

# National Survey of Waterfowl Hunters: Nationwide and Flyway Comparisons



A cooperative study completed by:

Minnesota Cooperative Fish and Wildlife Research Unit

and

University of Minnesota

for the

National Flyway Council

# **National Survey of Waterfowl Hunters: Nationwide and Flyway Comparisons**

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## Section 1: Introduction and Overview

### 1.1 BACKGROUND

The North American Waterfowl Management Plan (NAWMP) was implemented in 1986 with the goal of maintaining abundant and resilient waterfowl populations in North America and sufficient wetlands and related habitats to sustain those populations (U.S. Fish and Wildlife Service and Canadian Wildlife Service 1986). In 2012 the planning committee, in consultation with stakeholders, decided to revise the NAWMP with additional goals to plan for changing times. The 2012 NAWMP Revision provides a new vision of waterfowl management that emphasizes a growing and supportive core of waterfowl hunters and an engaged conservation community inspired by waterfowl and wetlands.

To achieve this goal, NAWMP partners must engage both the traditional waterfowl hunting community and broader stakeholder groups who are interested in waterfowl and the conservation of waterfowl and wetlands. To facilitate this engagement, the National Flyway Council (NFC) – in cooperation with the four Flyway Councils, the NAWMP Committee, and non-governmental agencies – initiated the formation of a Human Dimensions Working Group (HDWG). This working group is tasked with obtaining the incorporating human dimensions information and approaches into migratory bird conservation programs, policies, and practices. In particular, the NFC's HDWG and other NAWMP partners developed a research proposal for North American stakeholder and general public surveys that will inform: 1) NAWMP objectives; 2) harvest objectives and strategies; 3) habitat management; and 4) public engagement strategies. Three surveys – a waterfowl hunter survey, a birdwatcher survey, and a general public survey – were administered in the United States. Similar birdwatcher and hunter surveys occurred concurrently in Canada. Separate summary reports are available for the U.S. general public, birdwatcher surveys, as well as the Canadian surveys (U.S. Geological Survey 2017; Harshaw 2018a,b, Patton 2021a). This report presents results from the U.S. National Survey of Waterfowl Hunters (NSWH).

### 1.2 Study Objectives

The key objectives of the National Waterfowl Hunter Survey are:

1. Identify the key attributes important to waterfowl hunting experiences.
2. Examine the social, political, economic, and human capital capacity for conserving waterfowl and wetlands.
3. Assess waterfowl hunters' knowledge, preferences, levels of use and support for waterfowl and wetlands conservation.

4. Assess decisions to participate in waterfowl hunting and level of identity as hunter, birdwatcher, and conservationist.
5. Assess the importance of ecological goods and services provided by waterfowl and wetlands.

The expected outcomes of this study are:

1. Quantified measures of stakeholder preferences.
2. A greater likelihood of developing NAWMP objectives and management actions informed by waterfowl and wetland stakeholders.
3. A focus on biologically feasible harvest management actions that provide the greatest benefits in terms of stakeholder preferences.

A collaborative research team at the U.S. Geological Survey's Fort Collins Science Center, the Minnesota Cooperative Research Unit located at the University of Minnesota, and the University of Alberta completed the key research. Collaborators at the University of Minnesota, with review and technical assistance from the Minnesota Cooperative Research Unit, completed data analyses and report writing.

### 1.3 Study Design and Methods

#### 1.3.1 *Workshops*

The waterfowl hunter study involved multiple phases and research activities. A core portion of the NSWHP involved discrete choice experiments (DCEs). The DCEs allow researchers to identify respondents' preferences for specific attributes of waterfowl hunting, and to highlight which attributes respondents value relative to other attributes. The attributes used in the DCEs were identified through a series of workshops with stakeholders conducted by researchers from the U.S. Geological Survey Fort Collins Science Center.

Researchers designed and implemented the U.S. stakeholder workshops from November 2014 to June 2015. A total of 12 workshops with hunters were completed in key geographic locations across the flyways<sup>1</sup> in the U.S. to provide a diverse representation of important ecological characteristics associated with these places and the social traditions associated with waterfowl hunting. The primary outcome of the workshops was the identification of key attributes of waterfowl hunting experiences. Researchers used this information in the design of the DCE in the NSWHP study.

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<sup>1</sup> A flyway describes a common route that is used by a group of birds during migration from breeding to wintering areas. There are 4 flyways in North America (Atlantic, Mississippi, Central, and Pacific), which are divided into administrative boundaries to facilitate management (U.S. Fish and Wildlife Service, 2017). The Pacific Flyway also includes Alaska; however, Hawaii is not a part of any flyway.

### 1.3.2 Survey Instruments

Researchers designed the NSWH between June 2015 and September 2016. In addition to the waterfowl hunter workshops, the survey design involved multiple workshops, meetings, and webinars, as well as reviews and comments from representatives of key partners. The core design team for the NSWH included Human Dimensions Working Group members from the Atlantic, Mississippi, Central and Pacific Flyways. This team held multiple meetings and webinars to identify appropriate sampling and questionnaire design. In addition to achieving the previously identified objectives and implementing DCE on hunting preferences, the waterfowl hunter survey also included questions targeting three areas identified by the HDWG as important:

1. **Decisions:** This series of questions indicates participation levels in viewing, hunting, and conservation. It offers the potential to identify stakeholder segments based on participation levels as well as types of participation. This set of questions also includes constraints to waterfowl hunting participation.
2. **Identity:** Measures of identity formation indicate the degree to which hunters have developed personal identities associated with an activity or social role.
3. **Capacity:** The long-term sustainability of waterfowl and wetlands will depend on building support. This survey includes questions to identify the levels of support waterfowl hunters are providing through donations, membership, and other behaviors and attitudes.

Additionally, the NSWH in particular was designed to replicate key questions of interest to waterfowl managers from the 2005 National Duck Hunter Survey (NDHS) (NFC 2006), and address several key management questions specific to each of the four Flyways.

### 1.3.3 Sampling Design

The target population for the NSWH included all U.S. residents 18 years of age or older who had participated in waterfowl hunting during 2015. A subset of the 2015 Migratory Bird Harvest Information Program (HIP) database was used as the sample frame. The sampling design from the 2005 National Duck Hunter Survey (NDHS; National Flyway Council 2006) was used as a guide for sampling in the NSWH. However, the NDHS sampled only individuals who hunted ducks and harvested at least one duck during the year prior to the survey (2004). In the NSWH, all HIP registrants 18 years of age or older who hunted ducks, geese, sea ducks, or brant during 2015 *whether they actually bagged any birds* were included when possible. However, sampling procedures varied in 5 states due to errors in coding HIP information when collected at the state level (discussed below).

The Migratory Bird HIP (<https://www.fws.gov/birds/surveys-and-data/harvest-surveys/harvest-information-program.php>) is used by wildlife agencies and the U.S. Fish & Wildlife Service

(USFWS) to estimate hunting activity and harvest of migratory game birds in a reliable way. These estimates provide information for agency decision making about bag limits, hunting seasons, and population management. Individuals who hunt ducks, geese, brant, or other migratory birds are required to participate in HIP in every state in which they hunt migratory birds. When signing up, individuals must provide their name, address, and date of birth. In addition, HIP registrants are asked to voluntarily answer several questions about their experience during the previous year's hunting season, including whether they hunted waterfowl (ducks, sea ducks, geese, or brant) and how many waterfowl they bagged. Each state, except for Hawaii, collects information on the more than 1 million waterfowl hunters nationwide and provides these data to the USFWS. The USFWS uses the HIP database to conduct surveys to develop information about overall hunter activity and harvest estimates. The robust nature of the HIP database makes it an excellent sampling frame for other studies of waterfowl hunters.

