.0	.1
SOUTH	.4	.6	8.9
	F=142.801***	F=132.790***	F=195.385***
CRANE	9.4	1.7	.5
PICTORAL	2.7	4.8	2.1
	F=143.542***	F=28.527***	F=15.554***

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² A stratified sample based on region of residence was drawn. Statewide data is weighted to reflect regional proportions in the population.

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

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Table 1-11: Regional distribution of hunting across Minnesota

Residence of hunter	% of hunters indicating the region they MOST OFTEN hunted (i.e. greater than or equal to the number of days in other regions) in Minnesota in 2017		
	North	Central	South
Statewide ²	25.6%	46.6%	22.4%
CENTRAL	8.7%	84.6%	1.4%
METRO	22.0%	52.4%	20.2%
NORTH	72.4%	20.9%	1.5%
SOUTH	3.8%	7.0%	83.8%
	$\chi^2 = 534.137^{***}$ V = 0.611	$\chi^2 = 526.702^{***}$ V = 0.606	$\chi^2 = 832.040^{***}$ V = 0.762
CRANE	76.4%	11.8%	3.0%
PICTORAL	27.7%	46.8%	18.8%
	$\chi^2 = 340.042^{***}$ V = 0.398	$\chi^2 = 152.744^{***}$ V = 0.267	$\chi^2 = 72.349^{***}$ V = 0.184

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² A stratified sample based on region of residence was drawn. Statewide data is weighted to reflect regional proportions in the population.

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

Table 1-12: Hunting private versus public access areas.

Residence of hunter	n	% of hunters indicating that during 2017 they hunted		
		% Mostly on privately owned areas	% Mostly on public access areas ²	% Public and private about the same
Statewide ³	1379	43.8%	38.5%	17.7%
CENTRAL	333	50.2%	30.3%	19.5%
METRO	358	42.2%	44.4%	13.4%
NORTH	330	38.2%	43.3%	18.5%
SOUTH	360	43.1%	35.6%	21.4%
		$\chi^2 = 24.4^{***}$, V = 0.094		
CRANE	352	44.9%	34.4%	20.7%
PICTORAL	340	43.8%	42.1%	14.1%
		$\chi^2 = 7.066$ n.s.		

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² Public access areas listed included Wildlife Management Areas, Waterfowl Production Areas, public access waters.

³ A stratified sample based on region of residence was drawn. Statewide data is weighted to reflect regional proportions in the population.

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

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Table 1-13: Mean statewide results: Use of techniques to target ducks and geese.

Item	Duck Mean ^{2,4}	Goose Mean ^{3,4}
Pass shooting.	2.2	2.0
Decoying birds over water.	3.8	2.7
Decoying birds over land.	1.7	2.5
Jump shooting on ponds or streams.	1.7	1.3
Sneaking on birds in fields.	1.1	1.2
Hunting from NON-motorized watercraft.	1.9	1.6
Hunting from motorized watercraft <u>with a mud motor</u> .	1.3	1.2
Hunting from motorized watercraft <u>without a mud motor</u> .	1.8	1.5
Using duck/ goose calls.	4.1	3.7
Hunting with a retrieving dog.	2.9	2.5
Hunting with a paid guide.	1.0	1.1

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² Grand mean=2.1, F=27290.1***, $\eta^2=0.420$. Mean based on scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ Grand mean=1.9, F=15206.7***, $\eta^2=0.308$. Mean based on scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

⁴ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

Table 1-14: Use of techniques to target ducks: Pass shooting.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1266	41.7%	24.7%	12.9%	9.1%	11.6%	2.2
CENTRAL	313	40.9%	24.6%	14.1%	8.3%	12.1%	2.3
METRO	330	42.4%	26.4%	9.7%	9.7%	11.8%	2.2
NORTH	297	42.4%	24.2%	13.8%	8.1%	11.4%	2.2
SOUTH	323	40.9%	22.6%	15.5%	10.5%	10.5%	2.3
$\chi^2 = 7.5$ n.s.							
CRANE	299	40.1%	31.1%	11.0%	7.0%	10.7%	2.2
PICTORAL	305	39.2%	29.7%	9.5%	14.4%	7.2%	2.2
$\chi^2 = 22.359^{**}$ V = 0.077							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.1 n.s. for one-way ANOVA comparing regional means. F = 0.4 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-15: Use of techniques to target ducks: Decoying birds over water.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1311	11.7%	8.0%	13.2%	23.7%	43.4%	3.8
CENTRAL	327	11.0%	8.6%	13.1%	26.9%	40.4%	3.8
METRO	339	10.3%	7.1%	13.3%	23.6%	45.7%	3.9
NORTH	311	13.2%	8.0%	10.9%	21.5%	46.3%	3.8
SOUTH	330	13.3%	8.8%	15.8%	21.2%	40.9%	3.7
$\chi^2 = 10.5$ n.s.							
CRANE	310	28.4%	15.5%	10.6%	20.3%	25.2%	3.0
PICTORAL	319	9.4%	6.0%	7.2%	32.0%	45.5%	4.0
$\chi^2 = 115.732^{***}$ V = 0.173							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 1.2 n.s. for one-way ANOVA comparing regional means. F = 50.7*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-16: Use of techniques to target ducks: Decoying birds over land.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1258	67.0%	15.0%	5.7%	6.9%	5.4%	1.7
CENTRAL	314	65.0%	17.2%	6.1%	6.1%	5.7%	1.7
METRO	331	70.7%	15.1%	4.8%	6.0%	3.3%	1.6
NORTH	288	69.4%	11.8%	4.5%	6.6%	7.6%	1.7
SOUTH	320	60.9%	14.7%	8.1%	10.3%	5.9%	1.9
$\chi^2 = 21.0$ n.s.							
CRANE	303	47.4%	20.9%	7.6%	14.2%	9.9%	2.2
PICTORAL	304	70.6%	16.2%	6.3%	5.3%	1.7%	1.5
$\chi^2 = 62.077^{***}$ V = 0.129							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 3.3* for one-way ANOVA comparing regional means. F = 28.1*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-17: Use of techniques to target ducks: Jump shooting on ponds or streams.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1304	58.3%	26.0%	7.1%	4.2%	4.5%	1.7
CENTRAL	324	55.6%	29.9%	7.4%	3.7%	3.4%	1.7
METRO	341	63.3%	23.5%	5.9%	3.2%	4.1%	1.6
NORTH	303	55.4%	26.7%	7.9%	4.6%	5.3%	1.8
SOUTH	333	57.1%	23.1%	7.8%	6.0%	6.0%	1.8
$\chi^2 = 13.8$ n.s.							
CRANE	311	56.9%	28.9%	4.8%	5.8%	3.5%	1.7
PICTORAL	315	58.1%	26.7%	5.7%	6.3%	3.2%	1.7
$\chi^2 = 8.023$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.2 n.s. for one-way ANOVA comparing regional means. F = 0.2 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-18: Use of techniques to target ducks: Sneaking on birds in fields.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1287	91.9%	6.2%	1.2%	0.3%	0.4%	1.1
CENTRAL	317	90.5%	7.6%	1.6%	0.3%	0.0%	1.1
METRO	340	94.1%	4.4%	0.9%	0.0%	0.6%	1.1
NORTH	300	90.7%	7.3%	1.3%	0.3%	0.3%	1.1
SOUTH	326	91.7%	6.1%	0.9%	0.6%	0.6%	1.1
$\chi^2 = 8.5$ n.s.							
CRANE	307	87.9%	9.1%	1.6%	0.3%	1.0%	1.2
PICTORAL	313	92.7%	5.4%	0.6%	0.3%	1.0%	1.1
$\chi^2 = 8.306$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.6 n.s. for one-way ANOVA comparing regional means. F = 2.5 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-19: Use of techniques to target ducks: Hunting from NON-motorized watercraft.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1302	60.2%	14.6%	6.2%	8.4%	10.7%	1.9
CENTRAL	324	57.7%	16.0%	6.5%	9.6%	10.2%	2.0
METRO	340	60.3%	11.5%	7.4%	8.8%	12.1%	2.0
NORTH	304	57.9%	17.4%	5.6%	8.2%	10.9%	2.0
SOUTH	330	66.7%	14.2%	4.2%	5.8%	9.1%	1.8
$\chi^2 = 15.0$ n.s.							
CRANE	308	62.0%	14.6%	8.4%	8.4%	6.5%	1.8
PICTORAL	315	53.3%	18.4%	5.7%	9.8%	12.7%	2.1
$\chi^2 = 14.314$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.2 n.s. for one-way ANOVA comparing regional means. F = 2.9 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-20: Use of techniques to target ducks: Hunting from motorized watercraft with a mud motor.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1293	85.6%	5.0%	3.1%	3.0%	3.3%	1.3
CENTRAL	320	88.8%	5.3%	2.5%	2.2%	1.3%	1.2
METRO	338	85.5%	4.1%	4.4%	2.7%	3.3%	1.3
NORTH	303	85.8%	5.6%	1.7%	3.0%	4.0%	1.3
SOUTH	328	80.2%	5.2%	3.7%	5.2%	5.8%	1.5
$\chi^2 = 21.8^* V = 0.075$							
CRANE	308	90.6%	4.6%	2.0%	2.0%	1.0%	1.2
PICTORAL	313	90.1%	4.5%	0.3%	2.5%	2.5%	1.2
$\chi^2 = 15.689^* V = 0.064$							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 5.2** for one-way ANOVA comparing regional means. F = 4.9** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-21: Use of techniques to target ducks: Hunting from motorized watercraft without a mud motor.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1299	69.6%	9.3%	5.4%	6.4%	9.4%	1.8
CENTRAL	321	72.3%	10.6%	5.9%	5.0%	6.2%	1.6
METRO	342	68.1%	8.2%	5.8%	7.6%	10.2%	1.8
NORTH	305	67.5%	8.9%	3.0%	8.2%	12.5%	1.9
SOUTH	326	70.2%	9.5%	6.4%	4.3%	9.5%	1.7
$\chi^2 = 18.3$ n.s.							
CRANE	307	71.0%	10.4%	6.5%	5.9%	6.2%	1.7
PICTORAL	314	65.8%	8.9%	6.7%	7.7%	10.9%	1.9
$\chi^2 = 7.147$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.5 n.s. for one-way ANOVA comparing regional means. F = 2.4 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-22: Use of techniques to target ducks: Using duck/goose calls.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1317	11.7%	7.0%	6.2%	12.4%	62.6%	4.1
CENTRAL	327	12.2%	8.0%	7.0%	9.5%	63.3%	4.0
METRO	343	11.4%	6.7%	5.5%	12.2%	64.1%	4.1
NORTH	310	12.9%	7.4%	7.1%	13.9%	58.7%	4.0
SOUTH	333	10.2%	5.7%	5.1%	15.6%	63.4%	4.2
$\chi^2 = 10.3$ n.s.							
CRANE	314	16.0%	7.3%	4.5%	16.6%	55.6%	3.9
PICTORAL	322	9.6%	7.1%	6.5%	14.5%	62.3%	4.1
$\chi^2 = 13.050$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 1.0 n.s. for one-way ANOVA comparing regional means. F = 2.9 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-23: Use of techniques to target ducks: Hunting with a retrieving dog.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1314	38.0%	10.0%	7.7%	9.0%	35.3%	2.9
CENTRAL	327	34.9%	13.1%	8.6%	9.5%	33.9%	2.9
METRO	342	42.7%	7.9%	5.3%	8.8%	35.4%	2.9
NORTH	308	37.3%	9.7%	9.4%	8.4%	35.1%	2.9
SOUTH	334	35.6%	8.7%	8.7%	9.3%	37.7%	3.0
$\chi^2 = 14.0$ n.s.							
CRANE	310	47.2%	9.7%	9.1%	7.4%	26.5%	2.6
PICTORAL	318	33.6%	10.1%	5.7%	7.2%	43.4%	3.2
$\chi^2 = 24.548^{**}$ V = 0.080							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.6 n.s. for one-way ANOVA comparing regional means. F = 9.6*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-24: Use of techniques to target ducks: Hunting with a paid guide.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1298	98.1%	0.8%	0.4%	0.1%	0.6%	1.0
CENTRAL	322	98.1%	1.2%	0.3%	0.3%	0.0%	1.0
METRO	340	97.4%	1.2%	0.6%	0.0%	0.9%	1.1
NORTH	305	99.0%	0.0%	0.0%	0.0%	1.0%	1.0
SOUTH	327	98.5%	0.3%	0.6%	0.0%	0.6%	1.0
$\chi^2 = 13.5$ n.s.							
CRANE	310	98.4%	1.3%	0.0%	0.0%	0.3%	1.0
PICTORAL	315	98.1%	1.0%	0.6%	0.0%	0.3%	1.0
$\chi^2 = 3.760$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.4 n.s. for one-way ANOVA comparing regional means. F = 0.5 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-25: Use of techniques to target geese: Pass shooting.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1128	55.0%	19.9%	8.6%	5.2%	11.3%	2.0
CENTRAL	285	54.7%	16.8%	11.2%	5.3%	11.9%	2.0
METRO	288	54.9%	23.3%	5.2%	4.5%	12.2%	2.0
NORTH	263	56.7%	20.2%	8.7%	4.9%	9.5%	1.9
SOUTH	291	53.6%	18.9%	10.0%	6.5%	11.0%	2.0
$\chi^2 = 12.3$ n.s.							
CRANE	311	39.2%	27.7%	10.0%	9.0%	14.1%	2.3
PICTORAL	269	52.4%	23.4%	8.6%	8.2%	7.4%	1.9
$\chi^2 = 32.086^{***}$ V = 0.097							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.5 n.s. for one-way ANOVA comparing regional means. F = 8.1*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-26: Use of techniques to target geese: Decoying birds over water.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1161	39.2%	14.3%	11.0%	11.3%	24.1%	2.7
CENTRAL	286	33.6%	17.1%	13.6%	13.6%	22.0%	2.7
METRO	312	42.3%	10.9%	9.0%	11.2%	26.6%	2.7
NORTH	257	44.0%	15.2%	9.7%	8.6%	22.6%	2.5
SOUTH	302	37.7%	14.9%	11.9%	10.9%	24.5%	2.7
$\chi^2 = 17.3$ n.s.							
CRANE	301	48.3%	21.0%	10.7%	10.0%	10.0%	2.1
PICTORAL	279	32.1%	15.9%	8.3%	14.4%	29.2%	2.9
$\chi^2 = 48.529^{***}$ V = 0.118							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 1.0 n.s. for one-way ANOVA comparing regional means. F = 20.5*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-27: Use of techniques to target geese: Decoying birds over land.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1157	47.5%	11.0%	8.4%	12.4%	20.8%	2.5
CENTRAL	287	43.2%	10.8%	12.9%	13.2%	19.9%	2.6
METRO	295	55.9%	12.2%	4.4%	10.2%	17.3%	2.2
NORTH	276	42.4%	8.3%	8.3%	12.3%	28.6%	2.8
SOUTH	300	45.7%	12.3%	8.0%	15.0%	19.0%	2.5
$\chi^2 = 35.6^{***}$							
CRANE	316	25.2%	8.2%	9.1%	25.2%	32.2%	3.3
PICTORAL	277	55.2%	10.1%	9.0%	11.6%	14.1%	2.2
$\chi^2 = 91.661^{***}$ V = 0.162							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 5.7** for one-way ANOVA comparing regional means. F = 42.2*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-28: Use of techniques to target geese: Jump shooting on ponds or streams.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1128	81.1%	12.5%	2.8%	1.3%	2.3%	1.3
CENTRAL	282	80.1%	15.6%	2.8%	0.7%	0.7%	1.3
METRO	291	85.2%	10.0%	2.1%	0.7%	2.1%	1.2
NORTH	263	79.1%	12.2%	3.4%	2.7%	2.7%	1.4
SOUTH	291	77.7%	12.4%	3.4%	1.7%	4.8%	1.4
$\chi^2 = 21.0$ n.s.							
CRANE	306	78.8%	15.7%	2.0%	1.6%	2.0%	1.3
PICTORAL	274	79.6%	14.6%	1.5%	3.3%	1.1%	1.3
$\chi^2 = 11.006$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 3.6* for one-way ANOVA comparing regional means. F = 0.0 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-29: Use of techniques to target geese: Sneaking on birds in fields.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1130	86.6%	9.3%	2.5%	1.0%	0.6%	1.2
CENTRAL	285	84.2%	11.6%	2.5%	1.1%	0.7%	1.2
METRO	288	91.0%	5.9%	2.1%	0.7%	0.3%	1.1
NORTH	265	86.0%	9.4%	3.8%	0.4%	0.4%	1.2
SOUTH	291	83.5%	11.3%	2.1%	2.1%	1.0%	1.3
$\chi^2 = 15.1$ n.s.							
CRANE	303	83.2%	11.9%	3.3%	1.3%	0.3%	1.2
PICTORAL	273	89.0%	9.2%	1.1%	0.0%	0.7%	1.1
$\chi^2 = 8.960$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.2 n.s. for one-way ANOVA comparing regional means. F = 1.9 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-30: Use of techniques to target geese: Hunting from NON-motorized watercraft.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1146	73.7%	10.5%	4.5%	4.8%	6.7%	1.6
CENTRAL	285	70.5%	12.3%	4.2%	5.3%	7.7%	1.7
METRO	299	72.6%	9.4%	4.7%	5.4%	8.0%	1.7
NORTH	266	75.9%	10.9%	5.6%	3.8%	3.8%	1.5
SOUTH	293	78.2%	8.9%	3.1%	4.1%	5.8%	1.5
$\chi^2 = 11.8$ n.s.							
CRANE	306	77.0%	11.5%	3.9%	4.3%	3.3%	1.5
PICTORAL	278	71.6%	10.4%	5.4%	2.2%	10.4%	1.7
$\chi^2 = 16.416^* V = 0.069$							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.2 n.s. for one-way ANOVA comparing regional means. F = 3.2* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-31: Use of techniques to target geese: Hunting from motorized watercraft with a mud motor.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1131	90.2%	4.2%	2.3%	1.4%	1.9%	1.2
CENTRAL	282	91.8%	3.9%	2.5%	0.7%	1.1%	1.2
METRO	292	89.7%	4.1%	2.4%	1.4%	2.4%	1.2
NORTH	261	91.6%	4.6%	1.1%	1.1%	1.5%	1.2
SOUTH	296	86.8%	4.4%	3.0%	2.7%	3.0%	1.3
$\chi^2 = 10.5$ n.s.							
CRANE	305	93.1%	3.6%	1.3%	1.3%	0.7%	1.1
PICTORAL	275	94.2%	2.9%	1.1%	1.1%	0.7%	1.1
$\chi^2 = 8.140$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² $F = 2.6^*$ for one-way ANOVA comparing regional means. $F = 3.2^*$ for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-32: Use of techniques to target geese: Hunting from motorized watercraft without a mud motor.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1141	77.8%	7.9%	4.1%	3.6%	6.5%	1.5
CENTRAL	283	79.5%	8.8%	4.9%	1.8%	4.9%	1.4
METRO	297	75.8%	8.4%	3.7%	4.7%	7.4%	1.6
NORTH	266	77.4%	6.8%	2.3%	4.9%	8.6%	1.6
SOUTH	293	79.2%	6.8%	5.5%	3.4%	5.1%	1.5
$\chi^2 = 14.7$ n.s.							
CRANE	304	79.9%	8.9%	5.9%	2.0%	3.3%	1.4
PICTORAL	274	78.8%	5.9%	3.7%	5.1%	6.6%	1.6
$\chi^2 = 12.465$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² $F = 1.4$ n.s. for one-way ANOVA comparing regional means. $F = 1.9$ n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-33: Use of techniques to target geese: Using duck/goose calls.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1191	23.8%	4.5%	4.8%	8.2%	58.8%	3.7
CENTRAL	297	23.6%	4.0%	4.4%	7.1%	60.9%	3.8
METRO	312	24.7%	4.8%	3.8%	7.1%	59.6%	3.7
NORTH	274	20.1%	5.1%	6.6%	10.9%	57.3%	3.8
SOUTH	304	26.6%	3.9%	5.3%	8.9%	55.3%	3.6
$\chi^2 = 10.3$ n.s.							
CRANE	315	15.2%	4.4%	7.0%	14.9%	58.4%	4.0
PICTORAL	285	20.8%	5.6%	4.9%	10.9%	57.7%	3.8
$\chi^2 = 23.734^{**}$ V = 0.081							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.7 n.s. for one-way ANOVA comparing regional means. F = 2.4 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-34: Use of techniques to target geese: Hunting with a retrieving dog.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1172	50.6%	8.2%	6.9%	6.9%	27.4%	2.5
CENTRAL	290	47.2%	9.0%	6.6%	9.7%	27.6%	2.6
METRO	304	54.9%	6.6%	5.6%	5.3%	27.6%	2.4
NORTH	272	50.7%	9.2%	8.1%	6.3%	25.7%	2.5
SOUTH	306	48.4%	8.5%	8.2%	6.2%	28.8%	2.6
$\chi^2 = 10.8$ n.s.							
CRANE	310	50.8%	10.9%	9.3%	7.1%	21.9%	2.4
PICTORAL	278	46.4%	8.3%	4.0%	6.1%	35.3%	2.8
$\chi^2 = 19.053^{*}$ V = 0.074							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.7 n.s. for one-way ANOVA comparing regional means. F = 3.5* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-35: Use of techniques to target geese: Hunting with a paid guide.

Region of residence	n	% of hunters ¹ indicating that they used the technique:					Mean ³
		Never	Occasionally	About half the time I hunted	Often	Every time I hunted	
Statewide ³	1134	96.7%	1.6%	0.3%	0.2%	1.1%	1.1
CENTRAL	282	97.9%	1.8%	0.0%	0.4%	0.0%	1.0
METRO	294	94.9%	1.4%	0.7%	0.3%	2.7%	1.1
NORTH	266	98.9%	0.8%	0.0%	0.0%	0.4%	1.0
SOUTH	290	95.5%	2.8%	0.7%	0.0%	1.0%	1.1
$\chi^2 = 21.4^* V = 0.079$							
CRANE	307	97.4%	1.6%	0.7%	0.0%	0.3%	1.0
PICTORAL	277	94.9%	1.4%	1.1%	0.0%	2.5%	1.1
$\chi^2 = 9.480$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² $F = 4.5^{**}$ for one-way ANOVA comparing regional means. $F = 3.2^*$ for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1=never, 2=occasionally, 3=About half the time I hunted, 4=often, 5=every time I hunted.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-36: Mean statewide results: Potential problems encountered during the 2017 waterfowl season.

Item	Mean ^{2,4}
Crowding at hunting areas	2.5
Hunting pressure	2.7
Waterfowl unable to find rest areas	2.3
Shifting waterfowl migration routes	3.4
Interference from other hunters	2.4
Waterfowl arriving after the season is closed	3.1
Waterfowl concentrating on fewer areas	3.2
Waterfowl numbers on opening weekend	3.0
Finding someone to hunt with	1.8
Finding a place to hunt	2.4

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² Grand mean=3.0, $F=7917.9^{***}$, $\eta^2=0.154$. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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Table 1-37: Potential problems encountered during the 2017 waterfowl season: Crowding at hunting areas.

Region of residence	n	% of hunters ¹ indicating that they ____ encountered the problem:						Mean ³
		Never	Rarely	Sometimes	Often	Very often	Don't know	
Statewide ³	1399	27.9%	19.4%	28.7%	12.3%	8.4%	3.4%	2.5
CENTRAL	336	28.7%	19.2%	28.7%	14.1%	6.6%	2.7%	2.5
METRO	365	25.3%	19.2%	26.7%	11.1%	13.3%	4.4%	2.7
NORTH	334	32.0%	21.3%	28.4%	12.2%	3.7%	2.4%	2.3
SOUTH	366	26.2%	18.0%	32.3%	11.9%	8.0%	3.6%	2.6
$\chi^2 = 31.5^{**}$ V = 0.087								
CRANE	357	25.9%	29.3%	31.3%	8.2%	2.8%	2.6%	2.3
PICTORAL	338	32.6%	18.1%	27.6%	10.7%	8.6%	2.4%	2.4
$\chi^2 = 34.9^{***}$ V = 0.091								

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 4.3** for one-way ANOVA comparing means. F = 4.1* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-38: Potential problems encountered during the 2017 waterfowl season: Hunting pressure.

Region of residence	n	% of hunters ¹ indicating that they ____ encountered the problem:						Mean ³
		Never	Rarely	Sometimes	Often	Very often	Don't know	
Statewide ³	1393	20.9%	20.9%	29.5%	16.4%	9.7%	2.6%	2.7
CENTRAL	335	24.0%	17.4%	27.3%	21.6%	8.1%	1.5%	2.7
METRO	363	18.4%	23.5%	27.7%	12.8%	13.7%	3.9%	2.8
NORTH	333	21.7%	23.5%	33.6%	14.1%	5.2%	1.8%	2.6
SOUTH	365	19.4%	18.8%	31.6%	16.9%	10.2%	3.0%	2.8
$\chi^2 = 38.5^{**}$ V = 0.096								
CRANE	358	19.6%	28.4%	33.2%	11.1%	5.4%	2.3%	2.5
PICTORAL	337	22.9%	26.5%	28.3%	12.5%	8.3%	1.5%	2.6
$\chi^2 = 24.8^{**}$ V = 0.077								

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.4 n.s. for one-way ANOVA comparing means. F = 4.5* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

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Table 1-39: Potential problems encountered during the 2017 waterfowl season: Waterfowl unable to find rest areas.

Region of residence	n	% of hunters ¹ indicating that they ____ encountered the problem:						Mean ³
		Never	Rarely	Sometimes	Often	Very often	Don't know	
Statewide ³	1380	26.2%	29.8%	21.3%	10.1%	5.3%	7.4%	2.3
CENTRAL	332	25.5%	25.8%	22.7%	12.1%	4.8%	9.1%	2.4
METRO	357	24.4%	29.2%	22.4%	10.2%	5.1%	8.8%	2.4
NORTH	330	30.5%	36.0%	17.2%	7.7%	4.3%	4.3%	2.2
SOUTH	365	25.5%	30.2%	21.9%	9.4%	7.2%	5.8%	2.4
$\chi^2 = 27.2^* V = 0.081$								
CRANE	356	28.2%	35.3%	19.1%	6.6%	4.3%	6.6%	2.2
PICTORAL	331	25.5%	28.8%	23.9%	5.2%	7.0%	9.7%	2.3
$\chi^2 = 18.8^* V = 0.067$								

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 3.1* for one-way ANOVA comparing means. F = 2.5 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-40: Potential problems encountered during the 2017 waterfowl season: Shifting waterfowl migration routes.

Region of residence	n	% of hunters ¹ indicating that they ____ encountered the problem:						Mean ³
		Never	Rarely	Sometimes	Often	Very often	Don't know	
Statewide ³	1383	11.0%	12.1%	23.0%	22.9%	22.0%	9.0%	3.4
CENTRAL	334	9.0%	10.2%	25.3%	22.3%	25.6%	7.5%	3.5
METRO	358	12.4%	14.7%	21.8%	20.3%	19.2%	11.6%	3.2
NORTH	331	10.8%	11.4%	22.8%	25.2%	22.5%	7.4%	3.4
SOUTH	362	12.0%	11.2%	21.8%	25.7%	20.7%	8.7%	3.3
$\chi^2 = 17.4$ n.s.								
CRANE	354	11.1%	16.0%	27.1%	17.4%	18.3%	10.0%	3.2
PICTORAL	334	9.6%	10.2%	22.8%	23.1%	21.9%	12.3%	3.4
$\chi^2 = 16.3$ n.s.								

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.4 n.s. for one-way ANOVA comparing means. F = 3.4* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Section 1: Experiences During the 2017 Waterfowl Hunt

Table 1-41: Potential problems encountered during the 2017 waterfowl season: Interference from other hunters.

Region of residence	n	% of hunters ¹ indicating that they ___ encountered the problem:						Mean ³
		Never	Rarely	Sometimes	Often	Very often	Don't know	
Statewide ³	1388	26.3%	29.4%	26.5%	10.0%	5.8%	2.0%	2.4
CENTRAL	334	28.0%	26.5%	28.6%	10.2%	5.4%	1.2%	2.4
METRO	361	23.9%	28.4%	25.8%	11.2%	7.6%	3.1%	2.5
NORTH	332	29.4%	33.4%	24.5%	6.4%	4.0%	2.1%	2.2
SOUTH	365	24.1%	31.0%	26.6%	11.6%	5.5%	1.1%	2.4
$\chi^2 = 21.7$ n.s.								
CRANE	353	26.4%	33.0%	31.0%	4.3%	3.2%	2.0%	2.2
PICTORAL	334	33.9%	26.4%	25.2%	8.1%	5.7%	0.6%	2.3
$\chi^2 = 29.3^{**}$ V = 0.084								

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 3.7* for one-way ANOVA comparing means. F = 3.6* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-42: Potential problems encountered during the 2017 waterfowl season: Waterfowl arriving after the season is closed.

