

# 2010 Survey of Louisiana Waterfowl Hunters



## Final Report

A cooperative study conducted by:  
School of Renewable Natural Resources  
Louisiana State University

and

Delta Waterfowl Foundation

# 2010 Survey of Louisiana Waterfowl Hunters

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## Executive Summary

We surveyed Louisiana waterfowl hunters and asked questions about waterfowl hunting effort, success, satisfaction, regulations, and experiences during the 2009-2010 waterfowl season. We received usable mail survey results from 727 randomly selected waterfowl hunters and 949 waterfowl hunters who responded to a similar survey that was open for anyone to complete online. Results from the two survey methods varied substantially, with more avid waterfowl hunters that hunted more, harvested more ducks, placed more emphasis on waterfowl hunting, and were more likely to be members of DU or Delta Waterfowl responding to the open web-based survey. We believe the randomly selected mail survey respondents more accurately represent Louisiana waterfowl hunters and hereafter in this summary only report on findings from that group.

Half of the hunters considered the 2009-2010 season to be average or better; a similar survey in 2005 reported 80% of hunters ranking the prior season as poor or very poor. Many respondents (23%) hunted on a WMA at least once, and most were satisfied (49%) or very satisfied (17%) with their overall hunting experience on WMAs, and ranked WMAs well for access, maps, and regulations. However, hunters on WMAs were least satisfied with number of waterfowl harvested, and also had low rankings for opportunities to shoot, ducks seen, and hunter crowding. When asked about zones, the current East-West zones were preferred by 33% of hunters. A no-zones and three splits option was a close second at 30%, while only 17% of hunters preferred an option with true north and south hunting zones, each with 2 splits. Hunters were very receptive to having whistling ducks in the bag during the special teal season, having an early resident Canada Goose hunting season, and maintaining limited access (no motors) areas on WMAs. In contrast, most hunters opposed legalizing commercial guiding on WMAs and regulations to close seasons at noon or to limit the use of spinning wing decoys.

Waterfowl hunters hunt in parties of two or more 88% of the time, 51% of the time from a permanent blind, and 43% of the time with a retriever. Twenty-four percent have a waterfowl-hunting lease. Their primary motivations for waterfowl hunting included “enjoying nature and the outdoors”, “getting away from crowds of people”, and “hunting with friends”. While “seeing lots of ducks and geese” was ranked highly as a motivating factor, “getting my limit” ranked near the bottom of the list. Important factors impacting the number of days hunted included free time, length of season, and hunter dispersion/crowding. The cost of waterfowl hunting was not identified as an important constraint.

Two-thirds of respondents hunted 5 of the past 5 seasons. The 1/3 that hunted only sporadically are a potential source of additional license sales. When surveyed about changes in the number of days hunted per season, 32% reported increases over the past five years, but 45% reported decreases. This disparity is a source of long-term concern.

Statistical analysis revealed members of waterfowl hunting clubs 4.3 times more likely to hunt every year than non-members, and members of Delta Waterfowl Foundation and/or Ducks Unlimited 1.7 times more likely to hunt every year than non-members. Further analyses identified five distinct typologies among Louisiana waterfowl hunters. Characteristics of these typologies can be utilized to develop specific strategies targeting increased hunter participation. A follow-up survey of Mississippi Flyway Waterfowl Hunters, currently in progress, will include a mailing to 733 hunters from Louisiana, allowing us to further refine and validate these findings.

# Table of Contents

	<u>Page</u>
Executive Summary	3
Section 1. Final Report	5
- Study goals	5
- Survey methods	5
- Survey response	5
- Parishes frequently hunted	6
- Gender and avidity	6
- Satisfaction	7
- Experiences on WMAs	8
- Regulatory preferences	9
- Experience preferences	11
- Motivations for waterfowl hunting	11
- Constraints to waterfowl hunting	12
- Annual participation	13
- Waterfowl hunter typologies	15
- Discussion	16
Section 2. Private Survey Results	18
Section 3. Public Survey Results	47
Section 4. Analysis of Annual Participation	79
Section 5. Typologies of Louisiana Waterfowl Hunters	82
Section 6. References Cited	91

## Appendices

Appendix A. Survey Instrument

Appendix B. Significance Tests of Private v. Public Dataset

# Section 1. Final Report

## Study goals

The 2010 Survey of Louisiana Waterfowl hunters is an update and expansion of the 2005 study, Hunter Attitudes Toward Duck Season in Louisiana (Miller et al. 2005). The primary goal of the 2010 survey was to develop information on hunting effort, success, satisfaction, and preferences for input to decisions impacting waterfowl management and hunting regulations. A secondary goal was to evaluate influences on annual participation in Louisiana waterfowl hunters.

## Survey methods

The investigators conducted a confidential and anonymous mixed-mode survey of Louisiana waterfowl hunters following the 2009-2010 waterfowl season. The private survey was mailed to a stratified random sample of 2,500 licensed waterfowl hunters, using the 2009-2010 HIP dataset for Louisiana. The sample included 250 licensed female hunters and 250 non-resident hunters. Recipients were provided the option of responding via hard copy or web-based survey, based upon a unique code provided to each. Announcement postcards and surveys were mailed in two waves during April and May 2010 (Dillman et al. 2009). A separate but identical public convenience survey, accessed via the Louisiana Department of Wildlife and Fisheries (LDWF) website, facilitated open-access response. Publicity for the public survey was provided by LDWF using *Louisiana Conservationist*, the LDWF website, a LDWF press release, and television and radio interviews of LDWF Waterfowl Study Leader Larry Reynolds. Survey administration and website design were conducted by the Public Policy Research Lab at Louisiana State University under the supervision of the investigators. The HIP address dataset and all e-mail addresses are deleted at the end of the study to insure anonymity and confidentiality.

## Survey response

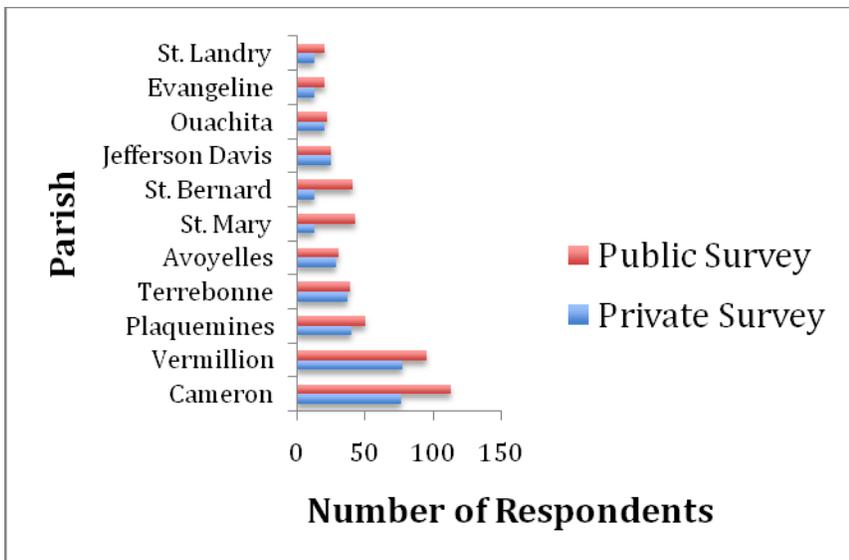
A total of 1,773 responses were received, 804 to the private survey and 969 to the public survey (Table 1-1). These represent 2.5% of the 71,724 HIP registered Louisiana hunters who reported harvesting waterfowl during the prior season as of January 2010. The private survey response rate was 34%, adjusted for deliverable surveys. This rate is below the 56% response rate of the 2005 survey, but exceeds the 27% response rate of the Louisiana Big and Small Game Harvest Survey for 2009-2010. Respondents who reported hunting waterfowl during at least one of the past five seasons were considered valid for analysis. A total of 727 valid responses from the random sample of 2,500 allows statistical reporting at a 95% confidence level  $\pm 4\%$ . Responses to the public survey totaled 969, including 949 valid responses. Responses to the two surveys were compared using Chi-square tests of significance (categorical variables) and t-tests (metric variables) and are not combinable for statistical purposes. The high number of responses to both surveys negatively influences the potential to combine results for statistical reporting. Survey responses are reported separately herein, allowing the reader to interpret practical significance.

**Table 1-1.** Responses to private and public surveys, 2010 Survey of Louisiana Waterfowl Hunters

Survey	Total	Hunted Last 5 Years
Private	804	727
Public	969	949
Total	1,773	1,676

Parishes frequently hunted

Cameron and Vermillion parishes were most frequently hunted during the 2009-2010 Louisiana waterfowl season (Figure 1-1). In all, 57 and 55 parishes were identified as most frequently hunted by respondents to the private and public surveys, respectively, supporting broad geographic coverage across the state by both surveys.



**Figure 1.** Parishes most frequently hunted

Gender and avidity

A significant difference in the gender and avidity of respondents to the two surveys is highlighted in Table 1-2. The private survey, based upon a stratified random sample of Louisiana waterfowl hunters, has more female respondents, and is more representative of licensed hunters in Louisiana. Respondents to the private survey hunted fewer days and harvested fewer ducks during the 2009-2010 waterfowl season. Success, as measured by average harvest per day, was also lower, but impressive at 2.3 waterfowl per day for the private survey. Waterfowl hunting is

**Table 1-2.** Comparison of private and public respondents – gender and avidity

Category	Private Survey	Public Survey
Male	90%	99%
Female	10%	1%
Avg. Number of Days Hunted (Season)	12.4	19.0
Avg. Harvest Ducks (Season)	27.1	49.4
Avg. Harvest Geese (Season)	1.2	5.0
Avg. Harvest per Day (Ducks & Geese)	2.3	2.9
Waterfowling is one of most important recreational activities	65%	85%

identified as one of their most important recreational activities by a large majority of the respondents of both surveys.

Respondents of the two surveys also differ significantly in their selection of hunting licenses. Sixty-seven percent of private survey respondents purchased Basic Season licenses, and 10% hunted with a Lifetime license. The comparable rates for the public survey were 41% Basic Season and 38% Lifetime license.

Respondents to the public survey were much more likely to be members of a conservation organization (Table 1-3). Within the private survey, 14% of respondents were members of the Coastal Conservation Association (CCA), 13% members of Delta Waterfowl Foundation, and 26% members of Ducks Unlimited. Note that some respondents were members of multiple conservation organizations.

**Table 1-3.** Membership in conservation organizations

Category	Private Survey	Public Survey
CCA	14%	21%
Delta Waterfowl	13%	26%
Ducks Unlimited	26%	45%
Other conservation organizations	7%	11%

### Satisfaction

Respondents rated the overall quality of their waterfowl hunting similarly for the past season, with 26% of private survey respondents and 25% of public survey respondents rating their season as “good” or “very good” (Table 1-4). Forty-five percent of private survey respondents and 50% of public survey respondents rated the season “poor” or “very poor”. This contrasts favorably with the 2005 survey where 80% of respondents rated the season “poor” or “very poor”.

**Table 1-4.** Overall quality of waterfowl hunting in Louisiana during the 2009-2010 season

Category	Private Survey	Public Survey	2005 Survey
Very good	10%	9%	2%
Good	16%	16%	7%
Average	29%	25%	12%
Poor	29%	29%	28%
Very poor	16%	21%	52%

Experiences on Wildlife Management Areas (WMAs)

Twenty-three percent of private survey respondents and 39% of public survey respondents hunted on a state WMA at least once during the 2009-2010 waterfowl season, with the Atchafalaya Delta WMA hunted most frequently by respondents of both surveys. Waterfowl hunting was reported on 28 WMAs in the private survey and 33 WMAs in the public survey.

Hunters who had hunted at least one time on a WMA reported high levels of satisfaction with hunting experiences on WMAs in both surveys. Sixty-six percent of private respondents and 73% of public respondents reported their overall satisfaction as “satisfied” or “very satisfied” (Table 1-5). Respondents of both surveys were generally pleased with WMA regulations, boat launch facilities, availability of WMA maps, and their overall experience hunting on the WMA (Table 1-6). Private survey respondents also rated “enforcement of WMA regulations” favorably, and public survey respondents rated “parking facilities” favorably.

**Table 1-5.** Overall satisfaction with experiences hunting on a LDWF Wildlife Management Area

Category	Private Survey	Public Survey
Very satisfied	17%	21%
Satisfied	49%	52%
Not sure	15%	12%
Dissatisfied	12%	11%
Very dissatisfied	7%	4%

A potential concern is the unanimous dissatisfaction with number of waterfowl harvested, number of waterfowl shot at, number of waterfowl seen, and hunter dispersion/crowding (Table 1-7).

**Table 1-6.** Most favorable experiences on WMAs

<u>Experience</u>	<u>Private Survey Rank*</u>	<u>Public Survey Rank*</u>
WMA regulations	1	3
Boat launch facilities	2	5
Availability of WMA maps	4	4
Overall experience at WMA	5	1

\* Ranking of 15 WMA experiences

**Table 1-7.** Least favorable experiences on WMAs

<u>Experience</u>	<u>Private Survey Rank*</u>	<u>Public Survey Rank*</u>
Number of waterfowl harvested	15	15
Number of opportunities to shoot	14	13 (tie)
Number of waterfowl you saw	13	13 (tie)
Hunter dispersion/crowding	12	12

\* Ranking of 15 WMA experiences

### Regulatory preferences

Survey recipients were presented with 10 potential regulatory actions. Responses to the public and private surveys were similar. When offered the opportunity to change the current East/West waterfowl zones by creating either a North/South zone or a single statewide zone with three split seasons, no alternative received overwhelming support, and “status quo” received the most responses (33% and 36%) in both surveys (Table 1-8).

Among other proposals, creating early seasons for whistling ducks and resident Canada geese received high levels of support, as did designating specific areas of WMAs as “limited access (motorless only)” (Table 1-9).

**Table 1-8.** Zone preferences of Louisiana waterfowl hunters

Category	Private Survey	Public Survey
The current system of 2 (East and West) zones with 2 split seasons	33%	36%
A new system of 2 (North and South) zones with 2 split seasons	17%	23%
No zones (a statewide season) with 3 split seasons	30%	28%
No opinion	20%	13%

**Table 1-9.** Most supported regulatory proposals

Regulatory Proposal	Private Survey Rank*	Public Survey Rank*
Opening the season on whistling ducks during early teal season	1	1
Having a separate early season for resident Canada geese	2	2
Designating specific areas of WMAs as "limited access (motorless only)"	3	3

\* Ranking of 8 proposals

Proposals to end waterfowl shooting at noon each day, to prohibit use of spinning wing decoys, and to legalize commercially guided waterfowl hunts on WMAs were opposed by respondents of both surveys. Respondents to the public survey were strongly opposed to legalizing commercially guided waterfowl hunts on WMAs (Table 1-10).

**Table 1-10.** Support and opposition for legalizing commercially guided waterfowl hunts on WMAs

Category	Private Survey	Public Survey
Strongly oppose	39%	57%
Oppose	23%	17%
Neutral	26%	18%
Support	9%	5%
Strongly support	3%	3%

## Experience preferences

Knowledge of experience preferences can help wildlife managers design hunting opportunities that more closely match the needs of waterfowl hunters, with the goals of increasing satisfaction and participation (this concept will be developed more fully in the analysis of waterfowl hunter typologies later in this study). For example, over 80% of respondents from both surveys prefer to hunt in parties of 2 or more, and most often hunt from a permanent blind (Table 1-11). Over 80% of respondents own a boat and motor, unpowered boat, ATV, or UTV that they use for transportation when waterfowl hunting. Respondents to the public survey are more likely to hunt with a dog and lease a place to hunt, but these are common practices among private respondents as well. Both groups hunt the coastal marshes more frequently than any other habitat, and both identified mallards specifically and puddle ducks generally as their favorite waterfowl to hunt.

**Table 1-11.** Louisiana waterfowl hunter experience preferences

<u>Hunter Experience Preferences</u>	<u>Private Survey</u>	<u>Public Survey</u>
Hunt in party of 2 or more	88%	82%
Hunt from permanent blind	51%	40%
Hunt with retriever	43%	57%
Own boat or ATV used in waterfowl hunting	83%	91%
Lease place to hunt (blind or property)	24%	36%
Favorite place to hunt	Coastal marsh	Coastal marsh
Favorite waterfowl to hunt	Mallards	Mallards

## Motivations for waterfowl hunting

Respondents were asked to rate 21 experiences representing motivations for hunting and contributors to hunting satisfaction (Schroeder et al. 2006). Responses, when ranked, were virtually identical between private survey respondents and public survey respondents, with “enjoying nature and the outdoors” ranked # 1 by both groups (Table 1-12). “Behavior of other waterfowl hunters”, “getting away from crowds” and “seeing lots of ducks and geese” are experiences that may be influenced by regulatory and management practices on public lands.

Just as significant from a management perspective is what was not important, “being on my own”, “getting food for my family”, and “getting my limit” (Table 1-13). Both groups also rated “a large daily bag limit” of lesser importance. The similarity of the rankings for both the private and public surveys is noteworthy.

**Table 1-12.** Contributors to hunter satisfaction – most important experiences

<u>Motivations</u>	<u>Private Survey Rank*</u>	<u>Public Survey Rank*</u>
Enjoying nature and outdoors	1	1
Good behavior among other waterfowl hunters	2	2
Getting away from crowds of people	3	3
Seeing lots of ducks and geese	4	4 (tie)
Hunting with friends	5	4 (tie)

\* Ranking of 21 potential motivations

**Table 1-13.** Contributors to hunter satisfaction – least important experiences

<u>Motivations</u>	<u>Private Survey Rank*</u>	<u>Public Survey Rank*</u>
Being on my own	21	20
Getting food for my family	20	21
Getting my limit	19	19
Hunting with a dog	18	15
Access to a lot of different hunting areas	17	17
A large daily bag limit	16	18

\* Ranking of 21 potential motivations

### Constraints to waterfowl hunting

Respondents were asked to rate the importance of 19 constraints to days afield. Responses from the private survey and public survey are very similar, with free time to hunt ranked first by both groups. Of more interest to wildlife managers are the items ranked 2<sup>nd</sup>, 3<sup>rd</sup>, or 4<sup>th</sup> in both surveys, “length of hunting season”, “hunter dispersion/crowding”, and “number of ducks seen locally” (Table 1-14). It is also of interest that the costs of hunting licenses, guide fees, and travel were not rated as important constraints by either group (Table 1-15).

**Table 1-14.** Issues impacting number of days hunted – most important constraints

<b>Constraints</b>	<b>Private Survey Rank*</b>	<b>Public Survey Rank*</b>
Free time to hunt	1	1
Length of hunting season	2	3
Hunter dispersion/crowding	3	4
Number of ducks seen locally	4	2
Weather conditions	5	5

\* Ranking of 19 potential constraints

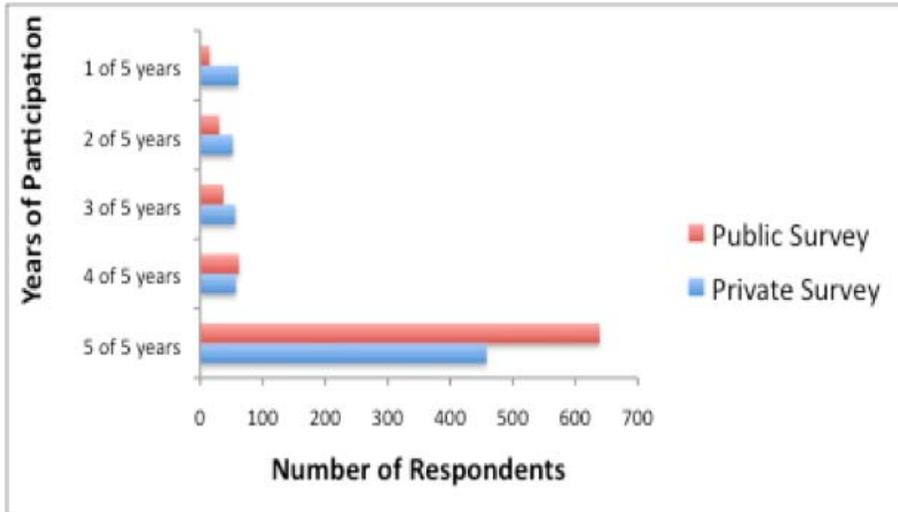
**Table 1-15.** Issues impacting number of days hunted – least important constraints

<b>Constraints</b>	<b>Private Survey Rank*</b>	<b>Public Survey Rank*</b>
Availability of commercial hunting guides	19	19
Cost of hunting licenses	18	17
Cost of guide fees	17	18
National forecast of # of ducks	16	12
Cost of travel	15	15

\* Ranking of 19 potential constraints

### Annual Participation

Fish and wildlife agencies have a vested interest in recruitment and retention of waterfowl hunters for financial, political, and management assistance, as well as to preserve the lifestyle and heritage that many sportsmen fear will be lost (Enck 2009). For this study, we define “participation” as the number of seasons out of the immediate past five during which the respondent has engaged in waterfowl hunting. This explicitly recognizes the importance of consistent annual participation in maintaining hunting license sales and Pittman-Robertson funding, while providing the community of initiators, mentors, and companions that maintain the culture and traditions of waterfowl hunting. One-third of respondents to the private survey and 18% of respondents to the public survey did not hunt all of the past five waterfowl seasons (Figure 1-2). Published literature reports the percentage of sporadic waterfowl hunters (those participating occasionally but not every year) at 33% (Boxall et al. 2001). Forty-five percent of private survey respondents and 30% of public survey respondents indicate that the number of days that they hunted waterfowl has decreased over the past five years (Table 1-16). Of concern is the private survey, where 45% hunters reported a decrease and only 32% reported an increase in the number of days hunted, creating the potential for a decrease in the number of days hunted over time.