Because the HIP information is collected and managed by the states, use of the data for contacting hunters requires permission from each state. In the NSWH, all 49 states involved in the study (excludes Hawaii) provided permission to sample up to 3,000 resident waterfowl hunters, 18 years of age or older, from their state's HIP data. In consultation with FWS Migratory Bird staff, a standard sampling protocol was developed, consisting of the following steps:

1. Limiting the sample frame as follows:
  - a. Hunters  $\geq 18$  years old
  - b. In-state hunters
  - c. Active waterfowl hunters
  - d. Ducks bagged 0 or more
  - e. Geese bagged 0 or more
  - f. Sea ducks bagged 0 or more
  - g. Brant bagged 0 or more
2. Identified states with sample frame problems:
  - a. Georgia –Registrations before August did not have valid stratification information for harvest. These registrations were identified in the dataset by coding strata as 6., and only hunters with valid stratification were selected in the sample.
  - b. South Dakota – Registrations had invalid stratification for the entire year; therefore, a simple random sample of entire data set of in-state hunters 18 years and older was selected.
  - c. Idaho, Texas, and West Virginia – Registrations combined *Did Not Hunt* and *bagged 0* in their bag coding. The sample selected *only* included successful hunters in these 3 states.

3. Removed records with known undeliverable addresses
4. Randomized the order of the remaining records
5. Conducted a simple random sample of the remaining hunter records with sample size of 3,000. All hunters were selected in states with fewer than 3,000 registrations.
6. Corrected addresses based on information from previous mailing attempts

A total of 138,948 hunter records were initially selected from the HIP records, with 3,000 in each of the 49 states except the following, which had fewer than 3,000 registrants: Alaska (723), Connecticut (2,992), New Hampshire (2,479), New Mexico (2,902), Nevada (2,441), Rhode Island (650), Vermont (2,769), and West Virginia (992).

Following the 2005 NDHS (NFC 2006), the sample was stratified into 12 sub-regional strata across the four Flyways (Table 1.1 and Figure 1.1). The target completed sample size was 400 responses in each substratum. Assuming a 20 percent response rate for the study after removing undeliverable addresses, the target completed sample size would provide estimates within  $\pm 5\%$  at the 95% confidence level. Thus, each sub-regional stratum had an initial sample of  $n = 2,100$  to achieve 400 completed surveys.

Within the sub-regions, a random sample was drawn generally proportional to the number of waterfowl hunters in each state based on the average number reported by the USFWS in 2014 and 2015 (Raftovich, Chandler, and Wilkins. 2015). However, to achieve a minimum number of 40 respondents from each state, the minimum sample size drawn in any state was 200, even if the proportion of waterfowl hunters in a state was less than .095 for that region ( $2,100 * .095 = 200$ ). In order to select a minimum of 200 waterfowl hunters from all states and not exceed a sample size of 2,100 in each sub-region, a disproportionately small sample was selected from states with relatively large populations of waterfowl hunters. In addition, 7 states (Arkansas, Florida, Indiana, Missouri, North Carolina, South Dakota, and Wisconsin) requested oversampling in their state to ensure a minimum of 400 respondents in their state. For these states, the sample size was increased up to 2,000, which provided an initial overall nationwide sample size of  $n = 35,101$  (Table 1.2). In Arkansas, Florida and North Carolina, the target sample sizes of 400 waterfowl hunters were not achieved after 4 contacts, so the remaining 1,000 waterfowl hunters in each of these states were contacted. In addition, response rates in Alabama, Arizona, Georgia, Louisiana, Maine, Mississippi and Tennessee were low after 4 contacts; therefore, an additional random sample was drawn in those states from the remaining names that had not been drawn for the initial sample in those states.

#### 1.3.4 Data Collection

Procedures outlined in Dillman, Smyth, and Christian (2014) for mixed-mode survey implementation using a four-contact postal mail implementation were adapted for this study. Waterfowl hunters were initially contacted via the US Postal Service with a letter that provided a brief explanation of the study and invited them to participate in the study by completing an online survey (Appendix C). The letters were printed on University of Minnesota letterhead from the Department of Fisheries, Wildlife and Conservation Biology, and mailed in #10 University of Minnesota envelopes. These letters and envelopes also included the logo of the state wildlife management agency for each relevant state.

The individuals were provided a web address with instructions on how to enter it into their browser along with a unique 6-digit access code which was required to begin the survey. Individuals were also provided an e-mail that they could contact to receive an automated reply e-mail with the same web address included as a link that they could click on to connect to the survey. A web-based survey was used to reduce costs and to facilitate the implementation of the DCE portion of the survey. Discrete choice experiments can be cumbersome to implement in traditional paper-and-pencil surveys due to their complexity of design and the amount of space required to present questions. Data were collected using Sawtooth Software's Lighthouse Studio (<https://www.sawtoothsoftware.com>). Sawtooth Software was chosen for data collection because it allows for the design, hosting, implementation, data collection and analysis of DCE data using Choice Based Conjoint (CBC) software.

Initial contact letters were mailed November 15<sup>th</sup>, 2016. Approximately 2 weeks later, a second contact letter containing the same information was mailed to everyone in the initial sample as a reminder to complete the survey. After updating the mailing list for undeliverable addresses, a third contact letter was sent the second week of January 2017 to everyone who had not yet completed the online survey. The caption "HUNTER STUDY" was printed in 16pt. Arial black font on the lower left side of the University of Minnesota envelopes used to mail the contact letter to encourage recipients to open the envelopes. We did not include state logos but referenced their state's participation in the study in the contact letter. Also, a \$1 incentive was included in contact letters during the third mailing in states for which the response rate was below 12 percent after two rounds of contact.

After updating the mailing list for additional undeliverable addresses, a fourth contact letter was sent the second week of February to all individuals who had not completed the survey online. This letter was more urgent and again referenced their state wildlife agency's support and interest in the study and was mailed in a University of Minnesota envelope labeled "HUNTER STUDY".

By March 1, 2017, response rates in most states were at or above 20 percent. Data from all states were collected through March 20, 2017. By that date, 1,742 individuals were identified as having undeliverable addresses or deceased. Of the 33,359 living recipients with valid

contact information a total of 7,689 individuals had at least partially completed the survey nationwide (23% response rate). There was a total of 25,670 non-respondents with apparent valid addresses remaining from the original 35,101.

Response rates varied across the states (Table 1.3). For this reason, 4,500 more individuals were sampled from the 10 states (Alabama, Arkansas, Arizona, Florida, Georgia, Louisiana, Maine, Mississippi, North Carolina, and Tennessee) described previously (Table 1.2). Individuals were contacted using the exact protocols as with the initial sample except we included a \$1 incentive in the first round of mailing. All individuals in these 10 states were contacted twice—the 3<sup>rd</sup> week of February and the 1<sup>st</sup> week of March. For Florida and North Carolina, we obtained letterhead and envelopes from the wildlife agencies in those states and contacted individuals 2 additional times. Both Florida and North Carolina requested sample sizes of  $n = 400$  and these additional contacts were made in attempt to obtain the desired sample size.