Region of residence	n	% of hunters ¹ indicating that they ___ encountered the problem:						Mean ³
		Never	Rarely	Sometimes	Often	Very often	Don't know	
Statewide ³	1398	15.3%	16.0%	25.0%	18.7%	16.9%	8.1%	3.1
CENTRAL	338	14.3%	17.9%	23.8%	19.9%	17.0%	7.1%	3.1
METRO	363	16.5%	14.2%	24.0%	17.9%	16.2%	11.2%	3.0
NORTH	332	18.1%	17.2%	26.4%	15.0%	17.2%	6.1%	3.0
SOUTH	367	11.8%	14.9%	26.7%	22.6%	17.6%	6.3%	3.2
$\chi^2 = 22.5$ n.s.								
CRANE	358	20.7%	19.0%	22.4%	14.4%	15.9%	7.6%	2.8
PICTORAL	339	18.3%	13.9%	24.9%	18.6%	14.5%	9.8%	3.0
$\chi^2 = 13.7$ n.s.								

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.0 n.s. for one-way ANOVA comparing means. F = 3.7* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Section 1: Experiences During the 2017 Waterfowl Hunt

Table 1-43: Potential problems encountered during the 2017 waterfowl season: Waterfowl concentrating on fewer areas.

Region of residence	n	% of hunters ¹ indicating that they ___ encountered the problem:						Mean ³
		Never	Rarely	Sometimes	Often	Very often	Don't know	
Statewide ³	1386	8.8%	12.1%	34.0%	24.1%	11.8%	9.3%	3.2
CENTRAL	331	7.6%	10.0%	33.4%	25.8%	15.2%	7.9%	3.3
METRO	362	9.5%	12.3%	30.8%	22.1%	10.9%	14.3%	3.1
NORTH	331	8.9%	12.9%	36.6%	24.0%	10.8%	6.8%	3.2
SOUTH	366	9.1%	14.1%	37.3%	24.9%	9.1%	5.5%	3.1
$\chi^2 = 32.6^{**}$ V = 0.088								
CRANE	359	9.0%	17.8%	31.9%	21.8%	10.2%	9.3%	3.1
PICTORAL	336	7.5%	12.2%	32.2%	27.2%	11.3%	9.6%	3.3
$\chi^2 = 10.7$ n.s.								

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.5 n.s. for one-way ANOVA comparing means. F = 2.5 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-44: Potential problems encountered during the 2017 waterfowl season: Waterfowl numbers on opening weekend.

Region of residence	n	% of hunters ¹ indicating that they ___ encountered the problem:						Mean ³
		Never	Rarely	Sometimes	Often	Very often	Don't know	
Statewide ³	1386	12.6%	17.5%	26.8%	15.8%	13.9%	13.3%	3.0
CENTRAL	334	12.0%	16.9%	28.9%	16.9%	15.4%	9.9%	3.1
METRO	363	12.3%	15.9%	24.8%	17.8%	12.0%	17.3%	3.0
NORTH	329	11.5%	17.0%	27.6%	15.5%	15.2%	13.3%	3.1
SOUTH	363	15.3%	22.0%	26.2%	11.1%	13.6%	11.7%	2.8
$\chi^2 = 25.5^{**}$ V = 0.078								
CRANE	349	11.9%	22.7%	32.6%	13.7%	7.0%	12.2%	2.8
PICTORAL	334	12.6%	19.2%	27.9%	15.3%	12.0%	12.9%	2.9
$\chi^2 = 18.8^{*}$ V = 0.067								

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.3 n.s. for one-way ANOVA comparing means. F = 4.0* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Section 1: Experiences During the 2017 Waterfowl Hunt

Table 1-45: Potential problems encountered during the 2017 waterfowl season: Finding someone to hunt with.

Region of residence	n	% of hunters ¹ indicating that they ____ encountered the problem:						Mean ³
		Never	Rarely	Sometimes	Often	Very often	Don't know	
Statewide ³	1397	52.6%	24.2%	13.3%	4.9%	3.6%	1.4%	1.8
CENTRAL	336	51.8%	26.3%	12.0%	5.1%	3.9%	0.9%	1.8
METRO	365	55.3%	22.2%	11.7%	5.6%	3.6%	1.7%	1.8
NORTH	332	51.5%	24.2%	16.0%	3.4%	3.7%	1.2%	1.8
SOUTH	366	50.6%	24.3%	15.2%	5.0%	3.0%	1.9%	1.8
$\chi^2 = 8.9$ n.s.								
CRANE	355	51.7%	26.0%	12.3%	4.9%	3.4%	1.7%	1.8
PICTORAL	339	54.4%	24.3%	13.0%	5.3%	1.8%	1.2%	1.7
$\chi^2 = 4.5$ n.s.								

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.2 n.s. for one-way ANOVA comparing means. F = 0.5 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Table 1-46: Potential problems encountered during the 2017 waterfowl season: Finding a place to hunt.

Region of residence	n	% of hunters ¹ indicating that they ____ encountered the problem:						Mean ³
		Never	Rarely	Sometimes	Often	Very often	Don't know	
Statewide ³	1402	34.5%	20.0%	24.4%	11.1%	9.0%	1.1%	2.4
CENTRAL	338	35.1%	19.0%	21.7%	13.1%	10.4%	0.6%	2.4
METRO	366	32.7%	21.1%	23.5%	8.9%	11.9%	1.9%	2.5
NORTH	334	36.3%	21.6%	25.6%	11.3%	4.3%	0.9%	2.2
SOUTH	367	34.4%	17.6%	28.7%	11.6%	6.9%	0.8%	2.4
$\chi^2 = 27.1^* V = 0.080$								
CRANE	358	32.3%	24.4%	25.8%	7.6%	8.2%	1.7%	2.3
PICTORAL	341	41.6%	17.1%	25.4%	6.8%	7.7%	1.5%	2.2
$\chi^2 = 20.2^* V = 0.069$								

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 1.7 n.s. for one-way ANOVA comparing means. F = 2.8 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean based on scale: 1=never, 2=rarely, 3=sometimes, 4=often, 5=very often.

³ A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

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

Section 2: Satisfaction With the 2017 Waterfowl Hunt

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

Satisfaction with the General Waterfowl Hunting Experience

Statewide about two-thirds of hunters (69%) reported being satisfied with their general waterfowl-hunting experience, with 25% expressing dissatisfaction. Statewide the overall mean satisfaction score was 4.9. There were no significant differences in the pattern of responses by region hunted most frequently or region of residence. On average, hunters from the metropolitan and north regions of residents and from crane permit sample were slightly more satisfied (Tables 2-1 and 2-2).

Younger hunters, and hunters who have been hunting for fewer years reported higher levels of satisfaction with the general waterfowl-hunting experience. There was a significant negative relationship ($r = -0.195$, $p < 0.001$) between age and satisfaction. This means that older hunters reported less satisfaction than younger hunters. Likewise, there was a significant negative relationship ($r = -0.213$, $p < 0.001$) between years of waterfowl-hunting experience and satisfaction. Using Humburg et al.'s (2002) avidity categories, we found that more avid waterfowl hunters reported slightly higher mean levels of general satisfaction compared to casual (called "novice" by Humburg) or intermediate hunters (Table 2-3). Age was significantly related to avidity. Avid hunters were significantly younger than intermediate and casual hunters; the mean age for casual hunters was 44 years, intermediate hunters 44 years, and avid hunters 41 years ($F = 4.286$, $p < 0.05$).

Satisfaction with Duck Hunting

Statewide

Statewide over two-thirds (71%) of duck hunters were satisfied (slightly, moderately, or very) with their duck-hunting experience in 2017; of these 24% were very satisfied. Conversely, 22% of respondents were dissatisfied (slightly, moderately, or very), with 8% very dissatisfied with their duck-hunting experience. Nearly one-half (49%) of respondents were satisfied with their duck-hunting harvest, and a slightly smaller proportion (41%) of the respondents were dissatisfied with their duck harvest. About one in ten hunters (11%) were very satisfied with their duck harvest. Satisfaction with duck-hunting regulations was higher than satisfaction with harvest, with 58% of respondents reporting satisfaction with the regulations, including 46% of respondents who were moderately or very satisfied. However, about one in five respondents (22%) felt neither satisfied nor dissatisfied about the duck-hunting regulations, compared to only 7% who felt neutral about the duck-hunting experience and only 10% who felt neutral about the duck-hunting harvest. (Tables 2-4, 2-5, 2-6).

Section 2: Satisfaction With the 2017 Waterfowl Hunt

The mean score for duck-harvest satisfaction ($\bar{x} = 4.1$) was significantly lower than the mean scores for experience ($\bar{x} = 5.1$, $t = 23.865$, $p < 0.001$) or regulations ($\bar{x} = 4.9$, $t = 14.561$, $p < 0.001$). The mean satisfaction score for experience was significantly higher than for regulations ($t = 4.486$, $p < 0.001$).

There was a significant positive relationship ($r = 0.281$, $p < 0.001$) between the number of ducks bagged and the satisfaction with the duck-hunting harvest. As the number of ducks bagged increases, satisfaction increases.

Regional

There were no significant differences in mean satisfaction ratings or patterns of response among regions. The only difference observed between the three samples was slightly greater satisfaction with duck regulations among hunters from the pictorial sample compared to the statewide and crane samples.

Satisfaction with Goose Hunting

Statewide

Statewide most goose hunters were satisfied (63%) with their general goose-hunting experience, with slightly less than half reporting that they were moderately (27%) or very (22%) satisfied (Table 2-7). About half (48%) of goose hunters were satisfied with their harvest. A total of 35% reported being dissatisfied with their harvest with 10% moderately dissatisfied and 12% very dissatisfied (Table 2-8). Over half (53%) of the goose hunters indicated they were satisfied with the goose-hunting regulations with 22% moderately satisfied and 18% very satisfied (Table 2-9).

There was a statistically significant correlation ($r = 0.250$, $p < 0.001$) between the total number of geese bagged in 2017 and satisfaction with the goose-hunting harvest. The number of geese bagged appears to have a moderate positive influence on satisfaction with goose-hunting harvest.

Regional

There were significant, but slight, differences among regions for satisfaction with goose-hunting experience and regulations. Hunters from the crane sample were significantly more satisfied with the goose-hunting experience and harvest, compared to hunters from the statewide and pictorial samples.

Comparison of Duck Hunting and Goose Hunting

We compared mean satisfaction levels for duck and goose hunting (Table 2-10). Levels of satisfaction were similar when comparing duck and goose hunting.

Satisfaction with Waterfowl Habitat

Hunters were asked about how satisfied they were with the habitat in the areas they hunted most during the 2017 season. Responses were recorded on a 7-point scale on which 1 = very dissatisfied, 2 = moderately dissatisfied, 3 = slightly dissatisfied, 4 = neither, 5 = slightly satisfied, 6 = moderately satisfied, and 7 = very satisfied.

Section 2: Satisfaction With the 2017 Waterfowl Hunt

Nearly two-thirds (64%) of respondents were satisfied with the waterfowl habitat in the areas they hunted most, and 21% were very satisfied (Table 2-11).

Satisfaction with the Number of Ducks and Geese Seen in the Field

Hunters were asked about how satisfied they were with the number of ducks and geese seen in the field during the 2017 season. Responses were recorded on a 7-point scale on which 1 = very dissatisfied, 2 = moderately dissatisfied, 3 = slightly dissatisfied, 4 = neither, 5 = slightly satisfied, 6 = moderately satisfied, and 7 = very satisfied.

About 43% of respondents were satisfied with the number of ducks that they saw in the field, and 9% were very satisfied (Table 2-12). There was no significant difference among regions in the mean level of satisfaction with number of ducks seen in the field. Just over half of respondents (51%) were satisfied with the number of geese that they saw in the field, with 13% who were very satisfied (Table 2-13). There was no significant difference among regions in the mean level of satisfaction with number of geese seen in the field.

Section 2: Satisfaction With the 2017 Waterfowl Hunt

Table 2-1: Satisfaction with the general waterfowl-hunting experience for the 2017 season by zone most often hunted.

Area most often hunted	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1305	7.8%	8.2%	8.8%	6.1%	16.3%	34.3%	18.5%	4.9
Central ⁴	607	8.7%	8.2%	9.7%	6.7%	15.1%	33.7%	17.8%	4.8
North	343	7.3%	8.7%	7.3%	4.1%	15.5%	35.3%	21.9%	5.1
South	298	6.4%	7.4%	8.4%	7.7%	18.8%	33.9%	17.4%	5.0
$\chi^2 = 11.585$ n.s.									
CRANE	331	5.1%	6.3%	9.1%	6.6%	14.5%	31.4%	26.9%	5.2
PICTORAL	324	6.5%	9.3%	9.3%	5.6%	15.7%	32.1%	21.6%	5.0
$\chi^2 = 15.960$ n.s.									

¹ Table includes only respondents who actually hunted waterfowl during 2017; regional data excludes individuals who hunted the same number of days in multiple regions.

² $F = 1.7$ n.s. one-way ANOVA comparing means among regions. $F = 3.4^*$ for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

⁴ The regional data includes only respondents for the statewide sample.

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

Table 2-2: Satisfaction with the general waterfowl-hunting experience for the 2017 season by region of residence.

Region of residence	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1305	7.8%	8.2%	8.8%	6.1%	16.3%	34.3%	18.5%	4.9
CENTRAL	317	9.8%	9.5%	10.4%	6.9%	16.1%	30.6%	16.7%	4.7
METRO	335	7.8%	6.3%	9.3%	4.8%	15.8%	35.8%	20.3%	5.0
NORTH	312	6.1%	9.0%	6.1%	5.4%	14.7%	39.1%	19.6%	5.1
SOUTH	344	6.7%	8.7%	8.4%	7.8%	19.5%	32.0%	16.9%	4.9
$\chi^2 = 21.0$ n.s.									
CRANE	331	5.1%	6.3%	9.1%	6.6%	14.5%	31.4%	26.9%	5.2
PICTORAL	324	6.5%	9.3%	9.3%	5.6%	15.7%	32.1%	21.6%	5.0
$\chi^2 = 15.960$ n.s.									

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² $F = 2.7^*$ for one-way ANOVA comparing means among regions. $F = 3.4^*$ for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Section 2: Satisfaction With the 2017 Waterfowl Hunt

Table 2-3: Satisfaction with the general waterfowl-hunting experience by hunting involvement level

2017 Waterfowl-hunting involvement ²	n	% of hunters ¹ indicating that level of satisfaction:			Mean ³
		Slightly, moderately, or very dissatisfied	Neither satisfied nor dissatisfied	Slightly, moderately, or very satisfied	
Casual (0-5 days afield) ⁴	494	28.1%	7.9%	64.0%	4.8
Intermediate (6-19 days afield)	615	22.8%	5.7%	71.5%	5.0
Avid (20+ days afield)	188	22.3%	3.7%	73.9%	5.1
$\chi^2 = 11.135^*$, Cramer's V = 0.066					

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

³ F = 2.1 n.s. for one-way ANOVA comparing means. Mean is based on the following scale: 1 = very dissatisfied; 2 = moderately dissatisfied; 3 = slightly dissatisfied; 4 = neither; 5 = slightly satisfied; 6 = moderately satisfied; 7 = very satisfied.

⁴ Categories as defined by Humburg et al., 2002. Data includes only respondents for the statewide sample.

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

Table 2-4: Satisfaction with the duck-hunting experience for the 2017 season

Area most often hunted	n	% of hunters ¹ indicating that level of satisfaction:							Mean ³
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1326	7.5%	6.3%	7.8%	7.3%	15.3%	32.2%	23.6%	5.1
Central ⁴	625	7.0%	6.1%	7.0%	9.3%	14.4%	34.2%	21.9%	5.1
North	329	8.8%	5.5%	8.8%	3.9%	14.2%	30.6%	28.2%	5.1
South	302	7.0%	7.3%	7.0%	7.6%	17.6%	30.9%	22.6%	5.0
$\chi^2 = 17.768$ n.s.									
CRANE	307	8.8%	7.2%	9.8%	8.8%	15.6%	27.0%	22.8%	4.9
PICTORAL	324	6.5%	7.1%	5.3%	7.4%	13.3%	32.2%	28.2%	5.2
$\chi^2 = 11.963$ n.s.									

¹ Table includes only respondents who actually hunted waterfowl during 2017; regional data excludes individuals who hunted the same number of days in multiple regions.

² F = 0.2 n.s. for one-way ANOVA comparing means. F = 2.6 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

⁴ The regional data includes only respondents for the statewide sample.

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

Section 2: Satisfaction With the 2017 Waterfowl Hunt

Table 2-5: Satisfaction with the duck-hunting harvest for the 2017 season

Area most often hunted	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1330	15.7%	12.0%	13.4%	9.9%	18.7%	19.1%	11.1%	4.1
Central ⁴	628	16.2%	13.5%	12.7%	10.5%	17.0%	19.3%	10.7%	4.0
North	331	19.3%	10.0%	14.2%	7.6%	18.4%	18.4%	12.1%	4.0
South	302	11.6%	10.6%	12.6%	11.0%	22.3%	20.6%	11.3%	4.3
$\chi^2 = 15.408$ n.s.									
CRANE	307	14.0%	12.0%	13.3%	10.7%	19.5%	15.3%	15.3%	4.2
PICTORAL	319	12.6%	14.2%	13.8%	9.1%	18.6%	19.5%	12.3%	4.2
$\chi^2 = 9.088$ n.s.									

¹ Table includes only respondents who actually hunted waterfowl during 2017; regional data excludes individuals who hunted the same number of days in multiple regions.

² F = 2.4 n.s. for one-way ANOVA comparing means. F = 0.5 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

⁴ The regional data includes only respondents for the statewide sample.

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

Table 2-6: Satisfaction with the duck-hunting regulations for the 2017 season

Area most often hunted	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1314	5.7%	5.7%	8.6%	22.1%	12.3%	26.0%	19.6%	4.9
Central ⁴	620	5.5%	6.4%	8.2%	23.3%	11.0%	25.0%	20.6%	4.9
North	329	5.2%	5.2%	8.2%	22.0%	14.3%	27.1%	18.0%	4.9
South	298	6.1%	5.4%	8.4%	18.9%	12.1%	28.6%	20.5%	4.9
$\chi^2 = 6.770$ n.s.									
CRANE	307	7.2%	7.8%	6.2%	22.8%	13.7%	25.4%	16.9%	4.7
PICTORAL	318	4.4%	4.7%	6.3%	22.4%	10.4%	28.1%	23.7%	5.1
$\chi^2 = 13.441$ n.s.									

¹ Table includes only respondents who actually hunted waterfowl during 2017; regional data excludes individuals who hunted the same number of days in multiple regions.

² F = 0.2 n.s. for one-way ANOVA comparing means. F = 3.4* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

⁴ The regional data includes only respondents for the statewide sample.

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

Section 2: Satisfaction With the 2017 Waterfowl Hunt

Table 2-7: Satisfaction with the goose-hunting experience for the 2017 season

Area most often hunted	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1110	5.9%	5.5%	9.0%	16.1%	15.0%	26.7%	21.7%	5.0
Central ⁴	513	6.8%	5.9%	10.0%	17.4%	14.6%	26.0%	19.3%	4.8
North	277	4.7%	4.7%	6.1%	14.4%	12.6%	31.4%	26.0%	5.2
South	254	5.5%	5.5%	10.6%	16.5%	16.1%	25.2%	20.5%	4.9
$\chi^2 = 14.092$ n.s.									
CRANE	326	3.4%	6.4%	6.4%	7.3%	11.3%	29.7%	35.5%	5.5
PICTORAL	271	4.8%	6.6%	9.9%	14.3%	15.8%	28.3%	20.2%	5.0
$\chi^2 = 45.985^{***}$ V = 0.116									

¹ Table includes only respondents who actually hunted waterfowl during 2017; regional data excludes individuals who hunted the same number of days in multiple regions.

² F = 5.5** for one-way ANOVA comparing means. F = 12.0*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

⁴ The regional data includes only respondents for the statewide sample.

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

Table 2-8: Satisfaction with the goose-hunting harvest for the 2017 season

Area most often hunted	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1113	12.2%	9.9%	12.4%	17.4%	15.7%	19.7%	12.6%	4.2
Central ⁴	515	14.9%	10.6%	12.8%	16.6%	14.1%	19.0%	12.0%	4.1
North	277	10.8%	9.7%	10.5%	16.2%	15.2%	21.7%	15.9%	4.4
South	254	9.9%	9.5%	14.2%	20.9%	17.4%	17.4%	10.7%	4.2
$\chi^2 = 14.069$ n.s.									
CRANE	326	9.1%	7.0%	9.8%	7.9%	14.0%	27.4%	24.7%	4.9
PICTORAL	268	13.4%	13.8%	13.1%	18.7%	14.2%	15.3%	11.6%	4.0
$\chi^2 = 67.151^{***}$ V = 0.140									

¹ Table includes only respondents who actually hunted waterfowl during 2017; regional data excludes individuals who hunted the same number of days in multiple regions.

² F = 3.0 n.s. for one-way ANOVA comparing means. F = 21.1*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

⁴ The regional data includes only respondents for the statewide sample.

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

Section 2: Satisfaction With the 2017 Waterfowl Hunt

Table 2-9: Satisfaction with the goose-hunting regulations for the 2017 season

Area most often hunted	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1112	5.6%	6.5%	9.3%	25.6%	12.8%	21.9%	18.4%	4.7
Central ⁴	513	5.5%	8.0%	8.2%	28.8%	9.4%	21.2%	18.9%	4.7
North	278	4.7%	5.0%	9.0%	23.7%	17.6%	21.9%	18.3%	4.8
South	256	6.6%	4.7%	10.1%	21.0%	12.5%	24.1%	21.0%	4.8
$\chi^2 = 21.519^* V = 0.101$									
CRANE	327	5.2%	8.3%	7.6%	17.1%	12.8%	28.4%	20.5%	4.9
PICTORAL	268	5.2%	4.5%	6.0%	29.6%	10.1%	23.6%	21.0%	4.9
$\chi^2 = 23.978^* V = 0.084$									

¹ Table includes only respondents who actually hunted waterfowl during 2017; regional data excludes individuals who hunted the same number of days in multiple regions.

² F = 1.2 n.s. for one-way ANOVA comparing means. F = 2.0 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

⁴ The regional data includes only respondents for the statewide sample.

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

Table 2-10: Comparison of duck-hunting and goose-hunting satisfaction

Satisfaction with... ^{1,2}	Mean ³
Duck-hunting experience	5.1
Goose-hunting experience	5.0
Duck-hunting harvest	4.1
Goose-hunting harvest	4.2
Duck-hunting regulations	4.9
Goose-hunting regulations	4.7

¹ Table includes only respondents who actually hunted waterfowl during 2017. Data includes only respondents for the statewide sample.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

³ 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 2017 Waterfowl Hunt

Table 2-11: Satisfaction with waterfowl habitat in the areas you hunted most.

Area most often hunted	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1392	7.2%	6.7%	11.1%	11.6%	15.1%	27.4%	21.0%	4.9
Central ⁴	647	7.6%	7.3%	10.5%	13.3%	14.0%	27.9%	19.4%	4.8
North	360	4.7%	4.7%	10.9%	9.5%	15.6%	29.3%	25.1%	5.1
South	316	9.5%	7.3%	11.4%	8.2%	15.5%	27.2%	20.9%	4.8
$\chi^2 = 18.343$ n.s.									
CRANE	351	7.1%	5.1%	8.2%	9.7%	12.8%	33.2%	23.9%	5.1
PICTORAL	340	6.7%	7.9%	9.7%	9.1%	14.4%	29.0%	23.2%	5.0
$\chi^2 = 12.437$ n.s.									

¹ Table includes only respondents who actually hunted waterfowl during 2017; regional data excludes individuals who hunted the same number of days in multiple regions.

² $F = 4.6^*$ n.s. for one-way ANOVA comparing regional means. $F = 2.7$ n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

⁴ The regional data includes only respondents for the statewide sample.

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

Table 2-12: Satisfaction with number of ducks seen in the field during the 2017 Minnesota waterfowl hunting season

Area most often hunted	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1333	19.4%	14.7%	15.9%	6.5%	16.7%	17.5%	9.2%	3.8
Central ⁴	622	19.6%	15.6%	14.9%	6.4%	17.5%	16.5%	9.5%	3.7
North	339	23.0%	13.9%	16.8%	5.9%	14.7%	18.3%	7.4%	3.6
South	302	15.9%	13.9%	16.9%	6.6%	17.2%	18.2%	11.3%	4.0
$\chi^2 = 9.813$ n.s.									
CRANE	323	18.0%	14.6%	17.3%	5.0%	15.2%	21.1%	9.0%	3.8
PICTORAL	326	18.4%	15.6%	20.9%	4.9%	12.6%	16.6%	11.0%	3.7
$\chi^2 = 12.507$ n.s.									

¹ Table includes only respondents who actually hunted waterfowl during 2017; regional data excludes individuals who hunted the same number of days in multiple regions.

² $F = 2.4$ n.s. for one-way ANOVA comparing regional means. $F = 0.4$ n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

⁴ The regional data includes only respondents for the statewide sample.

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

Section 2: Satisfaction With the 2017 Waterfowl Hunt

Table 2-13: Satisfaction with number of geese seen in the field during the 2017 Minnesota waterfowl hunting season

Area most often hunted	n	% of hunters ¹ indicating that level of satisfaction:							Mean ²
		Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	
Statewide ³	1184	11.2%	9.9%	16.6%	11.8%	15.6%	21.8%	13.1%	4.3
Central ⁴	555	13.7%	12.1%	15.5%	12.1%	14.4%	19.6%	12.8%	4.1
North	286	9.1%	8.7%	18.2%	10.5%	14.3%	24.1%	15.0%	4.4
South	274	9.9%	7.3%	17.9%	14.3%	16.8%	23.4%	10.3%	4.3
$\chi^2 = 17.455$ n.s.									
CRANE	333	6.0%	8.7%	11.4%	5.1%	16.8%	30.5%	21.6%	5.0
PICTORAL	287	10.5%	11.5%	19.5%	11.5%	16.4%	16.4%	14.3%	4.2
$\chi^2 = 54.263^{***}$ V = 0.123									

¹ Table includes only respondents who actually hunted waterfowl during 2017; regional data excludes individuals who hunted the same number of days in multiple regions.

² F = 3.0 n.s. for one-way ANOVA comparing regional means. F = 18.1*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. 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 A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

⁴ The regional data includes only respondents for the statewide sample.

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

Section 3: Youth Waterfowl Hunting Day/Battery-Operated Spinning-Wing Decoys

All study participants were provided with a brief background statement about Youth Waterfowl Hunting Day before their opinions concerning this issue were assessed (See Appendix A, Part 9 of the study instrument).

Support/Opposition to Youth Waterfowl Hunting Day

Respondents were asked if they support or oppose the concept of Youth Waterfowl Hunting Day on the following scale: “strongly support,” “support,” “undecided or neutral,” “oppose,” and “strongly oppose.” Results are summarized in Table 3-1. Statewide, 73% of respondents supported the youth hunting day with 46% strongly supporting it. In contrast, 17% opposed the hunt, with 10% strongly opposing it. There was a significant negative correlation between age and support for Youth Waterfowl Hunting Day ($r = -0.270$, $p < 0.001$). This means that older hunters reported less support for the youth hunt than younger hunters. There was no significant difference among regions in support for Youth Waterfowl Hunting Day.

Participation in Youth Waterfowl Hunting Day in 2017

All study respondents were asked if they took any youths hunting on Youth Waterfowl Hunting Day in Minnesota in 2017 (Table 3-2). Statewide, 12% of respondents reported participating in the youth hunt. Respondents that mentored youth on Youth Waterfowl Hunting Day were asked how many youths they took hunting. Statewide, mentors took an average 1.8 youths hunting on Youth Waterfowl Hunting Day (Table 3-3). Based on the percentages provided by the survey, it is estimated that 18,027 youths participated in the youth hunt in 2017 (Table 3-4).