**Figure 1-2.** Annual participation of private and public survey respondents (2005-2009 waterfowl seasons)

**Table 1-16.** Change in days hunting waterfowl over the past 5 years

Category	Private Survey	Public Survey
Increased	32%	42%
Decreased	45%	30%
No change	21%	28%

Annual participation was modeled via logistic regression (SAS 9.2 proc genmod) using a confirmatory specification of 19 variables representing avidity, identity, and demographics. Backward selection identified six variables with significant parameter estimates whose 95% confidence interval did not include zero (Table 1-17). Of managerial interest, members of waterfowl hunting clubs are 4.3 times more likely to participate every year than non-members, all other variables held constant. Members of Delta Waterfowl Foundation and/or Ducks Unlimited are 1.7 times more likely to participate every year, all other variables held constant.

**Table 1-17.** Important influences on annual participation  
 \* Estimated using SAS 9.2 proc genmod logistic regression

Variable	Parameter*	Interpretation
Resident status	1.54	Hunters who are Louisiana residents are 4.7 times more likely to participate every year than non-residents
Club members	1.46	Members of waterfowl hunting clubs are 4.3 times more likely to participate every year
Delta/DU members	.53	Members of Delta Waterfowl and/or Ducks Unlimited are 1.7 times more likely to participate every year
Hunt other public land	.12	Hunters on public lands (other than WMA or NWR) are 1.1 times more likely to participate every year
Hunt own property	.08	Hunters on their own property are 1.1 times more likely to participate every year
Self-identity	-.34	Hunters who have a self-identity as a waterfowl hunter are .7 times more likely to participate every year

Waterfowl hunter typologies

Market segmentation is a frequently applied method in business applications, placing customers sharing certain attributes into meaningful, homogeneous groups (Burns and Bush 2010). Marketing theory holds that different segments of consumers exhibit different preferences, and that these preferences can become the basis of tailored strategies to increase customer sales and satisfaction through design of segment specific products and services.

Statistical methods, such as cluster analysis, can be used to group hunters into segments, or typologies, based on similarity of responses to multiple questions examining motivations and experience preferences. We applied k-means cluster analysis to private survey responses evaluating 21 potential influences on waterfowl hunting satisfaction (motivations) and identified five statistically supportable typologies of Louisiana waterfowl hunters (Table 1-18).

**Table 1-18.** Typology findings from 2010 Survey of Louisiana Waterfowl Hunters

Typology	Description	%
<b>1</b>	<b>Casual waterfowl hunting participants</b>	<b>27</b>
<b>2</b>	<b>Long-time waterfowl hunting participants</b>	<b>15</b>
<b>3</b>	<b>Social waterfowl hunting participants</b>	<b>25</b>
<b>4</b>	<b>Social waterfowl hunting enthusiasts</b>	<b>15</b>
<b>5</b>	<b>Achievement-oriented waterfowl hunting enthusiasts</b>	<b>18</b>

*Casual waterfowl hunting participants* hunt less frequently and harvest fewer waterfowl, but place high importance on bag limit, and lesser importance on a long season, hunting with a dog, or being on their own. They are more likely to be residents and to hunt on public lands, less

likely to be members of Delta Waterfowl and/or Ducks Unlimited, hunt in parties of two or more, preferably from a permanent blind. They are less likely to have their own equipment. They represent 27% of respondents.

*Long-time waterfowl hunting participants* are older, more experienced, and place high importance on bag limit and harvest per day, but lesser importance on a long season, shooting a limit, being on their own, using their equipment, or having lots of different places to hunt. They are less likely to hunt on a WMA. They frequently hunt as a guest and may need transportation to a permanent blind, from which they prefer to hunt. They hunt in parties of three or more, often with a guide. They don't hunt as often, but are more successful when they do hunt. They represent 15% of respondents.

*Social waterfowl hunting participants* hunt fewer days within seasons but do hunt most seasons. They value bag limit, hunting with friends and/or family, and hunting with a dog. They place lesser importance on being on their own, instead hunting in parties of three or more, frequently as a guest of another hunter. They prefer to hunt from a permanent blind. They may need equipment to get to their hunting location, and frequently hunt with a guide. They view waterfowl hunting as an important recreational activity, and are more likely to be a member of Delta Waterfowl and/or Ducks Unlimited. They represent 15% of respondents.

*Social waterfowl hunting enthusiasts* hunt frequently and consistently, want a long season and lots of places to hunt, and enjoy hunting, with friends, family and dogs. They enjoy nature, and it is more important to see ducks than to bag ducks. Waterfowl hunting is important to them, and they are frequently members of Delta Waterfowl and/or Ducks Unlimited. They typically hunt in a party of two or more and prefer to hunt from a permanent blind, seldom using a guide. They have their own waterfowl hunting equipment. They harvest lots of ducks. They represent 25 percent of respondents.

*Achievement-oriented waterfowl hunting enthusiasts* are younger and less experienced, but hunt frequently and consistently with high usage of public land. They value a long season, lots of access to public hunting, seeing ducks, harvesting ducks, and using their own hunting equipment. They place less importance on bag limit or access to a guide. They frequently hunt alone or with one hunting companion, and are less likely to use a permanent blind. They represent 18% of respondents.

## Discussion

*Participants* hunt less frequently than *enthusiasts*. A 2006 study of waterfowl hunters in Minnesota used k-means cluster analysis on the identical motivational variables and identified five waterfowl hunter typologies with similar (not identical) characteristics (Schroeder et al. 2006). The two typologies with the lowest levels of annual and within season participation, *casual waterfowl hunting participants* and *long-time waterfowl hunting participants*, represent 42% of respondents and appear most at risk to be or become sporadic hunters or lapsed hunters. Manageable experience preferences can be identified for each typology (Table 1-19). *Casual waterfowl hunting participants* and *long-time waterfowl hunting participants* share a preference for a large bag limit and permanent blinds, and hunt in parties of 2 or more. They are more likely to need equipment for transportation to a hunting area and either access to public hunting or an

**Table 1-19.** Potentially manageable preferences of typologies of Louisiana waterfowl hunters

<u>Typology</u>	<u>%</u>	<u>Highly Valued</u>	<u>Lesser Valued</u>
<b>Casual waterfowl hunting participants</b>	<b>27</b>	<b>Large bag limit Party of 2 or more Blinds On-site transportation</b>	<b>Hunting w/ dog Long season Delta/DU members</b>
<b>Long-time waterfowl hunting participants</b>	<b>15</b>	<b>Large bag limit Invited as guest On-site transportation Party of 3 or more Blinds &amp; Guides</b>	<b>Long season Shooting limit Access to public land</b>
<b>Social waterfowl hunting participants</b>	<b>25</b>	<b>Large bag limit Invited as guest Party of 3 or more Blinds &amp; Guides</b>	
<b>Social waterfowl hunting enthusiasts</b>	<b>15</b>	<b>Long season Access to public land Blind Hunting w/dog</b>	<b>Large bag limit On-site transportation Guides</b>
<b>Achievement-oriented waterfowl hunting enthusiasts</b>	<b>18</b>	<b>Long season Access to public land Parties of 1 or 2 Wade or boat blind</b>	<b>Large bag limit On-site transportation Guides</b>

invitation to hunt private or public property as a guest. Management practices that address availability of these preferences may positively impact participation. These findings suggest the need for additional discussion and focused research.

LDWF is cooperating partner in the 2011 Survey of Mississippi Flyway Waterfowl Hunters, conducted by this same research team at LSU. In March 2011, a follow-up survey will be mailed to a stratified random sample of waterfowl hunters in the 14 states of the Mississippi Flyway, including a sample of 733 waterfowl hunters in Louisiana. This survey refines the research objectives and designs investigated in the 2010 Survey of Louisiana Waterfowl Hunters. Validated, refuted, or refined findings will be released in 2012. The support of the Louisiana Department of Wildlife and Fisheries and their sponsorship of this research to the Mississippi Flyway Council are greatly appreciated.

Please enter your SURVEY ID:

Statistic	Value
Total Responses	804

**Section I. Waterfowl Harvest, Days Afield, and Hunting Methods. Please answer the following questions for the past hunting season (September 2009 – February 2010). “Waterfowl” refers to ducks or geese. Include only the waterfowl you harvested and days you hunted in Louisiana. Whether you hunted in the morning, in the afternoon, or both, count only as one day.**

**Q1.1 Did you hunt waterfowl in Louisiana during the 2009-2010 season? (Please mark one.)**

#	Answer	Response	%
1	Yes	670	83%
2	No, I did not hunt last year but have hunted waterfowl in the past 5 years	57	7%
3	No, I did not hunt waterfowl in the past 5 years	77	10%
	Total	804	100%

**1.2 In which parish did you hunt waterfowl most often during the 2009-2010 season?**

#	Answer	Response	%
1	Don't Know	4	1%
2	Acadia Parish	10	2%
3	Allen Parish	6	1%
4	Ascension Parish	1	0%
5	Assumption Parish	1	0%
6	Avoyelles Parish	29	5%
7	Beauregard Parish	3	0%
8	Bienville Parish	0	0%
9	Bossier Parish	5	1%
10	Caddo Parish	10	2%
11	Calcasieu Parish	20	3%
12	Caldwell Parish	9	1%
13	Cameron Parish	76	12%
14	Catahoula Parish	8	1%
15	Claiborne Parish	0	0%
16	Concordia Parish	9	1%
17	De Soto Parish	0	0%
18	East Baton Rouge Parish	1	0%
19	East Carroll Parish	2	0%
20	East Feliciana Parish	0	0%
21	Evangeline Parish	13	2%
22	Franklin Parish	2	0%

#	Answer	Response	%
23	Grant Parish	3	0%
24	Iberia Parish	4	1%
25	Iberville Parish	8	1%
26	Jackson Parish	2	0%
27	Jefferson Davis Parish	25	4%
28	Jefferson Parish	6	1%
29	La Salle Parish	7	1%
30	Lafayette Parish	3	0%
31	Lafourche Parish	15	2%
32	Lincoln Parish	1	0%
33	Livingston Parish	1	0%
34	Madison Parish	4	1%
35	Morehouse Parish	13	2%
36	Natchitoches Parish	9	1%
37	Orleans Parish	1	0%
38	Ouachita Parish	20	3%
39	Plaquemines Parish	40	7%
40	Pointe Coupee Parish	3	0%
41	Rapides Parish	13	2%
42	Red River Parish	3	0%
43	Richland Parish	11	2%
44	Sabine Parish	3	0%
45	St. Bernard Parish	13	2%
46	St. Charles Parish	8	1%
47	St. Helena Parish	0	0%
48	St. James Parish	1	0%
49	St. John The Baptist Parish	5	1%
50	St. Landry Parish	13	2%
51	St. Martin Parish	12	2%
52	St. Mary Parish	13	2%
53	St. Tammany Parish	9	1%
54	Tangipahoa Parish	4	1%
55	Tensas Parish	6	1%
56	Terrebonne Parish	37	6%
57	Union Parish	3	0%
58	Vermilion Parish	77	13%
59	Vernon Parish	1	0%
60	Washington Parish	1	0%
61	Webster Parish	2	0%
62	West Baton Rouge Parish	0	0%
63	West Carroll Parish	0	0%
64	West Feliciana Parish	1	0%
65	Winn Parish	5	1%
	Total	615	100%

**Q1.3 How many ducks and/or geese did you shoot and retrieve in Louisiana during the 2009-2010 season? (Use your best estimate - write "0" if none).**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Ducks (all species)	0	400	27.1	43.4
2	Geese (all species)	0	87	<u>1.2</u>	5.2
	Total waterfowl			28.3	

Statistic	Value
Total Responses	662

**Q1.4 How many days did you bag your daily limit of either ducks or geese during the 2009-2010 season? (Use your best estimate - write "0" if none.)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Days for ducks	0	60	3.1	7.0
2	Days for geese	0	60	<u>0.4</u>	2.9
	Total days			3.5	

Statistic	Value
Total Responses	662

**Q1.5 How many days did you hunt in each Migratory Waterfowl Zone (or out-of-state) during the 2009-2010 season? (Use your best estimate - write "0" if none.)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Days hunted East Zone	0	60	4.3	8.8
2	Days hunted West Zone	0	100	7.2	11.6
3	Days hunted Out-of-State	0	90	<u>.9</u>	4.2
	Total days hunted			12.4	

Statistic	Value
Total Responses	662

**Q1.6 How many days did you hunt with a commercial waterfowl guide during the 2009-2010 season? (Use your best estimate – write “0” if none.)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Days hunted with a guide In Louisiana	0	60	0.84	5.3
2	Days hunted with a guide Out-of-State	0	12	<u>0.17</u>	1.0
	Total days hunted with guide			1.01	

Statistic	Value
Total Responses	662

**Q1.7 Did you lease a place to hunt waterfowl during the 2009-2010 season -- individually or as a member of a group or club? (Please mark the appropriate boxes and fill in the blank.)**

#	Answer	Response	%
1	No	487	76%
2	Yes (If yes, please answer one of the questions below)	158	24%
3	I leased hunting rights for a specific property at a cost of about per acre	73	11%
4	I leased hunting rights for a specific blind at a cost of about per blind.	69	11%

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Cost per acre	73	0	500	43.45	109.98

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Cost per blind	69	15	11,000	2,750	2,375

Statistic	Value
Total Responses	645

**Q1.8 How many days did you hunt waterfowl (in Louisiana) on each of the following types of property during the 2009-2010 season? (Use your best estimate – write “0” if none.)**

#	Answer	Min Value	Max Value	Average Value	%	Standard Deviation
1	Property owned by you or your family	0	100	1.8	15%	6.8
2	Property leased by you or your family	0	80	2.4	20%	7.8
3	Property owned or leased by a group or club in which you are a member	0	60	1.9	16%	6.7
4	Property owned or leased by someone else where you were a guest	0	30	2.4	20%	4.3
5	A Wildlife Management Area (WMA)	0	72	1.8	15%	6.4
6	A National Wildlife Refuge (NWR)	0	22	0.3	3%	1.8
7	Other public land	0	35	<u>1.1</u>	<u>9%</u>	3.9
	Total days			11.7	100.0	

Total Responses 648

**Q1.9 What percentage of the time do you hunt waterfowl....(Responses should total to 100%)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Alone (party of 1)	0	100%	12.6%	26.2
2	With one other hunter (party of 2)	0	100%	45.2%	37.7
3	In a party of 3 or more	0	100%	<u>42.5%</u>	39.3
	Total			100.0%	

Total Responses 601

**Q1.10 What percentage of time do you use the following blinds or camouflage when hunting waterfowl?(Responses should total to 100%)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Stand or wade in natural vegetation (no blind)	0	100%	21.2%	32.9
2	Layout in a field	0	100%	2.2%	11.0
3	A boat or floating blind	0	100%	18.4%	33.0
4	A portable or temporary blind	0	100%	6.0%	19.0
5	A permanent blind	0	100%	50.7%	43.0
6	Other	0	100%	<u>1.4%</u>	1.4
	Total			100.0%	

Total Responses 603

**Q1.11 What type of waterfowl habitat do you hunt most often? (Please rank up to three top choices, 1 = most.)**

#	Answer	1	2	3	Responses	%	Rank
1	Coastal marsh	259	41	40	340	27%	1
2	Flooded swamp, timber, or green tree impoundment	162	84	42	288	22%	2
3	Open freshwater habitat (bayou, stream, river, pond or lake)	134	78	48	260	20%	
4	Managed moist-soil impoundment	16	10	7	33	3%	
5	Flooded agricultural field (rice, corn, grain sorghum, soybeans, wheat, etc.)	179	61	47	287	22%	3
6	Dry agricultural field (rice, corn, grain sorghum, soybeans, wheat, etc.)	13	31	24	68	5%	
7	Other	0	0	2	2	0%	
	Total	763	305	210	1,278	100.0%	

Statistic	Value
Total Responses	653

**Q1.12 What is your favorite waterfowl to hunt? (Please rank up to three top choices, 1 = favorite.)**

#	Answer	1	2	3	Responses	%	Rank
1	Any puddle duck	128	26	20	174	9%	
2	Any diving duck	22	27	28	77	4%	
3	Any geese	28	23	28	79	4%	
4	Mallards	283	87	43	413	22%	1
5	Canvasback	8	4	4	16	1%	
6	Snow geese (incl. blue phase)	6	5	8	19	1%	
7	Pintail	66	68	43	177	9%	
8	Scaup	6	2	3	11	0%	
9	Speckled-belly (white-fronted geese)	49	26	38	113	6%	
10	Teal	171	84	96	351	18%	2
11	Redheads	4	5	6	15	1%	
12	Canada geese	5	8	3	16	1%	
13	Gadwall	40	29	38	107	6%	
14	Ring-necked ducks	9	4	2	15	1%	
15	Wood ducks	97	66	48	211	11%	3
16	Mottled ducks	8	8	8	24	1%	
17	Whatever is plentiful	63	5	26	94	5%	
18	Other (list)	1	0	1	2	0%	
	Total	994	477	443	1,914-	100.0%	

Statistic	Value
Total Responses	653

**Q1.13 How important is each of the following issues in deciding the number of days that you will hunt waterfowl? (Please mark one category for each issue.)**

#	Question	Not At All Important	Slightly Important	Somewhat Important	Very Important	Extremely Important	Responses	Mean	Rank
1	Free time to hunt	43	20	105	242	251	663	3.93	1
2	Cost of travel	181	138	191	96	50	663	2.50	15
3	Cost of hunting licenses	233	158	145	71	56	663	2.32	17
4	Cost of hunting leases	203	51	105	146	154	663	2.97	9
5	Cost of guide fees	350	57	73	77	89	663	2.18	18
6	Permission to hunt private property	200	53	87	139	178	663	3.03	8
7	Distance to your hunting area	136	106	225	136	60	663	2.80	12T
8	Membership in lease or club	292	63	103	108	86	663	2.40	16
9	Length of hunting season	75	62	120	195	210	663	3.59	3
10	Size of bag limit	113	90	165	153	141	663	3.17	7
11	Hunter dispersion/crowding	105	63	98	193	198	663	3.44	4
12	Access to a boat, ATV, or UTV	197	83	114	140	120	663	2.81	11
13	Availability of commercial guides	504	73	48	18	16	663	1.43	19
14	Availability of hunting partners	182	110	147	139	81	663	2.71	14
15	National forecast of # of ducks	175	112	158	96	121	663	2.80	12T
16	Number of ducks seen locally	65	57	135	185	222	663	3.65	2
17	Weather conditions	86	78	175	186	138	663	3.31	5
18	Success of your last hunt	146	108	204	116	88	663	2.82	10
19	Your personal health & fitness	122	79	129	160	175	663	3.28	6

Statistic	Free time to hunt	Cost of travel	Cost of hunting licenses	Cost of hunting leases	Cost of guide fees	Permission to hunt private property	Distance to your hunting area	Membership in lease or club	Length of hunting season	Size of bag limit
Min Value	1	1	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5	5	5
Mean	3.93	2.50	2.32	2.97	2.18	3.03	2.80	2.40	3.59	3.17
Standard Deviation	1.15	1.25	1.28	1.57	1.51	1.61	1.23	1.50	1.33	1.37
Total Responses	663	663	663	663	663	663	663	663	663	663

## Q1.13

Statistic	Hunter dispersion/crowding	Access to a boat, ATV, or UTV	Availability of commercial guides	Availability of hunting partners	National forecast of # of ducks	Number of ducks seen locally	Weather conditions	Success of your last hunt	Your personal health & fitness
Min Value	1	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5	5
Mean	3.44	2.81	1.43	2.71	2.80	3.65	3.31	2.82	3.28
Standard Deviation	1.44	1.51	0.91	1.38	1.44	1.29	1.29	1.32	1.44
Total Responses	663	663	663	663	663	663	663	663	663

	Higher importance
	Moderate importance
	Lesser importance

## Q1.14 Which of the following, if any, do you currently own and use while waterfowl hunting? (Please mark all that apply.)

#	Answer	Response	%
1	Boat and motor (inboard, outboard or airboat)	357	54%
2	Pirogue, canoe, or john boat (unpowered)	276	42%
3	ATV (four-wheeler) or UTV	306	46%
4	None of the above	114	17%

Statistic	Value
Total Responses	662

## Q1.15 During the 2009-2010 hunting season, did you hunt during any of the following? (Please mark all that apply.)

#	Answer	Response	%
1	Early Teal Season	320	92%
2	Youth Waterfowl Hunt (as a mentor or guide)	71	20%
3	Extended conservation order season for snow geese	39	11%

Statistic	Value
Total Responses	347

**Q1.16 During the 2009-2010 hunting season, did you take someone on a “first time” duck or goose hunt? (Please mark all that apply.)**

#	Answer	Response	%
1	Yes, one or more youth	165	28%
2	Yes, one or more adults	131	20%
3	No	392	62%

Statistic	Value
Total Responses	629

**Q1.17 Did you use a hunting retriever (dog) that you or a member of your family owns during the 2009-2010 duck season? (Please mark one.)**

#	Answer	Response	%
1	Yes	277	43%
2	No	363	57%
	Total	640	100%

**Q1.18 Over the past 5 years, how has the number of days that you hunted waterfowl changed? (Please mark one.)**

#	Answer	Response	%
1	Greatly increased	132	21%
2	Slightly increased	70	11%
3	No change	148	23%
4	Slightly decreased	139	22%
5	Greatly decreased	155	24%
	Total	644	100%

**Q1.19 How often do you use a battery-operated spinning wing duck or goose decoy? (Please mark one.)**

#	Answer	Response	%
1	Never	124	20%
2	Rarely	84	13%
3	Sometimes	172	28%
4	Usually	179	28%
5	Always	74	12%
	Total	633	100%

## Section II. Hunter Satisfaction

### Q2.1 How would you rate the overall quality of your waterfowl hunting in Louisiana during the 2009-2010 season? (Please mark one.)