To conduct a non-response assessment, a proportional random sample of 16,000 hunters was drawn from the 25,670 non-respondents remaining in the initial sample of 35,101. This sample was drawn proportional to the number of waterfowl hunters in each state (Table 1.4). These 16,000 individuals were sent a shortened survey questionnaire the second week of April 2017 and asked to respond by mail. Completed non-response surveys were collected through May 31, 2017, and a total of 1,879 surveys were returned (11.7% response rate). Key questions concerning waterfowl hunting experiences, identity, and demographics were collected from non-respondents to assess if there are any substantive differences between people who completed the complete survey and those who did not respond to it. A summary of the non-response results is provided in Section 10 of the report.

Where appropriate we report results of statistical tests in summary tables. We use the following convention when reporting statistical significance for these tests: \*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ , and \*\*\*  $p \leq 0.001$ . The level of significance by itself does not indicate the strength of the relationship (effect size) or the practical significance of the relationship. Increasing survey sample sizes gives researchers greater power to detect differences; however, surveys with large sample sizes (e.g.,  $n > 1,000$ ) may yield statistically significant results that have little practical meaning. Unlike significance tests, effect size is independent of sample size. We report effect size for statistically significant tests using the Cramer's  $V$  and  $\eta^2$  measures of association, where appropriate. We use the following thresholds for interpreting the magnitude of effect sizes for all statistically significant tests:

Effect Size	Use	Interpretation <sup>1</sup>			
		Negligible	Small	Medium	Large
Cramer's $V$	Chi-square test	< 0.10	0.10	0.30	>0.50
$\eta^2$ ( $\eta^2$ )	One-way ANOVA	< 0.01	0.01	0.06	0.14

<sup>1</sup> (Cohen 1988; Vaske 2008)

Table 1.1: Stratification for National Waterfowl Hunter Survey

<b>Flyway</b>	<b>Sub-regions</b>	<b>States</b>
Atlantic	Lower Atlantic	FL, GA, NC, SC
	Middle Atlantic	DE, MD, NJ, PA, VA, WV
	Upper Atlantic	CT, ME, MA, NH, RI, VT
Mississippi	Lower Mississippi	AL, AR, LA, MS, TN
	Middle Mississippi	IL, IN, IA, KY, MO, OH
	Upper Mississippi	MI, MN, WI
Central	Lower Central	NM, OK, TX
	Middle Central	CO, KS, NE, WY
	Upper Central	MT (ZIP 59000-59699), ND, SD
Pacific	Lower Pacific	AZ, NV, UT
	Middle Pacific	CA
	Upper Pacific	AK, ID, MT (ZIP 59700-59999), OR, WA



Figure 1-1: United States Flyway map

Table 1.2: Initial sample sizes for states within study

State	Initial Sample Size	Additional Sample	Final Sample Size	State	Initial Sample Size	Additional Sample	Final Sample Size
Alabama	200	100	300	Oklahoma	342		342
Alaska	200		200	Oregon	483		483
Arizona	249	100	349	Pennsylvania	584		584
Arkansas	2,000	1,000	3,000	Rhode Island	200		200
California	2,000		2,000	South Carolina	462		462
Colorado	655		655	South Dakota	2,000	100	2,100
Connecticut	200		200	Tennessee	200		200
Delaware	200		200	Texas	1,558		1,558
Florida	2,000	1,000	3,000	Utah	1,578		1,578
Georgia	433	400	833	Vermont	200		200
Idaho	490		490	Virginia	392		392
Illinois	547		547	Washington	633		633
Indiana	2,000		2,000	West Virginia	200		200
Iowa	265		265	Wisconsin	2,000		2,000
Kansas	719		719	Wyoming	200		200
Kentucky	200		200				
Louisiana	793	600	1,393				
Maine	200	100	300				
Maryland	523		523				
Massachusetts	200		200				
Michigan	503		503				
Minnesota	807		807				
Mississippi	200	100	300				
Missouri	2,000		2,000				
Montana	626		626				
Nebraska	526		526				
Nevada	272		272				
New Hampshire	200		200				
New Jersey	200		200				
New Mexico	200		200				
New York	900	1,000	1,900				
North Carolina	2,000		2,000				
North Dakota	1,240		1,240				
Ohio	321		321				
				<b>Totals</b>			
				<b>Initial Sample Size: 35,101</b>			
				<b>Additional Sample: 4,500</b>			
				<b>Final Sample Size: 39,601</b>			

Table 1.3: Unadjusted response rate by state

State	Sample Size	Responses (Number)	Response Rate	State	Sample Size	Responses (Number)	Response Rate
Alabama	300	55	18.3%	Oklahoma	342	71	20.8%
Alaska	200	75	37.5%	Oregon	483	111	23.0%
Arizona	349	58	16.6%	Pennsylvania	584	134	22.9%
Arkansas	3,000	438	14.6%	Rhode Island	200	59	29.5%
California	2,000	473	23.7%	South Carolina	462	114	24.7%
Colorado	655	154	23.5%	South Dakota	2,000	465	23.3%
Connecticut	200	55	27.5%	Tennessee	300	50	16.7%
Delaware	200	42	21.0%	Texas	1,558	319	20.5%
Florida	3,000	386	12.9%	Utah	1,578	404	25.6%
Georgia	833	91	10.9%	Vermont	200	46	23.0%
Idaho	490	117	23.9%	Virginia	392	107	27.3%
Illinois	547	128	23.4%	Washington	633	158	25.0%
Indiana	2,000	539	27.0%	West Virginia	200	44	22.0%
Iowa	265	72	27.2%	Wisconsin	2,000	503	25.2%
Kansas	719	155	21.6%	Wyoming	200	46	23.0%
Kentucky	200	47	23.5%	<p><b>Totals</b>  <b>Initial Sample Size: 39,601</b>  <b>Number of Responses: 8,123</b>  <b>Response Rate: 20.5%</b></p>			
Louisiana	1,393	142	10.2%				
Maine	300	26	8.7%				
Maryland	523	110	21.0%				
Massachusetts	200	54	27.0%				
Michigan	503	113	22.5%				
Minnesota	807	213	26.4%				
Mississippi	300	50	16.7%				
Missouri	2,000	421	21.1%				
Montana	626	148	23.6%				
Nebraska	526	152	28.9%				
Nevada	272	72	26.5%				
New Hampshire	200	38	19.0%				
New Jersey	200	49	24.5%				
New Mexico	200	50	25.0%				
New York	900	216	24.0%				
North Carolina	3,000	397	13.2%				
North Dakota	1,240	259	20.9%				
Ohio	321	97	30.2%				