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

Respondents were asked if they owned battery-operated, spinning-wing decoys and if they used them during the 2017 season. Statewide, 47% of respondents reported owning a battery-operated, spinning-wing decoy (Table 3-5), and 38% of respondents reported using one during the 2017 season (Table 3-6). A significantly smaller proportion of respondents from the north region reported using a battery-operated, spinning-wing decoy. A significantly smaller proportion of hunters from the crane permit sample reported ownership of a battery-operated, spinning-wing decoy, and hunters from both the crane and pictorial samples used these decoys less than respondents from the statewide sample.

Section 3: Youth Waterfowl Hunting Day and Battery-Operated Spinning Wing Decoys

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

Residence of hunter	n	% of hunters indicating that they _____ the concept of Youth Waterfowl Hunting Day:					Mean ¹
		Strongly oppose	Oppose	Undecided/neutral	Support	Strongly support	
Statewide ²	1611	9.7%	7.3%	10.0%	26.8%	46.2%	3.9
CENTRAL	386	12.7%	7.5%	11.1%	26.4%	42.2%	3.8
METRO	424	8.7%	6.8%	11.1%	26.4%	46.9%	4.0
NORTH	392	8.4%	8.7%	6.6%	28.3%	48.0%	4.0
SOUTH	408	8.1%	6.1%	10.5%	26.0%	49.3%	4.0
		$\chi^2=16.175$ n.s.					
CRANE	393	8.1%	7.9%	7.9%	28.5%	47.6%	4.0
PICTORAL	401	10.2%	8.0%	12.2%	26.9%	42.6%	3.8
		$\chi^2= 6.575$ n.s.					

¹F = 2.689* for one-way ANOVA comparing statewide regional means. F = 1.5 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided; 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 3-2: Last September (2017), did you take youth hunting on Youth Waterfowl Hunting Day

Residence of hunter	n	% yes
Statewide ¹	1605	12.3%
CENTRAL	384	15.9%
METRO	421	7.4%
NORTH	391	14.1%
SOUTH	409	13.4%
		$\chi^2=15.292^{**}$, Cramer's V=0.098
CRANE	391	10.0%
PICTORAL	400	7.5%
		$\chi^2= 8.209^*$ V=0.059

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Section 3: Youth Waterfowl Hunting Day and Battery-Operated Spinning Wing Decoys

Table 3-3: Number of youth taken hunting on 2017 Youth Waterfowl Hunting Day

Residence of hunter	n	Mean number of youth
Statewide ¹	181	1.8
CENTRAL	53	1.8
METRO	28	2.0
NORTH	54	1.8
SOUTH	51	1.7
		F = 0.713 n.s.
CRANE	36	1.8
PICTORAL	30	1.7
		F = 0.077 n.s.

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 3-4: Estimate of the number of youth participating in Youth Waterfowl Hunting Day

Residence of hunter	Total adult hunters for entire season	% of adult hunters as mentors in the 2017 YWHD	Total mentors in the 2017 YWHD	Average # of youth with a mentor	Estimate of total youth participating in YWHD
Statewide ^{1,2}	81420	12.3%	10015	1.8	18027
CENTRAL	22993	15.9%	3656	1.8	6543
METRO	26207	7.4%	1939	2.0	3878
NORTH	17704	14.1%	2496	1.8	4493
SOUTH	14516	13.4%	1945	1.7	1947
CRANE	1073	10.0%	107	1.8	193
PICTORAL	9121	7.5%	684	1.7	1163

¹ Statewide estimates and the sum of regional estimates differ due to rounding. These estimates are based on mentors who purchased a duck stamp license (18-64 years of age). HIP participant mentors 65+ years of age are not included in the estimates. The number of respondents varies due to the use of multiple questions. Please refer to the preceding tables for this information.

Section 3: Youth Waterfowl Hunting Day and Battery-Operated Spinning Wing Decoys

Table 3-5: Do you own a battery-operated, spinning-wing decoy?

Residence of hunter	n	% yes
Statewide ¹	1547	46.5%
CENTRAL	367	49.3%
METRO	405	46.7%
NORTH	378	42.6%
SOUTH	400	46.5%
		$\chi^2=3.463$ n.s.
CRANE	370	34.6%
PICTORAL	395	47.1%
		$\chi^2= 18.252^{***}$ V=0.089

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 3-6: Did you use battery-operated, spinning-wing decoys when hunting in Minnesota during the 2017 waterfowl season?

Residence of hunter	n	% yes
Statewide ¹	1585	38.2%
CENTRAL	382	41.1%
METRO	414	38.6%
NORTH	385	31.7%
SOUTH	403	40.4%
		$\chi^2=9.165^*$ n.s. V=0.076
CRANE	382	28.5%
PICTORAL	400	31.3%
		$\chi^2= 16.195^{***}$ V = 0.083

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Section 4: Opinions on Management and Special Regulations

Opinions About Duck Bag Limits

Respondents were asked to indicate their opinions about the 6-duck bag limit, 2-hen mallard bag limit, and 3-wood duck bag limit. Possible responses to these questions were: too low, about right, too high, and no opinion. Statewide, about two-thirds of respondents (69%) felt the 6-duck bag limit was about right, with 4% indicating that it was too low, 12% too high, and 16% no opinion (Table 4-1). Statewide, 64% of respondents felt the 2-hen mallard bag limit was about right, compared to 7% too low, 14% too high, and 16% no opinion (Table 4-2). Statewide, 62% of respondents felt the 3-wood duck bag limit was about right, compared to 15% who felt it was too low, 8% who thought it was too high, and 14% who had no opinion (Table 4-3). There was no significant difference among regions in opinion of the three limits.

Waterfowl Management Strategies and Special Regulations

Respondents were asked to indicate their level of support for eight management strategies on the scale 1 = strongly oppose, 2 = oppose, 3 = undecided, 4 = support, and 5 = strongly support (Tables 4-4 to 4-12). Respondents reported the most support for using a North, Central, and South duck zone during last year's season and allowing open water hunting on a few (5-10) larger lakes or rivers during the regular waterfowl season. Respondents reported the least support for restricting the use of motorized decoys (Table 4-4). Statewide, 42% of respondents supported using a North, Central, and South duck zone during last year's season, with only 8% opposing (Table 4-5). About one-quarter (26%) of respondents supported using a split season in the Central Duck Zone during last year's waterfowl season (Table 4-6), and 23% supported using a split season in the South Duck Zone (Table 4-7). Statewide, 43% of respondents opposed and 32% supported ending shooting hours at 4 pm for the first part of the season (Table 4-8). More than one-third (35%) of respondents supported restrictions on open water hunting during the regular waterfowl season, with 25% opposed (Table 4-9). About 4 in 10 respondents (42%) supported open water hunting on a few larger lakes or rivers during the regular waterfowl season, with 11% opposed and 40% neutral (Table 4-10). About one-fourth (24%) of respondents supported restricting the use of motorized decoys for the first part of Minnesota's waterfowl season, with 45% opposed (Table 4-11). About one in five (21%) of respondents supported restricting the use of motorized decoys on wildlife management areas, with 46% opposed (Table 4-12).

Section 4: Opinions on Management and Special Regulations

Table 4-1: Opinion on 6-duck bag limit.

Residence of hunter	n	% of hunters indicating that the bag limit was:			
		Too low	About right	Too high	No opinion
Statewide ¹	1622	3.7%	68.6%	12.2%	15.5%
CENTRAL	391	5.6%	67.3%	11.8%	15.3%
METRO	427	3.3%	67.7%	13.1%	15.9%
NORTH	392	2.6%	70.7%	11.2%	15.6%
SOUTH	409	2.9%	69.9%	12.2%	14.9%
		$\chi^2=7.595$ n.s.			
CRANE	394	6.1%	64.5%	7.4%	22.1%
PICTORAL	407	3.9%	70.0%	12.5%	13.5%
		$\chi^2=22.826^{**}$ V = 0.069			

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 4-2: Opinion on 2-hen mallard bag limit.

Residence of hunter	n	% of hunters indicating that the bag limit was:			
		Too low	About right	Too high	No opinion
Statewide ¹	1630	6.8%	63.9%	13.7%	15.7%
CENTRAL	391	6.9%	63.2%	12.3%	17.6%
METRO	428	7.9%	64.3%	13.8%	14.0%
NORTH	396	7.1%	64.9%	12.4%	15.7%
SOUTH	414	4.1%	63.3%	17.1%	15.5%
		$\chi^2=11.716$ n.s.			
CRANE	395	10.1%	62.8%	5.8%	21.3%
PICTORAL	406	6.9%	62.8%	15.5%	14.8%
		$\chi^2=30.463^{***}$ V = 0.079			

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 4-3: Opinion on 3-wood duck bag limit.

Residence of hunter	n	% of hunters indicating that the bag limit was:			
		Too low	About right	Too high	No opinion
Statewide ¹	1628	15.4%	62.4%	8.3%	13.9%
CENTRAL	390	19.7%	57.4%	8.7%	14.1%
METRO	428	13.3%	65.7%	8.6%	12.4%
NORTH	395	13.7%	61.0%	8.1%	17.2%
SOUTH	414	14.5%	65.9%	7.5%	12.1%
		$\chi^2=15.534$ n.s.			
CRANE	396	11.1%	55.6%	9.1%	24.2%
PICTORAL	406	10.6%	65.0%	11.1%	13.3%
		$\chi^2=37.676^{***}$ V = 0.088			

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

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Table 4-4: Mean statewide results: Special regulations.

Regulation	N	Mean ^{1,2}
Using a North, Central, and South duck zone during last year's waterfowl season	1623	3.4
Using a split season in the Central Duck Zone during last year's waterfowl season	1620	3.1
Using a split season in the South Duck Zone during last year's waterfowl season	1607	3.1
Ending shooting hours at 4 pm for the first part of Minnesota's waterfowl season	1622	2.8
Restrictions on open water hunting (must be in concealing vegetation) during the regular waterfowl season	1623	3.1
Allowing open water hunting on a few (5-10) larger lakes or rivers during the regular waterfowl season	1624	3.4
Restricting the use of motorized decoys for the first part of Minnesota's waterfowl season	1626	2.7
Restricting the use of motorized decoys on wildlife management areas (WMAs) for the entire duck season	1625	2.6

¹Grand mean=3.0, F=4295.7***, $\eta^2=0.097$. Mean based on scale: 1=strongly oppose, 2=oppose, 3=neither, 4=support, 5=strongly support.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

Table 4-5: Using a North, Central, and South duck zone during last year's waterfowl season.

Residence of hunter	n	% of hunters indicating that they _____ with this management strategy:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1623	2.6%	4.9%	41.4%	33.6%	7.7%	9.8%	3.4
CENTRAL	392	9.5%	19.4%	35.8%	22.5%	4.9%	7.9%	3.3
METRO	425	4.5%	12.2%	37.1%	25.8%	6.6%	13.8%	3.5
NORTH	393	4.6%	10.5%	51.2%	14.8%	3.1%	15.9%	3.4
SOUTH	411	5.4%	12.9%	42.4%	18.5%	4.1%	16.6%	3.5
		$\chi^2=21.894$ n.s.						
CRANE	394	3.8%	3.6%	37.6%	31.5%	6.6%	17.0%	3.4
PICTORAL	404	3.2%	4.7%	36.9%	34.4%	12.1%	8.7%	3.5
		$\chi^2= 32.347^{***}$ V = 0.082						

¹ F = 3.8* for one-way ANOVA comparing statewide regional means. F = 2.1 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

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Table 4-6: Using a split season in the Central Duck Zone during last year's waterfowl season.

Residence of hunter	n	% of hunters indicating that they _____ with this management strategy:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1620	6.1%	14.0%	40.7%	21.2%	4.9%	13.1%	3.1
CENTRAL	391	9.5%	19.4%	35.8%	22.5%	4.9%	7.9%	2.9
METRO	426	4.5%	12.2%	37.1%	25.8%	6.6%	13.8%	3.2
NORTH	391	4.6%	10.5%	51.2%	14.8%	3.1%	15.9%	3.0
SOUTH	410	5.4%	12.9%	42.4%	18.5%	4.1%	16.6%	3.0
		$\chi^2 = 70.894^{***}$ V=0.121						
CRANE	390	5.6%	8.2%	44.4%	12.6%	3.3%	25.9%	3.0
PICTORAL	401	5.2%	14.7%	40.4%	21.2%	6.0%	12.5%	3.1
		$\chi^2 = 62.173^{***}$ V = 0.114						

¹ F = 5.5** for one-way ANOVA comparing statewide regional means. F = 0.9 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 4-7: Using a split season in the South Duck Zone during last year's waterfowl season.

Residence of hunter	n	% of hunters indicating that they _____ with this management strategy:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1607	6.3%	11.7%	43.5%	17.0%	5.9%	15.5%	3.1
CENTRAL	388	7.5%	11.6%	49.0%	13.1%	2.8%	16.0%	2.9
METRO	421	4.0%	11.9%	40.9%	19.0%	7.6%	16.6%	3.2
NORTH	389	3.6%	7.5%	54.2%	12.1%	3.3%	19.3%	3.1
SOUTH	408	12.0%	16.9%	26.7%	25.2%	11.0%	8.1%	3.1
		$\chi^2 = 155.303^{***}$ V=0.180						
CRANE	389	5.1%	6.9%	47.3%	10.0%	2.6%	28.0%	3.0
PICTORAL	402	4.5%	13.4%	40.0%	20.4%	6.2%	15.4%	3.1
		$\chi^2 = 63.299^{***}$ V = 0.115						

¹ F = 4.1** for one-way ANOVA comparing statewide regional means. F = 2.0 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

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Table 4-8: Ending shooting hours at 4 pm for the first part of Minnesota's waterfowl season.

Residence of hunter	n	% of hunters indicating that they _____ with this management strategy:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1622	17.1%	25.5%	21.8%	23.6%	8.3%	3.7%	2.8
CENTRAL	391	20.7%	24.0%	19.7%	23.8%	9.2%	2.6%	2.8
METRO	427	13.6%	26.9%	22.5%	25.3%	6.6%	5.2%	2.8
NORTH	392	19.4%	28.8%	20.2%	21.4%	7.7%	2.6%	2.7
SOUTH	409	14.7%	21.3%	25.9%	23.0%	11.0%	4.2%	2.9
		$\chi^2=30.680^* V=0.079$						
CRANE	393	25.2%	25.4%	14.2%	19.6%	10.9%	4.6%	2.6
PICTORAL	404	15.6%	23.5%	16.8%	27.5%	13.9%	2.7%	3.0
		$\chi^2= 43.010^{***} V = 0.094$						

¹ F = 3.1* for one-way ANOVA comparing statewide regional means. F = 7.9*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 4-9: Restrictions on open water hunting (must be in concealing vegetation) during the regular waterfowl season.

Residence of hunter	n	% of hunters indicating that they _____ with this management strategy:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1623	8.0%	17.3%	33.8%	25.0%	10.3%	5.6%	3.1
CENTRAL	392	9.2%	20.2%	34.4%	22.7%	8.7%	4.8%	3.0
METRO	426	4.9%	15.0%	35.2%	26.8%	12.0%	6.1%	3.3
NORTH	393	10.9%	18.3%	33.8%	24.7%	7.4%	4.8%	3.0
SOUTH	410	8.0%	15.4%	30.2%	26.1%	13.2%	7.1%	3.2
		$\chi^2=28.342^* V=0.076$						
CRANE	391	10.2%	17.6%	35.8%	17.9%	9.0%	9.5%	3.0
PICTORAL	404	7.7%	19.1%	29.7%	25.5%	12.6%	5.4%	3.2
		$\chi^2= 22.773^* V = 0.069$						

¹ F = 6.6*** for one-way ANOVA comparing statewide regional means. F = 3.6* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

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Table 4-10: Allowing open water hunting on a few (5-10) larger lakes or rivers during the regular waterfowl season.

Residence of hunter	n	% of hunters indicating that they _____ with this management strategy:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1624	3.1%	7.6%	40.0%	30.8%	11.0%	7.6%	3.4
CENTRAL	392	2.3%	7.1%	39.8%	30.6%	12.5%	7.7%	3.5
METRO	426	2.6%	8.7%	38.3%	32.6%	10.3%	7.5%	3.4
NORTH	393	4.1%	5.9%	39.2%	32.3%	10.9%	7.6%	3.4
SOUTH	411	4.1%	8.3%	44.3%	25.8%	10.0%	7.5%	3.3
		$\chi^2 = 13.704$ n.s.						
CRANE	393	3.1%	4.3%	36.9%	29.8%	13.0%	13.0%	3.5
PICTORAL	404	4.2%	7.2%	34.9%	32.7%	14.1%	6.9%	3.5
		$\chi^2 = 24.554^{**}$ V = 0.071						

¹ F = 2.0 n.s. for one-way ANOVA comparing statewide regional means. F = 2.0 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 4-11: Restricting the use of motorized decoys for the first part of Minnesota's waterfowl season.

Residence of hunter	n	% of hunters indicating that they _____ with this management strategy:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1626	19.0%	26.4%	27.6%	15.8%	7.7%	3.4%	2.7
CENTRAL	392	21.4%	27.6%	28.8%	14.5%	5.1%	2.6%	2.5
METRO	427	17.1%	25.5%	27.9%	14.1%	11.5%	4.0%	2.8
NORTH	394	20.1%	26.9%	24.9%	18.3%	6.9%	3.0%	2.6
SOUTH	411	17.0%	25.8%	28.5%	18.0%	6.3%	4.4%	2.7
		$\chi^2 = 24.055$ n.s.						
CRANE	391	20.2%	22.5%	24.8%	16.9%	10.0%	5.6%	2.7
PICTORAL	404	16.6%	29.0%	25.5%	15.6%	10.1%	3.2%	2.7
		$\chi^2 = 13.969$ n.s.						

¹ F = 2.7* for one-way ANOVA comparing statewide regional means. F = 0.8 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

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Table 4-12: Restricting the use of motorized decoys on wildlife management areas (WMAs) for the entire duck season.

Residence of hunter	n	% of hunters indicating that they _____ with this management strategy:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1625	20.7%	25.4%	28.4%	11.9%	8.7%	4.9%	2.6
CENTRAL	391	23.5%	25.8%	27.6%	10.5%	9.0%	3.6%	2.5
METRO	427	18.0%	26.0%	28.6%	12.2%	9.4%	5.9%	2.7
NORTH	394	21.1%	23.6%	27.9%	13.5%	9.1%	4.8%	2.6
SOUTH	411	20.7%	25.5%	30.2%	11.7%	6.6%	5.4%	2.6
		$\chi^2 = 10.419$ n.s.						
CRANE	393	23.7%	21.9%	24.9%	12.7%	10.4%	6.4%	2.6
PICTORAL	405	19.3%	25.2%	27.4%	13.8%	10.4%	4.0%	2.7
		$\chi^2 = 10.099$ n.s.						

¹ F = 1.1 n.s. for one-way ANOVA comparing statewide regional means. F = 0.9 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

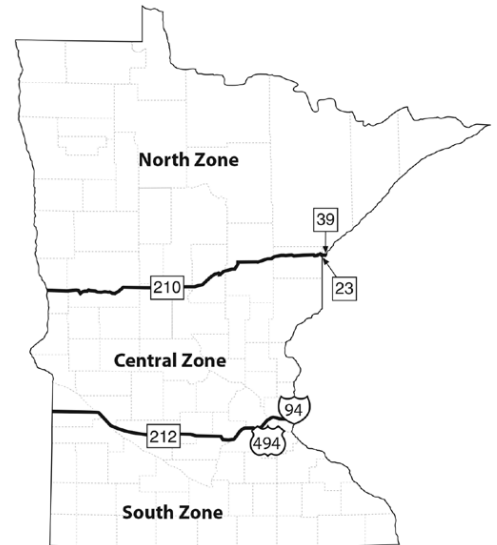
Section 5: Opinions on Season Dates and Zones

Most Important Area of State for Duck Hunting

Respondents were asked to select the area of the state where season dates were most important to them using the map shown. The largest proportion (45%) selected the central region, followed by north (24%), and south (21%). Another 10% had no preference (Table 5-1).

Preference for Season Dates

Study participants were asked to select between a straight season, one of two split seasons, or no preference for a 60-day duck season in 2015. Statewide, 34% preferred a straight season (Sept. 22 to Nov. 20), 24% preferred a split season (Sept. 22 to Sept. 30, close 5 days and reopen Oct. 6 to Nov. 25), 19% preferred a split season (Sept. 22 to Sept. 30, close 11 days and reopen Oct. 13 to Saturday Dec. 2), and 24% had no preference (Table 5-2). A substantially greater proportion of respondents from the North region preferred a straight season (58% compared to 16-30% for other regions). A substantially greater proportion of respondents from the South region preferred the split season with the later season closing dates (about 43% compared to 7-16% for other regions).



Study participants were asked to select a preferred season opening date. Statewide, respondents were fairly evenly split with 39% favoring the Saturday nearest September 24 and 41% favoring the Saturday nearest October 1, with 20% reporting no preference (Table 5-3). Increased proportions of respondents from the Central and North regions preferred the earlier opening date, while increased proportions of respondents from the Metropolitan and South regions preferred the later opening date. A greater proportion of hunters from the crane sample preferred the earlier opening date, while greater proportions of hunters from the statewide and pictorial samples preferred the later opening date.

Hunting Participation and Preference for Different Time Periods

Study participants were asked to report the number of days they hunted waterfowl during different time periods during the 2017 season. Statewide, respondents hunted the most days (3.2 on average) in late October and early October (3.0), compared to 2.5 in late September, 2.0 in early November, and 1.4 in late November/early December (Table 5-4). Respondents from the central and north regions hunted more days in early October, and those from the south region hunted more days in late November/early December. Compared to respondents from the statewide and pictorial samples, respondents from the crane permit sample hunted more days in late September, early October, and late October.

Study participants were asked for their preferred time period to hunt waterfowl in Minnesota. Statewide, early October was the most preferred time period (preferred by 34%), followed by late October (30%),

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late September (16%), early November (12%), and late November/early December (8%) (Table 5-5). Preferred time period for waterfowl hunting varied by region of residence and study sample.

Table 5-1: Area of the state where the timing of open waterfowl hunting and season dates are most important to you.

Residence of hunter	n	% of hunters indicating:			
		North	Central	South	No preference
Statewide ¹	1597	23.8%	44.9%	21.4%	9.8%
CENTRAL	382	7.9%	80.4%	1.3%	10.5%
METRO	418	18.2%	51.7%	19.1%	11.0%
NORTH	390	71.3%	21.0%	1.3%	6.4%
SOUTH	408	2.0%	5.6%	81.6%	10.8%
		$\chi^2 = 1481.294^{***}$ V=0.556			
CRANE	392	78.8%	13.3%	2.0%	5.9%
PICTORAL	400	25.5%	46.5%	20.0%	8.0%
		$\chi^2 = 452.253^{***}$ V = 0.308			

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 5-2: Preference for season dates for 2018.

Residence of hunter	n	% of hunters indicating that they prefer:			
		Saturday Sept. 22 to Tuesday Nov. 20 (<i>same season as used last year in North Duck Zone</i>)	Saturday Sept. 22 to Sunday Sept. 30, close 5 days, reopen Saturday Oct. 6 to Sunday Nov. 25 (<i>same season as used last year in Central Duck Zone</i>)	Saturday Sept. 22 to Sunday Sept. 30, close 12 days, reopen Saturday Oct. 13 to Sunday, Dec. 2 (<i>same season as used last year in South Duck Zone</i>)	No preference
Statewide ¹	1589	33.5%	23.6%	18.5%	24.4%
CENTRAL	380	29.5%	31.6%	14.7%	24.2%
METRO	418	29.9%	27.0%	16.0%	27.0%
NORTH	388	58.0%	14.7%	7.0%	20.4%
SOUTH	402	16.4%	15.4%	43.0%	25.1%
		$\chi^2 = 295.920^{***}$, Cramer's V=0.249			
CRANE	391	64.2%	13.3%	6.1%	16.4%
PICTORAL	390	31.3%	26.4%	19.5%	22.8%
		$\chi^2 = 141.706^{***}$ V = 0.173			

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

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Table 5-3: Preference for opening date.

Residence of hunter	n	% of hunters indicating that they prefer:		
		Saturday nearest Sept. 24 (dates vary from Sept. 21 to Sept. 27); used since 2011.	Saturday nearest Oct. 1 (dates vary from Sept. 28 to Oct. 4); historical opener.	No preference
Statewide ¹	1610	38.6%	41.2%	20.2%
CENTRAL	385	41.0%	38.2%	20.8%
METRO	422	37.0%	41.7%	21.3%
NORTH	394	43.9%	38.1%	18.0%
SOUTH	409	31.1%	49.1%	19.8%
		$\chi^2 = 18.878^{**}$ V=0.077		
CRANE	391	51.9%	30.9%	17.1%
PICTORAL	402	34.8%	46.0%	19.2%
		$\chi^2 = 30.955^{***}$ V = 0.080		

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 5-4: Number of days you hunted waterfowl in Minnesota during each time period for the 2017 season.

Residence of hunter	Mean				
	Late September	Early October	Late October	Early November	Late November/ Early December
Statewide ¹	2.5	3.0	3.2	2.0	1.4
CENTRAL	2.6	3.4	3.4	2.2	1.3
METRO	2.3	2.7	3.0	1.9	1.2
NORTH	2.6	3.3	3.4	1.9	1.1
SOUTH	2.4	2.7	3.1	2.1	1.9
	F = 1.5 n.s.	F = 4.7**	F = 1.5 n.s.	F = 0.9 n.s.	F = 3.9**
CRANE	3.7	4.3	4.2	2.0	1.0
PICTORAL	2.2	2.7	2.9	2.2	1.5
	F = 38.7***	F = 23.9***	F = 10.5***	F = 0.5 n.s.	F = 1.5 n.s.

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Section 5: Opinions on Season Dates and Zones

Table 5-5: Time period most prefer to hunt ducks in Minnesota.

Residence of hunter	n	% of hunters indicating that they prefer:				
		Late September	Early October	Late October	Early November	Late November/ Early December
Statewide ¹	1385	15.5%	34.3%	30.1%	11.8%	8.3%
CENTRAL	321	17.8%	33.3%	31.5%	11.5%	5.9%
METRO	361	16.3%	37.1%	27.7%	10.5%	8.3%
NORTH	349	11.2%	39.0%	34.7%	10.9%	4.3%
SOUTH	360	15.8%	25.0%	26.7%	15.6%	16.9%
$\chi^2 = 64.714^{***} V = 0.125$						
CRANE	324	15.7%	42.3%	29.9%	7.1%	4.9%
PICTORAL	343	15.7%	27.4%	31.5%	17.8%	7.6%
$\chi^2 = 30.883^{***} V = 0.087$						

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Section 6: Opinions on Sandhill Crane Management

Sandhill Crane Hunting in Minnesota

Respondents were asked to indicate their level of support for five possible changes to sandhill crane hunting in Minnesota on the scale 1 = strongly oppose, 2 = oppose, 3 = undecided, 4 = support, and 5 = strongly support (Tables 6-1 to 6-6). On average, statewide, respondents were supportive of all five possible changes, with greatest support for expanding the size of the current crane zone and expanding sandhill crane hunting to a new hunting zone in the central/eastern part of the state. Respondents from the central and north regions were somewhat more supportive of changes to sandhill crane hunting, compared to respondents from the metropolitan and south regions. Respondents from the crane permit sample were significantly more supportive of changes compared to the statewide and pictorial samples.

Section 6: Opinions on Sandhill Crane Management

Table 6-1: Mean statewide results: Sandhill crane hunting.

Regulation	N	Mean ^{1,2}
Increase daily bag limit on sandhill cranes from 1/day to 2/day	1138	3.3
Extend the season on sandhill cranes from 37 days to 58 days	1144	3.4
Expand the size of the current crane zone	1165	3.8
Open crane season earlier beginning on the first Saturday in September	1128	3.4
Expand sandhill crane hunting to a new hunting zone in the central/eastern part of the state	1174	3.8

¹Grand mean=3.5, F=6445.7***, $\eta^2=0.155$. Mean based on scale: 1=strongly oppose, 2=oppose, 3=neither, 4=support, 5=strongly support.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

Table 6-2: Sandhill crane hunting in Minnesota: Increase daily bag limit on sandhill cranes from 1/day to 2/day.