#	Answer	Response	%
1	Very good	63	10%
2	Good	104	16%
3	Average	185	29%
4	Poor	189	29%
5	Very poor	102	16%
	Total	643	100%

### Q2.2 Please tell us how important each of the following experiences was to your waterfowl hunting satisfaction during the 2009-2010 season. (Please mark one category for each experience.)

#	Question	Not At All Important	Slightly Important	Somewhat Important	Very Important	Extremely Important	Responses	Mean	Rank
1	A large daily bag limit	73	164	214	128	78	657	2.95	16
2	Access to a lot of different hunting areas	122	121	181	150	79	657	2.90	17
3	Bagging ducks and geese	57	83	202	198	116	657	3.34	11
4	Being on my own	260	135	136	79	42	657	2.23	21
5	Hunting with friends	19	30	129	266	212	657	3.93	5
6	Developing my skill and abilities	58	89	207	176	126	657	3.33	12
7	Hunting with family	48	37	110	207	255	657	3.88	6
8	Enjoying nature and the outdoors	7	7	49	228	365	657	4.41	1
9	Getting away from crowds of people	20	24	87	204	320	657	4.17	3
10	Getting food for my family	247	124	140	80	64	657	2.36	20
11	Getting information about hunting seasons and conditions from LDWF or U.S. Fish & Wildlife Service	97	135	182	129	113	657	3.03	15
12	Getting my limit	111	144	236	94	69	657	2.78	19
13	Good behavior among other waterfowl hunters	18	17	95	205	323	657	4.21	2
14	A long duck season	31	48	179	183	213	657	3.74	8
15	Hunting areas open to the public	136	89	139	123	170	657	3.15	14
16	Hunting with a dog	183	93	154	102	123	657	2.82	18
17	Reducing tension and stress	41	48	127	190	251	657	3.85	7
18	Seeing lots of ducks and geese	12	31	142	222	251	657	4.01	4
19	Sharing my hunting skills and knowledge	51	90	194	177	141	657	3.39	10
20	Thinking about personal values	49	65	195	167	181	657	3.55	9
21	Using my hunting equipment (decoys, boats, etc.)	76	96	192	172	120	657	3.24	13

**Q2.2**

Statistic	A large daily bag limit	Access to a lot of different hunting areas	Bagging ducks and geese	Being on my own	Hunting with friends	Developing my skill and abilities	Hunting with family
Min Value	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5
Mean	2.95	2.90	3.34	2.23	3.93	3.33	3.88
Standard Deviation	1.17	1.29	1.17	1.27	1.00	1.20	1.20
Total Responses	657	657	657	657	657	657	657

Statistic	Enjoying nature and the outdoors	Getting away from crowds of people	Getting food for my family	Getting information about hunting seasons and conditions from LDWF or U.S. Fish & Wildlife Service	Getting my limit	Good behavior among other waterfowl hunters	A long duck season
Min Value	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5
Mean	4.41	4.17	2.36	3.03	2.78	4.21	3.74
Standard Deviation	0.80	1.03	1.35	1.30	1.20	0.98	1.15
Total Responses	657	657	657	657	657	657	657

Statistic	A long duck season	Hunting areas open to the public	Hunting with a dog	Reducing tension and stress	Seeing lots of ducks and geese	Sharing my hunting skills and knowledge	Thinking about personal values	Using my hunting equipment (decoys, boats, etc.)
Min Value	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5
Mean	3.74	3.15	2.82	3.85	4.01	3.39	3.55	3.24
Standard Deviation	1.15	1.47	1.46	1.19	0.98	1.21	1.21	1.25
Total Responses	657	657	657	657	657	657	657	657

	Higher importance
	Moderate importance
	Lesser importance

### 2.3 Did you hunt on WMA?

#	Answer	Response	%
1	Yes	143	23%
2	No	490	77%
	Total	633	100%

### Q2.4 If you hunted on a LDWF Wildlife Management Area (WMA) during the 2009-2010 season, on which WMA did you hunt most frequently?

#	Answer	Response	%
1	Don't Know	2	2%
2	Acadiana Conservation Corridor WMA	0	0%
3	Alexander State Forest	1	1%
4	Atchafalaya Delta WMA	11	11%
5	Attakapas WMA	1	1%
6	Barataria Preserve	1	1%
7	Bayou Macon	0	0%
8	Bayou Pierre	0	0%
9	Bens Creek	0	0%
10	Big Colewa Bayou	0	0%
11	Big Lake	4	4%
12	Biloxi WMA	0	0%
13	Bodcau	4	4%
14	Boeuf	9	9%
15	Bonnet Carre Spillway	0	0%
16	Buckhorn	1	1%
17	Camp Beauregard	0	0%
18	Catahoula Lake	0	0%
19	Clear Creek WMA	2	2%
20	Dewey Wills	6	6%
21	Elbow Slough WMA	0	0%
22	Elm Hall	0	0%
23	Floy Ward McElroy WMA	0	0%
24	Fort Polk WMA	0	0%
25	Grassy Lake	2	2%
26	Hutchinson Creek WMA	0	0%
27	Indian Bayou	5	5%
28	Jackson Bienville WMA	0	0%
29	Joyce WMA	0	0%
30	Kisatchie National Forest	0	0%

## Q2.4

#	Answer	Response	%
31	Lake Boeuf WMA	1	1%
32	Lake Ramsey Savannah WMA	0	0%
33	Little River WMA	1	1%
34	Loggy Bayou WMA	0	0%
35	Manchac	3	3%
36	Marsh Bayou WMA	0	0%
37	Maurepas Swamp WMA	3	3%
38	National Catahoula Wildlife Management Preserve	0	0%
39	National Red Dirt WMA Preserve	0	0%
40	Old River Control	0	0%
41	Ouachita WMA	5	5%
42	Pass A Loutre	6	6%
43	Pearl River WMA	6	6%
44	Peason Ridge WMA	0	0%
45	Pointe-aux-Chenes WMA	5	5%
46	Pomme de Terre WMA	2	2%
47	Red River WMA	1	1%
48	Russell Sage WMA	2	2%
49	Sabine Island WMA	3	3%
50	Sabine WMA	3	3%
51	Salvador/Timken WMA	3	3%
52	Sandy Hollow WMA	0	0%
53	Sherburne / Atchafalaya NWR / Bayou des Ourses	4	4%
54	Sicity Island Hills WMA	0	0%
55	Soda Lake WMA	0	0%
56	Spring Bayou WMA	7	7%
57	Tangipahoa Parish School Board	0	0%
58	Thistlethwaite WMA	0	0%
59	Three Rivers WMA	0	0%
60	Tunica Hills WMA	0	0%
61	Union WMA	0	0%
62	Walnut Hill WMA	0	0%
63	West Bay WMA	0	0%
	Total	104	100%

**Q2.5 Please rate your satisfaction with your experience on that WMA you identified in above question.  
(Please mark one category for each WMA experience.)**

#	Question	Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied	Not Applicable	Responses	Mean	Rank
1	Availability of WMA maps	8	9	33	73	22	0	145	3.63	4
2	Quality of WMA maps	8	17	36	67	15	0	143	3.45	7
3	Parking facilities	9	22	17	78	20	0	146	3.53	6
4	Boat launch facilities	8	14	18	71	26	0	137	3.68	2T
5	Availability of duck blinds	12	25	38	34	7	0	116	2.99	11
6	Water level management	15	25	29	53	10	0	132	3.14	10
7	Food for waterfowl	16	26	29	57	17	0	145	3.23	9
8	Hunter dispersion/crowding	25	35	21	55	11	0	147	2.95	12
9	Number of waterfowl you saw	26	56	11	36	22	0	151	2.81	13
10	Number of opportunities to shoot	27	57	12	37	20	0	153	2.78	14
11	Number of waterfowl you harvested	33	46	16	42	15	0	152	2.74	15
12	Availability of DWF personnel	11	13	41	62	17	0	144	3.42	8
13	WMA regulations	6	10	24	83	25	0	148	3.75	1
14	Enforcement of WMA regulations	9	6	33	73	25	0	146	3.68	2T
15	Overall experience at WMA	10	18	22	73	25	0	148	3.57	5

## Q2.5

Statistic	Availability of WMA maps	Quality of WMA maps	Parking facilities	Boat launch facilities	Availability of duck blinds	Water level management	Food for waterfowl	Hunter dispersion/crowding
Min Value	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5
Mean	3.63	3.45	3.53	3.68	2.99	3.14	3.23	2.95
Standard Deviation	1.00	1.02	1.10	1.08	1.08	1.16	1.20	1.26
Total Responses	145	143	146	137	116	132	145	147

Statistic	Number of waterfowl you saw	Number of opportunities to shoot	Number of waterfowl you harvested	Availability of DWF personnel	WMA regulations	Enforcement of WMA regulations	Overall experience at WMA
Min Value	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5
Mean	2.81	2.78	2.74	3.42	3.75	3.68	3.57
Standard Deviation	1.36	1.34	1.34	1.06	0.95	1.01	1.11
Total Responses	151	153	152	144	148	146	148

	Higher satisfaction
	Moderate satisfaction
	Lesser satisfaction

### Section III. Preference for Changes in Statewide Waterfowl Regulations

**Q3.1 The current federal framework limits daily harvest of specific species. Current bag limits of 6 ducks include sub-limits of 4 mallards (no more than 2 hens), 3 wood ducks, 2 redheads, 2 scaup, 1 mottled duck, 1 black duck, 1 canvasback, and 1 pintail. Given a choice, which would you prefer? (Please mark one.)**

#	Answer	Response	%
1	A 60-day season, 6 duck limit with current species sub-limits	546	84%
2	A 40-day season, 4 duck limit with no species sub-limits	42	7%
3	No opinion	61	9%
	Total	649	100%

**Q3.2 Using the scale below, please indicate whether you support or oppose the following policy actions. (Please mark one category for each potential policy action.)**

#	Question	Strongly Oppose	Oppose	Neutral	Support	Strongly Support	No Opinion	Responses	Mean	Rank
1	Opening the season on whistling ducks during early teal season	28	49	225	180	131	0	613	3.55	1
2	Having a separate early season for resident Canada geese	21	33	266	145	80	0	545	3.42	2
3	Ending waterfowl shooting hours at noon each day	243	159	101	106	76	0	685	2.44	6
4	Prohibiting the use of electronic spinning wing decoys	235	181	164	38	43	0	661	2.20	7
5	Limiting the number of waterfowl hunters allowed on WMA's each day	86	84	229	146	67	0	612	3.04	4
6	Conducting a daily draw for designated waterfowl hunting areas on WMA's	98	96	237	106	58	0	595	2.88	5
7	Legalizing commercially guided waterfowl hunts on WMA's	247	142	162	58	18	0	627	2.14	8
8	Designating specific areas of WMA's as "limited access (motorless only)"	71	60	214	171	107	0	623	3.29	3

### Q3.2

Statistic	Opening the season on whistling ducks during early teal season	Having a separate early season for resident Canada geese	Ending waterfowl shooting hours at noon each day	Prohibiting the use of electronic spinning wing decoys	Limiting the number of waterfowl hunters allowed on WMA's each day	Conducting a daily draw for designated waterfowl hunting areas on WMA's	Legalizing commercially guided waterfowl hunts on WMA's	Designating specific areas of WMA's as "limited access (motorless only)"
Min Value	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5
Mean	3.55	3.42	2.44	2.20	3.04	2.88	2.14	3.29
Standard Deviation	1.05	0.94	1.39	1.17	1.17	1.17	1.12	1.20
Total Responses	613	545	685	661	612	595	627	623

	Higher support
	Moderate support
	Lesser support

### Q3.3 Louisiana currently has an East and West zone, each with split seasons (season closes for a period of time then reopens). Which of the following would you prefer for duck season? (Please mark one.)

#	Answer	Response	%
1	The current system of 2 (east and west) zones with 2 split seasons open in Nov. & Dec./Jan. (Map A)	229	33%
2	A new system of 2 (north and south) zones with 2 split seasons open in Nov. & Dec./Jan. (Map B)	114	17%
3	No zones (a statewide season) with 3 split seasons open in Oct., Nov., & Dec./Jan. (Map C)	203	30%
4	No opinion	138	20%
	Total	684	100%

**Section IV. Personal Identity as a Waterfowl Hunter**

**Q4.1 Please indicate whether you agree or disagree with each of the following statements. “Neither” means that you neither agree nor disagree with the statement. (Please mark one response for each statement.)**

#	Question	Disagree (1)	Neither (2)	Agree (3)	Responses	Mean	% Agree
1	Some people think of themselves as having an identity as a waterfowl hunter.	18	185	480	683	1.32	70%
2	I am interested in developing or maintaining an identity as a waterfowl hunter.	163	321	299	683	1.65	44%
3	I am trying to develop or maintain the skills, knowledge, and other traits so that I think of myself as having an identity as a waterfowl hunter	61	296	327	684	1.61	48%
4	I have reached the point where I have the skills, knowledge, and other traits so that I think of myself as having an identity as a waterfowl hunter.	91	264	326	681	1.65	48%
5	I used to think of myself as a waterfowl hunter, but that identity is not as important to me as it used to be.	192	330	160	682	2.05	23%

Statistic	Some people think of themselves as having an identity as a waterfowl hunter.	I am interested in developing or maintaining an identity as a waterfowl hunter.	I am trying to develop or maintain the skills, knowledge, and other traits so that I think of myself as having an identity as a waterfowl hunter	I have reached the point where I have the skills, knowledge, and other traits so that I think of myself as having an identity as a waterfowl hunter.	I used to think of myself as a waterfowl hunter, but that identity is not as important to me as it used to be.
Min Value	1	1	1	1	1
Max Value	3	3	3	3	3
Mean	2.67	2.49	2.39	2.35	1.29
Standard Deviation	0.45	0.50	0.50	0.50	0.47
Total Responses	683	683	684	681	682

	Higher support
	Moderate support
	Lesser support

**Q4.2 Which of the following groups or individuals would or do you believe played an essential role in helping you develop an identity as a waterfowl hunter? (Please mark one response for each group or individual.)**

#	Question	No (-1)	Yes (1)	Unsure (0)	Responses	Mean	Rank
1	LDWF or U.S. Fish & Wildlife Service	418	148	114	680	-.39	7
2	Family members	132	520	27	679	.57	3
3	My hunting companions	43	610	24	677	.84	1
4	Local rod and gun club or local waterfowl hunting group	531	84	65	680	-.66	9
5	State or national waterfowl conservation organizations	436	187	55	678	-.38	6
6	Manufacturers or retailers of hunting equipment	433	185	62	680	-.36	5
7	Outdoor writers and publishers of hunting magazines and books	372	235	73	680	-.20	4
8	Hunting guides and outfitters	503	120	57	680	-.56	8
9	Me, personally	45	592	42	679	.81	2

Statistic	LDWF or U.S. Fish & Wildlife Service	Family members	My hunting companion	Local rod and gun club or local waterfowl hunting group	State or national waterfowl conservation organizations	Manufacturers or retailers of hunting equipment	Outdoor writers and publishers of hunting magazines and books	Hunting guides and outfitters	Me, personally
Min Value	-1	-1	-1	-1	-1	-1	-1	-1	-1
Max Value	1	1	1	1	1	1	1	1	1
Mean	-.39	.57	.84	-.66	-.38	-.36	-.20	-.56	.81
Standard Deviation	.82	.80	.51	.69	.89	.88	.92	.77	.54
Total Responses	265	550	637	152	245	250	311	180	637

	Higher influence
	Moderate influence
	Lesser influence

### Q4.3 How important is waterfowl hunting to you? (Please mark one.)

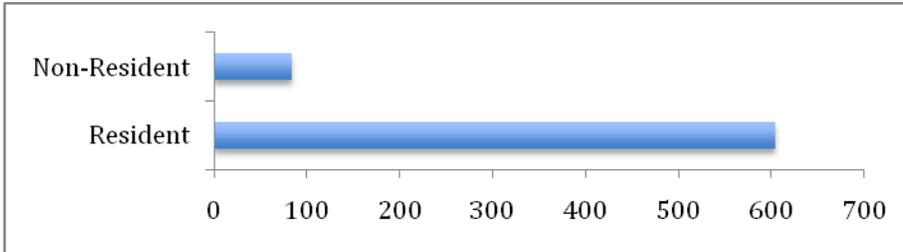
#	Answer	Response	%
1	It is one of my least important recreational activities	17	2%
2	It is less important than my other recreational activities.	53	7%
3	It is no more important than my other recreational activities.	176	25%
4	It is one of my most important recreational activities.	351	50%
5	It is my most important recreational activities.	108	15%
	Total	704	100%

Statistic	Value
Min Value	1
Max Value	5
Mean	3.69
Standard Deviation	0.90
Total Responses	704

**Section V. Personal Background and Waterfowl Hunting Experience. Please tell us about yourself!**

**Q5.1 What is your state of residence?**

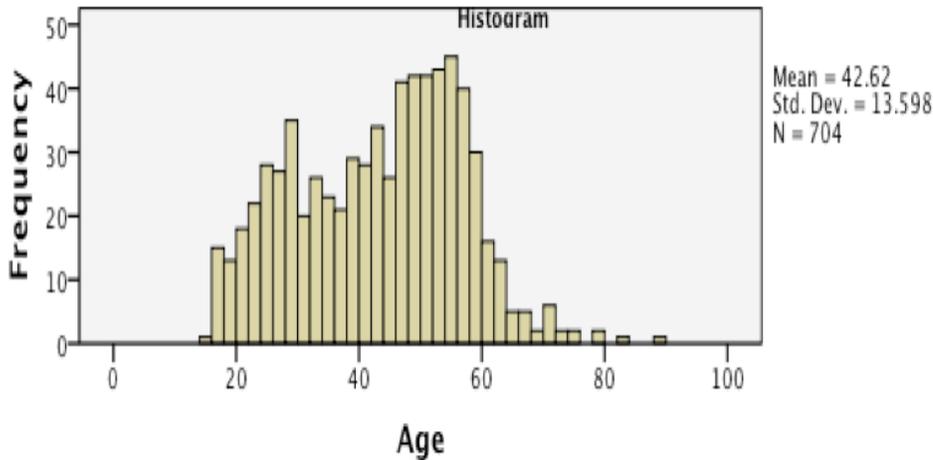
#	Response	Response	%
2	Non-Resident	84	12%
1	Resident	604	88%
	Total	688	100%



**Q5.2 What is your gender?**

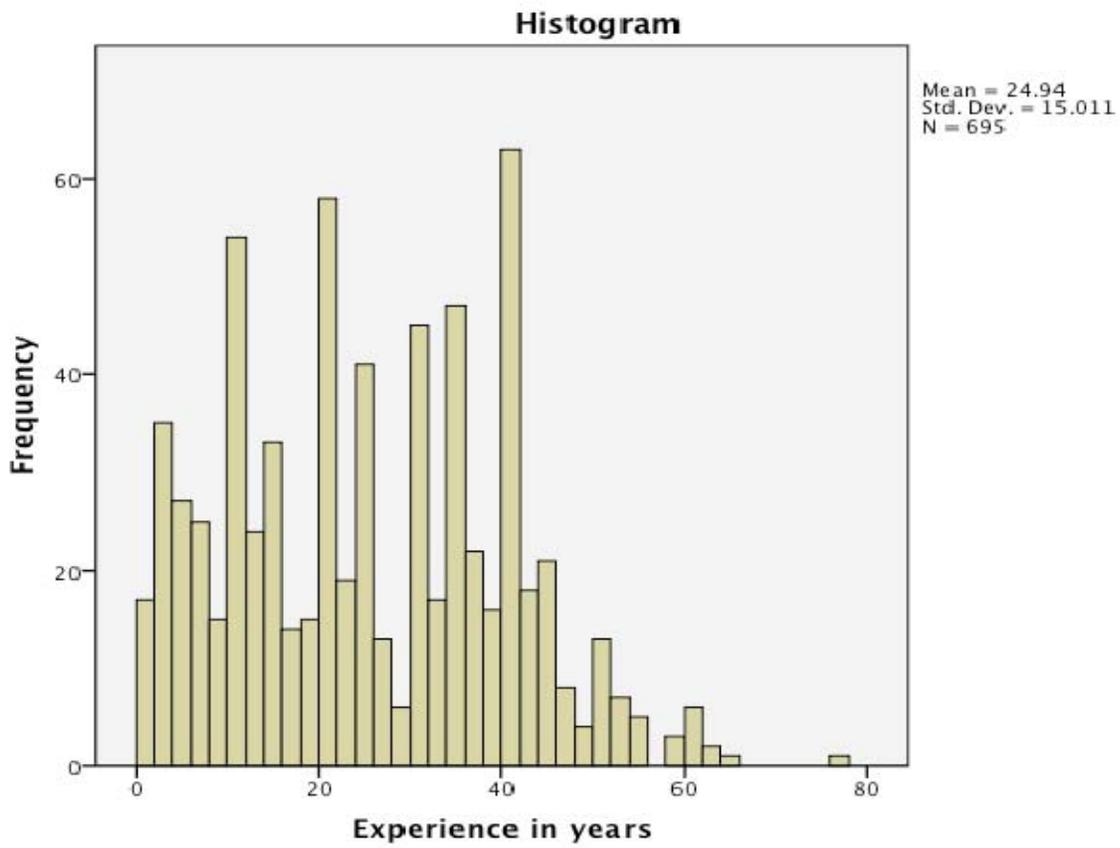
#	Answer	Response	%
1	Male	629	90%
2	Female	70	10%
	Total	699	100%