Table 1.4: Non-response sample and return rate by state

State	Sample Size	Returns (Number)	Return Rate	State	Sample Size	Returns (Number)	Return Rate
Alabama	102	6	5.9%	Oklahoma	230	24	10.4%
Alaska	73	9	12.3%	Oregon	319	29	9.1%
Arizona	158	20	12.7%	Pennsylvania	432	62	14.4%
Arkansas	469	43	9.2%	Rhode Island	100	13	13.0%
California	1,334	150	11.2%	South Carolina	293	20	6.8%
Colorado	420	57	13.6%	South Dakota	350	49	14.0%
Connecticut	100	16	16.0%	Tennessee	92	10	10.9%
Delaware	69	8	11.6%	Texas	1,045	71	6.8%
Florida	215	10	4.7%	Utah	1,002	117	11.7%
Georgia	275	20	7.3%	Vermont	100	14	14.0%
Idaho	325	35	10.8%	Virginia	270	24	8.9%
Illinois	359	45	12.5%	Washington	415	51	12.3%
Indiana	114	19	16.7%	West Virginia	69	8	11.6%
Iowa	178	23	12.9%	Wisconsin	501	80	16.0%
Kansas	461	53	11.5%	Wyoming	114	17	14.9%
Kentucky	97	9	9.3%	<div>Totals</div> <div>Sample Size: 16,000</div> <div>Number of Returns: 1,879</div> <div>Response Rate: 11.7%</div>			
Louisiana	542	32	5.9%				
Maine	144	9	6.3%				
Maryland	392	38	9.7%				
Massachusetts	133	17	12.8%				
Michigan	319	58	18.2%				
Minnesota	512	100	19.5%				
Mississippi	130	10	7.7%				
Missouri	371	33	8.9%				
Montana (P)	168	29	17.3%				
Montana (C)	229	40	17.5%				
Nebraska	339	49	14.5%				
Nevada	173	29	16.8%				
New Hampshire	100	11	11.0%				
New Jersey	102	13	12.7%				
New Mexico	62	8	12.9%				
New York	647	86	13.3%				
North Carolina	550	63	11.5%				
North Dakota	787	115	14.6%				
Ohio	219	27	12.3%				

## Section 2: Participation

### 2.1 Hunting

Respondents reported on average that they began hunting waterfowl at age 20 (Table 2.1). There were significant, but small differences between the flyways, with hunters starting at age 22 on average in the Atlantic Flyway.. Respondents also indicated their typical pursuits when waterfowl hunting, with nearly three-quarters nationwide (72%) reporting that they hunt both geese and ducks. There were small but statistically significant differences between flyways. A greater proportion of respondents in the Pacific (80%) and Central (75%) flyways indicated they hunted both ducks and geese compared with respondents from the Mississippi (69%) and Atlantic (66%) flyways. While a greater percentage of respondents in the Mississippi (20%) and Atlantic (18%) flyways indicated they hunted only ducks, compared with 14 percent of respondents from the Pacific Flyway. Most respondents (67%) indicated hunting for waterfowl in 5 of the past 5 years (Table 2.2); analyses showed statistically significant but negligible differences between the flyways.

### 2.2 Recent Trip Characteristics

The average number of days respondents reported waterfowl hunting annually during the past 5 years was highly variable. Slightly more than one-quarter of respondents reported hunting 5 days or less, 6 to 10 days, and 11 to 20 days. The remaining 20 percent of respondents reported hunting 21 days or more (Table 2.3). There were small but statistically significant differences between the flyways. A greater proportion of respondents in the Atlantic (31%) and Central (32%) flyways reported spending fewer days hunting waterfowl than respondents from the Pacific (24%) and Mississippi (24%) flyways. Respondents reported spending an average of 11.5 days hunting waterfowl in 2015, with small but statistically significant differences between flyways (Table 2.4). On average, respondents from the Central Flyway reported spending fewer days afield in 2015 than respondents in the other flyways.

Most respondents (68%) reported a combination of self-planned trips and invited trips (Table 2.5), while 12% indicated they only went if someone else invited them. This finding is likely driven by the high number of avid hunters in the respondent pool, indicating a level of comfort and familiarity with trip planning. There were statistically significant but negligible differences between flyways on trip planning. Over three-quarter of respondents (76%) reported taking primarily day trips (Table 2.6) with significant but small differences between flyways. Overnight or multi-day trips were more common in the Mississippi (18%) than in the Central (13%), Pacific (12%), or Atlantic (8%) flyways. Statistically significant but negligible differences were found between the flyways.

Only 4 in 10 respondents indicated they had taken a person hunting who had never been waterfowl hunting before (Table 2.7). About half of respondents (53%) said they took an adult friend waterfowl hunting for the first time, and about one-quarter (25%) took children unrelated to them (Table 2.8). Differences between the flyways were negligible (Table 2.9). Three-quarters (77%) of respondents said the new hunter they took last season was a child.

## 2.3 Harvest

Respondents were highly variable in their estimates of duck harvest over the past 5 years. A greater proportion of respondents in the Pacific Flyway (42%) than the Central (31%), Mississippi (33%), or Atlantic (22%) flyways reported harvesting 21 or more ducks, on average (Table 2.10). Nationally, two-thirds of respondents (68%) reported annually harvesting 20 or fewer ducks. Goose harvest over the past 5 years was less variable than duck harvest, with most respondents reporting that they harvested, on average, 5 or less annually (53%); however, there were statistically significant but small differences between flyways in the reported average annual harvest (Table 2.11). Overall, reports of goose harvest were higher in the Central Flyway than in the other flyways.

Table 2.1: Age at first waterfowl hunt and general pursuits

		Flyways				National
		Pacific	Central	Mississippi	Atlantic	
Age at first waterfowl hunt <sup>1</sup>	Mean	20.5	20.1	20.0	22.5	20.6
	SD	13.2	13.1	12.9	13.3	13.1
	Valid N	1,501	1,721	2,776	1,869	7,873
Pursuits in waterfowl hunting <sup>2</sup>	Ducks only	13.6%	17.6%	20.3%	18.1%	18.3%
	Ducks and geese	80.3%	75.1%	69.4%	66.0%	71.5%
	Geese only	0.7%	2.9%	1.7%	5.1%	2.5%
	Neither ducks nor geese	5.5%	4.5%	8.5%	10.8%	7.7%
	Valid N	1,530	1,752	2,863	1,964	8,115

<sup>1</sup> F (3, 7862) = 14.82 p<0.001;  $\eta^2$  = 0.01

<sup>2</sup>  $\chi^2$ (9) = 262.37 p<0.05; Cramer's V = 0.19

Table 2.2: Hunted waterfowl during last 5 years

How many years of the last 5 years have you hunted waterfowl? <sup>1</sup>	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
None	1.2%	1.4%	2.2%	3.8%	2.2%
1 year	3.6%	3.5%	3.2%	4.3%	3.5%
2 years	6.6%	6.8%	7.1%	8.0%	7.1%
3 years	10.2%	13.9%	10.4%	11.3%	11.4%
4 years	9.1%	10.3%	8.8%	7.9%	9.0%
5 years	69.1%	64.0%	68.4%	64.7%	66.7%
Valid N	1,445	1,672	2,619	1,749	7,488