Residence of hunter	n	% of hunters indicating that they _____ this potential change:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1569	3.5%	7.2%	36.7%	16.0%	9.1%	27.4%	3.3
CENTRAL	376	3.7%	7.2%	34.3%	18.1%	13.6%	23.1%	3.4
METRO	416	3.1%	7.7%	36.1%	14.7%	6.5%	32.0%	3.2
NORTH	377	3.4%	7.4%	39.3%	19.4%	11.1%	19.4%	3.3
SOUTH	397	4.0%	6.3%	38.5%	10.8%	4.5%	35.8%	3.1
		$\chi^2=16.175$ n.s.						
CRANE	395	2.5%	3.8%	19.7%	33.2%	35.4%	5.3%	4.0
PICTORAL	403	4.2%	7.7%	37.7%	13.6%	8.2%	28.5%	3.2
		$\chi^2= 335.282^{***}$ V = 0.266						

¹ F = 5.8** for one-way ANOVA comparing statewide regional means. F = 87.4*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Section 6: Opinions on Sandhill Crane Management

Table 6-3: Sandhill crane hunting in Minnesota: Extend the season on sandhill cranes from 37 days to 58 days.

Residence of hunter	n	% of hunters indicating that they _____ this potential change:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1570	2.1%	5.8%	37.3%	18.5%	9.3%	27.1%	3.4
CENTRAL	377	1.6%	5.8%	35.0%	21.0%	13.3%	23.3%	3.5
METRO	416	2.2%	7.2%	35.8%	16.6%	7.0%	31.3%	3.3
NORTH	377	1.9%	4.8%	41.4%	22.0%	11.1%	18.8%	3.4
SOUTH	397	3.0%	4.3%	38.5%	13.6%	5.0%	35.5%	3.2
		$\chi^2=60.593^{***}$ V=0.114						
CRANE	396	0.5%	2.3%	16.2%	35.1%	42.2%	3.8%	4.2
PICTORAL	402	3.7%	5.5%	38.3%	16.4%	7.7%	28.4%	3.3
		$\chi^2= 437.739^{***}$ V = 0.304						

¹ F = 6.6*** for one-way ANOVA comparing statewide regional means. F = 139.2*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 6-4: Sandhill crane hunting in Minnesota: Expand the size of the current crane zone.

Residence of hunter	n	% of hunters indicating that they _____ this potential change:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1565	1.7%	2.7%	27.7%	20.9%	21.5%	25.5%	3.8
CENTRAL	376	1.1%	2.7%	24.2%	18.4%	33.2%	20.5%	4.0
METRO	415	1.9%	3.1%	26.5%	20.5%	16.9%	31.1%	3.7
NORTH	375	1.6%	2.1%	30.7%	27.5%	21.1%	17.1%	3.8
SOUTH	396	2.5%	2.5%	32.1%	17.9%	11.4%	33.6%	3.5
		$\chi^2=97.000^{***}$ V=0.144						
CRANE	394	0.5%	3.3%	23.1%	26.6%	39.8%	6.6%	4.1
PICTORAL	399	3.5%	2.8%	24.8%	24.1%	19.3%	25.6%	3.7
		$\chi^2= 119.979^{***}$ V = 0.160						

¹ F = 13.6*** for one-way ANOVA comparing statewide regional means. F = 17.0*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Section 6: Opinions on Sandhill Crane Management

Table 6-5: Sandhill crane hunting in Minnesota: Open crane season earlier beginning on the first Saturday in September.

Residence of hunter	n	% of hunters indicating that they _____ this potential change:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1567	2.0%	4.2%	40.3%	15.3%	10.2%	28.0%	3.4
CENTRAL	377	1.6%	4.8%	40.3%	17.2%	12.7%	23.3%	3.5
METRO	416	2.2%	4.1%	38.2%	13.5%	8.7%	33.4%	3.3
NORTH	375	1.9%	4.3%	42.4%	18.9%	13.3%	19.2%	3.5
SOUTH	395	2.8%	3.3%	41.5%	11.4%	5.1%	35.9%	3.2
		$\chi^2=56.494^{***}$ V=0.110						
CRANE	395	1.3%	6.1%	19.2%	28.1%	41.8%	3.5%	4.1
PICTORAL	400	3.5%	5.0%	40.5%	14.3%	7.0%	29.8%	3.2
		$\chi^2= 395.262^{***}$ V = 0.289						

¹ F = 5.3** for one-way ANOVA comparing statewide regional means. F = 94.2*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 6-6: Sandhill crane hunting in Minnesota: Expand sandhill crane hunting to a new hunting zone in the central/eastern part of the state.

Residence of hunter	n	% of hunters indicating that they _____ this potential change:						Mean ¹
		Strongly oppose	Oppose	Neutral	Support	Strongly support	Don't know	
Statewide ²	1568	1.8%	2.7%	28.1%	19.3%	22.9%	25.1%	3.8
CENTRAL	378	1.1%	2.4%	23.8%	18.8%	35.2%	18.8%	4.0
METRO	414	1.9%	3.4%	25.8%	18.4%	19.3%	31.2%	3.7
NORTH	377	1.9%	2.7%	32.6%	23.6%	21.5%	17.8%	3.7
SOUTH	397	2.5%	2.3%	33.8%	16.6%	11.6%	33.2%	3.5
		$\chi^2=100.013^{***}$ V=0.146						
CRANE	397	0.8%	4.0%	28.5%	25.2%	30.0%	11.6%	3.9
PICTORAL	400	3.3%	3.8%	26.0%	22.0%	20.3%	24.8%	3.7
		$\chi^2= 50.556^{***}$ V = 0.103						

¹ F = 15.7*** for one-way ANOVA comparing statewide regional means. F = 3.4* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1 = strongly oppose; 2 = oppose; 3 = undecided, 4 = support; 5 = strongly support.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Section 7: Motivations for and Importance of Waterfowl Hunting

Importance and Performance Related to Bagging Waterfowl

Respondents were asked to report how important 15 aspects of bagging waterfowl hunting were to them using the scale: 1 = not at all important to 5 = extremely important, then rate how much these 15 experiences happened during the 2017 Minnesota waterfowl season.

Results for importance of experiences are presented in Tables 7-1 to 7-16. The most important experiences were: attracting ducks with decoys, seeing ducks in the field, and seeing geese in the field, (Table 7-1). The least important experiences were: bagging diving ducks, bagging a lot of geese over the season, bagging a lot of ducks over the season, and bagging my daily limit (Table 7-1). Over two-thirds of respondents felt that: (a) seeing ducks in the field (73%, Table 7-2), (b) seeing geese in the field (65%, Table 7-3), and (c) attracting ducks with decoys (74%, Table 7-4) were very or extremely important. About 6 in 10 respondents felt that: (a) attracting geese with decoys (61%, Table 7-5), (b) calling ducks in (61%, Table 7-6), (c) calling geese in (56%, Table 7-7), and (d) bagging at least one duck during a day in the field (57%, Table 7-9) were very or extremely important. About 4 or 5 in 10 respondents felt that: (a) bagging drakes (40%, Table 7-10), (b) bagging mallards (48%, Table 7-15) and bagging teal and wood ducks (41%, Table 7-16) were very or extremely important. About one-third of respondents rated: (a) bagging a variety of different duck species (36%, Table 7-13) very or extremely important. Less than one-fourth of respondents rated: (a) bagging my daily limit (18%, Table 7-8), (b) bagging a lot of ducks over the season (22%, Table 7-11), (c) bagging a lot of geese over the season (19%, Table 7-12), or (d) bagging diving ducks (22%, Table 7-14).

An exploratory factor analysis of the importance of aspects of bagging waterfowl found four factors: (a) seeing ducks and geese ($M = 3.8$), (b) attracting waterfowl with decoys and calls ($M = 3.7$), (c) bagging a lot of waterfowl ($M = 2.5$), and (d) specialized aspects of bagging waterfowl ($M = 3.1$) (Table 7-17).

Results for performance on experiences during the 2017 season are presented in Tables 7-18 to 7-33. None of the experiences were rated as happening largely or very much. The most frequently occurring experiences were: (a) seeing geese in the field ($M = 3.0$, Table 7-19); (b) attracting ducks with decoys ($M = 2.9$, Table 7-21); and (c) bagging at least one duck during a day in the field ($M = 2.9$, Table 7-26); The least frequently occurring experiences were: (a) bagging a lot of geese over the season ($M = 1.8$, Table 7-29); (b) bagging diving ducks ($M = 1.9$, Table 7-31), (c) bagging a lot of ducks over the season ($M = 2.0$, Table 7-28), and (d) bagging my daily limit ($M = 2.0$, Table 7-25).

Importance of Waterfowl Hunting

Respondents were asked how important waterfowl hunting was to them. The majority of respondents (49%) indicated that it was “one of my most important recreational activities.” Over one-fourth (28%) indicated that it was “no more important than my other recreational activities,” while 10% indicated that it was “my most important recreational activity,” 11% indicated that it was “less important than my other recreational activities,” and 2% indicated that it was “one of my least important recreational activities” (Table 7-34).

Section 7: Motivations for and Importance of Waterfowl Hunting

Future Waterfowl Hunting

Respondents were asked how likely or unlikely it was that they would hunt for waterfowl during the 2018 season. Statewide, 88% said it was likely they would hunt with 69% indicating that it was very likely they would hunt (Table 7-35). Only 6% indicated that it was unlikely that they would hunt waterfowl in 2018. There were no significant differences by region.

Involvement in Waterfowl Hunting

Respondents were asked to respond to 15 items addressing their involvement in waterfowl hunting using the scale: 1 = strongly disagree to 5 = strongly agree. Results for items addressing waterfowl hunting involvement presented in Tables 7-36 to 7-51. Respondents agreed most strongly that: (a) waterfowl hunting provides me with the opportunity to be with friends (M=4.1, Table 7-38), (b) waterfowl hunting is one of the most enjoyable things I do (M=4.0, Table 7-37), and (c) I enjoy discussing waterfowl hunting with my friends (M=4.0, Table 7-50). There was less agreement that: (a) a lot of my life is organized around waterfowl hunting (M=2.9, Table 7-40) and (b) waterfowl hunting has a central role in my life (M=2.9, Table 7-41).

Social Aspects of Waterfowl Hunting

Respondents responded to two questions addressing who they waterfowl hunt with and how they plan their hunts. Results for these items are presented in Tables 7-52 and 7-53. The largest proportion of respondents indicated that they hunted with a friend or friends (31%), compared to 24% who hunted with family, 21% who hunted with a group of family and friends, 17% who hunted both alone and with others about the same amount of time, and 7% who typically hunted alone (Table 7-52). About 60% of respondents indicated that they typically hunted both when they planned the hunt or when someone else invited them, compared to 28% who typically hunted when they planned the hunt themselves, and 12% who typically hunted when someone else invited them (Table 7-53).

Section 7: Motivations for and Importance of Waterfowl Hunting

Table 7-1: Motivations for waterfowl hunting: Importance of...

	Mean ²
Seeing ducks in the field	3.9
Seeing geese in the field	3.7
Attracting ducks with decoys	4.0
Attracting geese with decoys	3.6
Calling ducks in	3.7
Calling geese in	3.5
Bagging my daily limit	2.6
Bagging at least one duck during a day in the field	3.6
Bagging drakes	3.1
Bagging a lot of ducks over the season	2.6
Bagging a lot of geese over the season	2.4
Bagging a variety of different duck species	3.0
Bagging diving ducks	2.5
Bagging mallards	3.3
Bagging teal and wood ducks	3.2

¹ Table includes only respondents who actually hunted waterfowl during 2017.

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

Table 7-2: Motivations for waterfowl hunting: Importance of... Seeing ducks in the field.

Regions	N	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1368	5.3%	4.4%	17.8%	38.3%	34.2%	3.9
16.4CENTRAL	331	6.0%	3.3%	18.4%	40.8%	31.4%	3.9
METRO	357	6.2%	3.9%	17.6%	33.1%	39.2%	4.0
NORTH	324	4.3%	6.2%	17.9%	42.3%	29.3%	3.9
SOUTH	357	3.9%	4.8%	17.1%	38.9%	35.3%	4.0
$\chi^2 = 16.4$, Cramer's V = 0.063							
CRANE	343	5.3%	7.9%	19.4%	42.2%	25.2%	3.7
PICTORAL	334	2.7%	5.7%	14.4%	44.7%	32.4%	4.0
$\chi^2 = 23.336^{**}$ V = 0.076							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.8 n.s. for one-way ANOVA comparing regional means. F = 5.2** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-3: Motivations for waterfowl hunting: Importance of... Seeing geese in the field.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1345	8.2%	7.2%	19.1%	35.1%	30.3%	3.7
CENTRAL	328	7.0%	6.1%	19.5%	36.6%	30.8%	3.8
METRO	348	12.1%	7.5%	19.0%	30.7%	30.7%	3.6
NORTH	320	6.3%	10.9%	19.4%	36.6%	26.9%	3.7
SOUTH	350	5.7%	4.3%	18.3%	38.9%	32.9%	3.9
$\chi^2 = 28.1^{**}$ V = 0.083							
CRANE	343	4.1%	2.0%	14.6%	41.1%	38.2%	4.1
PICTORAL	330	7.3%	8.5%	20.3%	36.1%	27.9%	3.7
$\chi^2 = 32.911^{***}$ V = 0.090							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 3.8* for one-way ANOVA comparing regional means. F = 13.3*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-4: Motivations for waterfowl hunting: Importance of... Attracting ducks with decoys.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1350	5.0%	4.2%	16.5%	39.1%	35.2%	4.0
CENTRAL	328	4.6%	4.3%	19.5%	38.1%	33.5%	3.9
METRO	354	4.0%	4.2%	13.8%	39.3%	38.7%	4.0
NORTH	319	5.6%	3.4%	16.0%	41.1%	33.9%	3.9
SOUTH	348	6.6%	4.9%	17.2%	38.2%	33.0%	3.9
$\chi^2 = 9.6$ n.s.							
CRANE	341	13.5%	7.6%	23.1%	28.4%	27.5%	3.5
PICTORAL	333	3.3%	4.5%	12.7%	43.1%	36.4%	4.0
$\chi^2 = 71.558^{***}$ V = 0.133							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 1.8 n.s. for one-way ANOVA comparing regional means. F = 27.8*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 7: Motivations for and Importance of Waterfowl Hunting

Table 7-5: Motivations for waterfowl hunting: Importance of... Attracting geese with decoys.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1332	12.3%	8.3%	18.1%	30.5%	30.9%	3.6
CENTRAL	324	12.0%	7.7%	17.6%	30.2%	32.4%	3.6
METRO	345	13.9%	8.4%	19.1%	29.0%	29.6%	3.5
NORTH	317	10.1%	9.8%	17.4%	31.9%	30.9%	3.6
SOUTH	347	12.4%	7.2%	17.9%	31.7%	30.8%	3.6
$\chi^2 = 4.9$ n.s.							
CRANE	342	8.5%	6.7%	15.8%	31.6%	37.4%	3.8
PICTORAL	329	12.5%	7.0%	17.4%	34.5%	28.7%	3.6
$\chi^2 = 11.686$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.6 n.s. for one-way ANOVA comparing regional means. F = 4.6* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-6: Motivations for waterfowl hunting: Importance of... Calling ducks in.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1354	6.9%	8.4%	23.3%	34.6%	26.8%	3.7
CENTRAL	328	5.8%	7.9%	27.4%	35.1%	23.8%	3.6
METRO	356	5.9%	8.7%	18.8%	36.2%	30.3%	3.8
NORTH	319	9.1%	10.3%	26.0%	30.4%	24.1%	3.5
SOUTH	350	7.7%	6.6%	21.7%	35.7%	28.3%	3.7
$\chi^2 = 19.3$ n.s.							
CRANE	338	15.6%	13.3%	24.2%	27.1%	19.8%	3.2
PICTORAL	333	6.6%	7.8%	20.1%	38.0%	27.5%	3.7
$\chi^2 = 48.004$ *** V = 0.109							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 3.1* for one-way ANOVA comparing regional means. F = 21.0*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-7: Motivations for waterfowl hunting: Importance of... Calling geese in.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1323	13.5%	8.8%	21.6%	31.0%	25.1%	3.5
CENTRAL	323	13.0%	9.0%	22.9%	31.9%	23.2%	3.4
METRO	343	15.5%	8.7%	21.6%	28.9%	25.4%	3.4
NORTH	313	11.2%	9.9%	22.4%	31.0%	25.6%	3.5
SOUTH	345	13.3%	7.5%	18.8%	33.3%	27.0%	3.5
$\chi^2 = 7.0$ n.s.							
CRANE	343	8.5%	6.7%	21.9%	30.0%	32.9%	3.7
PICTORAL	325	12.7%	7.1%	22.5%	33.6%	24.1%	3.5
$\chi^2 = 15.548^*$ V = 0.063							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.7 n.s. for one-way ANOVA comparing regional means. F = 5.9** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-8: Motivations for waterfowl hunting: Importance of... Bagging my daily limit.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1359	19.9%	28.1%	33.9%	10.8%	7.3%	2.6
CENTRAL	329	19.5%	25.5%	38.0%	9.4%	7.6%	2.6
METRO	356	18.0%	33.4%	29.5%	12.4%	6.7%	2.6
NORTH	320	21.9%	24.7%	34.4%	10.3%	8.8%	2.6
SOUTH	355	22.0%	26.5%	34.6%	11.0%	5.9%	2.5
$\chi^2 = 15.2$ n.s.							
CRANE	345	21.4%	22.0%	35.7%	11.9%	9.0%	2.6
PICTORAL	333	18.6%	28.1%	33.5%	13.8%	6.0%	2.6
$\chi^2 = 9.050$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.3 n.s. for one-way ANOVA comparing regional means. F = 0.6 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 7: Motivations for and Importance of Waterfowl Hunting

Table 7-9: Motivations for waterfowl hunting: Importance of... Bagging at least one duck during a day in the field.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1362	8.2%	9.6%	25.4%	28.2%	28.6%	3.6
CENTRAL	328	6.1%	9.1%	27.1%	29.9%	27.7%	3.6
METRO	358	7.3%	7.8%	21.8%	27.7%	35.5%	3.8
NORTH	322	11.8%	11.2%	28.0%	27.0%	22.0%	3.4
SOUTH	354	9.0%	11.9%	26.3%	27.7%	25.1%	3.5
	$\chi^2 = 26.7^{**} V = 0.081$						
CRANE	341	18.8%	12.3%	27.3%	20.5%	21.1%	3.1
PICTORAL	328	9.1%	10.1%	23.8%	29.3%	27.7%	3.6
	$\chi^2 = 45.181^{***} V = 0.105$						

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F=7.0 for one-way ANOVA comparing regional means. F = 18.8*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-10: Motivations for waterfowl hunting: Importance of... Bagging drakes.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1349	14.1%	14.1%	31.6%	25.2%	15.0%	3.1
CENTRAL	324	11.1%	15.4%	33.3%	24.7%	15.4%	3.2
METRO	356	17.4%	12.4%	29.5%	25.8%	14.9%	3.1
NORTH	319	15.0%	16.0%	32.9%	23.2%	12.9%	3.0
SOUTH	350	12.0%	12.9%	31.1%	27.1%	16.9%	3.2
	$\chi^2 = 12.5$ n.s.						
CRANE	337	25.7%	12.7%	25.7%	24.3%	11.5%	2.8
PICTORAL	326	14.4%	14.7%	29.4%	24.5%	16.9%	3.1
	$\chi^2 = 30.357^{***} V = 0.087$						

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F= 2.0 n.s. for one-way ANOVA comparing regional means. F = 8.0*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-11: Motivations for waterfowl hunting: Importance of... Bagging a lot of ducks over the season.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1351	21.5%	25.3%	30.8%	15.0%	7.4%	2.6
CENTRAL	325	18.8%	25.8%	31.1%	15.4%	8.9%	2.7
METRO	357	21.6%	24.1%	31.9%	16.8%	5.6%	2.6
NORTH	318	22.6%	24.2%	32.1%	13.2%	7.9%	2.6
SOUTH	351	24.2%	27.9%	27.1%	13.1%	7.7%	2.5
	$\chi^2 = 10.6$ n.s.						
CRANE	343	31.5%	22.4%	26.8%	12.2%	7.0%	2.4
PICTORAL	331	22.6%	25.6%	29.8%	14.8%	7.2%	2.6
	$\chi^2 = 15.821^* V = 0.062$						

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F= 1.3 n.s. for one-way ANOVA comparing regional means. F = 4.1* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-12: Motivations for waterfowl hunting: Bagging a lot of geese over the season.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1330	29.8%	25.9%	25.8%	11.0%	7.5%	2.4
CENTRAL	326	27.3%	27.0%	25.5%	11.0%	9.2%	2.5
METRO	345	33.6%	24.3%	25.8%	11.3%	4.9%	2.3
NORTH	314	28.0%	26.4%	24.8%	11.1%	9.6%	2.5
SOUTH	345	29.3%	26.4%	27.2%	10.1%	7.0%	2.4
	$\chi^2 = 10.0$ n.s.						
CRANE	344	23.3%	19.2%	31.7%	17.7%	8.1%	2.7
PICTORAL	330	33.3%	26.1%	22.1%	10.9%	7.6%	2.3
	$\chi^2 = 28.593^{***} V = 0.084$						

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F= 1.9 n.s. for one-way ANOVA comparing regional means. F = 8.7*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-13: Motivations for waterfowl hunting: Importance of... Bagging a variety of different duck species.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1360	14.9%	15.7%	33.6%	25.8%	10.0%	3.0
CENTRAL	330	14.2%	12.7%	36.1%	27.3%	9.7%	3.1
METRO	357	14.3%	17.6%	30.8%	26.1%	11.2%	3.0
NORTH	320	16.9%	18.8%	30.9%	24.7%	8.8%	2.9
SOUTH	353	14.7%	13.3%	37.7%	24.4%	9.9%	3.0
$\chi^2 = 12.5$ n.s.							
CRANE	343	25.9%	15.5%	28.3%	21.9%	8.5%	2.7
PICTORAL	331	11.8%	15.2%	33.0%	25.5%	14.5%	3.2
$\chi^2 = 36.269^{***}$ V = 0.094							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 1.1 n.s. for one-way ANOVA comparing regional means. F = 12.2*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-14: Motivations for waterfowl hunting: Importance of... Bagging diving ducks.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1356	29.1%	23.0%	25.7%	15.0%	7.3%	2.5
CENTRAL	329	26.1%	24.6%	25.2%	15.5%	8.5%	2.6
METRO	357	32.8%	21.0%	25.8%	12.0%	8.4%	2.4
NORTH	319	26.0%	22.6%	26.0%	20.1%	5.3%	2.6
SOUTH	350	30.9%	24.3%	26.0%	13.4%	5.4%	2.4
$\chi^2 = 18.1$ n.s.							
CRANE	342	42.4%	18.1%	22.2%	11.7%	5.6%	2.2
PICTORAL	328	22.9%	22.9%	26.3%	16.2%	11.6%	2.7
$\chi^2 = 39.100^{***}$ V = 0.098							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 1.8 n.s. for one-way ANOVA comparing regional means. F = 13.6*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-15: Motivations for waterfowl hunting: Importance of... Bagging mallards.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1366	9.4%	10.9%	32.1%	31.1%	16.4%	3.3
CENTRAL	332	7.8%	12.3%	32.2%	29.5%	18.1%	3.4
METRO	359	10.6%	7.5%	30.9%	35.4%	15.6%	3.4
NORTH	320	9.4%	12.2%	35.0%	29.7%	13.8%	3.3
SOUTH	354	9.9%	13.3%	30.8%	27.7%	18.4%	3.3
$\chi^2 = 15.7$ n.s.							
CRANE	344	20.6%	13.0%	24.9%	29.3%	12.2%	3.0
PICTORAL	328	6.1%	16.5%	31.1%	29.3%	17.1%	3.4
$\chi^2 = 55.301^{***}$ V = 0.116							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.8 n.s. for one-way ANOVA comparing regional means. F = 12.6*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-16: Motivations for waterfowl hunting: Importance of... Bagging teal and wood ducks.

Regions	n	Not at all	Slightly	Somewhat	Very	Extremely	Mean ²
Statewide ³	1364	10.4%	13.4%	35.6%	27.3%	13.2%	3.2
CENTRAL	332	6.9%	15.4%	39.8%	22.9%	15.1%	3.2
METRO	358	10.6%	11.2%	31.8%	33.0%	13.4%	3.3
NORTH	319	15.0%	13.8%	35.4%	24.8%	11.0%	3.0
SOUTH	354	10.5%	13.8%	35.9%	27.4%	12.4%	3.2
$\chi^2 = 25.0^*$ V = 0.135							
CRANE	344	23.5%	12.8%	33.3%	22.3%	8.1%	2.8
PICTORAL	330	9.1%	14.2%	32.9%	32.0%	11.8%	3.2
$\chi^2 = 54.300^{***}$ V = 0.115							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.9* for one-way ANOVA comparing regional means. F = 18.7*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-17: Factor analysis of importance of experiences related to bagging waterfowl.

	Mean ²
Seeing ducks and geese ($r_{sb} = 0.642$)	3.8
- Seeing ducks in the field	3.9
- Seeing geese in the field	3.7
Attracting waterfowl ($\alpha = 0.831$)	3.7
- Attracting ducks with decoys	4.0
- Calling ducks in	3.6
- Attracting geese with decoys	3.7
- Calling geese in	3.5
Bagging a lot of waterfowl ($\alpha = 0.831$)	2.5
- Bagging a lot of ducks over the season	2.6
- Bagging my daily limit	2.6
- Bagging a lot of geese over the season	2.4
Specialized aspects of bagging waterfowl ($\alpha = 0.824$)	3.1
- Bagging at least one duck during a day in the field	3.6
- Bagging mallards	3.3
- Bagging drakes	3.1
- Bagging teal and wood ducks	3.2
- Bagging a variety of different duck species	3.0
- Bagging diving ducks	2.5

¹ Table includes only respondents who actually hunted waterfowl during 2017.

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

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Table 7-18: Experiences during 2017 Minnesota waterfowl hunting season.

	Mean ²
Seeing ducks in the field	2.7
Seeing geese in the field	3.0
Attracting ducks with decoys	2.9
Attracting geese with decoys	2.6
Calling ducks in	2.7
Calling geese in	2.6
Bagging my daily limit	2.0
Bagging at least one duck during a day in the field	2.9
Bagging drakes	2.6
Bagging a lot of ducks over the season	2.0
Bagging a lot of geese over the season	1.8
Bagging a variety of different duck species	2.2
Bagging diving ducks	1.9
Bagging mallards	2.3
Bagging teal and wood ducks	2.7

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² Mean is based on the scale for “did it happen:” 1 = not at all, 2 = slightly, 3 = somewhat, 4= largely, 5 = very much.