**Q5.3 What is your age?**



Statistics	
N	704
Mean	43
Std. Deviation	13.6
Minimum	15
Maximum	88

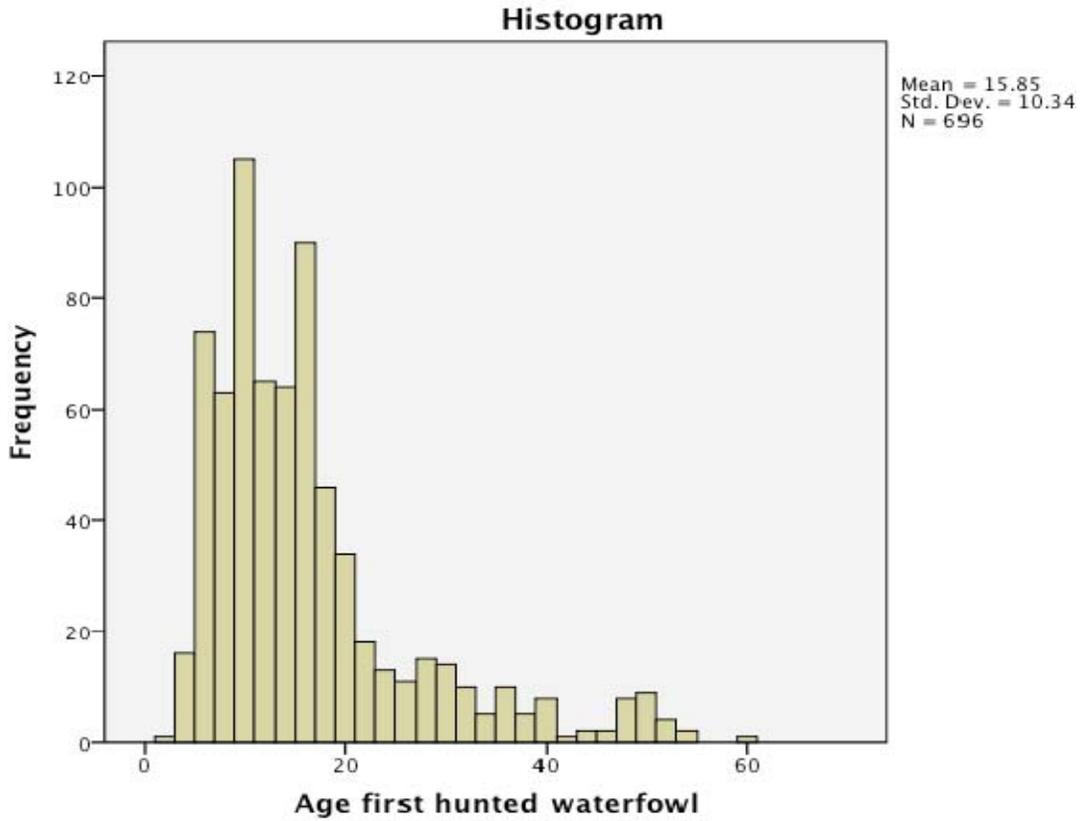
## Q5.4 How many years have you hunted waterfowl?



### Statistics

N	695
Mean	25
Std. Deviation	15.0
Minimum	1
Maximum	76

**Q5.5 How old were you when you first went waterfowl hunting?**



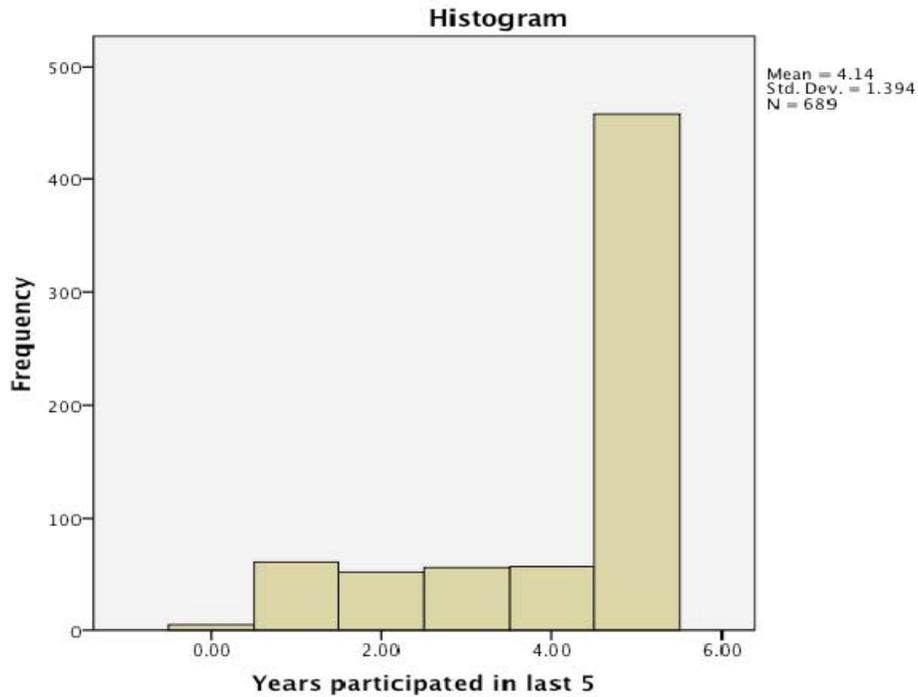
<b>Statistics</b>	
Age first hunted waterfowl	
N	696
Mean	16
Std. Deviation	10.3
Minimum	2
Maximum	59

**Q5.6 During which of the following waterfowl seasons did you hunt ducks or geese in Louisiana? (Please mark all that apply.)**

#	Question	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	Responses
1	Ducks	521	540	564	597	636	2,858
2	Geese	219	223	240	226	221	1,129

Statistic	Ducks	Geese
Total Responses	689	325

**TOTAL PARTICIPATION (DUCKS + GEESE)**



**Years participated in last 5**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	.00	5	.7	.7	.7
	1 of 5	61	8.6	8.9	9.6
	2 of 5	52	7.3	7.5	17.1
	3 of 5	56	7.9	8.1	25.3
	4 of 5	57	8.0	8.3	33.5
	5 of 5	458	64.2	66.5	100.0
	Total	689	96.6	100.0	
Missin	Syste	24	3.4		
g	m				
Total		713	100.0		

**Q5.7 Which type of Louisiana hunting license did you purchase for the 2009-2010 season? (Please mark one.)**

#	Answer	Response	%
1	Basic Season license	468	68%
2	Non-Resident Basic Season license	36	5%
3	Sportsmen's Paradise license	37	5%
4	Non-Resident Small Game/Migratory Bird license (1 day)	29	4%
5	Senior Hunt/Fish license	30	4%
6	Louisiana Native Non-Resident Basic Trip license (5 day)	16	2%
7	Lifetime Hunting license	69	10%
8	College Non-Resident Student Hunting/Fishing license	0	0%
9	Resident Disabled Sportsman license	2	0%
10	Resident/Non-Resident Military Basic Season license	6	1%
11	Disabled Veteran Hunting license	0	0%
	Total	693	100%

**Q5.8 During the 2009-2010 hunting season, did you hunt for any of the following game in Louisiana? (Please mark all that apply.)**

#	Answer	Response	%
1	Deer	348	75%
2	Quail	32	7%
3	Squirrel	229	49%
4	Dove	254	55%
5	Snipe	47	10%
6	Turkey	57	12%
7	Gallinule	46	10%
8	Rails	33	7%
9	Woodcock	33	7%

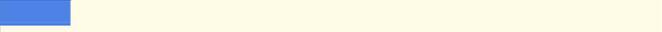
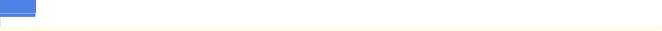
Statistic	Value
Total Responses	464

**Q5.9 Are you currently a member of a hunting or conservation organization? (Please mark all that apply.)**

#	Answer		Response	%
1	Coastal Conservation Association		102	14%
2	Delta Waterfowl		94	13%
3	Ducks Unlimited		187	26%
4	Other national/statewide/local conservation or hunting organization		53	7%

Statistic	Value
Total Responses	708

**Q5.10 What is your approximate annual household income before taxes? (Please mark one.)**

#	Answer		Response	%
1	Under \$20,000		38	6%
2	\$20,000 - \$39,999		58	9%
3	\$40,000 - \$59,999		100	15%
4	\$60,000 - \$79,999		110	17%
5	\$80,000 - \$99,999		73	11%
6	\$100,000 - \$119,999		75	11%
7	\$120,000 - \$139,999		48	7%
8	\$140,000 - \$159,999		36	5%
9	\$160,000 - \$179,999		20	3%
10	\$180,000 - \$199,999		18	3%
11	Over \$200,000		84	13%
	Total		660	100%

## Q5.11 We welcome your comments below or on additional sheets regarding this survey or any issue of concern related to waterfowl hunting in Louisiana.

### Text Response

LDWF should listen to concerns of hunting more. Hunting seasons (especially ducks and Geese) should be later in the year. Example- open the weekend before Thanksgiving and close the weekend after. Then open before Christmas and stay till Feb. In our parish we don't really see ducks till Jan. I may not have the correct answer, for I know that there are people who know more than myself, but after 52 years, I can tell that migrations and conditions have changed. There are way fewer ducks than in the past. A North-South zone with much later seasons in the south zone may not solve all the problems but it would help.

Since Duck unlimited started heating lakes and ponds and flooding corn field in Arkansas and other places up North, Ducks don't come down like they use to and if duck don't have a reason to leave, they will stop migrating to South LA all together. Less a less duck seems to come each year. They need to spend more money in LA.

Duck Season needs to go into Feb. when more big ducks are down. Would not like to see motion decoys outlawed as they do not negatively impact kill ratio but help improve range duck slot in for cleaner kills.

I love to hunt ducks. However, these factors have caused me to hunt less in the last few years. / 1. My retriever passed away. I strongly oppose any restrictions on waterfowl hunters using retrievers. 2. I started having kids. Running at night in an 18' flat boat all of a sudden felt reckless. I used to hunt then due to hazards. 3. No ducks. I don't blame anyone but mother nature. This was the worst season I have ever seen. While shooting a limit is not mandatory, shooting one duck will not hold any interest. I refuse to hunt for fear. I may be breaking rule, I don't know about Big branch NWR, Sherburne WMA, Pearl river WMA etc. / / Finally I plan on dropping my duck lease this year. Too expensive to see and shoot so few birds.

I don't understand why the reports for large quantities of ducks are good, but I am seeing less ducks each year

Giant Salvinia is the reason I didn't hunt last year. It torn over the area where our duck blind is on Caddo lake

I do most of my hunting now out-of-state -- Deer, Quail, Pheasants, Chukar, etc. Duck patterns have changed. Most people I know now got to Canada, Dakota's Mexico etc. Marsh & Delta hunting no longer the choice.

I would like a 3 split season with the second split during Christmas through New year day that would extend the season longer.

I enjoy duck hunting for many reasons. Least of all is to see how many things I can kill. I would like to see more ducks, but my best times are spending time with my brother and my son and some friends. If it would help, a shorter of us didn't have such a earlier season. I would be more willing to shorten our season. My brother and I don't even know if we are going through all the trouble of brushing and maintain our blind next year. We can go fishing with a lot less hassle.

1.Need to Reinstate the duck refuges with no hunting but rotate the areas so hunting is allowed every 2nd or 3rd season. 2. Parking is an issue on most reserves. 3. Bouef Reserve needs to be managed better for public and not the private rangers.!

Long time ago we use to kill as many ducks as needed. We used the feathers for pillows and the meat to eat. There are so little ducks any more, it doesn't pay to hunt ducks. I am afraid of destroying future crops. So we leave them alone. I think the new wetlands created from flooding grain fields north of LA. are holding ducks from flying for the South to feed. I've raised Labrador retrievers all my life. Now I see no use for one.

What does my income have to do with do every.? / I also think no duck season would be moved to a later date or lengthen it

I believe that as long as the Federal govt. continues to set aside thousand of acres of unhunttable lands, waterfowling on the lower Mississippi flyway will never be the same as 10-15 years ago. An example on the above opinion.-- / coldest winter in 20 years, 18 deg C in north LA. 250-500 thousand mallards resting on a reserve in Memphis, TN. Something wrong with this picture. I'm done hunting ducks -- time to get the deer rifle oiled and ready for the next season.

If the flooding of agricultural fields in the mid-west is not stopped waterfowl migrates to LA will cease and so will waterfowl hunting in LA. I see this as a greater threat than coastal erosion. Flooding ag fields is baiting and changing the migratory pattern of ducks forever

I personally would like to see the seasons open a little later. I would like to see the west zone be coordinated with the Arkansas season (open and close same dates)

Duck population is decreasing / Drastic reduction in Waterfowl

Need more Ducks / / Thanks

Please skip responses 9, 10

I would like to see LDWF have the ability to "Extend the Season" 1-2 weeks late January- first of February for these coastal Parishes. In Terrebonne, for the last 5-6 years, we have had very few birds. It picks up a little second split. When we pick up our equipment and decoys in 2 weeks after the season has ended. our lease has numerous birds. / Flight and bird concentration in Terrebonne is definitely on the decline "during the season", about 30 % reduction from the year starting 7 years ago. We have a natural Flight pattern, feel it has been altered and drastically hurts our Coastal hunting unless it is extremely cold north of Louisiana. This doesn't happen early in the season Nov & Dec. The pattern of cold weather sweeps in Jan & Feb!!! Let LDWF make the call!!

## Q5.11

## Text Response

I like the idea of a "No Zone" state-wide season, but did not think of opening season as early, as October would be good.

Louisiana Waterfowl hunting is a very popular sport. I have a dog and love to hunt w/dog and family. I use to hunt many days during the season. That was when I could afford a lease. Now unless your family owns a land or one is willing to shell out \$10,000 a year for a good lease, people like me are limited to NWR or WMA's. At 56 yrs of age these are enjoyable but bad hunts. My love of watching dogs perform and family hunts seem to be fading faster than I care. LA is a sportsman paradise; if you can afford it.

Me, I think the season is opened too early, the season of 2008 to 2009 was one of the worst, there were hardly any bird around, we always had piles of geese every where, went riding around to see where they had geese ducks, was not impressed with what we see. It may be the farm land is changing and a lot of farmers not farming land. Then it may be the way ducks unlimited floods every thing they can up north. It may help change things. Then it might be the years of the storms that changed the things. Hope this year will be better.

In the future to keep the hunters active and content to be waterfowl hunters, and to attract the youth and women to the sport, the hunting three split seasons should be longer (meaning to extend the number of hunting days)- Also to keep hunters and to add more to duck hunting, I think the legal bag limit should be raised to 8 ducks per limit, accordingly to population of ducks and migration patterns. If you lower the limit, you will loose hunters. People will say " It is not worth all the work and effort for under daily limit of 6 ducks." When you loose a hunter the state looses Revenue and Conservationist.

I mainly hunt ducks in Northeast Texas due to lack of hunting pressure and more availability of ducks. Northwest LA duck populations have been on decline over the years. If interested parties could find a way to maximize populations, hunter satisfaction would increase. I hunt almost exclusively on Wright Patman Lake and Sulphur River system in NE Texas. I personally harvested over 120 ducks this past season and I did it mainly on weekend hunts.

I wish the limit would be 6 ducks period. No species limit.

I go duck hunting for me and it is not all about killing ducks. It is friends, cold air and wood ducks bugging the boat while its too dark to see. Folks who do not understand never will.

Last year was the worst season, I have ever experienced. Cost per duck on out lease was \$425 EA.--Totally ridiculous! Another Season like last year and I may give up (hunting 43 years)

I believe more things need to be done to bring the ducks to LA, instead of keeping them North. I was so disgusted with duck hunting this year. I almost gave up on it. We need more ducks down during season.

Open duck season later and extend the season about 3 weeks. / / Ducks seem to be arriving much later in the season

I am not concerned with hunters violating private properties. Maybe make clearer maps of public lands. Also concerning how to go about things when you catch somebody poaching

I support the bill to allow the 16+ year olds to hunt on own on private land

I would like the shooting hours each day to end at noon or 1.00 PM. I think this would help to keep ducks on a lake or area for the following morning hunt. Also I would like the split to be longer( the season to be closed during split for 2 weeks instead of one week). So the season would last longer in January.

Great Survey! / / Glad to participate / / Short Stopping of waterfowl!! / More questions about this from Southern hunters would generate more responses

There needs to be a study of how feeding in the upper states is effecting our seasons

Make wood duck limit of 4. I would love that. It would make it worth hunting.

Text Response

Thanks for the survey. // Duck Hunting my entire life in South Louisiana I can say with certainty that duck hunting is no where near the quality it used to be. We face many problems, which result in very poor duck hunting over the last decade in Louisiana. Too many "refuges", too much hunting pressure, and changing agricultural practices are the main culprits. // The refuge system is so large that ducks quickly find "refuge" after only a few days of hunting pressure. The refuge system is large enough to hold the majority of the population. Every refuge should be hunted on a rotational basis. This would result in a healthier population of ducks. // Mallards and other ducks are not supposed to raft by the tens of thousands many miles offshore in the salty Gulf of Mexico. We are blasting the out of here. Every 10 acre rice field, every spot on every WMA that has a drop of water is now being hunted. The season length is just too long. Politics have gotten into the setting of the season frameworks. Hunting is just too big of a business down here not to have a 60-day 6-duck limit every year. It's a sad but true fact. It's my opinion that the Mississippi Flyway will always recommend the maximum framework due to the politics involved. // With the invention of mud-motor driven boats, places which were inaccessible before now are heavily hunted, only adding to the pressure. Spinning winged decoys are being used to the states north of Louisiana are responsible for killing the juvenile ducks - the very ducks that Louisiana has traditionally relied upon for making the migration all the way down here. // For years the experts have said that it was the lack of cold weather responsible for dismal duck seasons. Most veteran hunters were skeptical of this explanation. Last year's record cold weather nation wide solidified what we've been saying...the problem is much larger than just a lack of weather. // I could write for many more hours on this topic as it's near and dear to my heart. I will duck hunt as long as I can and whenever I can as it's a passion that's been passed down to me from many generations. I hope to pass this great tradition down to my kids one day. However, I am very concerned that duck hunting in Louisiana has forever changed. Without drastic measures taken, some of which I've spoken about, I feel that we will continue to see the status quo as far as quality of hunting in the state of Louisiana. Thanks again for your efforts in conducting this survey.

I think ending shooting ours at noon and banding spinning decoys are two really good ideas that need to be looked at. The more time for ducks to rest the better for the hunts and the less nocturnal ducks get hopefully. I also think a statewide season with 3 splits would be the best in my opinion. Thanks for taking the time to conduct this survey.

I'm very pleased that LSU is conducting this survey. I think it is extremely important to survey hunters for opinions and information with regard to the sport. More time should be spent gathering user information and combining the information with scientific findings and game law enforcement data in order to make necessary changes to bring about positive and tangible results. Please continue to do this survey annually.

Our area has lost a lot of ducks in the last few years, but I think with the land refuge there is hope. We need more duck boxes put out in this area, there are a few boxes on Grand Bayou lake in Coushatta that have wood duck in them. Good job to those who try

Personally think the Season starts to early and notice way more dicks the 3-4 weeks after season. This is something I have said for a while. I hunt the marsh and have rice Ponds and it runs constant for both. The first 2 weeks of duck session there a always little to no ducks.

God bless Louisiana

To have a refuge area on a WMA when shooting hours are limited to 2:00 pm is a waste of good hunting land. I would understand giving the ducks a resting area if all day hunting was allowed.

Glad to see you are working on this subject. I think interest in waterfowl hunting has diminished and I worry about an overall decline in the sport.

I am a resident of Alabama - most of this survey's questions were skewed towards resident hunters of Louisiana. This made answering some of the questions difficult.

Louisiana has unique natural habitats that should be preserved for future generations to enjoy. Promote conservation. Future generations will need to learn to do with less.