<sup>1</sup>  $\chi^2$ (15) = 61.58 p<0.05; Cramer's V = 0.09

Table 2.3: Average number of days hunting waterfowl annually

Over the last five years, about how many days did you usually hunt waterfowl in a year?	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
5 days or less	24.7%	32.2%	24.1%	31.3%	27.5%
6 to 10 days	27.6%	28.7%	25.3%	27.2%	26.8%
11 to 20 days	26.2%	23.1%	28.1%	24.5%	26.0%
21 to 30 days	11.5%	9.8%	14.1%	10.4%	12.0%
More than 30 years	10.0%	6.2%	8.4%	6.6%	7.8%
Valid N	1,418	1,626	2,535	1,670	7,248

<sup>1</sup>  $\chi^2(12) = 90.85$   $p < 0.05$ ; Cramer's  $V = 0.07$

Table 2.4: Days hunted for waterfowl in 2015

During last year's (2015) waterfowl hunting season, how many days did you hunt for waterfowl? <sup>1</sup>	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
Mean	12.0	9.8	12.8	10.7	11.5
SD	12.1	11.1	13.1	10.7	16.7
Valid N	1,253	1,455	2,320	1,529	7,341

<sup>1</sup>  $F(3, 6552) = 20.29$   $p < 0.001$ ;  $\eta^2 = 0.01$

Table 2.5: Circumstances for hunting trip

Under what circumstances do you typically go hunting? <sup>1</sup>	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
When I plan the hunt myself	22.5%	20.9%	20.9%	17.2%	20.4%
When someone else invites me	9.9%	12.4%	12.2%	12.4%	12.0%
Both when I plan the hunt or someone invites me	67.6%	66.7%	66.9%	70.4%	67.6%
Valid N	1,424	1,638	2,540	1,676	7,278

<sup>1</sup>  $\chi^2(6) = 19.99$   $p < 0.003$ ; Cramer's  $V = 0.05$

Table 2.6: Primary duration of hunting trips

Do you primarily take day or overnight/multi-day trips? <sup>1</sup>	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
Primarily day trips	78.6%	78.5%	70.9%	82.4%	76.1%
Primarily overnight/multi-day trips	11.6%	12.8%	17.6%	8.5%	13.8%
Both about equally	9.8%	8.7%	11.4%	9.1%	10.1%
Valid N	1,423	1,636	2,537	1,674	7,271

<sup>1</sup>  $\chi^2(6) = 97.41$   $p < 0.001$ ; Cramer's  $V = 0.08$

Table 2.7: New hunter recruitment

During the past season did you take anyone waterfowl hunting who had never waterfowl hunted before? <sup>1</sup>	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
Yes	37.2%	41.0%	41.6%	43.5%	41.2%
No	62.8%	59.0%	58.4%	56.5%	58.8%
Valid N	1,304	1,531	2,387	1,579	6,809

<sup>1</sup>  $\chi^2(3) = 10.73$   $p < 0.05$ ; Cramer's  $V = 0.04$

Table 2.8: Relationship to new hunter

Who was the new hunter you took last season?	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
My own children	25.0%	28.5%	24.6%	22.2%	25.1%
Related children	14.3%	15.8%	18.5%	15.3%	16.7%
Other children	24.4%	22.8%	26.0%	24.9%	24.8%
Adult close family	10.5%	11.4%	11.7%	7.7%	10.6%
Adult extended family	10.7%	10.9%	8.1%	6.7%	8.8%
Adult friend	53.7%	54.9%	48.7%	59.8%	53.1%
Co-worker	18.9%	19.8%	15.7%	15.4%	17.0%
Other	8.2%	8.4%	8.2%	6.1%	7.8%
Valid N	488	634	1,001	688	2,825

Table 2.9: Relationship to new hunter flyway differences

		Chi-Square	df	Cramer's $V$
Who was the new hunter you took last season?	My own children	7.15	3	0.05
	Related children	5.56	3	0.04
	Other children	2.13	3	0.03
	Adult close family	7.84*	3	0.05
	Adult extended family	9.93*	3	0.06
	Adult friend	20.72*	3	0.09
	Co-worker	7.19	3	0.05
	Other	3.35	3	0.04

\* $p < 0.05$

Table 2.10: Average annual duck harvest

<b>Over the last 5 years, how many ducks did you harvest in a year on average?<sup>1</sup></b>	<b>Flyways</b>				<b>National</b>
	<b>Pacific</b>	<b>Central</b>	<b>Mississippi</b>	<b>Atlantic</b>	
5 or less	17.7%	23.9%	24.6%	36.3%	25.6%
Between 6 and 10	17.9%	21.3%	19.4%	20.8%	19.9%
Between 11 and 20	22.3%	23.6%	23.3%	21.5%	22.9%
Between 21 and 50	26.2%	22.3%	21.9%	14.7%	21.3%
More than 50	15.9%	8.9%	10.9%	6.7%	10.7%
Valid N	1,410	1,593	2,507	1,581	7,100

<sup>1</sup>  $\chi^2(12) = 230.44$   $p < 0.001$ ; Cramer's V = 0.10

Table 2.11: Average annual goose harvest

<b>Over the last 5 years, how many geese did you harvest in a year on average?<sup>1</sup></b>	<b>Flyways</b>				<b>National</b>
	<b>Pacific</b>	<b>Central</b>	<b>Mississippi</b>	<b>Atlantic</b>	
5 or less	58.6%	46.7%	55.4%	50.5%	52.9%
Between 6 and 10	18.8%	19.4%	18.5%	20.5%	19.2%
Between 11 and 20	12.1%	16.6%	14.5%	14.6%	14.7%
Between 21 and 50	8.1%	9.5%	8.0%	9.6%	8.7%
More than 50	2.5%	7.8%	3.6%	4.8%	4.6%
Valid N	1,204	1,336	1,972	1,345	5,828

<sup>1</sup>  $\chi^2(12) = 80.74$   $p < 0.001$ ; Cramer's V = 0.07

## Section 3: Satisfaction

### 3.1 Duck Hunting

Hunters were asked to indicate how satisfied they were with several aspects of their waterfowl hunting experience.<sup>2</sup> Most respondents were satisfied to some degree with their overall duck hunting experience (62%), the number of ducks in the daily limit (58%), and the quality of the habitat where they hunt (52%). Nearly half of respondents (48%) were dissatisfied to some extent with the number of ducks typically present during the hunting season (Table 3.1). On average, respondents were somewhat satisfied with the daily limit and their overall hunting experience; however, they were at the midpoint or neutral on all other aspects (Table 3.2). While analyses revealed significant differences between flyways on every item, effect sizes suggest they are small (Table 3.3).

Just under half of all respondents (48%) reported they never needed to shoot a daily bag limit of ducks/geese to have a satisfying season (Table 3.4). Less than 2 percent of respondents indicated they needed to shoot their daily limit every time they hunted to be satisfied. There were statistically significant but negligible differences between flyways in respondents' satisfaction with shooting daily bag limit. In 2015, 42 percent of respondents reported they did not shoot their daily limit of ducks/geese, and another 46 percent reported they got their limit occasionally or at least once. Only 9 percent of respondents reported shooting their limit on most or all of their hunts (Table 3.5). Analyses revealed statistically significant but negligible differences between flyways.