Table 7-19: Experiences during the 2017 season: Seeing ducks in the field.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1327	11.7%	29.5%	38.8%	15.2%	4.8%	2.7
CENTRAL	320	10.9%	36.6%	35.9%	12.5%	4.1%	2.6
METRO	345	12.8%	26.7%	38.3%	18.0%	4.3%	2.7
NORTH	312	11.5%	27.9%	39.4%	15.7%	5.4%	2.8
SOUTH	353	11.0%	25.2%	43.3%	14.2%	6.2%	2.8
$\chi^2 = 17.6$ n.s.							
CRANE	324	12.3%	31.8%	34.6%	14.8%	6.5%	2.7
PICTORAL	322	9.7%	29.0%	37.1%	18.4%	5.9%	2.8
$\chi^2 = 6.526$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F= 1.8 n.s. for one-way ANOVA comparing regional means. F = 1.3 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale for “did it happen:” 1 = not at all, 2 = slightly, 3 = somewhat, 4= largely, 5 = very much.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-20: Experiences during the 2017 season: Seeing geese in the field.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1298	9.5%	24.5%	34.6%	21.3%	10.1%	3.0
CENTRAL	314	8.3%	25.5%	36.0%	19.1%	11.1%	3.0
METRO	334	13.2%	25.7%	32.6%	19.5%	9.0%	2.9
NORTH	308	6.5%	22.1%	36.0%	24.0%	11.4%	3.1
SOUTH	346	8.7%	23.7%	34.1%	24.6%	9.0%	3.0
$\chi^2 = 15.9$ n.s.							
CRANE	327	5.5%	16.0%	29.4%	33.1%	16.0%	3.4
PICTORAL	320	9.7%	24.3%	36.8%	20.2%	9.0%	2.9
$\chi^2 = 43.037^{***}$ V = 0.105							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F=3.1* for one-way ANOVA comparing regional means. F = 18.4*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-21: Experiences during the 2017 season: Attracting ducks with decoys.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1306	12.6%	21.9%	38.3%	20.7%	6.6%	2.9
CENTRAL	316	11.7%	23.1%	37.0%	21.5%	6.6%	2.9
METRO	338	12.1%	22.2%	37.0%	21.6%	7.1%	2.9
NORTH	310	11.3%	20.3%	40.6%	20.6%	7.1%	2.9
SOUTH	345	16.2%	21.2%	39.7%	18.0%	4.9%	2.7
$\chi^2 = 8.7$ n.s.							
CRANE	319	22.2%	17.2%	31.9%	20.0%	8.8%	2.8
PICTORAL	321	12.4%	20.8%	37.0%	21.7%	8.1%	2.9
$\chi^2 = 25.592^{**}$ V = 0.081							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F= 1.8 n.s. for one-way ANOVA comparing regional means. F = 1.9 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-22: Experiences during the 2017 season: Attracting geese with decoys.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1284	27.5%	21.6%	27.1%	15.2%	8.4%	2.6
CENTRAL	311	27.3%	17.7%	27.3%	18.6%	9.0%	2.6
METRO	328	30.2%	23.8%	26.5%	12.2%	7.3%	2.4
NORTH	311	22.8%	23.2%	27.0%	15.8%	11.3%	2.7
SOUTH	339	28.9%	22.4%	28.0%	14.5%	6.2%	2.5
$\chi^2 = 17.2$ n.s.							
CRANE	322	17.3%	15.2%	26.6%	28.5%	12.4%	3.0
PICTORAL	319	28.9%	24.5%	26.4%	14.8%	5.3%	2.4
$\chi^2 = 55.796^{***}$ V = 0.120							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 3.5* for one-way ANOVA comparing regional means. F = 22.8*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-23: Experiences during the 2017 season: Calling ducks in.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1308	16.2%	23.8%	36.6%	18.1%	5.2%	2.7
CENTRAL	318	16.4%	25.5%	34.9%	19.2%	4.1%	2.7
METRO	339	14.7%	23.6%	37.8%	18.6%	5.3%	2.8
NORTH	307	18.2%	21.5%	36.8%	17.3%	6.2%	2.7
SOUTH	346	16.2%	24.3%	37.3%	16.8%	5.5%	2.7
$\chi^2 = 4.8$ n.s.							
CRANE	322	24.3%	23.4%	27.1%	18.4%	6.9%	2.6
PICTORAL	322	14.9%	25.8%	35.1%	16.8%	7.5%	2.8
$\chi^2 = 21.463^{**}$ V = 0.074							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 0.2 n.s. for one-way ANOVA comparing regional means. F = 1.7 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-24: Experiences during the 2017 season: Calling geese in.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1278	26.7%	22.4%	26.3%	16.8%	7.8%	2.6
CENTRAL	309	26.2%	21.7%	23.6%	20.4%	8.1%	2.6
METRO	330	29.4%	23.3%	28.2%	12.1%	7.0%	2.4
NORTH	302	23.2%	22.2%	25.2%	19.5%	9.9%	2.7
SOUTH	341	27.0%	22.3%	28.4%	16.1%	6.2%	2.5
$\chi^2 = 15.9$ n.s.							
CRANE	325	15.7%	14.8%	30.5%	24.6%	14.5%	3.1
PICTORAL	318	30.2%	25.5%	23.6%	14.5%	6.3%	2.4
$\chi^2 = 55.584^{***}$ V = 0.120							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 2.8* for one-way ANOVA comparing regional means. F = 27.0*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-25: Experiences during the 2017 season: Bagging my daily limit.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1316	44.1%	24.9%	22.3%	6.5%	2.2%	2.0
CENTRAL	317	47.0%	24.0%	20.8%	6.3%	1.9%	1.9
METRO	341	48.4%	24.9%	19.1%	6.2%	1.5%	1.9
NORTH	314	35.7%	25.5%	27.4%	8.0%	3.5%	2.2
SOUTH	348	41.7%	25.9%	24.4%	5.7%	2.3%	2.0
$\chi^2 = 18.3$ n.s.							
CRANE	328	29.9%	19.2%	30.5%	12.8%	7.6%	2.5
PICTORAL	317	40.9%	26.7%	18.9%	11.3%	2.2%	2.1
$\chi^2 = 70.026^{***}$ V = 0.134							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 5.3** for one-way ANOVA comparing regional means. F = 28.2*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-26: Experiences during the 2017 season: Bagging at least one duck during a day in the field.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1319	20.0%	20.8%	23.3%	21.7%	14.2%	2.9
CENTRAL	317	20.5%	18.9%	25.2%	19.6%	15.8%	2.9
METRO	344	20.1%	21.8%	18.3%	25.0%	14.8%	2.9
NORTH	313	20.4%	19.8%	24.3%	23.6%	11.8%	2.9
SOUTH	347	18.7%	23.1%	27.7%	17.3%	13.3%	2.8
$\chi^2 = 17.0$ n.s.							
CRANE	323	28.8%	20.7%	18.0%	15.2%	17.3%	2.7
PICTORAL	316	21.5%	17.7%	21.2%	20.3%	19.3%	3.0
$\chi^2 = 24.533^{**}$ V = 0.079							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F= 0.4 n.s. for one-way ANOVA comparing regional means. F = 3.3* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-27: Experiences during the 2017 season: Bagging drakes.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1307	21.5%	26.1%	32.4%	15.5%	4.5%	2.6
CENTRAL	317	19.9%	27.1%	35.0%	15.1%	2.8%	2.5
METRO	338	23.1%	26.3%	30.5%	15.1%	5.0%	2.5
NORTH	308	20.1%	26.6%	30.8%	16.9%	5.5%	2.6
SOUTH	347	22.8%	23.6%	33.4%	15.3%	4.9%	2.6
$\chi^2 = 7.0$ n.s.							
CRANE	322	32.4%	22.7%	23.1%	16.5%	5.3%	2.4
PICTORAL	316	19.0%	24.4%	34.2%	17.4%	5.1%	2.7
$\chi^2 = 26.579^{**}$ V = 0.083							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F= 0.3 n.s. for one-way ANOVA comparing regional means. F = 4.0* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4= very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-28: Experiences during the 2017 season: Bagging a lot of ducks over the season.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1309	44.4%	27.0%	20.3%	5.6%	2.7%	2.0
CENTRAL	314	46.8%	24.8%	18.2%	6.7%	3.5%	2.0
METRO	343	44.6%	28.0%	21.0%	5.0%	1.5%	1.9
NORTH	311	40.5%	27.0%	22.2%	6.4%	3.9%	2.1
SOUTH	343	44.9%	28.6%	20.1%	4.1%	2.3%	1.9
$\chi^2 = 10.9$ n.s.							
CRANE	325	44.3%	22.2%	22.2%	7.7%	3.7%	2.0
PICTORAL	318	42.8%	28.0%	19.2%	6.6%	3.5%	2.0
$\chi^2 = 6.873$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 1.6 n.s. for one-way ANOVA comparing regional means. F = 1.1 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-29: Experiences during the 2017 season: Bagging a lot of geese over the season.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1290	51.6%	25.0%	15.7%	4.9%	2.8%	1.8
CENTRAL	316	54.1%	21.5%	16.8%	3.8%	3.8%	1.8
METRO	330	57.3%	23.3%	12.4%	5.5%	1.5%	1.7
NORTH	308	42.9%	27.6%	19.8%	6.2%	3.6%	2.0
SOUTH	339	47.8%	30.4%	15.0%	4.1%	2.7%	1.8
$\chi^2 = 25.9^*$ V = 0.141							
CRANE	327	31.8%	25.7%	23.9%	12.5%	6.1%	2.4
PICTORAL	317	62.8%	16.4%	13.9%	3.8%	3.2%	1.7
$\chi^2 = 90.478^{***}$ V = 0.153							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F = 4.3** for one-way ANOVA comparing regional means. F = 38.1*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-30: Experiences during the 2017 season: Bagging a variety of different duck species.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1313	30.9%	29.6%	26.1%	10.5%	2.9%	2.2
CENTRAL	318	31.1%	32.1%	25.5%	8.8%	2.5%	2.2
METRO	340	32.1%	27.6%	23.8%	12.9%	3.5%	2.3
NORTH	311	28.3%	28.9%	28.0%	12.5%	2.3%	2.3
SOUTH	347	31.4%	29.7%	29.1%	6.6%	3.2%	2.2
$\chi^2 = 14.5$ n.s.							
CRANE	328	38.1%	22.3%	22.3%	14.0%	3.4%	2.2
PICTORAL	320	32.2%	20.6%	27.8%	15.3%	4.1%	2.4
$\chi^2 = 24.864^{**}$ V = 0.080							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F=0.9 n.s. for one-way ANOVA comparing regional means. F = 2.2 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-31: Experiences during the 2017 season: Bagging diving ducks.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1309	48.0%	24.5%	18.3%	7.7%	1.5%	1.9
CENTRAL	319	50.8%	21.6%	19.1%	7.2%	1.3%	1.9
METRO	339	50.1%	25.1%	14.7%	7.4%	2.7%	1.9
NORTH	308	39.9%	26.0%	22.4%	11.0%	0.6%	2.1
SOUTH	345	49.0%	26.4%	18.3%	5.5%	0.9%	1.8
$\chi^2 = 24.7^*$ V = 0.079							
CRANE	327	48.8%	18.1%	19.3%	7.7%	6.1%	2.0
PICTORAL	319	47.6%	23.5%	18.8%	8.2%	1.9%	1.9
$\chi^2 = 28.822^{***}$ V = 0.086							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F=3.3* for one-way ANOVA comparing regional means. F = 2.3 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-32: Experiences during the 2017 season: Bagging mallards.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1322	28.2%	29.3%	27.1%	11.3%	4.1%	2.3
CENTRAL	320	28.4%	29.7%	27.5%	10.9%	3.4%	2.3
METRO	343	28.9%	30.3%	23.6%	11.7%	5.5%	2.3
NORTH	314	26.8%	27.4%	29.3%	12.4%	4.1%	2.4
SOUTH	347	28.2%	29.4%	30.0%	9.8%	2.6%	2.3
$\chi^2 = 9.0$ n.s.							
CRANE	327	29.4%	24.2%	32.5%	8.9%	4.9%	2.4
PICTORAL	320	26.8%	29.0%	24.9%	15.9%	3.4%	2.4
$\chi^2 = 14.773$ n.s.							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F= 0.6 n.s. for one-way ANOVA comparing regional means. F = 0.4 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-33: Experiences during the 2017 season: Bagging teal and wood ducks.

Regions	n	Not at all	Slightly	Somewhat	Largely	Very much	Mean ²
Statewide ³	1321	21.8%	23.3%	29.2%	18.4%	7.3%	2.7
CENTRAL	321	20.9%	24.3%	29.9%	17.4%	7.5%	2.7
METRO	341	20.8%	24.0%	26.1%	19.9%	9.1%	2.7
NORTH	313	25.9%	20.4%	33.5%	15.3%	4.8%	2.5
SOUTH	349	20.3%	23.5%	28.7%	20.6%	6.9%	2.7
$\chi^2 = 14.9$ n.s.							
CRANE	328	36.5%	22.2%	27.4%	10.3%	3.6%	2.2
PICTORAL	321	22.2%	17.8%	32.5%	22.2%	5.3%	2.7
$\chi^2 = 49.416$ *** V = 0.112							

¹ Table includes only respondents who actually hunted waterfowl during 2017.

² F=1.7 n.s. for one-way ANOVA comparing regional means. F = 19.0*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = not at all important, 2 = slightly important, 3 = somewhat important, 4 = very important, 5 = extremely important.

³ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-34: How important is waterfowl hunting to you?

Residence of hunter	N	% of hunters indicating...					Mean ¹
		...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.	
Statewide ²	1608	10.4%	48.6%	27.8%	10.9%	2.4%	2.5
CENTRAL	387	10.3%	48.6%	25.1%	12.4%	3.6%	2.5
METRO	421	9.7%	49.9%	28.3%	10.2%	1.9%	2.4
NORTH	390	10.8%	46.2%	31.5%	9.2%	2.3%	2.5
SOUTH	409	11.0%	49.1%	26.7%	11.5%	1.7%	2.4
		$\chi^2 = 10.0$ n.s.					
CRANE	389	14.1%	53.7%	21.3%	8.7%	2.1%	2.3
PICTORAL	405	16.6%	52.7%	21.3%	7.2%	2.2%	2.3
		$\chi^2 = 28.218^{***}$ V = 0.077					

¹ F=0.4 n.s. for one-way ANOVA comparing regional means. F = 10.9*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the following scale: 1= my most important recreational activity, 2= one of my most important recreational activities, 3= no more important than my other recreational activities, 4= less important than my other recreational activities, 5= one of my least important recreational activities.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 7-35: Likelihood of hunting for ducks or geese during the 2018 Minnesota waterfowl season.

Regions	N	Very unlikely	Somewhat unlikely	Slightly unlikely	Undecided	Slightly likely	Somewhat likely	Very likely	Mean ¹
Statewide ²	1574	2.8%	2.3%	0.9%	5.9%	5.5%	13.4%	69.3%	6.3
CENTRAL	380	4.5%	2.4%	0.8%	7.9%	5.8%	14.2%	64.5%	6.1
METRO	411	2.4%	2.2%	0.7%	3.4%	6.1%	13.6%	71.5%	6.4
NORTH	383	1.8%	1.8%	1.0%	5.0%	4.4%	12.5%	73.4%	6.4
SOUTH	399	2.0%	2.8%	1.0%	8.3%	5.3%	12.5%	68.2%	6.2
		$\chi^2 = 22.6$ n.s.							
CRANE	384	2.1%	1.6%		5.5%	4.7%	8.6%	77.6%	6.4
PICTORAL	396	3.3%	1.5%	0.8%	5.3%	4.0%	11.8%	73.3%	6.3
		$\chi^2 = 16.668$ n.s.							

¹ F= 3.7* for one-way ANOVA comparing regional means. F = 2.9 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = very unlikely, 2 = somewhat unlikely, 3 = slightly unlikely, 4= undecided, 5 = slightly likely, 6 = somewhat likely, 7= very likely.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-36: Mean statewide results: Involvement in waterfowl hunting.

Involvement item	N	Mean ^{1,2}
Waterfowl hunting is one of the most enjoyable things I do.	1623	4.0
Waterfowl hunting provides me with the opportunity to be with friends.	1616	4.1
To change my preference from waterfowl hunting to another recreation activity would require major rethinking.	1624	3.5
A lot of my life is organized around waterfowl hunting.	1616	2.9
Waterfowl hunting has a central role in my life.	1598	2.9
Most of my friends are in some way connected with waterfowl hunting.	1624	3.1
When I am waterfowl hunting, others see me the way I want them to see me.	1621	3.6
I identify with the people and image associated with waterfowl hunting.	1617	3.5
Waterfowl hunting is one of the most satisfying things I do.	1622	3.6
Participating in waterfowl hunting says a lot about who I am.	1617	3.3
Waterfowl hunting is very important to me.	1619	3.8
You can tell a lot about a person when you see them waterfowl hunting.	1619	3.2
When I am waterfowl hunting I can really be myself.	1617	3.6
I enjoy discussing waterfowl hunting with my friends.	1613	4.0
When I am waterfowl hunting, I don't have to be concerned about what other people think of me.	1616	3.5

¹Grand mean=3.5, F=12568.7***, $\eta^2=0.199$. Mean based on scale: 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

Table 7-37: Involvement in waterfowl hunting: Agreement/disagreement that... Waterfowl hunting is one of the most enjoyable things I do.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1623	1.1%	3.7%	22.2%	43.1%	29.8%	4.0
CENTRAL	392	1.0%	5.1%	23.2%	41.1%	29.6%	3.9
METRO	425	1.2%	3.1%	21.4%	45.9%	28.5%	4.0
NORTH	393	1.5%	2.3%	21.6%	41.2%	33.3%	4.0
SOUTH	411	0.7%	4.1%	22.9%	43.8%	28.5%	4.0
$\chi^2= 10.2$ n.s.							
CRANE	395	1.5%	4.8%	17.8%	39.8%	36.0%	4.0
PICTORAL	403	0.7%	3.2%	16.3%	41.8%	37.9%	4.1
$\chi^2= 19.364^*$ V = 0.063							

¹ F=0.8 n.s. for one-way ANOVA comparing regional means. F = 6.1** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-38: Involvement in waterfowl hunting: Agreement/disagreement that... Waterfowl hunting provides me with the opportunity to be with friends.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1616	0.7%	2.5%	15.1%	52.6%	29.3%	4.1
CENTRAL	389	1.0%	2.1%	14.1%	54.5%	28.3%	4.1
METRO	425	0.0%	2.4%	11.5%	51.1%	35.1%	4.2
NORTH	390	0.3%	3.1%	20.5%	50.8%	25.4%	4.0
SOUTH	411	1.7%	2.7%	16.3%	54.3%	25.1%	4.0
$\chi^2 = 32.4^{**}$ V = 0.082							
CRANE	393	1.5%	3.3%	14.0%	47.2%	34.0%	4.1
PICTORAL	403	1.0%	1.5%	17.0%	46.9%	33.7%	4.1
$\chi^2 = 13.360$ n.s.							

¹ F=6.7*** for one-way ANOVA comparing regional means. F = 0.2 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-39: Involvement in waterfowl hunting: Agreement/disagreement that... To change my preference from waterfowl hunting to another recreation activity would require major rethinking.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1624	3.7%	16.9%	31.0%	27.0%	21.4%	3.5
CENTRAL	392	2.6%	16.1%	33.2%	27.0%	21.2%	3.5
METRO	426	3.5%	18.5%	31.2%	24.2%	22.5%	3.4
NORTH	393	3.8%	16.0%	28.2%	29.5%	22.4%	3.5
SOUTH	411	5.8%	16.1%	30.7%	29.0%	18.5%	3.4
$\chi^2 = 13.3$ n.s.							
CRANE	391	4.6%	13.3%	22.7%	32.1%	27.3%	3.6
PICTORAL	404	2.7%	12.2%	31.0%	25.6%	28.5%	3.6
$\chi^2 = 29.341^{***}$ V = 0.078							

¹ F=1.0 n.s. for one-way ANOVA comparing regional means. F = 7.7*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-40: Involvement in waterfowl hunting: Agreement/disagreement that... A lot of my life is organized around waterfowl hunting.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1616	9.7%	29.6%	32.1%	19.5%	9.1%	2.9
CENTRAL	388	12.1%	28.4%	32.2%	19.1%	8.2%	2.8
METRO	426	6.8%	32.2%	31.9%	21.1%	8.0%	2.9
NORTH	391	9.2%	29.9%	30.4%	18.7%	11.8%	2.9
SOUTH	409	11.7%	26.7%	34.2%	18.1%	9.3%	2.9
$\chi^2 = 15.8$ n.s.							
CRANE	393	10.2%	22.8%	28.6%	23.3%	15.1%	3.1
PICTORAL	404	9.4%	23.3%	31.3%	21.6%	14.4%	3.1
$\chi^2 = 27.849^{***}$ V = 0.076							

¹ F=0.7 n.s. for one-way ANOVA comparing regional means. F = 8.7*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-41: Involvement in waterfowl hunting: Agreement/disagreement that... Waterfowl hunting has a central role in my life.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1598	12.5%	27.2%	29.9%	21.0%	9.4%	2.9
CENTRAL	387	12.4%	27.1%	30.5%	21.2%	8.8%	2.9
METRO	418	14.4%	26.1%	30.4%	20.8%	8.4%	2.8
NORTH	386	10.4%	29.8%	28.2%	18.7%	13.0%	2.9
SOUTH	406	12.1%	26.4%	29.8%	23.9%	7.9%	2.9
$\chi^2 = 13.7$ n.s.							
CRANE	390	10.5%	21.1%	31.6%	24.4%	12.3%	3.1
PICTORAL	397	8.8%	19.9%	25.8%	30.8%	14.6%	3.2
$\chi^2 = 38.921^{***}$ V = 0.090							

¹ F=0.7 n.s. for one-way ANOVA comparing regional means. F = 15.9*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 7-42: Involvement in waterfowl hunting: Agreement/disagreement that... Most of my friends are in some way connected with waterfowl hunting.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1624	7.3%	24.8%	28.5%	31.3%	8.1%	3.1
CENTRAL	391	7.4%	20.5%	29.9%	33.2%	9.0%	3.2
METRO	427	7.0%	29.7%	26.2%	29.3%	7.7%	3.0
NORTH	392	6.6%	24.0%	31.6%	29.3%	8.4%	3.1
SOUTH	412	8.3%	24.0%	26.7%	34.0%	7.0%	3.1
$\chi^2 = 14.6$ n.s.							
CRANE	395	6.3%	22.0%	28.8%	32.6%	10.4%	3.2
PICTORAL	406	8.4%	24.7%	29.1%	29.4%	8.4%	3.0
$\chi^2 = 4.860$ n.s.							

¹ F=1.3 n.s. for one-way ANOVA comparing regional means. F = 2.0 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-43: Involvement in waterfowl hunting: Agreement/disagreement that... When I am waterfowl hunting, others see me the way I want them to see me.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1621	3.0%	6.1%	35.4%	40.6%	14.9%	3.6
CENTRAL	391	3.8%	3.8%	36.1%	41.2%	15.1%	3.6
METRO	426	2.8%	7.7%	35.0%	39.9%	14.6%	3.6
NORTH	390	2.3%	6.7%	34.9%	41.0%	15.1%	3.6
SOUTH	412	2.9%	5.8%	35.7%	40.5%	15.0%	3.6
$\chi^2 = 7.3$ n.s.							
CRANE	394	3.8%	7.1%	31.0%	41.5%	16.5%	3.6
PICTORAL	403	4.0%	5.2%	36.1%	38.3%	16.4%	3.6
$\chi^2 = 5.792$ n.s.							

¹ F=0.2 n.s. for one-way ANOVA comparing regional means. F = 0.0 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 7: Motivations for and Importance of Waterfowl Hunting

Table 7-44: Involvement in waterfowl hunting: Agreement/disagreement that... I identify with the people and image associated with waterfowl hunting.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1617	3.2%	10.1%	34.8%	40.3%	11.5%	3.5
CENTRAL	390	3.3%	10.5%	35.9%	39.2%	11.0%	3.4
METRO	424	3.5%	11.6%	32.1%	40.3%	12.5%	3.5
NORTH	391	2.3%	8.7%	36.6%	40.7%	11.8%	3.5
SOUTH	411	3.6%	8.8%	35.8%	41.6%	10.2%	3.5
$\chi^2 = 6.6$ n.s.							
CRANE	394	4.3%	8.1%	30.6%	43.5%	13.4%	3.5
PICTORAL	404	2.2%	6.2%	30.0%	49.3%	12.4%	3.6
$\chi^2 = 19.379^*$ V = 0.63							

¹ F=0.4 n.s. for one-way ANOVA comparing regional means. F = 5.3** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-45: Involvement in waterfowl hunting: Agreement/disagreement that... Waterfowl hunting is one of the most satisfying things I do.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1622	3.0%	12.3%	29.0%	37.7%	18.1%	3.6
CENTRAL	390	2.8%	14.1%	30.0%	36.7%	16.4%	3.5
METRO	426	3.5%	12.2%	24.4%	41.1%	18.8%	3.6
NORTH	393	1.8%	10.2%	31.8%	37.7%	18.6%	3.6
SOUTH	412	3.9%	11.9%	32.0%	33.3%	18.9%	3.5
$\chi^2 = 15.7$ n.s.							
CRANE	394	4.3%	9.9%	23.1%	40.6%	22.1%	3.7
PICTORAL	404	2.7%	10.1%	23.2%	37.5%	26.4%	3.8
$\chi^2 = 23.996^{**}$ V = 0.070							

¹ F=1.2 n.s. for one-way ANOVA comparing regional means. F = 6.6** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 7: Motivations for and Importance of Waterfowl Hunting

Table 7-46: Involvement in waterfowl hunting: Agreement/disagreement that... Participating in waterfowl hunting says a lot about who I am.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1617	4.3%	15.2%	34.3%	33.6%	12.6%	3.3
CENTRAL	389	3.6%	17.0%	36.8%	29.3%	13.4%	3.3
METRO	425	5.6%	16.9%	31.3%	35.3%	10.8%	3.3
NORTH	390	3.1%	11.8%	33.6%	36.7%	14.9%	3.5
SOUTH	412	4.6%	13.1%	36.9%	33.7%	11.7%	3.3
$\chi^2 = 18.8$ n.s.							
CRANE	391	6.1%	10.0%	34.3%	34.5%	15.1%	3.4
PICTORAL	403	4.2%	12.4%	32.7%	35.6%	15.1%	3.5
$\chi^2 = 12.517$ n.s.							

¹ F=2.9* n.s. for one-way ANOVA comparing regional means. F = 2.1 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-47: Involvement in waterfowl hunting: Agreement/disagreement that... Waterfowl hunting is very important to me.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1619	2.2%	7.9%	25.8%	39.6%	24.4%	3.8
CENTRAL	389	2.3%	8.5%	28.5%	36.8%	23.9%	3.7
METRO	426	2.3%	9.2%	23.7%	40.6%	24.2%	3.8
NORTH	392	1.3%	5.9%	25.5%	41.3%	26.0%	3.8
SOUTH	410	2.9%	7.3%	25.6%	40.5%	23.7%	3.7
$\chi^2 = 9.5$ n.s.							
CRANE	393	4.6%	6.6%	17.3%	42.2%	29.3%	3.8
PICTORAL	405	2.5%	5.9%	18.5%	38.3%	34.8%	4.0
$\chi^2 = 38.096$ *** V = 0.089							

¹ F=1.4 n.s. for one-way ANOVA comparing regional means. F = 7.6** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 7: Motivations for and Importance of Waterfowl Hunting

Table 7-48: Involvement in waterfowl hunting: Agreement/disagreement that... You can tell a lot about a person when you see them waterfowl hunting.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1619	5.4%	14.9%	39.3%	30.5%	9.9%	3.2
CENTRAL	389	6.9%	13.1%	39.6%	32.4%	8.0%	3.2
METRO	425	4.5%	16.7%	40.2%	28.2%	10.4%	3.2
NORTH	392	4.6%	15.1%	39.3%	29.6%	11.5%	3.3
SOUTH	412	5.6%	14.1%	37.4%	32.5%	10.4%	3.3
$\chi^2 = 9.7$ n.s.							
CRANE	394	4.3%	16.0%	36.6%	32.6%	10.4%	3.3
PICTORAL	405	5.7%	11.6%	43.1%	30.7%	8.9%	3.3
$\chi^2 = 6.977$ n.s.							

¹ F=0.5 n.s. for one-way ANOVA comparing regional means. F = 0.3 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-49: Involvement in waterfowl hunting: Agreement/disagreement that... When I am waterfowl hunting I can really be myself.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1617	2.4%	6.2%	33.5%	41.9%	16.0%	3.6
CENTRAL	389	3.1%	5.1%	36.0%	40.9%	14.9%	3.6
METRO	425	2.4%	7.8%	30.8%	44.9%	14.1%	3.6
NORTH	390	1.5%	6.2%	32.3%	40.8%	19.2%	3.7
SOUTH	412	2.4%	4.9%	35.7%	39.6%	17.5%	3.6
$\chi^2 = 13.7$ n.s.							
CRANE	394	4.1%	7.4%	29.2%	40.9%	18.5%	3.6
PICTORAL	403	3.2%	5.0%	31.3%	44.2%	16.4%	3.7
$\chi^2 = 8.962$ n.s.							

¹ F=1.1 n.s. for one-way ANOVA comparing regional means. F = 0.1 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 7: Motivations for and Importance of Waterfowl Hunting

Table 7-50: Involvement in waterfowl hunting: Agreement/disagreement that... I enjoy discussing waterfowl hunting with my friends.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1613	0.9%	2.5%	18.2%	54.8%	23.5%	4.0
CENTRAL	388	1.5%	2.6%	19.3%	54.4%	22.2%	3.9
METRO	424	0.5%	3.1%	17.0%	54.0%	25.5%	4.0
NORTH	390	0.5%	2.1%	18.5%	54.6%	24.4%	4.0
SOUTH	410	1.2%	2.0%	18.5%	57.3%	21.0%	3.9
$\chi^2 = 8.4$ n.s.							
CRANE	393	2.0%	4.3%	15.3%	52.4%	26.0%	4.0
PICTORAL	403	0.7%	2.7%	15.2%	55.5%	25.9%	4.0
$\chi^2 = 12.395$ n.s.							