Statistic	Value
Total Responses	70

**Section I. Waterfowl Harvest, Days Afield, and Hunting Methods. Please answer the following questions for the past hunting season (September 2009 – February 2010). “Waterfowl” refers to ducks or geese. Include only the waterfowl you harvested and days you hunted in Louisiana. Whether you hunted in the morning, in the afternoon, or both, count only as one day.**

**Q1.1 Did you hunt waterfowl in Louisiana during the 2009-2010 season? (Please mark one.)**

#	Answer	Response	%
1	Yes	877	91%
2	No, I did not hunt last year but have hunted waterfowl in the past 5 years	72	7%
3	No, I did not hunt waterfowl in the past 5 years	20	2%
	Total	969	100%

**Q1.2 In which parish did you hunt waterfowl most often during the 2009-2010 season?**

#	Answer	Response	%
1	Don't Know	6	1%
2	Acadia Parish	9	1%
3	Allen Parish	2	0%
4	Ascension Parish	2	0%
5	Assumption Parish	2	0%
6	Avoyelles Parish	31	4%
7	Beauregard Parish	3	0%
8	Bienville Parish	2	0%
9	Bossier Parish	9	1%
10	Caddo Parish	3	0%
11	Calcasieu Parish	8	1%
12	Caldwell Parish	8	1%
13	Cameron Parish	113	15%
14	Catahoula Parish	8	1%
15	Claiborne Parish	1	0%
16	Concordia Parish	15	2%
17	De Soto Parish	3	0%
18	East Baton Rouge Parish	0	0%
19	East Carroll Parish	3	0%
20	East Feliciana Parish	0	0%
21	Evangeline Parish	20	3%
22	Franklin Parish	3	0%
23	Grant Parish	5	1%
24	Iberia Parish	1	0%

#	Answer	Response	%
25	Iberville Parish	6	1%
26	Jackson Parish	1	0%
27	Jefferson Davis Parish	25	3%
28	Jefferson Parish	11	1%
29	La Salle Parish	10	1%
30	Lafayette Parish	1	0%
31	Lafourche Parish	13	2%
32	Lincoln Parish	0	0%
33	Livingston Parish	0	0%
34	Madison Parish	2	0%
35	Morehouse Parish	15	2%
36	Natchitoches Parish	12	2%
37	Orleans Parish	5	1%
38	Ouachita Parish	22	3%
39	Plaquemines Parish	50	7%
40	Pointe Coupee Parish	3	0%
41	Rapides Parish	18	2%
42	Red River Parish	0	0%
43	Richland Parish	5	1%
44	Sabine Parish	0	0%
45	St. Bernard Parish	41	5%
46	St. Charles Parish	17	2%
47	St. Helena Parish	0	0%
48	St. James Parish	0	0%
49	St. John The Baptist Parish	3	0%
50	St. Landry Parish	20	3%
51	St. Martin Parish	13	2%
52	St. Mary Parish	43	6%
53	St. Tammany Parish	17	2%
54	Tangipahoa Parish	2	0%
55	Tensas Parish	4	1%
56	Terrebonne Parish	39	5%
57	Union Parish	3	0%
58	Vermilion Parish	95	12%
59	Vernon Parish	2	0%
60	Washington Parish	1	0%
61	Webster Parish	1	0%
62	West Baton Rouge Parish	3	0%
63	West Carroll Parish	0	0%
64	West Feliciana Parish	2	0%
65	Winn Parish	0	0%
	Total	762	100%

**Q1.3 How many ducks and/or geese did you shoot and retrieve in Louisiana during the 2009-2010 season? (Use your best estimate – write “0” if none).**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Ducks (all species)	0	400	49.4	60.5
2	Geese (all species)	0	150	<u>5.0</u>	15.6
	Total			54.4	

Statistic	Value
Total Responses	
- Ducks	839
- Geese	634

**Q1.4 How many days did you bag your daily limit of either ducks or geese during the 2009-2010 season? (Use your best estimate – write “0” if none.)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Days for ducks	0	60	5.4	8.8
2	Days for geese	0	64	<u>1.0</u>	4.1
	Total			6.4	

Statistic	Value
Total Responses	
- Duck Limit	829
- Goose Limit	581

**Q1.5 How many days did you hunt in each Migratory Waterfowl Zone (or out-of-state) during the 2009-2010 season? (Use your best estimate – write “0” if none.)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Days hunted East Zone	0	60	6.1	10.9
2	Days hunted West Zone	0	85	11.5	14.0
3	Days hunted Out-of-State	0	122	<u>1.4</u>	6.0
	Total			19.0	

Statistic	Value
Total Responses	839

**Q1.6 How many days did you hunt with a commercial waterfowl guide during the 2009-2010 season? (Use your best estimate – write “0” if none.)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Days hunted with a guide In Louisiana	0	75	0.7	4.7
2	Days hunted with a guide Out-of-State	0	35	0.4	2.4
	Total			1.1	

Statistic	Value
Total Responses	
- LA	725
- OOS	657

**Q1.7 Did you lease a place to hunt waterfowl during the 2009-2010 season -- individually or as a member of a group or club? (Please mark the appropriate boxes and fill in the blank.)**

#	Answer	Response	%
1	No	468	64%
2	Yes (If yes, please answer one of the questions below)	265	36%
3	I leased hunting rights for a specific property at a cost of about per acre	187	25%
4	I leased hunting rights for a specific blind at a cost of about per blind.	91	12%

**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Cost per acre leased	101	\$0	\$2,307	\$146	\$332
Cost per blind leased	83	\$300	\$12,500	\$3,165	\$2,475

Statistic	Value
Total Responses	733

**Q1.8 How many days did you hunt waterfowl (in Louisiana) on each of the following types of property during the 2009-2010 season? (Use your best estimate – write “0” if none.)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Property owned by you or your family	0	100	2.5	8.0
2	Property leased by you or your family	0	75	4.0	10.0
3	Property owned or leased by a group or club in which you are a member	0	85	3.9	9.6
4	Property owned or leased by someone else where you were a guest	0	115	2.7	7.0
5	A Wildlife Management Area (WMA)	0	50	3.3	7.4
6	A National Wildlife Refuge (NWR)	0	40	1.0	3.8
7	Other public land	0	56	1.5	5.6
	Total			18.9	

Statistic	Value
Total Responses	528

**Q1.9 What percentage of the time do you hunt waterfowl....(Responses should total to 100%)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Alone (party of 1)	0	100	15%	24.8
2	With one other hunter (party of 2)	0	100	42%	32.3
3	In a party of 3 or more	0	100	33%	31.9

Statistic	Value
Total Responses	839

**Q1.10 What percentage of time do you use the following blinds or camouflage when hunting waterfowl? (Responses should total to 100%)**

#	Answer	Min Value	Max Value	Average Value	Standard Deviation
1	Stand or wade in natural vegetation (no blind)	0	100	25%	32.9
2	Layout in a field	0	95	2%	7.5
3	A boat or floating blind	0	100	22%	30.6
4	A portable or temporary blind	0	100	11%	20.3
5	A permanent blind	0	100	40%	39.9
6	Other	0	50	0%	1.8

Statistic	Value
Total Responses	839

**Q1.11 What type of waterfowl habitat do you hunt most often? (Please rank up to three top choices, 1 = most.)**

#	Answer	1	2	3	Responses	Rank
1	Coastal marsh	416	66	49	531	1
2	Flooded swamp, timber, or green tree impoundment	124	181	89	394	2
3	Open freshwater habitat (bayou, stream, river, pond or lake)	106	111	93	310	
4	Managed moist-soil impoundment	24	39	25	88	
5	Flooded agricultural field (rice, corn, grain sorghum, soybeans, wheat, etc.)	121	121	92	334	3
6	Dry agricultural field (rice, corn, grain sorghum, soybeans, wheat, etc.)	15	33	39	87	
7	Other (please describe)	3	1	2	8	
	Total	807	552	389	-	

Statistic	Coastal marsh	Flooded swamp, timber, or green tree impoundment	Open freshwater habitat (bayou, stream, river, pond or lake)	Managed moist-soil impoundment	Flooded agricultural field (rice, corn, grain sorghum, soybeans, wheat, etc.)	Dry agricultural field (rice, corn, grain sorghum, soybeans, wheat, etc.)	Other (please describe)
Min Value	1	1	1	1	1	1	0
Max Value	3	5	3	3	5	3	3
Mean	2.7	2.1	2.0	2.0	2.1	1.7	1.6
Std. Deviation	0.6	0.7	0.8	0.8	0.8	0.7	1.3
Total Responses	531	394	310	88	334	87	8

**Q1.12 What is your favorite waterfowl to hunt? (Please rank up to three top choices, 1 = favorite.)**

#	Answer	1	2	3	Responses	Rank
1	Any puddle duck	271	60	48	379	2
2	Any diving duck	8	65	19	92	
3	Any geese	16	23	45	84	
4	Mallards	254	104	49	408	1
5	Canvasback	5	4	6	15	
6	Snow geese (incl. blue phase)	6	6	13	25	
7	Pintail	69	85	49	203	4
8	Scaup	1	0	2	3	
9	Speckled-belly (white-fronted geese)	47	35	49	131	
10	Teal	119	117	96	332	3
11	Redheads	3	0	0	3	
12	Canada geese	3	2	2	7	
13	Gadwall	52	51	61	164	
14	Ring-necked ducks	1	2	3	6	
15	Wood ducks	69	54	52	175	
16	Mottled ducks	9	8	9	26	
17	Whatever is plentiful	79	27	92	198	5
18	Other (list)	8	5	4	18	
	Total	1,020	648	599	-	

Statistic	Value
Total Responses	807

**Q1.13 How important is each of the following issues in deciding the number of days that you will hunt waterfowl? (Please mark one category for each issue.)**

#	Question	Not At All Important	Slightly Important	Somewhat Important	Very Important	Extremely Important	Responses	Mean	Rank
1	Free time to hunt	58	37	94	249	329	767	3.98	1
2	Cost of travel	216	183	233	87	43	762	2.42	15
3	Cost of hunting licenses	376	163	129	57	37	762	1.97	18
4	Cost of hunting leases	227	84	152	147	145	755	2.87	8
5	Cost of guide fees	495	61	85	53	63	757	1.85	17
6	Permission to hunt private property	311	76	109	115	148	759	2.62	11
7	Distance to your hunting area	165	141	236	151	71	764	2.77	10
8	Membership in lease or club	334	90	113	116	108	761	2.44	14
9	Length of hunting season	81	57	123	209	293	763	3.75	2
10	Size of bag limit	162	107	193	150	149	761	3.02	6
11	Hunter dispersion/crowding	124	59	127	185	264	759	3.53	3
12	Access to a boat, ATV, or UTV	222	102	157	143	132	756	2.82	9
13	Availability of commercial guides	633	64	39	14	7	757	1.28	19
14	Availability of hunting partners	240	168	175	117	62	762	2.47	13
15	National forecast of # of ducks	312	138	162	71	79	762	2.30	16
16	Number of ducks seen locally	103	88	184	179	211	765	3.40	4
17	Weather conditions	109	98	222	187	147	763	3.22	5
18	Success of your last hunt	214	158	198	114	78	762	2.59	12
19	Your personal health & fitness	175	125	172	162	127	761	2.92	7

## Q1.13

Statistic	Free time to hunt	Cost of travel	Cost of hunting licenses	Cost of hunting leases	Cost of guide fees	Permission to hunt private property	Distance to your hunting area	Membership in lease or club	Length of hunting season	Size of bag limit
Min Value	1	1	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5	5	5
Mean	3.98	2.42	1.97	2.87	1.85	2.62	2.77	2.44	3.75	3.02
Standard Deviation	1.19	1.17	1.18	1.50	1.33	1.59	1.25	1.51	1.32	1.41
Total Responses	767	762	762	755	757	759	764	761	763	761

Statistic	Hunter dispersion/crowding	Access to a boat, ATV, or UTV	Availability of commercial guides	Availability of hunting partners	National forecast of # of ducks	Number of ducks seen locally	Weather conditions	Success of your last hunt	Your personal health & fitness
Min Value	1	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5	5
Mean	3.53	2.82	1.28	2.47	2.30	3.40	3.22	2.59	2.92
Standard Deviation	1.44	1.47	0.73	1.29	1.36	1.35	1.29	1.31	1.40
Total Responses	759	756	757	762	762	765	763	762	761

	Higher importance
	Moderate importance
	Lesser importance

## Q1.14 Which of the following, if any, do you currently own and use while waterfowl hunting? (Please mark all that apply.)

#	Answer	Response	%
1	Boat and motor (inboard, outboard or airboat)	559	75%
2	Pirogue, canoe, or john boat (unpowered)	426	57%
3	ATV (four-wheeler) or UTV	295	39%
4	None of the above	64	9%

Statistic	Value
Total Responses	749

**Q1.15 During the 2009-2010 hunting season, did you hunt during any of the following? (Please mark all that apply.)**

#	Answer	Response	%
1	Early Teal Season	505	71%
2	Youth Waterfowl Hunt (as a mentor or guide)	108	15%
3	Extended conservation order season for snow geese	57	8%

Statistic	Value
Total Responses	526

**Q1.16 During the 2009-2010 hunting season, did you take someone on a “first time” duck or goose hunt? (Please mark all that apply.)**

#	Answer	Response	%
1	Yes, one or more youth	243	34%
2	Yes, one or more adults	184	26%
3	No	363	51%

Statistic	Value
Total Responses	708

**Q1.17 Did you use a hunting retriever (dog) that you or a member of your family owns during the 2009-2010 duck season? (Please mark one.)**

#	Answer	Response	%
1	Yes	440	57%
2	No	327	43%
	Total	767	100%

**Q1.18 Over the past 5 years, how has the number of days that you hunted waterfowl changed? (Please mark one.)**

#	Answer	Response	%
1	Greatly increased	212	28%
2	Slightly increased	107	14%
3	No change	212	28%
4	Slightly decreased	151	20%
5	Greatly decreased	70	10%
6	Did not hunt five years ago	0	0%
	<b>Total</b>	<b>752</b>	<b>100%</b>

Statistic	Value
Min Value	1
Max Value	5
Mean	2.82
Standard Deviation	1.18
Total Responses	752

**Q1.19 How often do you use a battery-operated spinning wing duck or goose decoy? (Please mark one.)**

#	Answer	Response	%
1	Always	109	14%
2	Usually	127	16%
3	Sometimes	243	32%
4	Rarely	200	26%
5	Never	91	12%
	<b>Total</b>	<b>770</b>	<b>100%</b>

Statistic	Value
Min Value	1
Max Value	5
Mean	3.05
Variance	1.46
Standard Deviation	1.21
Total Responses	770

## Section II. Hunter Satisfaction

**Q2.1 How would you rate the overall quality of your waterfowl hunting in Louisiana during the 2009-2010 season? (Please mark one.)**

#	Answer	Response	%
1	Very poor	160	21%
2	Poor	225	29%
3	Average	187	25%
4	Good	122	16%
5	Very good	67	9%
	Total	761	100%

Statistic	Value
Min Value	1
Max Value	5
Mean	2.62
Standard Deviation	1.23
Total Responses	761

**Q2.2 Please tell us how important each of the following experiences was to your waterfowl hunting satisfaction during the 2009-2010 season. (Please mark one category for each experience.)**

#	Question	Not At All Important	Slightly Important	Somewhat Important	Very Important	Extremely Important	Responses	Mean	Rank
1	A large daily bag limit	117	157	281	127	79	761	2.86	18
2	Access to a lot of different hunting areas	165	118	215	172	88	758	2.87	17
3	Bagging ducks and geese	61	114	237	223	124	759	3.31	12
4	Being on my own	263	161	180	94	54	752	2.36	20
5	Hunting with friends	29	47	145	306	236	763	3.88	4T
6	Developing my skill and abilities	96	96	215	206	144	757	3.27	13
7	Hunting with family	73	45	125	223	293	759	3.81	7
8	Enjoying nature and the outdoors	8	7	48	254	444	761	4.47	1
9	Getting away from crowds of people	29	29	96	233	369	756	4.17	3
10	Getting food for my family	264	185	173	85	47	754	2.29	21
11	Getting information about hunting seasons and conditions from LDWF or U.S. Fish & Wildlife Service	153	156	187	146	117	759	2.89	16
12	Getting my limit	139	202	261	93	67	762	2.67	19
13	Good behavior among other waterfowl hunters	22	31	92	252	360	757	4.18	2
14	A long duck season	36	61	176	213	275	761	3.83	6
15	Hunting areas open to the public	178	99	133	129	219	758	3.15	14
16	Hunting with a dog	180	108	144	147	180	759	3.05	15
17	Reducing tension and stress	61	45	158	237	255	756	3.77	8
18	Seeing lots of ducks and geese	17	49	177	278	238	759	3.88	4T
19	Sharing my hunting skills and knowledge	53	78	225	251	150	757	3.48	10
20	Thinking about personal values	59	70	219	244	164	756	3.51	9
21	Using my hunting equipment (decoys, boats, etc.)	71	111	219	190	158	749	3.34	11

## Q2.2

Statistic	A large daily bag limit	Access to a lot of different hunting areas	Bagging ducks and geese	Being on my own	Hunting with friends	Developing my skill and abilities	Hunting with family
Min Value	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5
Mean	2.86	2.87	3.31	2.36	3.88	3.27	3.81
Standard Deviation	1.18	1.30	1.15	1.27	1.04	1.26	1.27
Total Responses	761	758	759	752	763	757	759

Statistic	Enjoying nature and the outdoors	Getting away from crowds of people	Getting food for my family	Getting information about hunting seasons and conditions from LDWF or U.S. Fish & Wildlife Service	Getting my limit	Good behavior among other waterfowl hunters	A long duck season
Min Value	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5
Mean	4.47	4.17	2.29	2.89	2.67	4.18	3.83
Standard Deviation	0.75	1.04	1.23	1.35	1.17	0.99	1.15
Total Responses	761	756	754	759	762	757	761

Statistic	Hunting areas open to the public	Hunting with a dog	Reducing tension and stress	Seeing lots of ducks and geese	Sharing my hunting skills and knowledge	Thinking about personal values	Using my hunting equipment (decoys, boats, etc.)
Min Value	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5
Mean	3.15	3.05	3.77	3.88	3.48	3.51	3.34
Standard Deviation	1.54	1.49	1.21	1.00	1.13	1.16	1.23
Total Responses	758	759	756	759	757	756	749

	Higher support
	Moderate support
	Lesser support

### Q2.3 Did you hunt on WMA?

#	Answer	Response	%
1	Yes	280	39%
2	No	435	61%
	Total	715	100%

### Q2.4 If you hunted on a LDWF Wildlife Management Area (WMA) during the 2009-2010 season, on which WMA did you hunt most frequently?

#	Answer	Response	%
1	Don't Know	10	5%
2	Acadiana Conservation Corridor WMA	0	0%
3	Alexander State Forest	1	0%
4	Atchafalaya Delta WMA	38	17%
5	Attakapas WMA	2	1%
6	Barataria Preserve	0	0%
7	Bayou Macon	0	0%
8	Bayou Pierre	0	0%
9	Bens Creek	0	0%
10	Big Colewa Bayou	0	0%
11	Big Lake	1	0%
12	Biloxi WMA	18	8%
13	Bodcau	1	0%
14	Boeuf	11	5%
15	Bonnet Carre Spillway	0	0%
16	Buckhorn	0	0%
17	Camp Beauregard	0	0%
18	Catahoula Lake	3	1%
19	Clear Creek WMA	0	0%
20	Dewey Wills	13	6%
21	Elbow Slough WMA	0	0%
22	Elm Hall	0	0%
23	Floy Ward McElroy WMA	0	0%
24	Fort Polk WMA	0	0%
25	Grassy Lake	1	0%
26	Hutchinson Creek WMA	1	0%
27	Indian Bayou	5	2%
28	Jackson Bienville WMA	1	0%
29	Joyce WMA	3	1%
30	Kisatchie National Forest	1	0%

## Q2.4

#	Answer	Response	%
31	Lake Boeuf WMA	4	2%
32	Lake Ramsey Savannah WMA	0	0%
33	Little River WMA	1	0%
34	Loggy Bayou WMA	2	1%
35	Manchac	4	2%
36	Marsh Bayou WMA	0	0%
37	Maurepas Swamp WMA	1	0%
38	National Catahoula Wildlife Management Preserve	1	0%
39	National Red Dirt WMA Preserve	0	0%
40	Old River Control	0	0%
41	Ouachita WMA	7	3%
42	Pass A Loutre	25	11%
43	Pearl River WMA	8	4%
44	Peason Ridge WMA	0	0%
45	Pointe-aux-Chenes WMA	9	4%
46	Pomme de Terre WMA	6	3%
47	Red River WMA	6	3%
48	Russell Sage WMA	6	3%
49	Sabine Island WMA	0	0%
50	Sabine WMA	2	1%
51	Salvador/Timken WMA	9	4%
52	Sandy Hollow WMA	0	0%
53	Sherburne / Atchafalaya NWR / Bayou des Ourses	14	6%
54	Sicity Island Hills WMA	0	0%
55	Soda Lake WMA	0	0%
56	Spring Bayou WMA	6	3%
57	Tangipahoa Parish School Board	0	0%
58	Thistlethwaite WMA	1	0%
59	Three Rivers WMA	0	0%
60	Tunica Hills WMA	0	0%
61	Union WMA	0	0%
62	Walnut Hill WMA	0	0%
63	West Bay WMA	0	0%
	Total	222	100%

**Q2.5 Please rate your satisfaction with your experience on that WMA you identified in above question.  
(Please mark one category for each WMA experience.)**

#	Question	Very Dissatisfied	Dissatisfied	Not Sure	Satisfied	Very Satisfied	Not Applicable	Responses	Mean	Rank
1	Availability of WMA maps	12	41	32	135	53	0	273	3.64	4
2	Quality of WMA maps	15	56	41	116	43	0	271	3.43	6
3	Parking facilities	7	30	41	131	42	0	251	3.68	2
4	Boat launch facilities	15	30	37	126	47	0	255	3.63	5
5	Availability of duck blinds	19	30	64	57	13	0	183	3.08	11
6	Water level management	21	26	60	84	25	0	216	3.31	9
7	Food for waterfowl	20	49	49	107	40	0	265	3.37	8
8	Hunter dispersion/crowding	55	65	25	103	26	0	274	2.93	12
9	Number of waterfowl you saw	47	93	22	85	29	0	276	2.84	13T
10	Number of opportunities to shoot	43	99	22	86	27	0	277	2.84	13T
11	Number of waterfowl you harvested	52	90	19	91	25	0	277	2.81	15
12	Availability of DWF personnel	23	31	72	97	42	0	265	3.39	7
13	WMA regulations	13	32	34	150	45	0	274	3.66	3
14	Enforcement of WMA regulations	34	43	47	116	35	0	275	3.27	10
15	Overall experience at WMA	11	29	33	143	56	0	272	3.75	1