### 3.2 Trip Requirements

About one-fifth (21%) of respondents said the minimum number of ducks they needed to harvest in a day to feel satisfied was 0 ducks. About 10 percent of respondents reported they needed to harvest 5 or more ducks to feel satisfied (Table 3.6). A slightly greater proportion of hunters in the Pacific Flyway (14%) than in the other flyways (9-10%) said they needed to harvest 5 or more ducks. Nearly 1 in 3 respondents (31%) said they would hunt with any size daily bag limit for ducks (Table 3.7), while another one-third indicated the smallest acceptable daily bag limit was 3 ducks or 4 ducks (18% and 20%, respectively). There were small but statistically significant differences between flyways. In general, a lower percentage of respondents in the Pacific Flyway than other flyways indicated they would be satisfied with lower daily bag limits (1 or 2 ducks). )

Nationwide, about one-third of respondents (35%) indicated they would waterfowl hunt with any season length while 1 in 5 reported that a 60 day season was the minimum length acceptable to them (Table 3.8). The pattern of acceptable season length was similar across the Central and Atlantic flyways, with about 4 out of 10 hunters in those flyways indicating they would hunt with any season length, while less than 1 out of 3 hunters in the Mississippi or

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<sup>2</sup> Satisfaction scale: 1) Very Dissatisfied; 2) Somewhat Dissatisfied; 3) Neutral; 4) Somewhat Satisfied; and 5) Very Satisfied

Pacific flyways indicated such. While fewer than 20% of hunters in the Central, Mississippi or Atlantic flyways indicated that 60 days was their minimum acceptable duck season length, almost 4 out of 10 hunters in the Pacific Flyway (37%) reported 60 days as their minimum acceptable duck season length.

### 3.3 Perceptions of Crowding and Hunting Pressure

Respondents were asked to indicate the extent to which 5 items relating to the number of waterfowl hunters were problems. Nearly half (49%) of respondents said conflict with other hunters was not a problem in the places they hunt (Table 3.9). Approximately one-quarter of respondents thought crowding (24%), hunting pressure (24%), and lack of public places for waterfowl hunting (29%) were severe or very severe problems. On average, however, respondents thought crowding at hunting areas, hunting pressure, interference from other hunters, and lack of public places for waterfowl hunting were slight problems (Table 3.10). Overall, there were significant but small differences between flyways (Table 3.11). On average, respondents in the Central Flyway tended to perceive each item as less of a problem than respondents in the other flyways.

Table 3.1: Satisfaction with hunting responses distribution at the national level

	<b>Very Dissatisfied</b>	<b>Somewhat Dissatisfied</b>	<b>Neutral</b>	<b>Somewhat Satisfied</b>	<b>Very Satisfied</b>	<b>Valid N</b>
The number of ducks you see during the season	13.7%	27.8%	22.2%	25.5%	10.8%	7,038
The number of ducks you harvest during the season	10.7%	26.1%	28.4%	24.4%	10.4%	7,023
The number of days in the duck season	8.4%	18.3%	29.4%	24.7%	19.1%	7,017
The number of ducks in the daily limit	2.5%	8.2%	31.6%	27.0%	30.7%	6,998
The number of ducks typically present during the hunting season	15.4%	32.6%	21.7%	22.8%	7.5%	7,027
Quality of the habitat where you hunt	6.0%	15.8%	26.0%	34.0%	18.1%	7,013
Your overall duck hunting experience	3.3%	13.5%	21.4%	41.4%	20.4%	7,034

Table 3.2: Satisfaction with hunting in most hunted state

	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
The number of ducks you see during the season	3.2	1.19	1,406	3.3	1.17	1,576	2.7	1.21	2,481	2.7	2.13	1,570	2.9	1.23	7,038
The number of ducks you harvest during the season	3.3	1.15	1,404	3.3	1.12	1,574	2.8	1.15	2,474	2.8	1.12	1,566	3	1.16	7,023
The number of days in the duck season	3.7	1.16	1,401	3.7	1.16	1,573	3.2	1.21	2,475	3.0	1.17	1,562	3.3	1.21	7,017
The number of ducks in the daily limit	4.0	1.04	1,396	3.8	1.03	1,571	3.8	1.06	2,466	3.5	1.05	1,559	3.8	1.06	6,998
The number of ducks typically present during the hunting season	3.1	1.15	1,406	3.1	1.19	1,574	2.5	1.16	2,478	2.5	1.11	1,564	2.7	1.19	7,027
Quality of the habitat where you hunt	3.5	1.14	1,401	3.6	1.11	1,570	3.4	1.14	2,476	3.3	1.16	1,559	3.4	1.13	7,013
Your overall duck hunting experience	3.8	1.01	1,408	3.9	0.97	1,574	3.5	1.09	2,481	3.5	1.09	1,566	3.6	1.05	7,034

Table 3.3: Satisfaction with hunting in most hunted state flyway comparison

		Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
The number of ducks you see during the season	Between Groups	566.40	3	188.80	132.39	0.000	0.01
	Within Groups	10,024.22	7,029	1.43			
	Total	10,590.62	7,032				
The number of ducks you harvest during the season	Between Groups	371.80	3	123.93	95.57	0.000	0.01
	Within Groups	9,095.42	7,014	1.30			
	Total	9,467.22	7,017				
The number of days in the duck season	Between Groups	422.91	3	140.97	100.93	0.000	0.01
	Within Groups	9,786.65	7,007	1.40			
	Total	10,209.56	7,010				
The number of ducks in the daily limit	Between Groups	156.67	3	52.22	47.70	0.000	0.01
	Within Groups	7,649.61	6,987	1.10			
	Total	7,806.28	6,990				
The number of ducks typically present during the hunting season	Between Groups	495.40	3	165.13	123.97	0.000	0.01
	Within Groups	9,347.34	7,017	1.33			
	Total	9,842.74	7,020				
Quality of the habitat where you hunt	Between Groups	71.53	3	23.84	18.70	0.000	0.01
	Within Groups	8,927.87	7,002	1.28			
	Total	8,999.40	7,005				
Your overall duck hunting experience	Between Groups	201.44	3	67.15	62.67	0.000	0.00
	Within Groups	7,525.47	7,024	1.07			
	Total	7,726.90	7,027				

Table 3.4: Satisfaction with shooting daily bag limit

How many times do you need to shoot a daily bag limit of ducks/geese to have a satisfying season? <sup>1</sup>	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
Never	50.9%	47.9%	44.4%	54.8%	48.2%
On at least one of my hunts	11.2%	12.5%	14.0%	13.6%	13.2%
Occasionally on my hunts	28.4%	28.2%	30.0%	23.3%	28.0%
Most of my hunts	7.7%	9.7%	10.0%	6.8%	8.9%
Every time I hunt	1.8%	1.7%	1.7%	1.6%	1.7%
Valid N	1,422	1,636	2,543	1,672	7,274

<sup>1</sup>  $\chi^2(12) = 63.64$   $p < 0.001$ ; Cramer's  $V = 0.05$

Table 3.5: Number of times shot daily bag limit (2015)