¹ F=1.0 n.s. for one-way ANOVA comparing regional means. F = 0.9 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-51: Involvement in waterfowl hunting: Agreement/disagreement that... When I am waterfowl hunting, I don't have to be concerned about what other people think of me.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1616	5.4%	9.9%	29.0%	37.3%	18.3%	3.5
CENTRAL	389	4.9%	9.5%	32.1%	36.5%	17.0%	3.5
METRO	425	5.6%	8.9%	28.0%	38.8%	18.6%	3.6
NORTH	390	5.4%	10.8%	28.2%	36.7%	19.0%	3.5
SOUTH	411	5.6%	11.4%	27.0%	36.7%	19.2%	3.5
$\chi^2 = 5.0$ n.s.							
CRANE	391	8.1%	14.0%	24.7%	29.8%	23.4%	3.5
PICTORAL	404	6.9%	12.4%	28.2%	32.2%	20.3%	3.5
$\chi^2 = 22.916$ ** V = 0.069							

¹ F=0.1 n.s. for one-way ANOVA comparing regional means. F = 1.1 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 7: Motivations for and Importance of Waterfowl Hunting

Table 7-52: When you hunt waterfowl in Minnesota, do you typically hunt...

Regions	N	Alone	With a friend or friends	With family	With a group of family and friends	Both alone and with others about the same amount of time
Statewide ²	1563	7.3%	31.0%	23.9%	21.2%	16.6%
CENTRAL	368	7.1%	30.2%	29.6%	18.2%	14.9%
METRO	414	5.3%	35.7%	18.6%	26.1%	14.3%
NORTH	387	8.0%	26.1%	25.3%	20.2%	20.4%
SOUTH	394	10.2%	29.7%	22.8%	18.3%	19.0%
	$\chi^2 = 37.5^{***}$ V = 0.089					
CRANE	383	8.4%	26.6%	15.7%	28.7%	20.6%
PICTORAL	391	8.7%	30.4%	18.9%	23.3%	18.7%
	$\chi^2 = 25.326^{**}$ V = 0.074					

¹ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.
n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 7-53: When you hunt waterfowl in Minnesota, do you typically hunt...

Regions	N	When I plan the hunt myself	When someone else invites me on a hunt they plan	Both when I plan the hunt or someone else invites me
Statewide ²	1611	28.2%	11.6%	60.2%
CENTRAL	384	27.6%	11.2%	61.2%
METRO	427	23.9%	13.8%	62.3%
NORTH	390	33.1%	9.7%	57.2%
SOUTH	409	31.1%	10.3%	58.7%
	$\chi^2 = 11.7$ n.s.			
CRANE	391	25.1%	6.6%	68.3%
PICTORAL	399	29.8%	8.3%	61.9%
	$\chi^2 = 14.109^{**}$ V = 0.054			

¹ A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population.
n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 8: Trust in Minnesota Department of Natural Resources

Trust in and Desire for Voice with the Minnesota Department of Natural Resources

Respondents were asked to rate their agreement with 14 items addressing their trust in and desire for voice with the Minnesota Department of Natural Resources (MNDNR) using the scale 1 (strongly disagree) to 5 (strongly agree). Respondents agreed most strongly with items related to having opportunity to voice opinions to the MNDNR about management, and about willingness to accept decisions made by the DNR about waterfowl management (Table 8-1). Means and frequencies for the 14 trust statements strategies are presented in Tables 8-2 through 8-15. Differences among regions and study samples were minimal. Where differences existed among regions, respondents from the metropolitan region were slightly more likely to agree with items addressing trust in the MNDNR.

Section 8: Trust in the Minnesota Department of Natural Resources

Table 8-1: Mean statewide results: Trust in the Minnesota Department of Natural Resources.

Trust item	N	Mean ^{1,2}
The MNDNR does a good job of managing waterfowl.	1616	3.1
When deciding about waterfowl management in Minnesota, the MNDNR will be open and honest in the things they do and say.	1610	3.1
The MNDNR can be trusted to make decisions about waterfowl management that are good for the resource.	1611	3.1
The MNDNR will make decisions about waterfowl management in a way that is fair.	1614	3.2
The MNDNR has waterfowl managers and biologists who are well-trained for their jobs.	1611	3.4
The MNDNR listens to waterfowl hunters' concerns.	1606	3.0
I consider an opportunity to voice opinions to MNDNR waterfowl management desirable.	1613	3.6
I intend to respect MNDNR waterfowl management's future management decisions.	1616	3.7
I accept the decisions of MNDNR waterfowl management.	1615	3.7
I consider an opportunity to voice opinions to MNDNR about waterfowl management important.	1614	3.8
I think Minnesotans should have the right to voice opinions about waterfowl management to the MNDNR.	1617	4.2
I am willing to accept the decisions of MNDNR waterfowl management.	1617	3.7
I think MNDNR waterfowl management uses the best available science when making management decisions.	1618	3.2
I consider MNDNR decision-making about waterfowl management fair	1617	3.3

¹Grand mean=3.4, $F=14625.7^{***}$, $\eta^2=0.223$. Mean based on scale: 1=strongly disagree, 2=disagree, 3=neither, 4=agree, 5=strongly agree.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

Section 8: Trust in the Minnesota Department of Natural Resources

Table 8-2: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... The Minnesota DNR does a good job of managing waterfowl in Minnesota.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1616	6.9%	16.8%	40.2%	33.0%	3.1%	3.1
CENTRAL	390	7.4%	17.9%	43.8%	29.2%	1.5%	3.0
METRO	423	6.6%	16.3%	35.7%	36.9%	4.5%	3.2
NORTH	390	7.9%	16.2%	40.5%	32.3%	3.1%	3.1
SOUTH	413	5.3%	16.5%	42.1%	32.7%	3.4%	3.1
	$\chi^2 = 16.0$ n.s.						
CRANE	391	7.9%	17.3%	36.0%	32.9%	5.9%	3.1
PICTORAL	398	4.8%	17.1%	39.7%	32.7%	5.8%	3.2
	$\chi^2 = 14.069$ n.s.						

¹ F = 2.5 n.s. for one-way ANOVA comparing regional means. F = 1.5 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 8-3: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... When deciding about waterfowl management in Minnesota, the Minnesota DNR will be open and honest in the things they do and say.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1610	4.7%	15.5%	47.5%	28.0%	4.3%	3.1
CENTRAL	388	5.2%	16.2%	49.2%	26.5%	2.8%	3.1
METRO	422	4.0%	14.0%	46.4%	28.9%	6.6%	3.2
NORTH	388	5.4%	16.5%	46.9%	27.8%	3.4%	3.1
SOUTH	412	4.4%	15.8%	47.6%	28.6%	3.6%	3.1
	$\chi^2 = 11.7$ Cramer's V = 0.						
CRANE	389	5.9%	20.6%	42.4%	25.2%	5.9%	3.0
PICTORAL	401	5.5%	12.7%	43.1%	31.7%	7.0%	3.2
	$\chi^2 = 20.280^{**}$ V = 0.065						

¹ F = 2.2 n.s. for one-way ANOVA comparing regional means. F = 3.6* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 8: Trust in the Minnesota Department of Natural Resources

Table 8-4: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... The Minnesota DNR can be trusted to make decisions about waterfowl management that are good for the resource.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1611	6.0%	17.2%	39.3%	33.5%	4.0%	3.1
CENTRAL	389	5.9%	17.0%	42.9%	31.4%	2.8%	3.1
METRO	421	5.7%	15.2%	39.2%	34.0%	5.9%	3.2
NORTH	389	7.7%	20.1%	35.7%	34.4%	2.1%	3.0
SOUTH	412	4.4%	17.5%	38.1%	35.2%	4.9%	3.2
$\chi^2 = 20.1$ n.s.							
CRANE	390	6.1%	18.4%	35.8%	33.8%	5.9%	3.1
PICTORAL	402	5.5%	15.9%	39.7%	31.8%	7.2%	3.2
$\chi^2 = 9.987$ n.s.							

¹ F = 2.9* for one-way ANOVA comparing regional means. F = 0.9 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 8-5: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... The Minnesota DNR will make decisions about waterfowl management in a way that is fair.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1614	3.4%	13.3%	44.1%	35.2%	4.0%	3.2
CENTRAL	389	4.1%	13.9%	45.8%	33.9%	2.3%	3.2
METRO	423	2.6%	11.3%	43.5%	36.4%	6.1%	3.3
NORTH	390	4.4%	15.1%	41.0%	37.2%	2.3%	3.2
SOUTH	411	2.7%	13.9%	46.0%	32.6%	4.9%	3.2
$\chi^2 = 19.7$ n.s.							
CRANE	390	5.4%	13.6%	41.0%	34.4%	5.6%	3.2
PICTORAL	400	3.5%	14.0%	39.5%	35.5%	7.5%	3.3
$\chi^2 = 13.964$ n.s.							

¹ F = 2.8* for one-way ANOVA comparing regional means. F = 1.0 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 8-6: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... The Minnesota DNR has waterfowl managers and biologists who are well-trained for their jobs.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1611	3.0%	5.2%	49.5%	36.5%	5.9%	3.4
CENTRAL	387	4.1%	5.4%	54.0%	32.6%	3.9%	3.3
METRO	422	2.8%	4.5%	46.7%	38.4%	7.6%	3.4
NORTH	390	3.1%	7.9%	46.9%	37.4%	4.6%	3.3
SOUTH	412	1.2%	2.9%	50.2%	38.1%	7.5%	3.5
$\chi^2 = 29.4^{**}$ V = 0.078							
CRANE	388	2.8%	7.0%	46.3%	34.1%	9.8%	3.4
PICTORAL	401	2.2%	5.2%	46.4%	36.2%	10.0%	3.5
$\chi^2 = 15.778^*$ V = 0.057							

¹ F= 6.1*** for one-way ANOVA comparing regional means. F = 2.2 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 8-7: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... The Minnesota DNR listens to waterfowl hunters' concerns.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1606	7.0%	18.8%	47.0%	23.6%	3.5%	3.0
CENTRAL	387	7.2%	18.9%	48.3%	23.3%	2.3%	2.9
METRO	421	6.2%	18.8%	46.8%	23.5%	4.8%	3.0
NORTH	384	8.3%	18.0%	47.4%	23.7%	2.6%	2.9
SOUTH	414	6.5%	19.8%	44.9%	24.4%	4.3%	3.0
$\chi^2 = 7.6$ n.s.							
CRANE	389	8.2%	20.3%	44.7%	22.9%	3.9%	2.9
PICTORAL	400	6.5%	16.2%	44.9%	26.7%	5.7%	3.1
$\chi^2 = 8.740$ n.s.							

¹ F=0.7 n.s. for one-way ANOVA comparing regional means. F = 2.8 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 8-8: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... I consider an opportunity to voice opinions to MNDNR waterfowl management desirable.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1613	1.2%	4.2%	41.0%	41.5%	12.1%	3.6
CENTRAL	389	1.5%	4.1%	47.6%	37.5%	9.3%	3.5
METRO	423	0.5%	3.8%	38.5%	41.4%	15.8%	3.7
NORTH	389	1.8%	5.1%	34.2%	46.5%	12.3%	3.6
SOUTH	411	1.2%	4.1%	42.8%	42.1%	9.7%	3.5
$\chi^2 = 27.0^{**}$ V = 0.075							
CRANE	387	1.8%	5.4%	41.1%	39.3%	12.4%	3.6
PICTORAL	400	0.8%	2.3%	34.1%	46.6%	16.3%	3.8
$\chi^2 = 18.161^{*}$ V = 0.062							

¹ F=4.6** for one-way ANOVA comparing regional means. F = 7.6** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 8-9: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... I intend to respect MNDNR waterfowl management's future management decisions.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1616	1.2%	3.3%	29.9%	50.9%	14.6%	3.7
CENTRAL	390	2.3%	3.6%	29.7%	51.8%	12.6%	3.7
METRO	422	0.7%	4.0%	26.8%	51.7%	16.8%	3.8
NORTH	391	1.0%	2.8%	33.2%	48.8%	14.1%	3.7
SOUTH	413	0.7%	1.9%	31.7%	50.8%	14.8%	3.8
$\chi^2 = 15.4$ n.s.							
CRANE	389	2.1%	3.6%	30.1%	48.8%	15.4%	3.7
PICTORAL	401	1.8%	1.5%	29.0%	51.3%	16.5%	3.8
$\chi^2 = 6.714$ n.s.							

¹ F=1.6 n.s. for one-way ANOVA comparing regional means. F = 0.8 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 8-10: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... I accept the decisions of MNDNR waterfowl management.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1615	1.6%	5.2%	31.5%	49.4%	12.2%	3.7
CENTRAL	390	2.8%	4.9%	31.5%	50.8%	10.0%	3.6
METRO	423	0.7%	5.7%	28.1%	50.6%	14.9%	3.7
NORTH	390	1.5%	4.9%	35.4%	47.4%	10.8%	3.6
SOUTH	411	1.5%	5.4%	33.1%	47.4%	12.7%	3.6
$\chi^2 = 15.3$ n.s.							
CRANE	388	1.8%	5.7%	32.8%	48.8%	10.9%	3.6
PICTORAL	401	2.8%	2.8%	28.0%	52.3%	14.3%	3.7
$\chi^2 = 11.078$ n.s.							

¹ F=2.2 n.s. for one-way ANOVA comparing regional means. F = 1.9 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 8-11: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... I consider an opportunity to voice opinions to MNDNR about waterfowl management important.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1614	0.8%	2.0%	33.5%	46.4%	17.3%	3.8
CENTRAL	390	1.0%	2.1%	37.2%	43.3%	16.4%	3.7
METRO	422	0.2%	2.1%	30.6%	46.9%	20.1%	3.8
NORTH	390	1.3%	1.8%	30.8%	49.5%	16.7%	3.8
SOUTH	411	1.0%	1.7%	36.0%	47.0%	14.4%	3.7
$\chi^2 = 13.3$ n.s.							
CRANE	387	0.5%	3.4%	32.0%	45.5%	18.6%	3.8
PICTORAL	402	1.0%	0.7%	25.7%	52.4%	20.2%	3.9
$\chi^2 = 17.691$ * V = 0.061							

¹ F=2.5 n.s. for one-way ANOVA comparing regional means. F = 3.9* for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 8-12: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... I think Minnesotans should have the right to voice opinions about waterfowl management to the MNDNR.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1617	0.2%	0.9%	14.2%	53.1%	31.6%	4.2
CENTRAL	390	0.3%	0.5%	15.9%	51.5%	31.8%	4.1
METRO	422	0.0%	1.9%	12.3%	52.1%	33.6%	4.2
NORTH	391	0.3%	0.5%	13.6%	56.0%	29.7%	4.1
SOUTH	414	0.5%	0.0%	15.7%	53.9%	30.0%	4.1
$\chi^2 = 18.0$ n.s.							
CRANE	387	0.3%	1.0%	15.7%	49.5%	33.5%	4.1
PICTORAL	401	0.2%	0.5%	11.7%	52.7%	34.8%	4.2
$\chi^2 = 5.252$ n.s.							

¹ F = 0.3 n.s. for one-way ANOVA comparing regional means. F = 1.5 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 8-13: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... I am willing to accept the decisions of MNDNR waterfowl management.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1617	1.5%	3.1%	28.9%	53.3%	13.2%	3.7
CENTRAL	391	2.6%	2.6%	29.4%	54.7%	10.7%	3.7
METRO	422	0.9%	3.6%	25.6%	54.3%	15.6%	3.8
NORTH	391	1.5%	3.8%	31.2%	51.9%	11.5%	3.7
SOUTH	412	0.5%	2.4%	31.3%	51.0%	14.8%	3.8
$\chi^2 = 18.1$ n.s.							
CRANE	388	1.0%	3.6%	35.2%	49.1%	11.1%	3.7
PICTORAL	400	1.8%	1.5%	29.0%	53.3%	14.5%	3.8
$\chi^2 = 11.647$ n.s.							

¹ F = 2.5 n.s. for one-way ANOVA comparing regional means. F = 2.4 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 8-14: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... I think MNDNR waterfowl management uses the best available science when making management decisions.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1618	4.9%	10.9%	47.2%	30.7%	6.3%	3.2
CENTRAL	390	6.4%	9.2%	50.3%	30.0%	4.1%	3.2
METRO	423	3.8%	10.6%	47.5%	30.3%	7.8%	3.3
NORTH	391	5.1%	14.1%	43.5%	32.0%	5.4%	3.2
SOUTH	414	4.1%	10.4%	46.1%	30.9%	8.5%	3.3
$\chi^2 = 18.2$ n.s.							
CRANE	389	4.6%	14.3%	45.8%	26.9%	8.4%	3.2
PICTORAL	402	3.5%	10.0%	46.3%	31.6%	8.7%	3.3
$\chi^2 = 11.031$ n.s.							

¹ F = 2.1 n.s. for one-way ANOVA comparing regional means. F = 2.0 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 8-15: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... I consider MNDNR decision-making about waterfowl management fair.

Regions	N	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean ¹
Statewide ²	1617	3.2%	9.7%	47.6%	33.8%	5.7%	3.3
CENTRAL	390	4.9%	9.0%	50.3%	31.8%	4.1%	3.2
METRO	422	2.6%	8.3%	48.3%	33.6%	7.1%	3.3
NORTH	391	3.8%	11.8%	44.2%	35.3%	4.9%	3.3
SOUTH	414	1.0%	11.1%	45.9%	35.5%	6.5%	3.4
$\chi^2 = 21.6^* V = 0.067$							
CRANE	389	5.1%	11.1%	41.9%	35.5%	6.4%	3.3
PICTORAL	401	3.2%	9.5%	45.3%	32.8%	9.2%	3.4
$\chi^2 = 12.987$ n.s.							

¹ F = 2.7* for one-way ANOVA comparing regional means. F = 1.4 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 9: Characteristics of Waterfowl Hunters in Minnesota

Information from the Electronic Licensing System database indicates that one-third (32%) of the Minnesota residents who purchased a state duck stamp live in the Twin Cities Metropolitan area. See Table 9-1.

Hunter Age

The mean age of the study population of Minnesota duck stamp purchasers was 39.7 years. The mean age of 44.5 years for study respondents was higher than the age of the population (Table 9-2.)

Years of Waterfowl Hunting

At the beginning of the survey instrument, respondents were asked to report the year they first hunted waterfowl in the state of Minnesota, how many total years they have hunted waterfowl in Minnesota, and how many years since 2012 that they hunted for waterfowl in the state.

Table 9-3 presents the proportion of respondents who hunted waterfowl in 2017 by age group. The results suggest that the proportion of stamp buyers who actually hunted during the season declined from 100% among 18-19 year olds to 71% among respondents over age 65.

Statewide, about 30% of respondents began hunting waterfowl in 2000 or more recently (Table 9-4). On average, waterfowl hunters in Minnesota have been hunting in the state for 24.2 years (Table 9-5). The median of 22.0 indicates that half of the hunters have hunted 22 or more years in the state (Table 9-5). Across the regions, hunters in the north region (\bar{x} = 25.7; median = 25.0) tended to have slightly more years of hunting experience in Minnesota, while hunters from the central region had fewer years of experience (\bar{x} = 23.1; median = 20.0).

Statewide 65% of the waterfowl hunters hunted for waterfowl in Minnesota every year during the past 5 years (Table 9-6). Of the 9.8% of respondents who did not hunt waterfowl during any of the years between 2012 and 2016, approximately two-thirds (69%) hunted waterfowl during 2017. This would be expected because we drew a sample of those who purchased duck stamps in 2017.

Conservation and Hunting Memberships and Activities

More than half (53.7%) of the respondents reported that they belonged to a conservation/hunting organization. Nearly four of ten (37%) of respondents reported membership in Ducks Unlimited and 4% reported membership in Minnesota Waterfowl Association. About one-fifth (20%) of respondents indicated that they had a membership in a local sportsmen's club. Respondents from the south region reported a significantly higher rate of membership in local sportsmen's clubs (Table 9-7).

Respondents were asked to indicate how often they did four conservation and hunting activities including: a) recruiting others to go hunting, b) donating money to wildlife conservation organizations, c)

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volunteering to improve wildlife habitat in my area, and d) voting to support policies or regulations that affect the local environment. Response was on the scale 1 (never), 2 (rarely), 3 (sometimes), 4 (often), and 5 (very often). Respondents most frequently reported voting for policies or regulations that affect the local environment (Table 9-8). Means and frequencies for the 4 activities are presented in Tables 9-9 through 9-12.

Hunting Outside of Minnesota

Approximately one in five (23%) Minnesota waterfowl hunters hunted outside the state in 2017 (Table 9-13). There was no significant difference by region of residence in the proportion of respondents who had hunted outside the state. A greater proportion of respondents from the pictorial sample reported hunting outside the state.

Years Living in Minnesota, and on a Farm or Ranch

Respondents had lived in Minnesota an average of 41 years or 93% of their lives (Table 9-14). There was no difference by region in length of time residing in Minnesota. Slightly more than half of respondents (55%) had lived on a farm, ranch, or in a non-suburban rural area from birth through age 17. On average, these respondents had lived 8 years from birth through age 17 on a farm, ranch, or in a non-suburban rural area (Table 9-15). More than half (57%) of respondents had lived on a farm, ranch, or in a non-suburban rural area after age 18. These respondents had lived an average of 10.2 years on a farm, ranch, or in a non-suburban rural area. (Table 9-16). These values varied by region of residence.

Income and Education

Statewide, respondents had a mean annual household income of approximately \$113,000 (Table 9-17). Respondents from the metropolitan region had a significantly higher mean income than respondents from the other three regions. About four in ten respondents (39%) had completed a 4-year degree or higher level of education. Less than 2% had not completed a high school degree (Table 9-18). Respondents from the metropolitan region had significantly higher levels of education.

Late Respondents

We compared respondents who responded to the full-length surveys to those who responded to shortened surveys used to gauge nonresponse. For the statewide sample, we found that late respondents had been waterfowl hunting in Minnesota for somewhat fewer years ($M = 17.6$ years) than early respondents had ($M = 24.2$ years) ($t = 6.253^{***}$). Late respondents had hunted an average of 3.5 of the previous 5 years compared to 3.9 years for early respondents ($t = 2.526^*$). However, the mean numbers of weekend, weekday, or total days hunted during the 2017 season did not differ significantly between early and late respondents. On average, early respondents also rated waterfowl as being significantly more important to them ($M = 3.5$), compared to late respondents ($M = 3.3$) ($t = 3.259^{**}$). Despite these noted differences, there were few differences between early and late respondents in attitudinal measures related to satisfaction.

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Table 9-1: Residence of waterfowl stamp buyers

Region of residence	Proportion of state waterfowl stamp purchasers in each region age 18-64	
	# of licensed MN waterfowl hunters ¹	% of all MN waterfowl hunters
CENTRAL	22993	28.2%
METRO	26207	32.2%
NORTH	17704	21.7%
SOUTH	14516	17.8%
Statewide ²	81420	

¹ Source: DNR license database

² The statewide total is not equal to the total number of waterfowl stamps sold. The number reflects the sample population for the study, which excluded nonresident stamp buyers and individuals less than 18 years of age. This number reflects the customer count rather than the stamp count. Customers can purchase more than one stamp.

Table 9-2: Age of study population and survey respondents

Residence of hunter	n	18-19	20 – 29	30 – 39	40 – 49	50 - 59	60 - 64	65 +	Mean age
Population ¹	81,750	5.2%	26.5%	22.2%	16.3%	17.9%	7.1%	4.9%	39.7
Statewide	1620	2.9%	16.5%	21.5%	16.2%	23.7%	11.2%	8.1%	44.5
CENTRAL	390	3.9%	17.8%	22.7%	17.8%	21.9%	9.8%	6.2%	42.9
METRO	424	1.7%	15.9%	23.5%	15.2%	26.3%	10.0%	7.6%	44.6
NORTH	393	4.1%	15.1%	18.4%	15.3%	23.5%	13.8%	9.9%	45.9
SOUTH	413	2.2%	17.7%	19.9%	16.5%	21.8%	12.3%	9.7%	45.3
	$\chi^2 = 22.558$ n.s.								F=2.9*
CRANE	394	3.3%	18.4%	16.1%	10.2%	20.9%	11.5%	19.6%	47.2
PICTORAL	402	2.0%	12.7%	13.5%	16.5%	26.7%	13.5%	15.2%	48.9
	$\chi^2 = 76.184^{***}$ V = 0.126								F=15.6***

¹ Source: DNR license database

² The population total is not equal to the total number of waterfowl stamps sold. The number reflects the sample population for the study, which excluded nonresident stamp buyers, individuals less than 18 years of age, and individuals with invalid ZIP codes. This number reflects the customer count rather than the stamp count. Customers can purchase more than one stamp.

Table 9-3: Proportion of respondents from different age categories who actually hunted waterfowl in Minnesota in the year 2017

Age category	N	% Yes
18-19	46	100.0%
20-29	265	94.7%
30-39	348	91.4%
40-49	260	89.6%
50-59	380	82.9%
60-64	180	82.8%
65+	129	71.3%
		$\chi^2 = 66.072^{***}$, V = 0.203

Data includes only respondents for the statewide sample.
n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

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Table 9-4: What year the hunter first hunted waterfowl

Year/decade	% of hunters from that area who indicated that they first hunted waterfowl (not necessarily in Minnesota) in that year or decade:				
	Statewide ¹	CENTRAL	METRO	NORTH	SOUTH
N	1583	450	515	339	277
2017	3.0%	2.9%	4.0%	1.8%	2.5%
2010-2016	10.7%	11.1%	12.6%	8.9%	8.9%
2000-2009	16.1%	17.4%	15.7%	15.6%	15.4%
1990's	19.5%	22.4%	18.5%	17.7%	18.5%
1980's	15.0%	14.0%	14.0%	15.6%	17.5%
1970's	21.8%	19.8%	23.5%	22.4%	21.3%
1960's	12.2%	10.8%	10.2%	15.1%	14.4%
1950's	1.6%	1.3%	1.2%	2.6%	1.5%
1940's	0.2%	0.3%	0.2%	0.3%	0.0%

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional and age proportions in the population.

Table 9-5: Number of years hunting waterfowl in Minnesota

# of years	% of hunters from that area who indicated that they have been hunting in Minnesota for _____ years: ¹				
	Statewide ²	CENTRAL	METRO	NORTH	SOUTH
N	1605	384	425	390	403
1	3.2	3.1%	4.2%	2.1%	2.7%
2	2.6	2.6%	2.6%	2.6%	2.7%
3	3.5	4.2%	3.8%	3.6%	1.7%
4	3.0	2.9%	3.5%	2.8%	2.2%
5	2.8	2.1%	3.8%	2.8%	2.2%
6	2.5	3.4%	2.4%	2.6%	1.2%
7	1.4	1.0%	1.2%	1.8%	1.7%
8	2.6	3.4%	2.4%	2.3%	2.2%
9	1.2	1.3%	1.2%	1.0%	1.2%
10 – 19	20.3	20.8%	21.4%	18.2%	19.9%
20 – 29	18.1	20.8%	16.2%	16.4%	19.1%
30 – 39	14.6	12.5%	14.4%	16.2%	16.4%
40 – 49	16.4	15.1%	16.2%	17.7%	17.1%
50 – 59	7.1	6.3%	6.1%	8.2%	8.9%
60+	.9	0.5%	0.7%	1.8%	0.5%
Mean	24.2	23.1	23.3	25.7	25.7
Median	22.0	20.0	20.0	25.0	24.0

¹Actual number years were collected for each hunter and used in computation of the means and medians. Data are presented in categorical form in the table for 10+ years to simplify the table.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional and age proportions in the population.

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Table 9-6: Hunting in the last five years

Residence of hunter	% of hunters who hunted that particular year:						
	2016	2015	2014	2013	2012	Hunted every year	Did not hunt during any of these years
Statewide ¹	82.3%	80.6%	76.0%	74.7%	72.9%	65.1%	9.8%
CENTRAL	82.0%	79.5%	75.5%	74.3%	71.3%	63.0%	10.3%
METRO	81.7%	81.7%	75.9%	75.0%	73.6%	64.7%	10.8%
NORTH	81.1%	79.6%	74.7%	73.5%	71.3%	64.1%	8.6%
SOUTH	85.2%	81.9%	78.6%	76.5%	76.2%	70.4%	8.7%
	$\chi^2 = 2.962$ n.s.	$\chi^2 = 1.317$ n.s.	$\chi^2 = 1.974$ n.s.	$\chi^2 = 1.088$ n.s.	$\chi^2 = 3.590$ n.s.	$\chi^2 = 6.006$ n.s.	$\chi^2 = 1.756$ n.s.
CRANE	84.5%	84.0%	79.2%	76.5%	74.6%	76.5%	8.5%
PICTORAL	83.7%	82.3%	81.3%	79.6%	77.7%	79.6%	9.4%
	$\chi^2 = 1.421$ n.s.	$\chi^2 = 2.717$ n.s.	$\chi^2 = 6.184^*$ V = 0.050	$\chi^2 = 4.527$ n.s.	$\chi^2 = 4.078$ n.s.	$\chi^2 = 4.527$ n.s.	$\chi^2 = 6.187^*$ V = 0.050

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional and age proportions in the population.