## Q2.5

Statistic	Availability of WMA maps	Quality of WMA maps	Parking facilities	Boat launch facilities	Availability of duck blinds	Water level management	Food for waterfowl
Min Value	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5
Mean	3.64	3.43	3.68	3.63	3.08	3.31	3.37
Standard Deviation	1.09	1.15	0.98	1.09	1.08	1.13	1.17
Total Responses	273	271	251	255	183	216	265

Statistic	Hunter dispersion/crowding	Number of waterfowl you saw	Number of opportunities to shoot	Number of waterfowl you harvested	Availability of DWF personnel	WMA regulations	Enforcement of WMA regulations	Overall experience at WMA
Min Value	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5
Mean	2.93	2.84	2.84	2.81	3.39	3.66	3.27	3.75
Standard Deviation	1.34	1.31	1.29	1.32	1.15	1.04	1.23	1.03
Total Responses	274	276	277	277	265	274	275	272

	Higher support
	Moderate support
	Lesser support

### Section III. Preference for Changes in Statewide Waterfowl Regulations

**Q3.1 The current federal framework limits daily harvest of specific species. Current bag limits of 6 ducks include sub-limits of 4 mallards (no more than 2 hens), 3 wood ducks, 2 redheads, 2 scaup, 1 mottled duck, 1 black duck, 1 canvasback, and 1 pintail. Given a choice, which would you prefer? (Please mark one.)**

#	Answer	Response	%
1	A 60-day season, 6 duck limit with current species sub-limits	696	88%
2	A 40-day season, 4 duck limit with no species sub-limits	62	8%
3	No opinion	30	4%
	Total	788	100%

**Q3.2 Using the scale below, please indicate whether you support or oppose the following policy actions. (Please mark one category for each potential policy action.)**

#	Question	Strongly Oppose	Oppose	Neutral	Support	Strongly Support	No Opinion	Responses	Mean	Rank
1	Opening the season on whistling ducks during early teal season	26	51	204	169	296	0	746	3.88	1
2	Having a separate early season for resident Canada geese	23	32	299	183	135	0	672	3.56	3
3	Ending waterfowl shooting hours at noon each day	267	177	97	123	133	0	797	2.60	6
4	Prohibiting the use of electronic spinning wing decoys	222	198	196	63	119	0	798	2.57	7
5	Limiting the number of waterfowl hunters allowed on WMA's each day	115	130	243	155	96	0	739	2.98	4
6	Conducting a daily draw for designated waterfowl hunting areas on WMA's	148	130	236	138	79	0	731	2.82	5
7	Legalizing commercially guided waterfowl hunts on WMA's	431	129	137	40	22	0	759	1.81	8
8	Designating specific areas of WMA's as "limited access (motorless only)"	79	61	186	186	240	0	752	3.59	2

### Q3.2

Statistic	Opening the season on whistling ducks during early teal season	Having a separate early season for resident Canada geese	Ending waterfowl shooting hours at noon each day	Prohibiting the use of electronic spinning wing decoys	Limiting the number of waterfowl hunters allowed on WMA's each day	Conducting a daily draw for designated waterfowl hunting areas on WMA's	Legalizing commercially guided waterfowl hunts on WMA's	Designating specific areas of WMA's as "limited access (motorless only)"
Min Value	1	1	1	1	1	1	1	1
Max Value	5	5	5	5	5	5	5	5
Mean	3.88	3.56	2.60	2.57	2.98	2.82	1.81	3.59
Standard Deviation	1.12	0.97	1.49	1.36	1.24	1.26	1.09	1.29
Total Responses	746	672	797	798	739	731	759	752

	Higher support
	Moderate support
	Lesser support

### Q3.3 Louisiana currently has an East and West zone, each with split seasons (season closes for a period of time then reopens). Which of the following would you prefer for duck season? (Please mark one.)

#	Answer	Response	%
1	The current system of 2 (east and west) zones with 2 split seasons open in Nov. & Dec./Jan. (Map A)		290 36%
2	A new system of 2 (north and south) zones with 2 split seasons open in Nov. & Dec./Jan. (Map B)		189 23%
3	No zones (a statewide season) with 3 split seasons open in Oct., Nov., & Dec./Jan. (Map C)		227 28%
4	No opinion		103 13%
	Total		809 100%

## Section IV. Personal Identity as a Waterfowl Hunter

**Q4.1 Please indicate whether you agree or disagree with each of the following statements. “Neither” means that you neither agree nor disagree with the statement. (Please mark one response for each statement.)**

#	Question	Disagree (0)	Agree (2)	Neither (1)	Responses	Mean	Rank
1	Some people think of themselves as having an identity as a waterfowl hunter.	133	657	11	803	1.81	1
2	I am interested in developing or maintaining an identity as a waterfowl hunter.	297	448	54	799	1.49	3
3	I am trying to develop or maintain the skills, knowledge, and other traits so that I think of myself as having an identity as a waterfowl hunter	297	434	69	800	1.46	4
4	I have reached the point where I have the skills, knowledge, and other traits so that I think of myself as having an identity as a waterfowl hunter.	214	525	60	799	1.58	2
5	I used to think of myself as a waterfowl hunter, but that identity is not as important to me as it used to be.	329	190	282	801	.88	5

Statistic	Some people think of themselves as having an identity as a waterfowl hunter.	I am interested in developing or maintaining an identity as a waterfowl hunter.	I am trying to develop or maintain the skills, knowledge, and other traits so that I think of myself as having an identity as a waterfowl hunter	I have reached the point where I have the skills, knowledge, and other traits so that I think of myself as having an identity as a waterfowl hunter.	I used to think of myself as a waterfowl hunter, but that identity is not as important to me as it used to be.
Min Value	0	0	0	0	0
Max Value	2	2	2	2	2
Mean	1.81	1.49	1.46	1.58	.88
Standard Deviation	0.43	0.62	0.65	0.63	0.76
Total Responses	803	799	800	799	801

	Higher support
	Moderate support
	Lesser support

**Q4.2 Which of the following groups or individuals would or do you believe played an essential role in helping you develop an identity as a waterfowl hunter? (Please mark one response for each group or individual.)**

#	Question	No (-1)	Yes (1)	Unsure (0)	Responses	Mean	Rank
1	LDWF or U.S. Fish & Wildlife Service	102	223	468	793	.15	7
2	Family members	32	610	154	796	.73	3
3	My hunting companions	23	738	40	801	.89	1
4	Local rod and gun club or local waterfowl hunting group	60	147	591	798	.11	8
5	State or national waterfowl conservation organizations	58	328	408	794	.34	4T
6	Manufacturers or retailers of hunting equipment	58	226	507	791	.21	6
7	Outdoor writers and publishers of hunting magazines and books	60	329	404	793	.34	4T
8	Hunting guides and outfitters	53	121	620	794	.08	9
9	Me, personally	44	728	26	798	.86	2

**Statistics**

	LDWF	Family	Hunting companions	Club	Conservation NGOs	Manufacturers	Outdoor writers	Guides	Me
N Valid	793	796	801	798	794	791	793	794	798
Missing	192	189	184	187	191	194	192	191	187
Mean	.15	.72	.89	.11	.34	.21	.34	.09	.86
Std. Deviation	.62	.53	.39	.50	.61	.56	.61	.46	.48
Minimum	-1.00	-1.00	-1.00	-	-1.00	-1.00	-1.00	-1.00	-
Maximum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

	Higher influence
	Moderate influence
	Lesser influence

**Q4.3 How important is waterfowl hunting to you? (Please mark one.)**

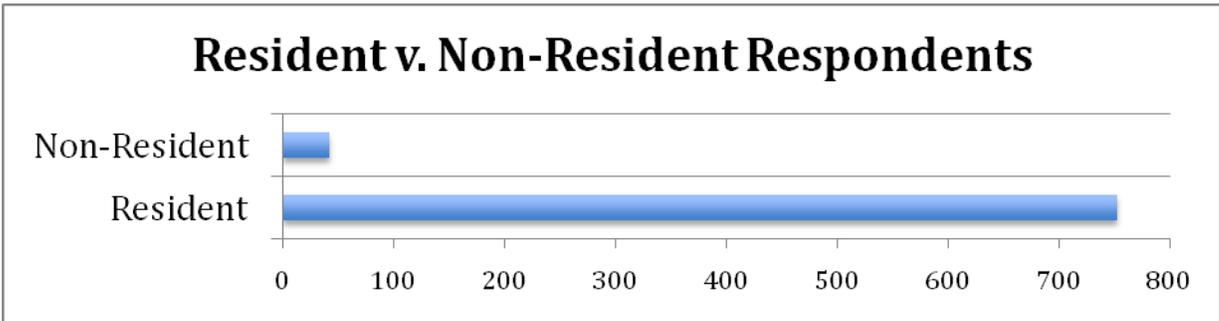
#	Answer	Response	%
1	It is my most important recreational activity.	0	0%
2	It is one of my most important recreational activities.	32	4%
3	It is no more important than my other recreational activities.	91	11%
4	It is less important than my other recreational activities.	418	53%
5	It is one of my least important recreational activities.	257	32%
	Total	798	100%

**Section V. Personal Background and Waterfowl Hunting Experience. Please tell us about yourself!**

**Q5.1 What is your state of residence?**

**Residence**

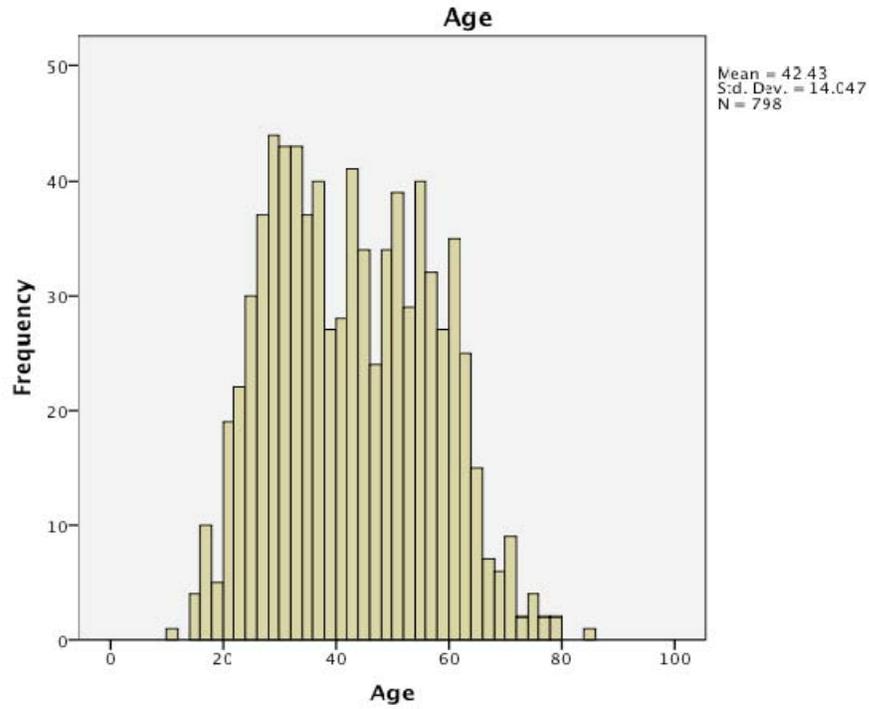
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Resident	753	76.4	94.7	94.7
	Non-Resident	42	4.3	5.3	100.0
	Total	795	80.7	100.0	
Missing	System	190	19.3		
Total		985	100.0		



**Q5.2 What is your gender?**

#	Answer	Response	%
1	Male	788	99%
2	Female	6	1%
	Total	794	100%

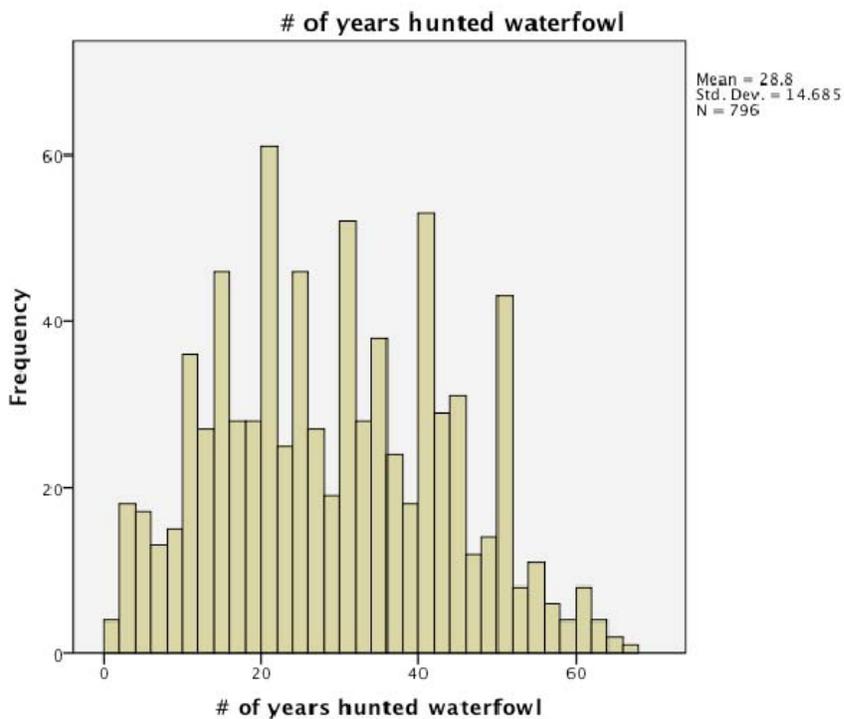
### Q5.3 What is your age?



**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
Age	798	11	84	42.4	14.0

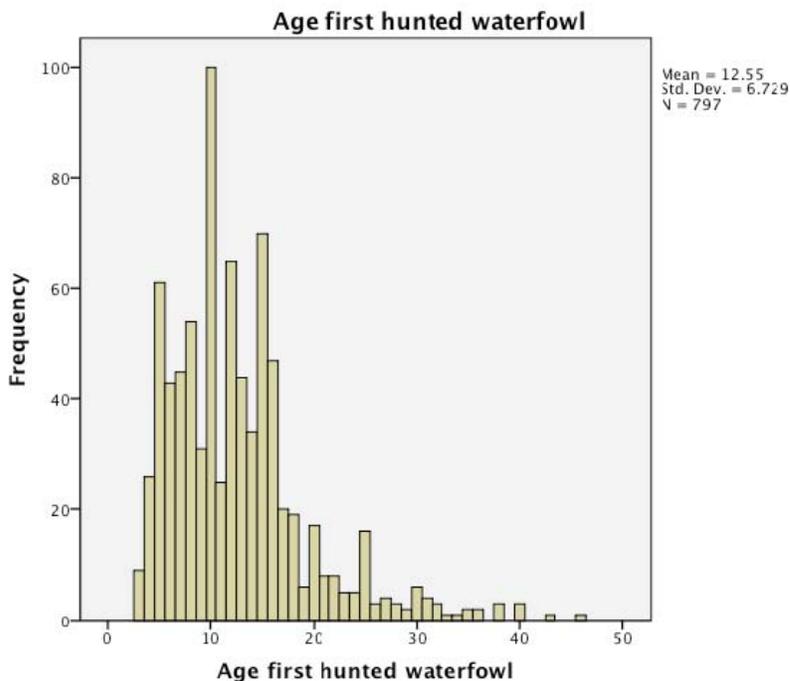
**Q5.4 How many years have you hunted waterfowl?**



**Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
# of years hunted waterfowl	796	1	67	28.8	14.7

**Q5.5 How old were you when you first went waterfowl hunting?**



**Descriptive Statistics**

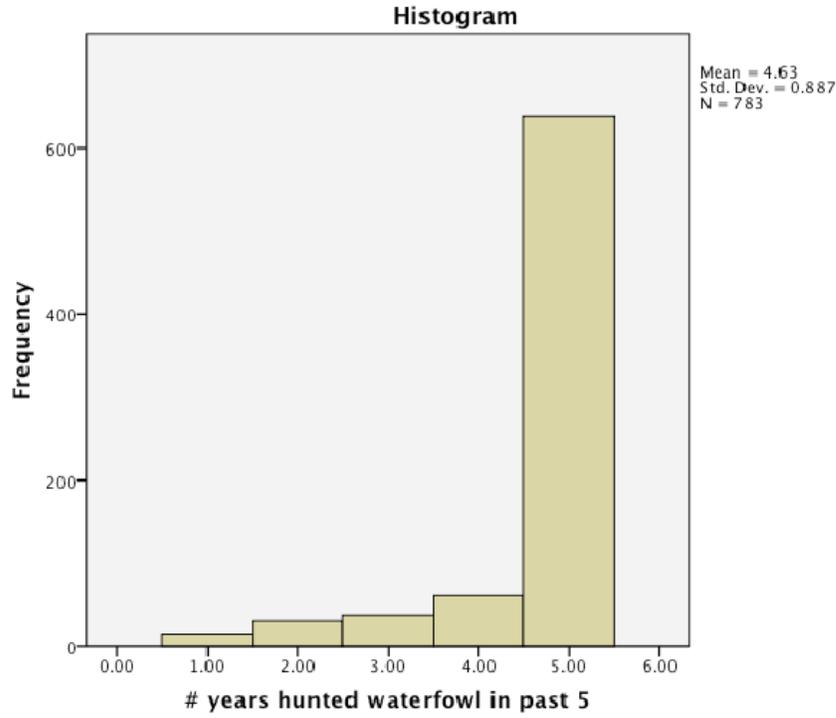
	N	Minimum	Maximum	Mean	Std. Deviation
Age first hunted waterfowl	797	3	46	12.6	6.7

**Q5.6 During which of the following waterfowl seasons did you hunt ducks or geese in Louisiana? (Please mark all that apply.)**

#	Question	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	Responses
1	Ducks	713	724	730	737	723	3,627
2	Geese	310	311	316	312	275	1,524

Statistic	Ducks	Geese
Total Responses	783	399

### Total Participation (Ducks + Geese)



# years hunted waterfowl in past 5

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 of 5	15	1.5	1.9	1.9
	2 of 5	30	3.0	3.8	5.7
	3 of 5	37	3.8	4.7	10.5
	4 of 5	62	6.3	7.9	18.4
	5 of 5	639	64.9	81.6	100.0
	Total	783	79.5	100.0	
Missing	.00	190	19.3		
	System	12	1.2		
	Total	202	20.5		
Total		985	100.0		

**Q5.7 Which type of Louisiana hunting license did you purchase for the 2009-2010 season? (Please mark one.)**

#	Answer	Response	%
1	Basic Season license	321	41%
2	Non-Resident Basic Season license	21	3%
3	Sportsmen's Paradise license	48	6%
4	Non-Resident Small Game/Migratory Bird license (1 day)	9	1%
5	Senior Hunt/Fish license	65	8%
6	Louisiana Native Non-Resident Basic Trip license (5 day)	4	1%
7	Lifetime Hunting license	298	38%
8	College Non-Resident Student Hunting/Fishing license	5	1%
9	Resident Disabled Sportsman license	0	0%
10	Resident/Non-Resident Military Basic Season license	4	1%
11	Disabled Veteran Hunting license	1	0%
	Total	776	100%

**Q5.8 During the 2009-2010 hunting season, did you hunt for any of the following game in Louisiana? (Please mark all that apply.)**

#	Answer	Response	%
1	Deer	441	72%
2	Quail	41	7%
3	Squirrel	274	45%
4	Dove	371	61%
5	Snipe	100	16%
6	Turkey	130	21%
7	Gallinule	78	13%
8	Rails	53	9%
9	Woodcock	70	11%

Statistic	Value
Total Responses	613

**Q5.9 Are you currently a member of a hunting or conservation organization? (Please mark all that apply.)**

#	Answer	Response	%
1	Coastal Conservation Association	168	21%
2	Delta Waterfowl	207	26%
3	Ducks Unlimited	354	45%
4	Other national/statewide/local conservation or hunting organization (please specify)	90	11%

Statistic	Value
Total Responses	795

**Q5.10 What is your approximate annual household income before taxes? (Please mark one.)**

#	Answer	Response	%
1	Under \$20,000	26	3%
2	\$20,000 - \$39,999	34	4%
3	\$40,000 - \$59,999	97	13%
4	\$60,000 - \$79,999	136	18%
5	\$80,000 - \$99,999	126	16%
6	\$100,000 - \$119,999	103	13%
7	\$120,000 - \$139,999	68	9%
8	\$140,000 - \$159,999	37	5%
9	\$160,000 - \$179,999	28	4%
10	\$180,000 - \$199,999	20	3%
11	Over \$200,000	92	12%
	Total	767	100%

**Q5.11 We welcome your comments below or on additional sheets regarding this survey or any issue of concern related to waterfowl hunting in Louisiana.**

**Text Response**

Very excited about this survey and the potential results!

It appears to me that hunting pressure is so great that hunting requires going where and when the ducks are concentrating rather than hoping they will come to a field location. Doesn't matter how long the season is or how liberal the bag limits are if there are no ducks (or geese) present during legal hunting hours. My evolution to birding came, in part, from needing something to do when there were no waterfowl anywhere near where I was hunting - sneaking or blinded up.