How many times did you shoot a limit of ducks/geese during last year's season? <sup>1</sup>	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
Never	40.5%	38.6%	42.6%	46.8%	42.2%
On at least one of my hunts	21.0%	24.7%	22.6%	23.5%	23.0%
Occasionally on my hunts	25.1%	21.9%	24.2%	19.6%	22.9%
Most of my hunts	10.1%	11.3%	7.3%	6.2%	8.4%
Every time I hunted	0.4%	0.9%	0.2%	0.5%	0.4%
I did not hunt in 2015	2.9%	2.6%	3.1%	3.3%	3.0%
Valid N	1,422	1,642	2,545	1,675	7,282

<sup>1</sup>  $\chi^2(15) = 78.22$   $p < 0.001$ ; Cramer's  $V = 0.06$

Table 3.6: Minimum number of ducks harvested per day to feel satisfied

Minimum number of ducks you have to harvest to feel satisfied <sup>1</sup>	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
0	22.1%	23.1%	18.9%	23.0%	21.3%
1	16.8%	15.6%	17.3%	23.4%	18.4%
2	14.9%	18.7%	21.2%	22.3%	20.1%
3	17.1%	20.1%	18.5%	14.4%	17.4%
4	15.3%	12.2%	14.4%	8.5%	4.6%
5	9.0%	6.0%	3.3%	3.1%	4.6%
6	1.1%	3.1%	4.2%	3.9%	3.4%
7	3.2%	0.5%	0.5%	0.7%	1.0%
More than 7	0.5%	0.7%	1.6%	0.8%	1.2%
Valid N	1,365	1,540	2,423	1,537	6,872

<sup>1</sup>  $\chi^2(24) = 301.2$   $p < 0.001$ ; Cramer's  $V = 0.12$

Table 3.7: Smallest acceptable duck daily bag

Minimum acceptable duck daily bag limit <sup>1</sup>	Flyway				National
	Pacific	Central	Mississippi	Atlantic	
6 ducks	13.9%	6.7%	10.6%	9.5%	10.2%
5 ducks	16.3%	11.1%	5.7%	6.3%	8.0%
4 ducks	19.9%	20.0%	21.9%	16.6%	19.8%
3 ducks	12.6%	19.7%	19.2%	16.1%	17.8%
2 ducks	6.2%	8.9%	10.5%	11.1%	9.7%
1 duck	4.6%	3.1%	3.2%	4.9%	3.9%
I'll hunt with any size bag limit	26.4%	30.5%	28.9%	35.4%	30.6%
Valid N	1,384	1,572	2,474	1,563	7,004

<sup>1</sup>  $\chi^2(18) = 268.39$   $p < 0.001$ ; Cramer's  $V = 0.11$

Table 3.8: Minimum acceptable duck season length

Minimum acceptable duck season length <sup>1</sup>	Flyway				National
	Pacific	Central	Mississippi	Atlantic	
60 days	37.1%	16.2%	17.2%	12.2%	19.0%
55 days	1.0%	1.0%	1.3%	1.0%	1.1%
50 days	5.3%	5.7%	6.5%	4.9%	5.9%
45 days	6.3%	9.7%	9.4%	8.5%	8.8%
40 days	3.6%	4.6%	7.1%	4.9%	5.6%
35 days	1.0%	2.2%	1.9%	2.1%	1.9%
30 days	8.6%	12.0%	15.4%	14.1%	13.4%
25 days	0.7%	1.5%	2.2%	2.0%	1.8%
20 days	2.0%	3.7%	4.0%	5.8%	4.0%
15 days	0.8%	1.5%	1.4%	1.9%	1.4%
10 days	1.7%	1.8%	1.6%	2.8%	1.9%
I'll hunt with any season length	30.8%	43.0%	32.1%	39.8%	35.4%
Valid N	1,376	1,570	2,474	1,560	6,992

<sup>1</sup>  $\chi^2(33) = 438.25$   $p < 0.001$ ; Cramer's  $V = 0.15$

Table 3.9: Perceptions of crowding, pressure, and access response distribution

Item	Not a Problem	Slight Problem	Moderate Problem	Severe Problem	Very Severe Problem	Valid N
Crowding at hunting areas	27.1%	22.6%	70.0%	14.5%	9.0%	7,193
Hunting pressure	22.3%	22.2%	31.5%	15.6%	8.5%	7,199
Interference from other hunters	30.1%	28.4%	24.5%	10.4%	6.6%	7,166
Conflict with other hunters in places I hunt	49.4%	25.7%	15.6%	5.5%	3.8%	7,176
Lack of public places for waterfowl hunting	29.3%	18.7%	23.4%	14.3%	14.2%	7,191

Table 3.10: Perceptions of crowding, pressure, and access

Statements	Flyways <sup>1</sup>												National		
	Pacific			Central			Mississippi			Atlantic					
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Crowding at hunting areas	2.7	1.28	1,409	2.3	1.20	1,611	2.7	1.28	2,522	2.5	1.29	1,648	2.6	1.27	7,193
Hunting pressure	2.7	1.20	1,410	2.4	1.16	1,615	2.8	1.23	2,522	2.7	1.24	1,649	2.7	1.22	7,199
Interference from other hunters	2.5	1.20	1,405	2.1	1.02	1,609	2.4	1.13	2,511	2.3	1.19	1,648	2.4	1.20	7,166
Conflict with other hunters in places I hunt	1.9	1.11	1,407	1.7	1.02	1,609	1.9	1.11	2,512	1.9	1.12	1,646	1.9	1.09	7,176
Lack of public places for waterfowl hunting	2.9	1.44	1,407	2.6	1.36	1,608	2.5	1.35	2,517	2.9	1.43	1,658	2.7	1.40	6,475

1 Scale: 1) Not a problem; 2) Slight problem; 3) Moderate problem; 4) Severe problem; and 5) Very severe problem

Table 3.11: Perceptions of crowding, pressure, and access flyway comparison

		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	<b><math>\eta^2</math></b>
Crowding at hunting areas	Between Groups	221.29	3	73.76	46.30	0.000	0.01
	Within Groups	11,447.28	7,185	1.59			
	Total	11,668.56	7,188				
Hunting pressure	Between Groups	155.95	3	51.98	35.39	0.000	0.01
	Within Groups	10,564.78	7,192	1.47			
	Total	10,720.73	7,195				
Interference from other hunters	Between Groups	117.95	3	39.32	27.75	0.000	0.01
	Within Groups	10,142.37	7,160	1.42			
	Total	10,260.32	7,163				
Conflict with other hunters in places I hunt	Between Groups	44.12	3	14.71	12.34	0.000	0.01
	Within Groups	8,547.08	7,170	1.19			
	Total	8,591.20	7,173				
Lack of public places for waterfowl hunting	Between Groups	244.03	3	81.34	41.95	0.000	0.02
	Within Groups	13,932.99	7,186	1.94			
	Total	14,177.02	7,189				

## Section 4: Place

### 4.1 Preferences

About 4 out of 10 (41%) respondents reported the Mississippi Flyway as their most hunted flyway, and most respondents (95% to 99%) reported hunting within their own flyway (Table 4.1, Table 4.2). Public lands or waters were used most often for waterfowl hunting by 45 percent of respondents (Table 4.3). Compared to hunters in the other flyways, Central Flyway hunters were less likely to indicate most often hunting on public lands or waters and more likely to report most often hunting on private land with no fee. The Pacific Flyway had the highest percentage of respondents who most often hunted on public land (57%).