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

Table 9-7: Membership in hunting-related groups

Residence of hunter	% of hunters indicating membership in that group:					
	No Groups ¹	Ducks Unlimited	Delta Waterfowl	MN Waterfowl Assn.	Local sportsmen's club	Other
Statewide ²	46.3%	37.2%	5.8%	4.3%	19.5%	13.8%
CENTRAL	32.3%	32.3%	6.5%	3.8%	19.0%	11.3%
METRO	40.4%	40.4%	4.6%	4.4%	11.9%	14.0%
NORTH	34.6%	34.6%	6.6%	3.7%	20.1%	16.0%
SOUTH	42.4%	42.4%	5.9%	5.6%	33.2%	15.1%
	$\chi^2 = 11.916^{**}$ V = 0.085	$\chi^2 = 11.916^{**}$ V = 0.085	$\chi^2 = 2.014$ n.s.	$\chi^2 = 2.479$ n.s.	$\chi^2 = 60.668^{***}$ V = 0.191	$\chi^2 = 4.188$ n.s.
CRANE	44.3%	38.7%	5.8%	3.6%	19.6%	15.3%
PICTORAL	39.3%	45.3%	11.5%	7.2%	17.5%	22.1%
	$\chi^2 = 6.572^*$ V = 0.051	$\chi^2 = 9.341^{**}$ V = 0.061	$\chi^2 = 17.870^{***}$ V = 0.085	$\chi^2 = 7.645^*$ V = 0.055	$\chi^2 = 0.943$ n.s.	$\chi^2 = 17.241^{***}$ V = 0.083

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.

² A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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Table 9-8: Mean statewide results: Conservation and hunting activities.

Activity	N	Mean ^{1,2}
Recruit others to go hunting.	1616	3.0
Donate money to wildlife conservation organizations.	1612	3.0
Volunteer to improve wildlife habitat in my area.	1604	2.5
Vote to support policies or regulations that affect the local environment.	1614	3.2

¹Grand mean=2.9, F=6812.9***, $\eta^2=0.116$. Mean based on scale: 1=strongly disagree, 2=disagree, 3=neither, 4=agree, 5=strongly agree.

² A stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population.

Table 9-9: Conservation and hunting activities: Recruit others to go hunting.

Regions	N	Never	Rarely	Sometimes	Often	Very often	Mean ¹
Statewide ²	1617	7.6%	15.2%	51.3%	20.1%	5.9%	3.0
CENTRAL	390	8.5%	15.4%	49.0%	20.3%	6.9%	3.0
METRO	423	8.5%	15.4%	52.2%	18.2%	5.7%	3.0
NORTH	389	5.9%	14.4%	53.0%	21.1%	5.7%	3.1
SOUTH	414	6.8%	15.2%	51.2%	22.0%	4.8%	3.0
$\chi^2= 6.694$ n.s.							
CRANE	392	8.4%	12.0%	47.4%	24.5%	7.7%	3.1
PICTORAL	405	8.9%	15.8%	49.4%	18.3%	7.7%	3.0
$\chi^2= 4.527$ n.s.							

¹ F= 0.6 n.s. for one-way ANOVA comparing regional means. F = 1.8 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = never, 2 = rarely, 3 = sometimes, 4= often, 5 = very often.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001

Table 9-10: Conservation and hunting activities: Donate money to wildlife conservation organizations.

Regions	N	Never	Rarely	Sometimes	Often	Very often	Mean ¹
Statewide ²	1612	9.9%	16.4%	42.6%	22.6%	8.6%	3.0
CENTRAL	389	11.8%	17.7%	44.2%	19.3%	6.9%	2.9
METRO	423	9.2%	15.1%	42.3%	23.2%	10.2%	3.1
NORTH	389	9.3%	19.0%	41.9%	22.9%	6.9%	3.0
SOUTH	410	8.5%	13.2%	41.2%	26.8%	10.2%	3.2
$\chi^2= 18.033$ n.s.							
CRANE	388	12.9%	19.3%	40.2%	18.3%	9.3%	2.9
PICTORAL	401	6.0%	13.0%	38.4%	25.7%	17.0%	3.3
$\chi^2= 73.883$ *** V = 0.096							

¹ F= 4.5** for one-way ANOVA comparing regional means. F = 17.8*** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: Mean is based on the scale: 1 = never, 2 = rarely, 3 = sometimes, 4= often, 5 = very often.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p< 0.01, ***p< 0.001

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Table 9-11: Conservation and hunting activities: Volunteer to improve wildlife habitat in my area.

Regions	N	Never	Rarely	Sometimes	Often	Very often	Mean ¹
Statewide ²	1604	22.3%	30.3%	31.0%	10.1%	6.3%	2.5
CENTRAL	389	20.6%	27.8%	35.5%	9.3%	6.9%	2.5
METRO	417	26.9%	34.5%	25.9%	7.0%	5.8%	2.3
NORTH	386	20.5%	28.2%	33.2%	13.0%	5.2%	2.5
SOUTH	412	18.9%	29.4%	30.6%	13.6%	7.5%	2.6
$\chi^2 = 31.051^{**}$							
CRANE	389	20.3%	31.9%	29.8%	11.8%	6.2%	2.5
PICTORAL	402	23.9%	26.9%	31.3%	10.9%	7.0%	2.5
$\chi^2 = 4.373$ n.s.							

¹ F = 6.1*** for one-way ANOVA comparing regional means. F = 0.2 n.s. for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 9-12: Conservation and hunting activities: Vote to support policies or regulations that affect the local environment.

Regions	N	Never	Rarely	Sometimes	Often	Very often	Mean ¹
Statewide ²	1614	11.2%	14.1%	31.4%	28.8%	14.5%	3.2
CENTRAL	390	12.1%	16.9%	32.1%	27.4%	11.5%	3.1
METRO	423	11.1%	13.0%	31.2%	28.6%	16.1%	3.3
NORTH	386	7.8%	12.7%	34.2%	30.1%	15.3%	3.3
SOUTH	414	13.8%	13.3%	27.5%	30.0%	15.5%	3.2
$\chi^2 = 17.112$ n.s.							
CRANE	390	11.3%	14.1%	33.8%	27.7%	13.1%	3.2
PICTORAL	405	8.9%	10.9%	30.4%	27.9%	22.0%	3.4
$\chi^2 = 18.757^*$ V = 0.062							

¹ F = 2.5 n.s. for one-way ANOVA comparing regional means. F = 6.3** for one-way ANOVA comparing means for statewide, crane, and pictorial samples. Mean is based on the scale: 1 = never, 2 = rarely, 3 = sometimes, 4 = often, 5 = very often.

² A stratified sample based on region was drawn. Statewide data is weighted to reflect regional proportions in the population. n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Section 9: Characteristics of Waterfowl Hunters in Minnesota

Table 9-13: Did you hunt for waterfowl in a state or province other than Minnesota in 2017?

Residence of hunter	n	Yes
Statewide ¹	1626	22.5%
CENTRAL	392	22.2%
METRO	424	21.7%
NORTH	394	22.3%
SOUTH	415	24.6%
		$\chi^2 = 1.164$ n.s.
CRANE	397	17.1%
PICTORAL	405	25.4%
		$\chi^2 = 8.5^*$ V = 0.059

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 9-14: Number of years living in Minnesota

Residence of hunter	n	Mean number of years	% of life
Statewide ¹	1621	41.1	92.7%
CENTRAL	390	40.3	94.0%
METRO	424	40.4	91.3%
NORTH	392	42.2	92.7%
SOUTH	413	42.1	93.1%
		F=1.6 n.s.	F = 1.5 n.s.
CRANE	394	44.0	93.1%
PICTORAL	403	45.3	92.8%
		F=13.2***	F=0.1 n.s.

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 9-15: Percent of respondents who had lived on a farm or ranch, or in a non-suburban rural area from birth until age 17, and mean number of years and percent of youth for those who did.

Residence of hunter	N	% who lived	Mean number of years	% of years
Statewide ¹	1589	54.7%	7.9	46.5%
CENTRAL	381	65.3%	9.6	56.5%
METRO	419	34.4%	4.6	27.3%
NORTH	385	65.5%	9.8	57.5%
SOUTH	403	61.1%	8.9	52.3%
		$\chi^2 = 111.236^{***}$ V=0.263	F=40.7***	F=40.7***
CRANE	384	67.7%	10.2	59.9%
PICTORAL	399	50.1%	6.9	40.4%
		$\chi^2 = 28.3^{***}$ v = 0.109	F=18.6***	F=18.6***

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Section 9: Characteristics of Waterfowl Hunters in Minnesota

Table 9-16: Percent of respondents who had lived on a farm or ranch, or in a non-suburban rural area from age 18 on, and mean number of years and percent of adult life for those who did.

Residence of hunter	n	% who lived	Mean number of years	% of years
Statewide ¹	1599	57.4%	10.2	36.5%
CENTRAL	379	64.9%	11.7	.430
METRO	421	30.9%	3.7	.140
NORTH	388	79.4%	15.7	.542
SOUTH	412	66.5%	13.2	.451
		$\chi^2=220.318^{***}$ V=0.371	F= *59.6 ^{***}	F=86.5 ^{***}
CRANE	383	72.4%	15.5	50.5%
PICTORAL	403	57.6%	11.3	35.5%
		$\chi^2= 29.905^{***}$ v = 0.112	F=19.0 ^{***}	F=19.8 ^{***}

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 9-17: Mean income

Residence of hunter	n	Mean income
Statewide ¹	1262	\$112,959.50
CENTRAL	297	\$102,690.24
METRO	335	\$137,039.40
NORTH	315	\$97,022.44
SOUTH	313	\$104,773.50
		F=44.9 ^{***}
CRANE	292	\$93,223.28
PICTORAL	336	\$118,402.60
		F = 6.5 ^{**}

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Table 9-18: Highest Level of Education.

Regions	Percent of respondents whose highest level of education was...								
	Grade school	Some high school	High school diploma (or GED)	Some vocational or technical school	Associate's degree	Some college	4-year college degree	Some graduate school	Graduate degree
Statewide ¹	0.2%	1.2%	15.4%	8.9%	19.9%	15.7%	27.7%	2.5%	8.4%
CENTRAL	0.3%	0.8%	20.0%	10.8%	23.3%	13.3%	22.6%	2.8%	6.2%
METRO	0.2%	1.2%	11.6%	4.7%	14.2%	18.4%	35.2%	3.3%	11.1%
NORTH	0.3%	2.0%	14.5%	10.7%	20.7%	15.3%	26.8%	1.8%	7.9%
SOUTH	0.2%	1.0%	15.7%	11.1%	23.9%	15.2%	23.4%	1.7%	7.7%
	$\chi^2= 66.005^{***}$ V = 0.117								
CRANE	0.8%	2.8%	21.7%	8.4%	16.1%	15.9%	22.5%	4.1%	7.7%
PICTORAL	0.7%	1.0%	14.4%	6.0%	22.3%	15.1%	25.8%	3.0%	11.7%
	$\chi^2= 36.3^{**}$ V = 0.087								

¹ A stratified sample based on region of residence was drawn. Statewide data in this table is weighted to reflect regional proportions in the population.

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

Section 10: Comparison of 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 Minnesota Waterfowl Hunter Survey Findings

In this section, we compare results from this 2017 waterfowl hunter survey to previous studies of Minnesota waterfowl hunters. In 2000, 2002, 2005, 2007, 2010, 2011, and 2014 similar studies of Minnesota waterfowl hunters were completed (Fulton et al. 2002; Schroeder et al., 2004, Schroeder et al., 2006, Schroeder et al., 2008, Schroeder et al., 2012a, Schroeder et al., 2012b, Schroeder et al., 2015). Some of the questions asked in these previous surveys are either identical or similar to questions asked in the 2017 waterfowl study. For those questions, a comparison of responses is provided.

Respondent age, Years Hunting and Days Hunting During the Season

The average age of respondents to the 2017 survey (44.6 years) was significantly higher than the average age of respondents in 2000 (41.4 years), 2005 (43.2 years), and 2007 (42.3 years) surveys, and significantly lower than the average age of respondents to the 2002 survey (45.3 years). The average age of 2017 respondents was not significantly different from respondents to the 2010 survey (45.2 years), the 2011 survey (45.1 years), or the 2014 survey (44.6 years) (Table 10-1). There were also significant differences between the 2017 data and the earlier sets of data concerning the average number years hunting waterfowl (Table 10-2). Respondents for the 2017 season report hunting waterfowl an average of 29.5 years compared to 22.5 in 2000, 26.9 in 2002, 23.1 in 2005, 25.1 in 2007, 27.7 in 2010, 29.7 in 2011, and 29.0 in 2014. The differences in age and years hunting waterfowl may reflect differences in sampling. The samples for the 2000 and 2002 seasons included both Minnesota duck stamp purchasers and individuals 16-18 and over 64 years of age who were not required to purchase a duck stamp but registered through the harvest information program (HIP). The sample from the 2005 season did not include HIP registrants, and the samples for the 2010, 2011, 2014, and 2017 seasons excluded both HIP registrants and license buyers less than 18 years of age (Table 10-3).

The average number of days spent hunting waterfowl also differed significantly when comparing 2017 results to some earlier surveys. Respondents reported hunting an average of 10.0 days in 2017, compared to an average of 10.0 in 2014, 10.3 in 2011, 10.7 in 2010, 10.2 in 2007, 10.2 in 2005, 9.7 in 2002, 11.5 in 2000 (Table 10-4). The difference between the average number of days hunting waterfowl in 2017 and previous studies was statistically significant when comparing 2017 to 2000 and 2010.

Waterfowl Harvest

Reported number of ducks bagged per hunter in 2017 varied significantly from 2014, 2011, 2010, 2007, 2005, 2002, and 2000 (Table 10-5). Looking at the proportions of hunters who: bagged zero ducks, 1-10 ducks, or 11 or more ducks, results largely parallel those from the 2007 season.

Section 10: Comparison of 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 Minnesota Waterfowl Hunter Survey Findings

Hunting Participation and Satisfaction

There were some statistically significant differences in participation in the different waterfowl hunts, but differences do not appear substantive (Table 10-6). Similarly, differences in hunting on opening Saturday over the years are subtle (Table 10-7).

The proportion of respondents who hunted for waterfowl outside the state of Minnesota in 2017 (21.9%) was greater than in 2002, 2005, 2010, 2011, and 2014 (Table 10-9). The proportion hunting outside the state was not significantly different than in 2000 (24.7%). It must be noted that question phrasing may have caused higher reporting of out-of-state hunting for the 2000 survey. The 2002, 2005, 2010, 2011, 2014, and 2017 surveys specified hunting out of state during that season. In the 2000 survey of waterfowl hunters, the question was phrased “Did you waterfowl hunt in a state or province other than Minnesota?” and did not specify the year. Therefore, respondents to the 2000 survey may have responded affirmatively to the question because they hunted outside of Minnesota in years prior to 2000.

Respondents reported significantly higher mean satisfaction levels for the 2017 season than for the 2000, 2005, 2007, 2010, 2011, and 2014 seasons. Satisfaction was not significantly different from the 2002 season (Table 10-10).

Youth Waterfowl Hunting Day

Based on a scale of 1 (strongly oppose) to 5 (strongly support), support for Youth Waterfowl Hunting Day in 2017 ($\bar{x} = 3.9$) was higher than in previous seasons (Table 10-11).

Group Membership

Reported memberships in Ducks Unlimited, Delta Waterfowl, the Minnesota Waterfowl Association, and local sportsmen’s clubs were lower in 2017 than in 2014, but similar to levels seen in previous study years. See Table 10-12.

Agency Trust

Six identical measures of trust in the Minnesota Department of Natural Resources were asked in 2010, 2011, 2014, and 2017, and two identical measures were also asked in 2002. Although there were some significant differences in average trust ratings, differences were not substantive (Tables 10-13 to 10-18).

Section 10: Comparison of 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 Minnesota Waterfowl Hunter Survey Findings

Table 10-1: Age of respondents: 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 findings

Study year	N ¹	Average age (years)	Range (years)	t-test, average compared to 2017
2000 hunters	2,454	41.4	16 - 88	t = 8.542***
2002 hunters	3,109	45.3	14 - 88	t = 2.012*
2005 hunters	2,568	43.2	16 - 90	t = 3.671***
2007 hunters	469	42.3	17 - 76	t = 6.107***
2010 hunters	1,932	45.2	20 - 87	t = 1.741 n.s.
2011 hunters	1,780	45.1	19 - 87	t = 1.471 n.s.
2014 hunters	1,665	44.6	18 - 83	t = 0.118 n.s.
2017 hunters	1,619	44.6	14 - 89	

¹ In 2000, 2002, and 2005, a stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population. Respondents from 2000 and 2002 include duck stamp buyers and individuals aged 16-18 or over 64 years who are not required to purchase duck stamps but registered through the hunter information program (HIP). The 2005 and 2007 samples did not include individuals from the HIP. The 2010, 2011, 2014, and 2017 samples includes duck stamp buyers 18 years of age and older.

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

Table 10-2: Number of years hunting ducks/waterfowl: 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 findings

Study year	N ¹	Average number of years hunting ducks/waterfowl ¹	t-test, average compared to 2017
2000 hunters	2,376	22.5	t = 16.676
2002 hunters	3,034	26.9	t = 6.130***
2005 hunters	2,295	23.1	t = 15.238***
2007 hunters	461	25.1	t = 10.444***
2010 hunters	1,845	27.7	t = 4.213***
2011 hunters	1,702	29.7	t = 0.581 n.s.
2014 hunters	1,652	29.0	t = 1.097 n.s.
2017 hunters	1,583	29.5	

¹ In 2000, 2002, and 2005, a stratified sample based on region of residence was drawn. Data in this table is weighted to reflect regional proportions in the population. Respondents from 2000 and 2002 include duck stamp buyers and individuals aged 16-18 or over 64 years who are not required to purchase duck stamps but registered through the hunter information program (HIP). The 2005 and 2007 samples did not include individuals from the HIP. The 2010, 2011, 2014, and 2017 samples includes duck stamp buyers 18 years of age and older.

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

Section 10: Comparison of 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 Minnesota Waterfowl Hunter Survey Findings

Table 10-3: Frequency distributions of HIP registrants in sample and age of respondents: 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 findings

	Sample				Respondents							
Study year	HIP registrants		Stamp buyers		<18 years		>64 years		18-64 years		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
2000 hunters	199	14.2%	1,207	85.8%	131	5.4%	207	8.5%	2,100	86.1%	2,438	100%
2002 hunters	824	17.2%	3,976	82.8%	103	3.3%	599	19.3%	2,407	77.4%	3,109	100%
2005 hunters	0	0%	4,000	100%	33	1.3%	257	10.0%	2,278	88.7%	2,568	100%
2007 hunters	0	0%	800	100%	2	1.0%	14	2.5%	479	96.8%	495	100%
2010 hunters	0	0%	4,000	100%	0	0.0%	93	4.8%	1,839	95.2%	1,932	100%
2011 hunters	0	0%	3,600	100%	0	0.0%	99	5.6%	1,681	94.4%	1,780	100%
2014 hunters	0	0%	3,600	100%	0	0.0%	120	7.2%	1,552	92.8%	1,672	100%
2017 hunters	0	0%	3,600	100%	0	0.0%	130	8.1%	1,485	91.9%	1,615	100%

n.a. = not available

Table 10-4 Number of days hunting waterfowl: 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 findings

Study year	n	Average number of days hunting waterfowl	t-test, average compared to 2017
2000 hunters	2,120	11.5	t = 6.391***
2002 hunters	3,113	9.7	t = 0.987 n.s.
2005 hunters	2,137	10.2	t = 1.062 n.s.
2007 hunters	419	10.2	t = 1.062 n.s.
2010 hunters	1,678	10.7	t = 3.112**
2011 hunters	1,537	10.3	t = 1.472 n.s.
2014 hunters	1,504	10.0	t = 0.243 n.s.
2017 hunters	1,413	9.9	

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

Table 10-5: Number of ducks bagged: 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 findings

Number bagged	2000 hunters (%)	2002 hunters (%)	2005 hunters (%)	2007 hunters (%)	2010 hunters (%)	2011 hunters (%)	2014 hunters (%)	2017 hunters (%)
N	1,959	2,027	1,960	370	1,514	1,407	1,311	1,143
Bagged none	14.7%	16.2%	17.1%	6.8%	13.5%	12.1%	11.2%	5.0%
Bagged 1 – 10	53.4%	50.9%	59.8%	51.2%	56.1%	55.4%	54.3%	55.8%
Bagged > 10	31.9%	32.9%	23.1%	42.1%	30.4%	32.5%	34.5%	39.2%
Chi-square analysis ¹	$\chi^2=98.439^{***}$	$\chi^2=112.203^{***}$	$\chi^2=239.265^{***}$	$\chi^2=12.705^{**}$	$\chi^2=95.916^{***}$	$\chi^2=68.019^{***}$	$\chi^2=50.708^{***}$	

¹Compares year in column to 2017 results.

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

Section 10: Comparison of 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 Minnesota Waterfowl Hunter Survey Findings

Table 10-6: Waterfowl Hunting Activity: 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 findings

Study year	Hunt ducks	Hunt Canada geese regular season	Hunt Canada geese—early season	Hunt Canada geese—late season	Hunt geese--other
2000 hunters	92.6% ^a	72.3% ^a	38.5% ^a	9.0%	6.9% ^a
2002 hunters	93.5% ^b	73.1% ^b	41.9% ^b	13.9%	7.8% ^b
2005 hunters	92.5% ^c	72.9% ^c	43.6% ^c	13.4%	4.3% ^c
2007 hunters	90.4% ^d	69.2% ^d	38.0% ^d	10.1%	2.6% ^d
2010 hunters	91.8% ^e	71.1% ^e	40.9% ^e		6.4% ^e
2011 hunters	93.4% ^f	73.3% ^f	43.0% ^f		6.5% ^f
2014 hunters	90.8% ^g	67.2% ^g	32.1% ^g		4.4% ^g
2017 hunters	93.8%	71.4%	35.3%		4.4%
Chi-square analysis ¹	^a $\chi^2=1.195$ n.s. ^b $\chi^2=0.048$ n.s. ^c $\chi^2=1.513$ n.s. ^d $\chi^2=14.404$ *** ^e $\chi^2=4.603$ * ^f $\chi^2=0.004$ n.s. ^g $\chi^2=11.189$ **	^a $\chi^2=0.559$ n.s. ^b $\chi^2=2.026$ n.s. ^c $\chi^2=1.570$ n.s. ^d $\chi^2=3.113$ n.s. ^e $\chi^2=0.059$ n.s. ^f $\chi^2=2.541$ n.s. ^g $\chi^2=10.982$ **	^a $\chi^2=3.485$ n.s. ^b $\chi^2=19.116$ *** ^c $\chi^2=31.464$ *** ^d $\chi^2=2.230$ n.s. ^e $\chi^2=13.254$ *** ^f $\chi^2=26.764$ *** ^g $\chi^2=9.543$ **		^a $\chi^2=10.661$ ** ^b $\chi^2=18.395$ *** ^c $\chi^2=0.265$ n.s. ^d $\chi^2=20.124$ *** ^e $\chi^2=7.016$ ** ^f $\chi^2=7.702$ ** ^g $\chi^2=0.112$

¹Chi-square test^d compares 2000 to 2017 and ^b compares 2002 to 2017 and ^c compares 2005 to 2017, ^d compares 2007 to 2017, ^e compares 2010 to 2017 and ^f compares 2011 to 2017.
 n.s. = not significant, *p < 0.05, **p < 0.01, ***p < 0.001

Table 10-7: Waterfowl Hunting, Opening Saturday: 2000, 2002, 2005, 2010, 2011, 2014, and 2017 findings

Study year	N	Hunt opening Saturday	Chi-square analysis, proportion compared to 2017
2000 hunters	2,191	63.2%	$\chi^2=0.012$ n.s.
2002 hunters	2,745	64.4%	$\chi^2=0.704$ n.s.
2005 hunters	2,118	63.0%	$\chi^2=0.070$ n.s.
2010 hunters	1,690	60.1%	$\chi^2=6.261$ *
2011 hunters	1,534	64.7%	$\chi^2=1.163$ n.s.
2014 hunters	1,499	66.3%	$\chi^2=5.623$ *
2017 hunters	1,668	63.9%	

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

Section 10: Comparison of 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 Minnesota Waterfowl Hunter Survey Findings

Table 10-8: Waterfowl Hunting, Opening Sunday: 2000, 2002, 2005, 2010, 2014, and 2011 findings

Study year	N	Hunt opening Sunday	Chi-square analysis, proportion compared to 2011
2000 hunters	2,191	69.7%	$\chi^2=63.124^{***}$
2002 hunters	2,745	67.4%	$\chi^2=34.339^{***}$
2005 hunters	2,120	64.9%	$\chi^2=13.658^{***}$
2010 hunters	1,689	62.3%	$\chi^2=2.341$ n.s.
2011 hunters	1,543	60.4%	
2014 hunters		Question not asked	
2017 hunters		Question not asked	

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

Table 10-9: Hunt Outside Minnesota: 2000, 2002, 2005, 2010, 2011, 2014, and 2017 findings

Study year	N	Hunt Outside Minnesota	Chi-square analysis, proportion compared to 2017
2000 hunters	2,399	24.7%	$\chi^2=3.468$ n.s.
2002 hunters	3,035	18.6%	$\chi^2=18.110^{***}$
2005 hunters	2,378	17.3%	$\chi^2=33.124^{***}$
2010 hunters	1,662	18.0%	$\chi^2=24.400^{***}$
2011 hunters	1,745	20.5%	$\chi^2=4.860^*$
2014 hunters	1,677	20.5%	$\chi^2=4.860^*$
2017 hunters	1,625	22.5%	

2000 study asked: "Did you waterfowl hunt in a state or province other than MN?"

Other surveys asked: "Did you hunt for waterfowl in a state or province other than MN in (year)?"

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

Section 10: Comparison of 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 Minnesota Waterfowl Hunter Survey Findings

Table 10-10: Overall Satisfaction with Waterfowl Hunting: 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 findings

Study year	N	Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neutral	Slightly satisfied	Moderately satisfied	Very satisfied	Chi-square analysis ¹	Means
2000 hunters	1,788	8.8%	10.3%	11.4%	4.0%	15.3%	30.8%	19.5%	$\chi^2=42.395^{***}$	4.8 ¹
2002 hunters	2,604	7.0%	8.9%	10.4%	5.5%	16.0%	35.0%	17.1%	$\chi^2=8.666$ n.s.	4.9 ²
2005 hunters	1,997	14.1%	14.2%	12.5%	6.1%	16.8%	24.6%	11.7%	$\chi^2=190.286^{***}$	4.2 ³
2007 hunters	417	9.4%	8.6%	12.5%	6.0%	18.5%	34.5%	10.6%	$\chi^2=98.543^{***}$	4.6 ⁴
2010 hunters	1,535	11.4%	12.0%	11.9%	6.5%	17.7%	28.3%	12.2%	$\chi^2=103.331^{***}$	4.4 ⁵
2011 hunters	1,401	8.5%	8.8%	9.2%	5.4%	18.4%	32.7%	17.0%	$\chi^2=9.689$ n.s.	4.8 ⁶
2014 hunters	1,394	7.9%	8.7%	10.4%	8.0%	20.3%	30.6%	14.1%	$\chi^2=42.818^{***}$	4.8 ⁷
2017 hunters	1,328	7.9%	8.3%	8.7%	6.1%	16.2%	34.5%	18.4%		4.9

¹ 2000 compared to 2017, $t=2.221^*$

² 2002 compared to 2017, $t=0.271$ n.s.