1. I believe the duck season should run later, at least until the end of January and preferably into early February. / 2. In my area gallinule hunting is popular. Since gallinule season is open during the early teal season, it closes before the end of duck season. Due to similarity of appearance, mistakes are common with gallinule being shot when mistaken for coots, resulting in a federal violation. This needs to be field by allowing the take of gallinule concurrent with all open coot (waterfowl) seasons. / 3. Despite bird counts being at or near historical averages, duck hunting in my area has been on a steady decline since the early 1980's, with fewer ducks and far less big ducks. Since the area is a premier freshwater marsh with good feed, I do not understand why. This is the north marsh area of Salvador WMA - we hunt private property nearby. Hunter participation has also declined, so pressure is not as great as it was. No one has offered an explanation, and I think our duck-hunting heritage is being lost due to lack of hunter success.

The largest issue hurting the waterfowling in la is the hurricanes causing massive amounts of coastal erosion. In the fifteen years i have had a lease i have seen it go from a piece of property with 6 huntable ponds to a area with over 30 ponds dug out by the hurricanes. Last season was the worst I have been apart of. My blinds usually kill in the neighbor hood of 700 ducks, this year we killed 124. Good survey just missed on the biggest factor affecting waterfowling in south la.

In the discussion about season length and bag limits, i prefer a long season with a smaller bag limit than a shorter season with a larger bag limit. I like to hunt and prefer going out and hunting often than killing a large number of birds a few times.

My personal hunter satisfaction depends on opportunities to see and harvest ducks. A large harvest is not very important to me. I do not like to hunt in a crowded area. / / I prefer to hunt with dedicated waterfowlers. I prefer a smaller bag limit to a shorter season. I do not approve of the use of spinners. The increased use of technology in duck hunting and habitat management is worrisome to me. I believe this adversely impacts the heritage of waterfowling. / / I believe migration patterns have shifted over the years and have had a negative impact in Louisiana. I have seen fewer wood ducks over each of the last 3 years.

Please help on the migratory flight patterns. I feel they are being stopped and changed yearly. I have seen less duck in Louisiana in the past 15 years

I would like to see a longer season with possible 3 split going into February

The question about which license was purchased for the 09-10 season. I marked lifetime license but it was purchased years ago.

The duck-hunting season for Louisiana should start later and end later than it does.

All day waterfowl hunting should continue to be allowed in the coastal wildlife management areas where it is currently allowed. I would like to see the Pearl River Wildlife Management Area below Highway 90 open to afternoon waterfowl hunting. Low tide conditions often make morning hunting impractical. / / The number of ducks in the bag limit (within reason) is not as important to me as the number of days available to hunt. / / Wildlife enforcement agents should strictly enforce wildlife management area restrictions for waterfowl such as the prohibition on permanent blinds. Also, wildlife enforcement agents should more aggressively enforce shoot hour limitations on management areas where it is known to be a problem.

When the LDW&F Board considered banning Spinning wing decoys, at the urging of the 4 Commission Board, Terry Denmon was a Board member and Chairman at one time. / / We all know who he is and that he is under indictment for reasons unrelated. / But / / You, The LDW&F, should be ashamed of yourselves for your corruption in keeping an unfair chase method in the 24 Flyway for corrupt reasons.

## Text Response

Let give you an idea of what it use to be like to hunt in our blind. You're in the blind before legal shooting time and you can hear wood ducks sitting on the water splashing and squealing at one another. Almost every morning you would hear the wonderful call of a hen mallard in the distant. Every once in a while a lone drake mallard would silently float pass the blind calling out with his best raspy voice to anyone that would listen. Ever now and then one would hear whistling wings overhead, it still wasn't legal shooting time but that didn't keep you from frantically searching for the ducks. / / Now it's legal to shoot and you began to hear the distinct sound of a few ducks popping off the water taking flight. Wood ducks are flying! They pass by in groups of two, three or four ducks at a time, headed north to the sloughs up on the creek. Suddenly a group of six pops up from behind the cypress trees and swoop over the decoys headed south. It always seems to happen that way. One group of ducks captures your attention while another group slips pass you and lands just outside the decoys, out of gun range. If you ask me, I think they have it all choreographed. Makes me wonder sometimes who is decoying who. After 30-45 minutes the action slows and it's time to enjoy a cup of coffee or if you got lucky, retrieve the down ducks. / / Now the fun part starts. You wait for the big ducks. You hear the distant roar of shotguns echoing from various blinds located on the lake. Everyone else is shooting but you and you wonder what you are doing wrong. Somebody must have a patch of white showing or maybe something in the boat must be spooking the ducks. Usually around 8:15 a.m. to 9:30 a.m. at least one flock of mallards or gadwalls will circle the blind and if you play it right, you just may get them to decoy in within range. On good mornings you may have 3 or 4 flocks flying around and the action may last till almost noon. Throughout the morning you usually can see flocks of flight ducks passing through the area. Rarely do you limit out but that really doesn't matter. I'm not very good at superlatives but the whole duck hunting experience is truly beautiful. Seeing a duck flying in the early morning sun is not something soon forgotten. / / A hunt in our blind this past season was nothing like years past. You don't hear the squealing or splashing ducks before sunrise. The whistling wings are almost gone on our lake. Do you know how quiet it gets out in the middle of a lake? Well, you probably do, its' deafening. The wood duck flight lasts 15-20 minutes, that maybe all of the ducks you see the rest of the day. I saw less that 20 mallards this year. The days of seeing several distant flight ducks flying through the area are not longer. 2002 was the last good year I've had on this lake. Every year the duck numbers have decreased and this season was the worst I've seen in 42 years of duck hunting, on the same lake and in same location. But I've said that the last eight years in a row. I would bet there isn't half the number of hunters on the lake as years past. Most of my friends have stopped going duck hunting and so buying a duck stamp doesn't cross their mind. But I still go for some reason and hope the numbers will return. / / In 2008-09 seasons we had more wood ducks on the lake than I've ever seen. This season I would guess the population of wood ducks was only about 30% of what it was 2008-09. Maybe the limit on wood ducks should go back to two a day. I hunt on Saline Lake, which is located on the border of Natchitoches and Winn parish. I think the damming of Red River probably is reason the duck population has declined in this area. It can be the coldest day of the season and it doesn't seem to make a difference in the numbers of ducks. / / Well, I apologize for such a long post but you said you welcomed my comments. The comments are my own but I'm sure every duck hunter on Saline Lake would echo them. Thank you for the survey and the chance to voice my opinion.

Increase enforcement on state, federal, and private lands. Limited access areas are a bad idea as there are usually places that are naturally inaccessible to hunters, which the ducks use, so you would only be limiting hunting opportunity, not helping the waterfowl or habitat. To help the ducks have more area for refuges, give it to them by INCREASING the areas the public has access to, thereby DECREASING the numbers of hunters in a given area. Habitat protection (berm or high ground construction, stabilization, rebuilding, and control of habitat destructing wildlife and activities, etc.) in the coastal areas should be THE NO. ONE PRIORITY.

Seasons should open later and remain open later; have better migration patterns as food diminishes up north.

I would like to know if it would be possible to keep the opening dates as they are make the split longer and make up the dates at the end of the second split

What was the purpose of this questionnaire? Where will the results be published?

The one thing LA has to do better it create support to adhere to bag limits and game rules. Have lived all over the US and this is the worst place for baiting, poaching and taking all the game they can. Horrible. The 10-15% that don't follow the law is just far beyond anywhere else. Thanks for your efforts doing this survey!

Thanks

I think we should try to have a limited access area on every wma and they should be a larger percentage of the wma than what is now proposed on a few of the coastal areas.

I do not hunt ducks as much as I used to because my lease (which I have hunted for many years) in Lafourche parish does not hold any more ducks. I now hunt the marsh for deer. It has been about 10 years since we have had any number of ducks on the property to hunt. I now have to go out to west La on guided trips. Before that, it was nothing to go out and shoot a limit of mallards and woodies. We have plenty of feed in the swamps, but no ducks. I used to be a supporter of DU, but never again!

Good survey. Nice in depth questions.

Text Response

Hunting on all of our WMA's should be limited to hunting until 12 Noon only and where possible boat traffic should be limited to hunters of other species of game only for afternoon access. Waterfowl management should be given priority in terms of what is allowed on the WMA's during waterfowl season. Fishing should be closed during open waterfowl season on all WMA's. Better control and eradication of invasive non-native aquatic vegetation is paramount to waterfowl hunting success on the inland WMA's. / / More access is needed on our NWR within the state with easier means of access allowed. Aquatic vegetation is a huge problem on our inland NWR's. / / Public hunting opportunity and the quality of that hunting is paramount to the future of waterfowling in Louisiana! Hunters in general are willing to foot the bill for these improvements if the money is designated for use on public hunting areas within a sound management plan!

Very good survey. I hope that it will assist in more opportunities.

I am a native born citizen of La. residing just across the state line. I work in La. and spend over 90% of my money in La. along with paying state income taxes. A reduced fee lifetime license for those like me would be a big plus.

People blame conservation groups for the poor seasons. I disagree. My seasons revolve around the weather and for the past 8 years the jet streams have not been the same as they where in the late 90's and early 2000's, we have not had the same direction of cold fronts or the intensity of cold fronts that we had during that time. Prior to that I was not keeping any record or watching fronts. That is something that we cannot change we will just have to wait for nature to change back. Until then I don't see our seasons getting better, this net year I am already planning two trips to Kansas.

We desperately need more research as to changing migratory patterns and its causes/impacts/reversal.

I have been hunting the Atchafalaya WMA for over ten years. I hunt between 15-20 days per year. The delta has seen a dramatic shift with the evolution of more powerful surface drives motors. Access into the splays with these motors has destroyed the hunting in the region over the past couple of years. If we could restrict all access to the canals it would help resolve some of the issues in the region with waterfowl pressure and crowding. I hate to impose restrictions on anyone, but the irresponsible use of (joyriding rest and feeding areas) these motors is affecting the quality of waterfowl hunting. Restrict more access and you will see the region rebound again to it's top form. Spinning Wing Decoys I will be brief and say that a nationwide ban is the only choice for hunters looking to improve hunting for the future.

I don't mind noon closure in most hunting areas, except coastal areas where tide influences accessibility. These areas should remain open all day. / I also would like resting areas or limited access areas on WMA'S and refuges moved every few years to keep birds truly wild and not homing in on certain areas.

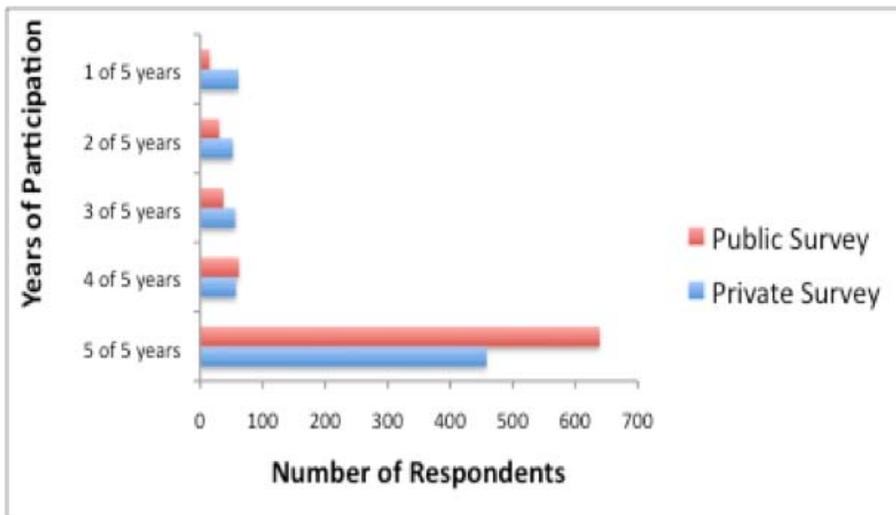
First, I would like to have a statewide waterfowl season with NO ZONES in the state. I would like the duck season to close on the last weekend in JANUARY. I am strongly opposed to limiting hunting to noon each day. I firmly believe we should be able to hunt all day long.

Statistic	Value
Total Responses	972

## Section 4. Analysis of Annual Participation

Fish and wildlife agencies have a vested interest in recruitment and retention of waterfowl hunters for financial, political, and management assistance, as well as to preserve the lifestyle and heritage that many sportsmen fear will be lost (Enck 2009). For this study, we define “participation” as the number of seasons out of the immediate past five during which the respondent has engaged in waterfowl hunting. This explicitly recognizes the importance of consistent annual participation in maintaining hunting license sales and Pittman-Robertson funding, while providing the community of initiators, mentors, and companions that maintain the culture and traditions of waterfowl hunting. One-third of respondents to the private survey and 18% of respondents to the public survey did not hunt all of the past five waterfowl seasons (Figure 4-1). Published literature reports the percentage of sporadic waterfowl hunters (those participating occasionally but not every year) at 33% (Boxall et al. 2001).

Forty-five percent of private survey respondents and 30% of public survey respondents indicate that the number of days that they hunted waterfowl has decreased over the past five years (Table 4-1). Of concern is the private survey, where 45% hunters reported a decrease and only 32% reported an increase in the number of days hunted, creating the potential for a decrease in the number of days hunted over time.



**Figure 4-1.** Annual participation of private and public survey respondents (2005-2009 waterfowl seasons)

**Table 4-1.** Change in days hunting waterfowl over the past 5 years

Category	Private Survey	Public Survey
Increased	32%	42%
Decreased	45%	30%
No change	21%	28%

Annual participation was modeled via logistic regression (SAS 9.2 proc genmod) initially via bivariate analysis in confirmatory specification of variables representing avidity, identity, experience preferences, and demographics. Variables for importance and satisfaction were highly correlated to self-identity, and self-identity was retained for analysis. The variable waterfowl harvest per season was highly correlated to waterfowl harvest per day, and the latter was retained for analysis. Nineteen variables were ranked using Akaike information criterion (AIC), where lower AIC scores represent better fitting models (Table 4-2).

**Table 4-2.** AIC ranking of independent variables obtained via bivariate analysis with annual participation as the dependent variable

Variable	AIC	Rank
Gender	52	1
Club member	56	2
Resident status	57	3
WMA	58	4
NGO	62	5
Hunt NWR	66	6
Self-identity	77	7
Hunt other public land	109	8
Hunt owned property	125	11
Hunt club property	128	12
Hunt leased property	138	13
Hunt WMA	160	14
Party of 1	182	15
Income	184	16
Hunt as guest	195	17
Party of 3 or more	227	18
Party of 2	235	19
Age	479	21
Waterfowl per day	636	22

Multiple variable modeling via backward selection logistic regression (SAS 9.2 proc genmod) resulted in an overall AIC score of 828. No variables could be eliminated from the model via backward analysis; however, parameter estimates were indistinguishable from zero for 12 of 19 independent variables (i.e., the 95% confidence interval included zero). Significant variables are interpreted in order of importance (Table 4-3). Of managerial interest, members of

**Table 4-3.** Important influences on annual participation

Variable	Parameter*	Interpretation
Resident status	1.54	Hunters who are Louisiana residents are 4.7 times more likely to participate every year than non-residents
Club members	1.46	Members of waterfowl hunting clubs are 4.3 times more likely to participate every year
Delta/DU members	.53	Members of Delta Waterfowl and/or Ducks Unlimited are 1.7 times more likely to participate every year
Hunt other public land	.12	Hunters on public lands (other than WMA or NWR) are 1.1 times more likely to participate every year
Hunt own property	.08	Hunters on their own property are 1.1 times more likely to participate every year
Self-identity	-.34	Hunters who have a self-identity as a waterfowl hunter are .7 times more likely to participate every year

\*Estimated using SAS 9.2 proc genmod logistic regression ( $\alpha = .05$ ), each interpreted with other variables in the model held constant.

waterfowl hunting clubs are 4.3 times more likely to participate every year than non-members, all other variables held constant. Members of Delta Waterfowl Foundation and/or Ducks Unlimited are 1.7 times more likely to participate every year than non-members, all other variables held constant. Variables important to the overall model, but not statistically different from zero, included age, income, party size, hunting on a WMA, and average harvest per day.

## Section 5. Typologies of Louisiana Waterfowl Hunters

User groups of hunting, fishing, and outdoor-related recreation demonstrate wide diversity in motivations and experience preferences (Enck and Brown 2006). This diversity of interests limits the effectiveness of management strategies based on “one size fits all” (Shafer 1969). Market segmentation is a frequently applied method in business applications, placing customers sharing similar needs or behaviors into meaningful, homogeneous groups (Burns and Bush 2010). Marketing theory holds that different segments of consumers exhibit different preferences, and that these preferences can become the basis of tailored strategies to increase customer participation and satisfaction through design of segment specific products and services. K-means cluster analysis has been applied to group hunters into segments, or typologies, based on similarity of responses to multiple questions identifying motivations and experience preferences (Manfredo and Larson 1993, Schroeder et al. 2006).

During spring, 2010, we conducted the 2010 Survey of Louisiana Waterfowl Hunters on behalf of the Louisiana Department of Wildlife and Fisheries. An important research objective is to identify opportunities to increase participation of Louisiana waterfowl hunters. A 10-page mixed-mode survey was mailed following protocols of Dillman et al. (2009). The survey included sections addressing activity and methods, hunter satisfaction, regulatory preferences, personal identity, and demographics. Question 2.2 replicated experience preferences utilized by Schroeder et al. (2006) to develop a typology of Minnesota waterfowl hunters. Responses to Question 2.2 were based on a 5-point Likert scale ranging from “Not at all important” to “Extremely Important” (Figure 5-1).

Surveys were mailed to a random sample of 2,500 individuals licensed to hunt waterfowl in Louisiana during the 2009-2010 season. We received 804 completed returns including 657 complete observations for Question 2.2. K-means analysis is a 12 step process.

1. *Select variables for initial analysis.* The 10 experience preferences with the largest variance from Question 2.2 were selected, following procedures of Manfredo and Larson (1993) and Schroeder et al. (2006). This selection included the five final variables modeled by Schroeder et al. (2006).
2. *Prepare dataset for analysis.* Observations were reviewed for data input errors and missing entries. Replaced blank entries where Question 2.2 was partially completed with value of “1”, “not at all important”. Deleted via SAS observations with no data.
3. *Identify starting value and range of k.* Selected a 7 cluster solution for initial iteration of  $k$ , and repeated iterations in incremental values within range 3-15 using PROC FASTCLUS and PROC FREQ.
4. *Identify smallest optimum number of clusters.* Goodness-of-fit and cluster size were tabulated (Table 5-1). Note local peaks of Pseudo-F and CCC at 5 and 9 clusters. Nine-cluster solution contains three clusters with less than 10% of observations. Five-cluster solution was selected for potential variable reduction.

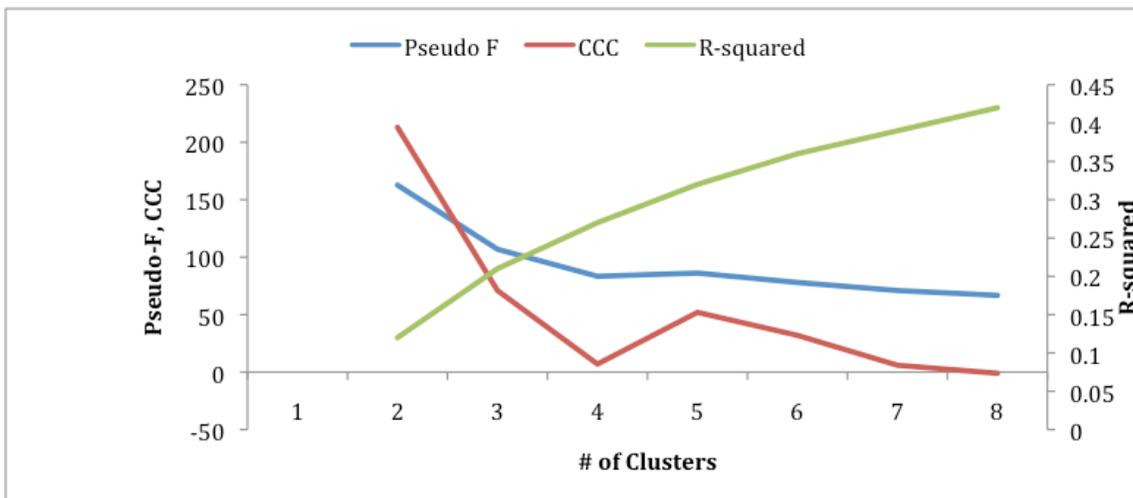
Type-3 analysis (PROC GLIMMIX) identified two non-significant variables. These were eliminated and PROC FASTCLUS and PROC FREQ were re-run in range 2-8 clusters. The 5-cluster solution -- 8 variables improved the 5-cluster solution – 10 variables in values of R-Squared (+.04) and the Pseudo-F Statistic (+4.2). The CCC decreased, but remained > 3.0. All five-cluster solutions exceed 10% of membership (Table 2).

**Q2.2. Please tell us how important each of the following experiences was to your waterfowl hunting satisfaction during the 2009-2010 season. (Please mark one category for each experience.)**



**Figure 5-1.** Question 2.2 in the 2010 survey of Louisiana Waterfowl Hunters covering experience preferences utilized as variables in development of waterfowl hunter typologies by k-means cluster analysis.

Figure 5-2 illustrates local peaks in the Pseudo-F statistic and CCC, and a tapering of the value of R-Squared at 5-clusters, which is selected as the preferred solution.