³ 2005 compared to 2017, $t=13.923^{***}$

⁴ 2007 compared to 2017, $t=6.122^{***}$

⁵ 2010 compared to 2017, $t=10.023^{***}$

⁶ 2011 compared to 2017, $t=2.221^*$

⁷ 2014 compared to 2017, $t=2.221^*$

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

Table 10-11 Support for Youth Waterfowl Hunting Day: 2000, 2002, 2005, 2010, 2011, 2014, and 2017 findings

Study year	n	Strongly oppose	Oppose	Neutral	Support	Strongly support	Chi-square analysis ¹	Means
2000 hunters	2,432	11.7%	9.4%	13.0%	21.7%	44.1%	$\chi^2=48.292^{***}$	3.8 ¹
2002 hunters	3,027	17.0%	9.3%	12.7%	25.2%	35.8%	$\chi^2=125.858^{***}$	3.5 ²
2005 hunters	2,357	17.3%	9.5%	10.5%	24.7%	37.9%	$\chi^2=101.711$	3.6 ³
2010 hunters	1,655	16.6%	9.7%	11.9%	23.9%	37.9%	$\chi^2=103.119^{***}$	3.6 ⁴
2011 hunters	1,744	15.1%	10.0%	11.7%	24.4%	38.8%	$\chi^2=80.000^{***}$	3.6 ⁵
2014 hunters	1,638	10.7%	8.7%	11.5%	27.7%	41.4%	$\chi^2=21.083^{***}$	3.8 ⁶
2017 hunters	1,611	9.7%	7.3%	10.0%	26.8%	46.2%		3.9

¹ 2000 compared to 2017, $t=3.845^{***}$

² 2002 compared to 2017, $t=13.024^{***}$

³ 2005 compared to 2017, $t=9.964^{***}$

⁴ 2010 compared to 2017, $t=9.964^{***}$

⁵ 2011 compared to 2017, $t=9.964^{***}$

⁶ 2014 compared to 2017, $t=3.845^{***}$

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

Section 10: Comparison of 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 Minnesota Waterfowl Hunter Survey Findings

Table 10-12 Group Membership: 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 findings

Study year	Ducks Unlimited	Delta Waterfowl	Minnesota Waterfowl Association	Local sportsman's club	No memberships ¹
2000 hunters	35.6% ^a	Not asked	11.0% ^a	16.0% ^a	46.4% ^a
2002 hunters	36.8% ^b	2.9% ^b	10.5% ^b	22.3% ^b	43.9% ^b
2005 hunters	37.1% ^c	3.5% ^c	7.8% ^c	20.3% ^c	42.9% ^c
2007 hunters	37.5% ^d	3.2% ^d	6.1% ^d	25.8% ^d	41.8% ^d
2010 hunters	40.1% ^e	5.4% ^e	6.1% ^e	21.2% ^e	46.6% ^e
2011 hunters	46.4% ^f	6.9% ^f	8.7% ^f	26.7% ^f	41.0% ^f
2014 hunters	39.4% ^g	6.2% ^g	6.2% ^g	21.2% ^g	42.4% ^g
2017 hunters	37.2%	5.8%	4.3%	19.5%	46.3%
Chi-square analysis ²	^a $\chi^2=2.710$ ^b $\chi^2=0.382$ n.s. ^c $\chi^2=0.132$ n.s. ^d $\chi^2=0.011$ n.s. ^e $\chi^2=4.587$ * ^f $\chi^2=52.767$ *** ^g $\chi^2=2.443$ n.s.	^b $\chi^2=52.437$ *** ^c $\chi^2=27.864$ *** ^d $\chi^2=38.540$ *** ^e $\chi^2=0.738$ n.s. ^f $\chi^2=2.726$ n.s. ^g $\chi^2=0.302$ n.s.	^a $\chi^2=74.746$ *** ^b $\chi^2=66.555$ *** ^c $\chi^2=27.184$ *** ^d $\chi^2=8.650$ ** ^e $\chi^2=8.650$ ** ^f $\chi^2=39.253$ *** ^g $\chi^2=9.537$ **	^a $\chi^2=31.565$ *** ^b $\chi^2=1.521$ n.s. ^c $\chi^2=0.569$ n.s. ^d $\chi^2=19.716$ *** ^e $\chi^2=0.025$ n.s. ^f $\chi^2=27.273$ *** ^g $\chi^2=0.025$ n.s.	^a $\chi^2=0.539$ n.s. ^b $\chi^2=1.742$ n.s. ^c $\chi^2=4.616$ * ^d $\chi^2=9.405$ ** ^e $\chi^2=0.806$ n.s. ^f $\chi^2=13.986$ *** ^g $\chi^2=6.579$ *

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.

²Chi-square test^a compares 2000 to 2017, ^b compares 2002 to 2017, ^c compares 2005 to 2017, ^d compares 2007 to 2017, ^e compares 2010 to 2017, ^f compares 2011 to 2017, ^g compares 2014 to 2017.

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

Section 10: Comparison of 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 Minnesota Waterfowl Hunter Survey Findings

Table 10-13: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... The Minnesota DNR does a good job of managing waterfowl in Minnesota.

Study year	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi-square analysis ¹	Means
2010 hunters	1873	11.4%	22.9%	33.4%	28.7%	3.5%	$\chi^2=91.341^{***}$	2.9 ¹
2011 hunters	1665	9.0%	19.9%	34.7%	33.0%	3.4%	$\chi^2=32.709^{***}$	3.0 ²
2014 hunters	1642	7.9%	17.7%	37.0%	33.8%	3.7%	$\chi^2=10.327^*$	3.1 ³
2017 hunters	1616	6.9%	16.8%	40.2%	33.0%	3.1%		3.1

¹ 2010 compared to 2017, $t=7.943^{***}$

² 2011 compared to 2017, $t=3.688^{***}$

³ 2014 compared to 2017, $t=0.568$ n.s.

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

Table 10-14: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... When deciding about waterfowl management in Minnesota, the Minnesota DNR will be open and honest in the things they do and say.

Study year	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi-square analysis ¹	Means
2010 hunters	1869	5.9%	16.4%	40.9%	32.5%	4.5%	$\chi^2=32.112^{***}$	3.1 ¹
2011 hunters	1667	6.6%	14.7%	40.5%	33.8%	4.4%	$\chi^2=45.214^{***}$	3.2 ²
2014 hunters	1638	6.2%	17.7%	41.0%	30.6%	4.4%	$\chi^2=30.103^{***}$	3.2 ³
2017 hunters	1668	4.7%	15.5%	47.5%	28.0%	4.3%		3.1

¹ 2010 compared to 2017, $t=0.759$ n.s.

² 2011 compared to 2017, $t=3.779^{***}$

³ 2014 compared to 2017, $t=3.779^{***}$

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

Table 10-15: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... The Minnesota DNR can be trusted to make decisions about waterfowl management that are good for the resource.

Study year	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi-square analysis ¹	Means
2010 hunters	1865	6.6%	19.7%	33.9%	34.9%	4.9%	$\chi^2=21.298^{***}$	3.1 ¹
2011 hunters	1668	8.0%	16.6%	33.2%	37.6%	4.7%	$\chi^2=33.857^{***}$	3.2 ²
2014 hunters	1643	6.3%	17.2%	34.8%	37.5%	4.2%	$\chi^2=14.724^{**}$	3.2 ³
2017 hunters	1611	6.0%	17.2%	39.3%	33.5%	4.0%		3.1

¹ 2010 compared to 2017, $t=1.074$ n.s.

² 2011 compared to 2017, $t=3.179^{**}$

³ 2014 compared to 2017, $t=3.179^{**}$

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

Section 10: Comparison of 2000, 2002, 2005, 2007, 2010, 2011, 2014, and 2017 Minnesota Waterfowl Hunter Survey Findings

Table 10-16: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... The Minnesota DNR will make decisions about waterfowl management in a way that is fair.

Study year	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi-square analysis ¹	Means
2010 hunters	1860	5.1%	16.9%	38.0%	35.5%	4.4%	$\chi^2=36.406^{***}$	3.2 ¹
2011 hunters	1666	6.1%	12.4%	37.9%	38.8%	4.8%	$\chi^2=45.249^{***}$	3.2 ²
2014 hunters	1641	4.9%	13.8%	39.7%	38.0%	3.6%	$\chi^2=19.553^{**}$	3.2 ³
2017 hunters	1614	3.4%	13.3%	44.1%	35.2%	4.0%		3.2

¹ 2010 compared to 2017, t=1.411 n.s.

² 2011 compared to 2017, t=1.411 n.s.

³ 2014 compared to 2017, t=1.411 n.s.

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

Table 10-17: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... The Minnesota DNR has waterfowl managers and biologists who are well-trained for their jobs.

Study year	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi-square analysis ¹	Means
2002 hunters	2556	3.6%	7.6%	32.3%	46.4%	10.0%	$\chi^2=220.484^{***}$	3.5 ¹
2010 hunters	1865	2.5%	5.3%	45.4%	38.8%	8.0%	$\chi^2=16.573^{**}$	3.4 ²
2011 hunters	1664	3.5%	5.5%	44.0%	39.2%	7.8%	$\chi^2=22.969^{***}$	3.4 ³
2014 hunters	1641	2.8%	5.3%	45.0%	40.6%	6.4%	$\chi^2=13.613^{**}$	3.4 ⁴
2017 hunters	1611	3.0%	5.2%	49.5%	36.5%	5.9%		3.4

¹ 2002 compared to 2017, t=6.520***

² 2010 compared to 2017, t=1.478 n.s.

³ 2011 compared to 2017, t=1.478 n.s.

⁴ 2014 compared to 2017, t=1.478 n.s.

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

Table 10-18: Trust in Minnesota Department of Natural Resources: Agreement/disagreement that... The Minnesota DNR listens to waterfowl hunters' concerns.

Study year	n	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Chi-square analysis ¹	Means
2002 hunters	2665	7.4%	19.1%	30.2%	36.8%	6.6%	$\chi^2=244.819^{***}$	3.2 ¹
2010 hunters	1867	9.1%	22.3%	38.5%	26.5%	3.6%	$\chi^2=49.596^{***}$	2.9 ²
2011 hunters	1664	9.1%	17.3%	39.1%	30.0%	4.5%	$\chi^2=58.619^{***}$	3.0 ³
2014 hunters	1636	6.8%	17.3%	43.2%	29.1%	3.5%	$\chi^2=23.233^{***}$	3.1 ⁴
2017 hunters	1606	6.7%	18.1%	45.3%	22.8%	3.4%		3.0

¹ 2002 compared to 2017, t=9.636***

² 2010 compared to 2017, t=3.436**

³ 2011 compared to 2017, t=0.921 n.s.

⁴ 2014 compared to 2017, t=5.279***

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

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Appendix A: Survey Instrument

THE 2017 WATERFOWL HUNTING SEASON IN MINNESOTA

A study of hunters' opinions and activities



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

Your help on this study is greatly appreciated!

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

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Part I. Your Waterfowl Hunting Background

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. How many years have you hunted waterfowl in Minnesota? *If uncertain, please estimate.*

_____ years

Q3. For the 5 years prior to last year's waterfowl season, indicate which years you hunted waterfowl in Minnesota? (Check all that apply.)

- ☐ 2016
- ☐ 2015
- ☐ 2014
- ☐ 2013
- ☐ 2012
- ☐ I did not hunt during any of these years.

Q4. Did you hunt waterfowl in Minnesota during the 2017 season? (Please check one.)

- ☐ No —→ (Skip to Part V, question Q16.)
- ☐ Yes (Please continue with Part II, Q5.)lines



Part II. Your 2017 Minnesota Waterfowl Hunting Season

Next, we have a few questions about your hunting experiences during the 2017 Minnesota waterfowl-hunting season. (If you did not hunt waterfowl in Minnesota in 2017 please skip to question Q16.)

Q5. Please indicate whether you hunted for the following kinds of waterfowl in Minnesota in 2017. If you did hunt, estimate the total number of that kind of waterfowl you bagged (shot and retrieved).

During the 2017 waterfowl season, did you hunt in Minnesota for:	Please circle no or yes.		If yes, how many did you personally 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	no	yes	_____geese
Other Geese (Snow Geese, etc.)	no	yes	_____geese
Sandhill cranes	no	yes	_____cranes

Q6. During the 2017 Minnesota waterfowl season, about how many days did you hunt on...

Weekend days or holidays: _____days

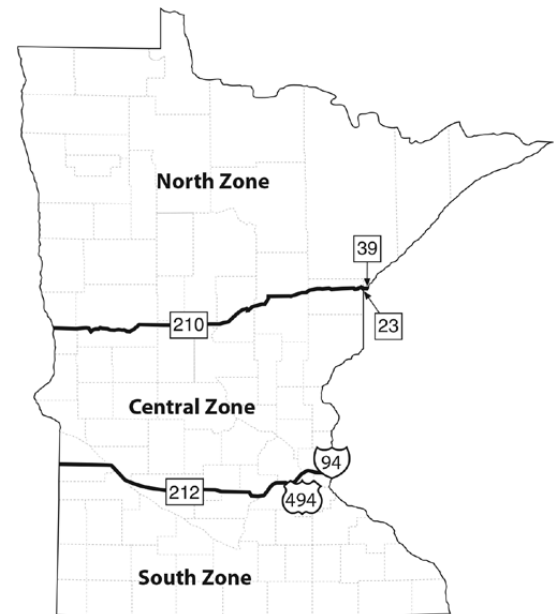
Weekdays (Monday-Friday): _____days

Q7. Did you hunt the opening Saturday (September 23) of the 2017 Minnesota Season? (Please check one.)

- ☐ No
- ☐ Yes

Q8. During the 2017 Minnesota waterfowl-hunting season, how many days did you hunt in each zone? (See map.) Do not include days hunted during the September goose seasons.

Region	Number of Days
North Zone	days
Central Zone	days
South Zone	days



Q9. During the 2017 Minnesota waterfowl-hunting season, did you hunt... (Please check one.)

- ☐ Mostly on privately owned areas
- ☐ Mostly on public access areas (Wildlife Management Areas, Waterfowl Production Areas, public access waters)
- ☐ Public and private about the same

Q10. During the 2017 waterfowl season, how often did you use the following techniques? (Circle one for each.)

	HUNTING DUCKS					HUNTING GEESE				
	Never	Occasionally	About half the time I hunted	Often	Every time I hunted	Never	Occasionally	About half the time I hunted	Often	Every time I hunted
Pass shooting.	1	2	3	4	5	1	2	3	4	5
Decoying birds over water.	1	2	3	4	5	1	2	3	4	5
Decoying birds over land.	1	2	3	4	5	1	2	3	4	5
Jump shooting on ponds or streams.	1	2	3	4	5	1	2	3	4	5
Sneaking on birds in fields.	1	2	3	4	5	1	2	3	4	5
Hunting from NON-motorized watercraft.	1	2	3	4	5	1	2	3	4	5
Hunting from motorized watercraft <u>with a mud motor</u> .	1	2	3	4	5	1	2	3	4	5
Hunting from motorized watercraft <u>without</u> a mud motor.	1	2	3	4	5	1	2	3	4	5
Using duck/goose calls.	1	2	3	4	5	1	2	3	4	5
Hunt with a retrieving dog.	1	2	3	4	5	1	2	3	4	5
Hunt with a paid guide.	1	2	3	4	5	1	2	3	4	5

Part III. Your Hunting Satisfaction

Q11. During the 2017 Minnesota waterfowl hunting season, how satisfied or dissatisfied were you with the following? (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

Q12. During the 2017 Minnesota waterfowl hunting season, how satisfied or dissatisfied were you with the waterfowl habitat in the areas you hunted most? (Please circle one response.)

	Very dissatisfied	Moderately dissatisfied	Slightly dissatisfied	Neither	Slightly satisfied	Moderately satisfied	Very satisfied	Did not hunt
Waterfowl habitat	1	2	3	4	5	6	7	9

Q13. During the 2017 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
Number of <u>ducks seen</u>	1	2	3	4	5	6	7	9
Number of <u>geese seen</u>	1	2	3	4	5	6	7	9

Q14. Indicate how much you feel each of the following was a problem for you when you were waterfowl hunting in Minnesota during the 2017 season. (Please circle one response for each.)


	Never	Rarely	Sometimes	Often	Very often	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
Finding someone to hunt with	1	2	3	4	5	9
Finding a place to hunt	1	2	3	4	5	9

Part IV. Waterfowl Hunting Motivations and Experiences

Q15. How important are the following experiences to your Minnesota waterfowl hunting satisfaction?

For each:

- First, tell us how important it is to your waterfowl hunting satisfaction.
- Next, tell us to what extent it happened during your 2017 Minnesota 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

Seeing ducks in the field	1	2	3	4	5	1	2	3	4	5
Seeing geese in the field	1	2	3	4	5	1	2	3	4	5
Attracting ducks with decoys	1	2	3	4	5	1	2	3	4	5
Attracting geese with decoys	1	2	3	4	5	1	2	3	4	5
Calling ducks in	1	2	3	4	5	1	2	3	4	5
Calling geese in	1	2	3	4	5	1	2	3	4	5
Bagging my daily limit	1	2	3	4	5	1	2	3	4	5
Bagging at least one duck during a day in the field	1	2	3	4	5	1	2	3	4	5
Bagging drakes	1	2	3	4	5	1	2	3	4	5
Bagging a lot of ducks over the season	1	2	3	4	5	1	2	3	4	5
Bagging a lot of geese over the season	1	2	3	4	5	1	2	3	4	5
Bagging a variety of different duck species	1	2	3	4	5	1	2	3	4	5
Bagging diving ducks	1	2	3	4	5	1	2	3	4	5
Bagging mallards	1	2	3	4	5	1	2	3	4	5
Bagging teal and wood ducks	1	2	3	4	5	1	2	3	4	5

Part V. Waterfowl Hunting Involvement

Next, we have a few general questions about waterfowl hunting. *Please respond to these questions even if you did not hunt waterfowl in Minnesota in 2017.*

Q16. When you hunt waterfowl in Minnesota, do you typically hunt... (Please check one.)

- ☐ Alone
- ☐ With a friend or friends
- ☐ With family
- ☐ With a group of family and friends
- ☐ Both alone and with others about the same amount of time

Q17. When you hunt waterfowl in Minnesota, do you typically hunt... (Please check one.)

- ☐ When I plan the hunt myself
- ☐ When someone else invites me on a hunt they plan
- ☐ Both when I plan the hunt or someone else invites me

Q18. 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.

Q19. Please indicate how much you agree or disagree with the following statements about your involvement in waterfowl hunting in Minnesota. (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
Waterfowl hunting provides me with the opportunity to be with friends.	1	2	3	4	5
To change my preference from waterfowl hunting to another recreation activity would require major rethinking.	1	2	3	4	5
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 identify with the people and image associated with waterfowl hunting.	1	2	3	4	5
Waterfowl hunting is one of the most satisfying things I do.	1	2	3	4	5
Participating in waterfowl hunting says a lot about who I am.	1	2	3	4	5
Waterfowl hunting is very important to me.	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
When I am waterfowl hunting, I don't have to be concerned about what other people think of me.	1	2	3	4	5

Part VI. General Waterfowl Hunting Information

Q20. Please indicate how likely it is you will hunt ducks or geese during the 2018 Minnesota waterfowl season. (Circle one response.)

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

Q21. The U.S. Fish and Wildlife Service allowed states to have a 6-duck daily bag limit in 2017. Which one statement best describes how you feel about the total daily duck bag limit in Minnesota (6 ducks)? (Check one.)

- ☐ The daily limit was too low.
- ☐ The daily limit was about right.
- ☐ The daily limit was too high.
- ☐ No opinion.

Q22. The U.S. Fish and Wildlife Service allowed states to have a 2-hen mallard daily bag limit in 2017. Which one statement best describes how you feel about the hen mallard daily bag limit in Minnesota (2 hen mallards)? (Please check one.)

- ☐ The daily limit was too low.
- ☐ The daily limit was about right.
- ☐ The daily limit was too high.
- ☐ No opinion.

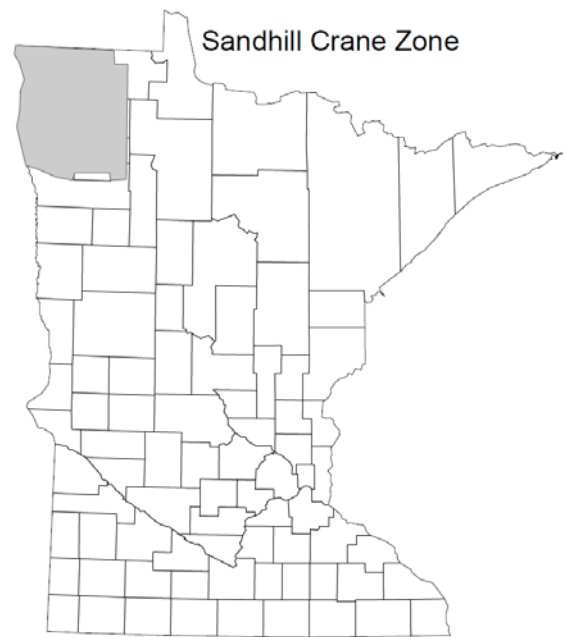
Q23. The U.S. Fish and Wildlife Service allowed states to have a 3-wood duck daily bag limit in 2017. Which one statement best describes how you feel about the wood duck daily bag limit in Minnesota (3 wood ducks)? (Please check one.)

- ☐ The daily limit was too low.
- ☐ The daily limit was about right.
- ☐ The daily limit was too high.
- ☐ No opinion.

Part VII. Waterfowl Management and Special Regulations

Q24. We would like to know if you oppose or support each of these different strategies: (Circle one for each.)

	Strongly oppose	Oppose	Neither support nor oppose	Support	Strongly support	Don't know
Using a North, Central, and South duck zone during last year's waterfowl season	1	2	3	4	5	9
Using a split season in the Central Duck Zone during last year's waterfowl season	1	2	3	4	5	9
Using a split season in the South Duck Zone during last year's waterfowl season	1	2	3	4	5	9
Ending shooting hours at 4 pm for the first part of Minnesota's waterfowl season	1	2	3	4	5	9
Restrictions on open water hunting (must be in concealing vegetation) during the regular waterfowl season	1	2	3	4	5	9
Allowing open water hunting on a few (5-10) larger lakes or rivers during the regular waterfowl season	1	2	3	4	5	9
Restricting the use of motorized decoys for the first part of Minnesota's waterfowl season	1	2	3	4	5	9
Restricting the use of motorized decoys on wildlife management areas (WMAs) for the entire duck season	1	2	3	4	5	9



Sandhill crane hunting in Minnesota

In 2017, hunters could pursue sandhill cranes from September 16 to October 22 in the northwest crane zone (see map), with a bag limit of 1 crane and a 3-crane possession limit. We would like to know if you oppose or support the management actions related to crane hunting in Minnesota.

Q25. Would you oppose or support the following changes to crane hunting in Minnesota... (Circle one for each.)

	Strongly oppose	Oppose	Neither support nor oppose	Support	Strongly support	Don't know
Increase daily bag limit on sandhill cranes from 1/day to 2/day	1	2	3	4	5	9
Extend the season on sandhill cranes from 37 days to 58 days	1	2	3	4	5	9
Expand the size of the current crane zone	1	2	3	4	5	9
Open crane season earlier beginning on the first Saturday in September	1	2	3	4	5	9
Expand sandhill crane hunting to a new hunting zone in the central/eastern part of the state	1	2	3	4	5	9

Part VIII. Waterfowl Hunting Season Dates

Q26. Please write in the number of days you hunted waterfowl in Minnesota during each time period for the 2017 season.

Late September	Early October	Late October	Early November	Late November/ Early December
Day(s)	Day(s)	Day(s)	Day(s)	Day(s)

Q27. Please mark the period that you most prefer to hunt ducks in Minnesota. (Please put an X in the one box below the period you most prefer.)

Late September	Early October	Late October	Early November	Late November/ Early December

Q28. Which opening date do you prefer? (Please check one.)

- ☐ Saturday nearest Sept. 24 (dates vary from Sept. 21 to Sept. 27); used since 2011.
- ☐ Saturday nearest Oct. 1 (dates vary from Sept. 28 to Oct. 4); historical opener.
- ☐ No preference.

Minnesota waterfowl zones

Three waterfowl zones (North, Central and South) were used in Minnesota during the 2017 season. Waterfowl zones allow states to set different season dates in different regions of the state to match waterfowl migration patterns, freeze-up dates, and hunter preferences.

Q29. In which area of the state is the timing of open waterfowl hunting and season dates most important to you? (See Map. Please select only one area.)

- ☐ North
- ☐ Central
- ☐ South
- ☐ No preference

Q30. For the area you selected above, what is your preference for season dates in 2018? (Please check one.)

- ☐ Saturday Sept. 22 to Tuesday Nov. 20 (*same season as used last year in North Duck Zone*)
- ☐ Saturday Sept. 22 to Sunday Sept. 30, close 5 days, reopen Saturday Oct. 6 to Sunday Nov. 25 (*same season as used last year in Central Duck Zone*)
- ☐ Saturday Sept. 22 to Sunday Sept. 30, close 12 days, reopen Saturday Oct. 13 to Sunday, Dec. 2 (; *same season as used last year in South Duck Zone*)
- ☐ No preference



Part IX. Youth Waterfowl Hunting Day

Since 1996, the U.S. Fish and Wildlife Service has allowed states to select Youth Waterfowl Hunting days outside the regular waterfowl season for youth age 15 and younger to take ducks and geese. 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 1996.

Q31. Do you support or oppose the concept of Youth Waterfowl Hunting Day? (Please check one.)

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

Q32. Last September (2017), did you take any youth hunting on Youth Waterfowl Hunting Day? (Please check one.)

- ☐ No → (Skip to Q34).
- ☐ Yes (Please answer question Q33.)

→ Q33. If yes, how many youths did you take? _____ youths

Part X. 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 2017 waterfowl season? (Please check one.)

- ☐ No
- ☐ Yes

Part XI. Minnesota DNR Waterfowl Management

Q36. How do you feel about the Minnesota Department of Natural Resources (MNDNR)? Please circle one response for each of the following statements:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The MNDNR does a good job of managing waterfowl.	1	2	3	4	5
When deciding about waterfowl management in Minnesota, the MNDNR will be open and honest in the things they do and say.	1	2	3	4	5
The MNDNR can be trusted to make decisions about waterfowl management that are good for the resource.	1	2	3	4	5
The MNDNR will make decisions about waterfowl management in a way that is fair.	1	2	3	4	5
The MNDNR has waterfowl managers and biologists who are well-trained for their jobs.	1	2	3	4	5
The MNDNR listens to waterfowl hunters' concerns.	1	2	3	4	5
I consider an opportunity to voice opinions to MNDNR waterfowl management desirable.	1	2	3	4	5
I intend to respect MNDNR waterfowl management's future management decisions.	1	2	3	4	5
I accept the decisions of MNDNR waterfowl management.	1	2	3	4	5
I consider an opportunity to voice opinions to MNDNR about waterfowl management important.	1	2	3	4	5
I think Minnesotans should have the right to voice opinions about waterfowl management to the MNDNR.	1	2	3	4	5
I am willing to accept the decisions of MNDNR waterfowl management.	1	2	3	4	5
I think MNDNR waterfowl management uses the best available science when making management decisions.	1	2	3	4	5
I consider MNDNR decision-making about waterfowl management fair	1	2	3	4	5

Part XII. Conservation/Hunting Activities

Q37. 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: _____

Q38. How often do you do the following conservation or hunting activities? Please circle one response for each of the following statements:

	Never	Rarely	Sometimes	Often	Very often
Recruit others to go hunting.	1	2	3	4	5
Donate money to wildlife conservation organizations.	1	2	3	4	5
Volunteer to improve wildlife habitat in my area.	1	2	3	4	5
Vote to support policies or regulations that affect the local environment.	1	2	3	4	5

Part XIII. About You

Q39. Did you hunt for waterfowl in a state or province other than Minnesota in 2017? (Please check one.)

- ☐ No.
☐ Yes. *If yes, how many days did you hunt for waterfowl outside Minnesota?* _____

Q40. What is your age?

_____ years

Q41. How many years have you lived in Minnesota?

_____ years

Q42. How many years did you live on a farm or ranch, or in a non-suburban rural area from birth until age 17?

_____ years

Q43. How many years have you lived on a farm or ranch, or in a non-suburban rural area from age 18 until now?

_____ years

Q44. What is the highest level of education you have completed? (Check one.)

- | | |
|--|---|
| <input type="checkbox"/> Grade school | <input type="checkbox"/> Some college |
| <input type="checkbox"/> Some high school | <input type="checkbox"/> Four-year college (bachelor's) degree |
| <input type="checkbox"/> High school diploma or GED | <input type="checkbox"/> Some graduate school |
| <input type="checkbox"/> Some vocational or technical school | <input type="checkbox"/> Graduate (master's or doctoral) degree |
| <input type="checkbox"/> Vocational or technical school (associate's) degree | |

Q45. What was your annual household income from all sources, before taxes, in 2017?

\$ _____

Please write any comments below or email them to sas@umn.edu. Survey results will be available in the summer of 2018 on the Minnesota Department of Natural Resources Web site, www.dnr.state.mn.us. If you have a question about the survey, email it to sas@umn.edu. If you have a specific question about waterfowl management that you want answered, please contact the Minnesota DNR at 1-888-MINNDNR.

THANK YOU FOR YOUR HELP!

Please return the completed questionnaire in the enclosed self-addressed, stamped envelope.