**Figure 5-2.** Graph of the Pseudo-F Statistic, Cubic Clustering Criterion (x 10), and Approximate Expected Over-All R-Squared statistic for cluster solutions 2 through 8.

6. *Test significance of variables.* The 5-cluster solution with 8 variables was tested using PROC GLIMMIX, Type-3 option. Results indicate most variables significant (Table 5-3). Variables (highlighted yellow) with non-significant values will be tested for reduction.
  
7. *Test elimination of non-significant variables.* Iterations of PROC FASTCLUS and PROC FREQ run testing combinations of variable reduction on the 5-cluster solution. Optimal solution reached at inclusion of six variables, resulting in a .09 improvement in R-Squared, a 48.2 improvement in the Pseudo-F statistic, and a CCC value of 27 (Table 5-4) . PROC GLIMMIX re-run on 5-cluster 6 variable solution, revealing all combinations significant (Table 5).

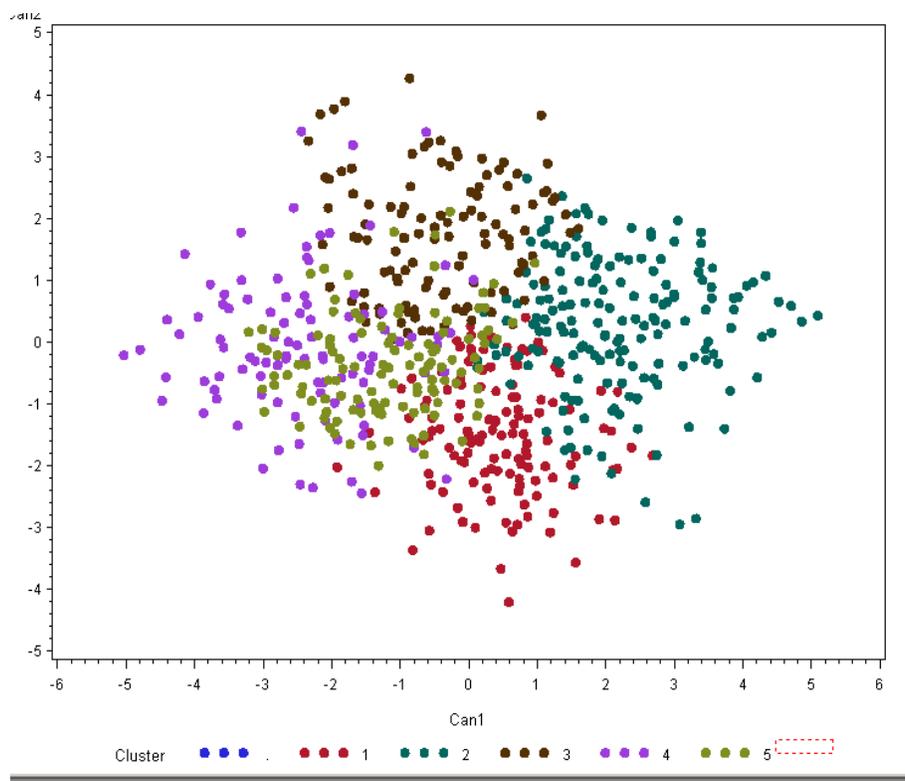
**Table 5-1.** Tabulation of R-Squared, Pseudo-F, CCC and percent membership by cluster for cluster solutions 3-15 using PROC FASTCLUS. Yellow highlights indicates membership < 10%. Local peaks in Pseudo-F Statistic and CCC observed at 5 and 9-cluster solutions. Selected 5-cluster solution highlighted green.

<u>No. of Clusters</u>	<u>R<sup>2</sup></u>	<u>Pseudo F</u>	<u>CCC</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>No. &gt; 10%</u>
3	0.17	106.2	18.6	0.38	0.38	0.24													3
4	0.22	82.1	12.2	0.22	0.22	0.38	0.17												4
5	0.26	82.0	17.8	0.29	0.26	0.16	0.14	0.16											5
6	0.30	74.5	17.1	0.21	0.24	0.15	0.18	0.11	0.11										6
7	0.33	60.0	7.9	0.19	0.13	0.12	0.10	0.11	0.26	0.08									6
8	0.35	54.6	5.3	0.05	0.09	0.11	0.11	0.21	0.21	0.12	0.10								6
9	0.37	56.5	11.2	0.08	0.12	0.06	0.15	0.13	0.13	0.12	0.06	0.15							6
10	0.39	49.9	5.8	0.07	0.07	0.12	0.06	0.07	0.04	0.10	0.21	0.03	0.21						4
11	0.41	49.7	8.6	0.11	0.07	0.09	0.13	0.06	0.07	0.12	0.14	0.08	0.03	0.09					4
12	0.45	44.7	4.2	0.05	0.06	0.09	0.06	0.12	0.17	0.05	0.04	0.05	0.10	0.07	0.13				4
13	0.43	44.3	6.7	0.16	0.06	0.03	0.08	0.06	0.12	0.08	0.08	0.07	0.09	0.04	0.10	0.04			3
14	0.44	41.7	5.2	0.10	0.09	0.06	0.05	0.07	0.09	0.10	0.04	0.05	0.03	0.07	0.07	0.07	0.12		3
15	0.45	40.1	5.0	0.07	0.08	0.04	0.16	0.12	0.10	0.01	0.04	0.04	0.05	0.08	0.02	0.06	0.08	0.06	3

**Table 5-2.** Tabulation of R-Squared, Pseudo-F, CCC and percent membership by cluster for cluster solutions 2-8 using PROC FASTCLUS. Yellow highlights indicates membership < 10%. Local peaks in Pseudo-F Statistic and CCC observed at 5 solution, highlighted green.

<u>No. of Clusters</u>	<u>R<sup>2</sup></u>	<u>Pseudo F</u>	<u>CCC</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>No. &gt; 10%</u>
2	0.12	162.7	21.3	0.56	0.44							2
3	0.21	106.9	7.1	0.34	0.32	0.34						3
4	0.27	83.4	0.7	0.28	0.29	0.33	0.10					4
5	0.32	86.2	5.2	0.21	0.27	0.18	0.16	0.18				5
6	0.36	78.0	3.2	0.26	0.24	0.19	0.09	0.15	0.06			4
7	0.39	71.0	0.6	0.11	0.25	0.17	0.08	0.11	0.16	0.13		6
8	0.42	66.8	-0.1	0.08	0.09	0.08	0.14	0.12	0.16	0.18	0.14	5

5. *Graph output and physically inspect cluster solution.* The 5-cluster solution is plotted using SAS PROC CANDISC and PROC GPLOT. Note five distinct groupings although overlap is apparent on this two-dimensional plot (Figure 5-3).



**Figure 5-3.** Plot of 5-cluster optimal solution using SAS PROC CANDISC and PROC GPLOT.

**Table 5-3.** Results of Type-3 test of significance on 5-cluster 8 variable solution. Variables with non-significant values (highlighted yellow) will be tested for reduction.

Variable	P-Values				
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Q2_2_2	<.0001	<.0001	<.0001	0.0002	<.0001
Q2_2_4	<.0001	<.0001	<.0001	<.0001	0.7014
Q2_2_7	0.0018	<.0001	<.0001	<.0001	<.0001
Q2_2_10	0.1515	0.0028	0.0006	<.0001	<.0001
Q2_2_12	0.2746	<.0001	<.0001	<.0001	<.0001
Q2_2_15	<.0001	<.0001	<.0001	<.0001	<.0001
Q2_2_16	<.0001	<.0001	<.0001	<.0001	<.0001
Q2_2_21	0.1781	0.0598	<.0001	<.0001	<.0001

**Table 5-4.** Improvement in fit statistics following variable reduction.

<u>No. of Variables</u>	<u>R<sup>2</sup></u>	<u>Pseud o F</u>	<u>CCC</u>
8	0.32	86.2	52
7	0.36	93	2.2
7	0.36	94.2	18.0
6	0.41	120	27
5	0.48	134.4	-39

**Table 5-5.** Results of Type-3 test of significance on 5-cluster 6 variable solution. Note all cells significant.

<u>Variable</u>	<u>P-Values</u>				
	<u>Cluster 1</u>	<u>Cluster 2</u>	<u>Cluster 3</u>	<u>Cluster 4</u>	<u>Cluster 5</u>
Q2_2_2	0.0028	<.0001	<.0001	<.0001	<.0001
Q2_2_7	<.0001	<.0001	<.0001	<.0001	<.0001
Q2_2_10	<.0001	<.0001	<.0001	<.0001	0.001
Q2_2_15	<.0001	<.0001	<.0001	0.0055	<.0001
Q2_2_16	<.0001	<.0001	0.0004	<.0001	<.0001
Q2_2_21	<.0001	<.0001	<.0001	<.0001	<.0001

8. *Sort dataset by cluster and obtain means and variances of all variables of interest.* Sort completed using PROC SORT and PROC MEANS. Included all 21 experience preferences, plus selected variables for activity, satisfaction, importance, and demographics. Output includes mean value, variance, and standard deviation. Mean values summarized below (Table 5-6).
9. *Verify contribution of variables (R<sup>2</sup>) and differences in means by One-Way ANOVA.* PROC GLM with options lsmeans and Tukey run on all selected variables. Tukey option adjusts experiment-wise significance level to .05. Cells shaded similarly lack significant difference (Table 5-7). Note predominance of high values in cluster 2 and low values in cluster 3. Eight variables have R<sup>2</sup> values exceeding 20%, indicating strong correlation with selected 5-cluster solution.
10. *Check normality of results.* PROC UNIVARIATE utilized to test normality of errors from output of PROC GLM in step 9. Boxplot and normal probability plot (Figure 5-4) appear normal.
11. *Chart variables by cluster and label.* High and low values are summarized and subjectively evaluated (Table 5-8). Descriptions of typologies provided by the investigator are –
  - *Casual waterfowl hunting participants*
  - *Longtime waterfowl hunting participants*
  - *Social waterfowl hunting participants*
  - *Social waterfowl hunting enthusiasts*
  - *Achievement-oriented waterfowl hunting enthusiasts*

The dataset was sorted by cluster and means of responses evaluated for experience preferences including favorite property type, party size, camouflage, habitat and waterfowl. Only differences in camouflage and party size were significant across clusters. These experiences were combined

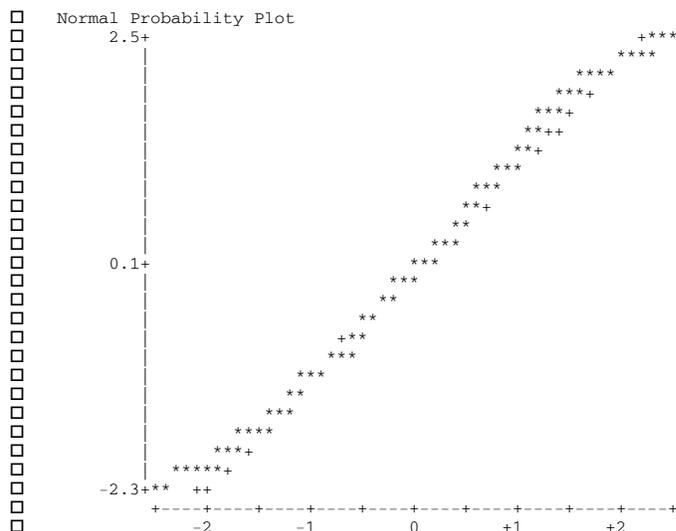
with other potentially manageable attributes that might be addressed in management and marketing plans (Table 5-9).

**Table 5-6.** Summary of mean responses to selected variables by cluster. Highlights represent high (blue) and low (gold) values per variable.

<u>Variable</u>	<u>Cluster 1</u>	<u>Cluster 2</u>	<u>Cluster 3</u>	<u>Cluster 4</u>	<u>Cluster 5</u>		<u>High</u>
<u>Percentage</u>	27%	15%	15%	25%	18%		
Q2_2_1	3.1	2.5	3.4	3.0	2.7		Low
Q2_2_2	2.6	4.1	1.7	2.7	3.7		
Q2_2_3	3.1	4.0	2.9	3.3	3.6		
Q2_2_4	2.0	2.7	2.0	2.2	2.4		
Q2_2_5	3.9	4.4	3.6	4.1	3.7		
Q2_2_6	3.0	4.1	2.6	3.5	3.6		
Q2_2_7	4.0	4.7	2.4	4.4	3.6		
Q2_2_8	4.3	4.8	3.9	4.5	4.5		
Q2_2_9	4.0	4.6	3.7	4.3	4.4		
Q2_2_10	1.8	4.1	1.5	2.2	2.9		
Q2_2_11	2.5	4.1	2.1	3.2	3.5		
Q2_2_12	2.5	3.6	2.3	2.8	3.0		
Q2_2_13	3.9	4.7	3.8	4.5	4.3		
Q2_2_14	3.3	4.3	3.3	3.9	4.1		
Q2_2_15	2.3	4.4	1.7	3.3	4.4		
Q2_2_16	1.7	4.1	3.3	3.9	1.6		
Q2_2_17	3.4	4.4	3.5	4.2	3.9		
Q2_2_18	3.8	4.5	3.5	4.1	4.3		
Q2_2_19	3.0	4.3	2.4	3.7	3.6		
Q2_2_20	3.1	4.3	2.8	3.8	3.8		
Q2_2_21	2.6	4.0	2.2	3.7	3.8		
Waterfowl	21.6	42.0	35.8	33.0	26.0		
Days_Hunted	8.0	14.6	11.0	13.5	15.5		
Satisfaction	3.3	3.2	3.1	3.1	3.6		
WMA	1.8	1.6	1.9	1.9	1.6		
Importance	3.5	4.0	3.6	3.9	3.8		
Age	42.6	40.1	47.8	42.8	39.1		
Experience	25.9	22.7	27.6	26.1	22.1		
Participation	4.1	4.3	4.1	4.3	4.3		
Income	6.0	4.6	6.9	5.6	4.1		
Gender	1.1	1.1	1.0	1.1	1.1		
Resident	1.1	1.1	1.2	1.1	1.1		
Guide	0.3	0.2	0.8	0.5	0.1		
Club	1.8	1.8	1.7	1.7	1.8		
NGO	1.6	1.4	1.5	1.5	1.4		

**Table 5-7.** Summary of PROC GLM analysis of 21 experience preference variables. Cluster cells sharing same color across a row have no significant difference in value (Tukey  $\alpha = .05$ ).

Variable	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	R <sup>2</sup>		
Q2_2_1 Bag Limit Size	3.1	2.5	3.4	3.0	2.7	0.06		High
Q2_2_2 Access	2.6	4.1	1.7	2.7	3.7	0.35		
Q2_2_3 Shooting	3.1	4.0	2.9	3.3	3.6	0.08		Med
Q2_2_4 On my own	2.0	2.7	2.0	2.2	2.4	0.04		
Q2_2_5 Friends	3.9	4.4	3.6	4.1	3.7	0.08		Low
Q2_2_6 Skills	3.0	4.1	2.6	3.5	3.6	0.16		
Q2_2_7 Family	4.0	4.7	2.4	4.4	3.6	0.37		Final Variable
Q2_2_8 Nature	4.3	4.8	3.9	4.5	4.5	0.11		
Q2_2_9 Crowds	4.0	4.6	3.7	4.3	4.4	0.08		
Q2_2_10 Food	1.8	4.1	1.5	2.2	2.9	0.38		
Q2_2_11 Information	2.5	4.1	2.1	3.2	3.5	0.23		
Q2_2_12 Shooting limit	2.5	3.6	2.3	2.8	3.0	0.11		
Q2_2_13 Good behavior	3.9	4.7	3.8	4.5	4.3	0.11		
Q2_2_14 Long season	3.3	4.3	3.3	3.9	4.1	0.14		
Q2_2_15 Public areas	2.3	4.4	1.7	3.3	4.4	0.49		
Q2_2_16 Dog	1.7	4.1	3.3	3.9	1.6	0.56		
Q2_2_17 Stress	3.4	4.4	3.5	4.2	3.9	0.09		
Q2_2_18 Seeing	3.8	4.5	3.5	4.1	4.3	0.12		
Q2_2_19 Sharing	3.0	4.3	2.4	3.7	3.6	0.25		
Q2_2_20 Values	3.1	4.3	2.8	3.8	3.8	0.16		
Q2_2_21 Equipment	2.6	4.0	2.2	3.7	3.8	0.31		



**Figure 5-4.** Normal probability plot of errors values, PROC GLM, One-Way ANOVA of selected variables, 5 cluster solution for 2010 Survey of Louisiana Waterfowl Hunters

**Table 5-8.** Identification of waterfowl hunter typologies and share based on a 5-cluster solution.

Cluster	Description	%	Low Values	High Values
1	Less-engaged waterfowl hunting participants *	27%	On my own Food Importance Shooting limit Long season Dog Days hunted Harvest Harvest per Day Delta/DU	Bag limit
3	Long-time waterfowl hunting participant *	15%	Access On my own Family Food Shooting limit Long season Equipment (need) Days hunted	Bag limit Age (older) Experience (most) Harvest per Day Income (most) Guest Guide
4	Social waterfowl hunting participants	25%	On my own	Bag limit Friends Family Dog Equipment (have) Guest Delta/DU
2	Social waterfowl hunting enthusiast	15%	Bag Limit	Access On my own Friends Family Nature Food Shooting limit Long season Public areas Dog Seeing ducks Equipment (have) Importance Harvest Delta/DU Lifetime License Importance
5	Individualistic waterfowl hunting enthusiasts	18%	Bag limit Dog Age (younger) Experience (least) Income (least)	Access Long season Pubic areas Seeing ducks Equipment (have) Days hunted Satisfaction Importance Resident

**Table 5-9.** Potentially manageable experience preferences of typologies of Louisiana waterfowl hunters

<b>Typology</b>	<b>%</b>	<b>Highly Valued</b>	<b>Lesser Valued</b>
<b>Casual waterfowl hunting participants</b>	27	Large bag limit Party of 2 or more Blinds On-site transportation	Hunting w/ dog Long season Delta/DU members
<b>Long-time waterfowl hunting participants</b>	15	Large bag limit Invited as guest On-site transportation Party of 3 or more Blinds & Guides	Long season Shooting limit Access to public land
<b>Social waterfowl hunting participants</b>	25	Large bag limit Invited as guest Party of 3 or more Blinds & Guides	
<b>Social waterfowl hunting enthusiasts</b>	15	Long season Access to public land Blind Hunting w/dog	Large bag limit On-site transportation Guides
<b>Achievement-oriented waterfowl hunting enthusiasts</b>	18	Long season Access to public land Parties of 1 or 2 Wade or boat blind	Large bag limit On-site transportation Guides

12. *Develop appropriate strategies to address management objectives.* This step remains to be completed. It is typically a judgmental activity developed by a committee or task force in the context of strategic planning. A well-planned research project can contribute objectively to this process by identifying preferred methods, activities and experiences by cluster group. This activity may target specific typologies. In the above example, given a research objective of increasing hunter participation, the typologies most at risk are cluster 1, Casual Waterfowl Hunting Participants, and cluster 3, Long-time Waterfowl hunting participants. Collectively they account for 42% of the sample population.

K-means cluster analysis for segmentation of user groups is a multi-step procedure requiring multiple iterations and the application of repeated checks to verify and validate findings. It is more of a heuristic approach than many statistical procedures, highly dependent on the knowledge, experience, and judgment of the investigator. It does bring objectivity and an ability to handle large datasets with multiple variables to market segmentation, enhancing the ability of leaders and managers to develop plans and strategies tailored to the specific characteristics of these segments. It is instructive that the typology analysis conducted with Minnesota waterfowl hunters also resulted in the identification of a 5-cluster solution (Schroeder et al. 2006). Three of the five Minnesota typologies match closely those identified from the Louisiana dataset.

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## Appendix A. Survey Instrument

## Appendix B. Significance Tests of Private v. Public Dataset

### 2010 Survey of Louisiana Waterfowl Hunters

**Table 1.** Results of t-test and X<sup>2</sup> tests of significance between responses for avidity measures from the private and public datasets of the 2010 Survey of Louisiana waterfowl hunters.

No.	Issue	p-value
Q4_1	Ducks harvested	.0001
Q4_2	Geese harvested	.0025
Q6	Days hunted	.0001
Q31	Importance of waterfowl hunting as a recreational activity	.0001
Q37	Type of hunting license purchased	.0001
Q40	Membership in conservation NGOs	.1481

**Table 2.** Results of t-test and X<sup>2</sup> tests of significance between responses for satisfaction and policy actions from the private and public datasets of the 2010 Survey of Louisiana waterfowl hunters.

No.	Issue	p-value
Q21	Overall quality of your waterfowl hunting experience during past season	.0001
Q25_15	Overall experience at WMA	.5535
Q26	Preference for combinations of season length and bag limit	.0001
Q27_1	Opening the season on whistling ducks during early teal season	.0001
Q27_2	Having a separate early season for resident Canada geese	.1240
Q27_3	Ending waterfowl shooting hours at noon each day	.0325
Q27_4	Prohibiting the use of electronic spinning-wing decoys	.0001
Q27_5	Limiting the number of waterfowl hunters allowed on WMAs each day	.0948
Q27_6	Conducting a daily draw for designated hunting areas on WMAs	.0713
Q27_7	Legalizing commercially guided waterfowl hunts on WMAs	.0001
Q27_8	Designating specific areas of WMAs as "limited access"	.0001
Q28	Preference for zones and splits	.0001