### 4.2 Ecosystem Services

Overall respondents' ratings for levels of concern for ecological benefits were highest for hunting opportunities, providing wildlife habitat, and clean water (Table 4.4). Respondents' reported being *very concerned* about hunting opportunities (73%), providing wildlife habitat (69%), and clean water (63%). On average, respondents reported the lowest levels of concern for storage of greenhouse gases, such as carbon, and scenic places for inspiration or spiritual renewal (Table 4.5). There were statistically significant but small differences between flyways (Table 4.6). On average, respondents in the Central Flyway tended to report lower levels of concern on most items than respondents in other flyways. When asked which benefit they were least concerned about losing, most respondents (61%) reported storage of greenhouse gases (32%) or scenic places for inspiration and spiritual renewal (29%) (Table 4.6). Two-thirds of respondents (65%) were most concerned about losing hunting opportunities (43%) or wildlife habitat (22%) (Table 4.7). There were statistically significant but negligible differences between flyways and what ecological benefits respondents were most and least concerned about losing.

Table 4.1: Flyway hunted most in 2015

	Flyway Hunted Most	Flyway Subgroups <sup>1</sup>				National
		Pacific	Central	Mississippi	Atlantic	
In which flyway did you hunt most often last year (2015) or the year you last hunted?	Pacific	97.5%	3.4%	0.0%	0.0%	15.1%
	Central	2.2%	95.6%	4.5%	1.0%	24.5%
	Mississippi	0.2%	0.9%	95.4%	2.3%	41.3%
	Atlantic	0.1%	0.1%	0.1%	96.7%	19.1%
	Valid N	1,426	1,639	2,545	1,678	7,286

Table 4.2: State where most of respondent hunting occurred in last 5 years

State	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
AK	2.6%	0.0%	0.1%	0.1%	0.4%
AL	0.0%	0.0%	2.2%	0.2%	1.0%
AR	0.0%	0.2%	12.3%	0.9%	5.5%
AZ	1.3%	0.0%	0.0%	0.0%	0.2%
CA	30.4%	0.1%	0.0%	0.2%	4.5%
CO	0.0%	8.3%	0.0%	0.0%	1.9%
CT	0.0%	0.0%	0.0%	1.1%	0.2%
DE	0.1%	0.0%	0.0%	2.1%	0.4%
FL	0.0%	0.0%	0.1%	4.8%	1.0%
GA	0.0%	0.0%	0.1%	5.7%	1.2%
HI	NA	NA	NA	NA	NA
IA	0.1%	0.1%	3.7%	0.0%	1.6%
ID	13.7%	0.0%	0.0%	0.0%	2.0%
IL	0.1%	0.0%	7.6%	0.0%	3.2%
IN	0.0%	0.0%	2.4%	0.0%	1.0%
KS	0.1%	9.0%	0.1%	0.0%	2.1%
KY	0.0%	0.0%	2.0%	0.1%	0.9%
LA	0.1%	0.4%	12.4%	0.1%	5.4%
MA	0.0%	0.0%	0.0%	2.0%	0.4%
MD	0.1%	0.0%	0.0%	14.7%	2.9%
ME	0.0%	0.0%	0.0%	1.1%	0.2%
MI	0.0%	0.0%	9.0%	0.0%	3.8%
MN	0.0%	0.2%	12.4%	0.1%	5.3%
MO	0.0%	0.3%	7.7%	0.0%	3.4%
MS	0.0%	0.0%	3.7%	0.2%	1.6%
MT	8.2%	4.4%	0.0%	0.0%	2.2%
NC	0.0%	0.0%	0.0%	13.8%	2.7%
ND	0.0%	17.8%	2.9%	0.3%	5.4%
NE	0.0%	7.0%	0.0%	0.0%	1.6%
NH	0.0%	0.0%	0.0%	1.4%	0.3%
NJ	0.0%	0.0%	0.0%	3.9%	0.8%
NM	0.0%	1.6%	0.0%	0.0%	0.4%
NV	2.0%	0.0%	0.0%	0.0%	0.3%
NY	0.0%	0.0%	0.0%	13.2%	2.6%
OH	0.0%	0.0%	4.6%	0.0%	2.0%
OK	0.1%	7.9%	0.2%	0.1%	1.9%
OR	12.8%	0.0%	0.0%	0.0%	1.9%
PA	0.0%	0.0%	0.0%	10.9%	2.2%
RI	0.0%	0.0%	0.0%	0.4%	0.1%
SC	0.0%	0.1%	0.0%	9.2%	1.8%
SD	0.0%	7.0%	0.2%	0.3%	1.7%
TN	0.0%	0.0%	1.8%	0.1%	0.8%
TX	0.0%	33.4%	0.1%	0.0%	7.8%
UT	11.6%	0.0%	0.0%	0.0%	1.7%
VA	0.0%	0.0%	0.0%	10.5%	2.1%

State	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
VT	0.0%	0.0%	0.0%	1.4%	0.3%
WA	16.2%	0.0%	0.0%	0.1%	2.4%
WI	0.0%	0.0%	13.8%	0.0%	5.9%
WV	0.0%	0.0%	0.0%	0.4%	0.1%
WY	0.1%	2.1%	0.0%	0.0%	0.5%

Province	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
AB	0.2%	0.0%	0.0%	0.0%	0.1%
BC	0.0%	0.0%	0.0%	0.0%	0.0%
MB	0.0%	0.1%	0.2%	0.0%	0.1%
NB	0.0%	0.0%	0.0%	0.0%	0.0%
NL	0.0%	0.0%	0.0%	0.0%	0.0%
NS	0.0%	0.0%	0.0%	0.0%	0.0%
NT	0.0%	0.0%	0.0%	0.0%	0.0%
NU	0.0%	0.0%	0.0%	0.0%	0.0%
ON	0.0%	0.0%	0.2%	0.2%	0.1%
PE	0.0%	0.0%	0.0%	0.0%	0.0%
QC	0.0%	0.0%	0.0%	0.0%	0.0%
SK	0.4%	0.3%	0.2%	0.4%	0.3%
YT	0.0%	0.0%	0.0%	0.0%	0.0%

Valid N	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
	1,427	1,637	2,544	1,678	7,285

Table 4.3: Public vs private lands waterfowl hunting

Where most of your waterfowl hunting occurs	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
Public lands or waters	57.1%	34.2%	46.8%	44.3%	44.9%
Private property owned by you, your family, or in partnership with someone else	10.8%	16.5%	15.9%	14.7%	15.1%
Private property owned by a friend or other landowner who gave you permission to hunt for free	16.8%	33.0%	24.6%	28.4%	26.2%
Private property you lease or pay to hunt on	12.2%	13.3%	9.4%	8.8%	10.6%
Guest on private property someone else leases or pays to hunt on	3.1%	2.9%	3.3%	3.8%	3.3%
Valid N	1,418	1,636	2,536	1,674	7,263

<sup>1</sup>  $\chi^2(12) = 218.76$   $p < 0.001$ ; Cramer's V = 0.10

Table 4.4: Level of concern for ecological benefits response distribution

	Level of Concern				Valid N
	Not at all concerned	Slightly concerned	Somewhat concerned	Very Concerned	
Flooding protection	8.0%	18.7%	35.9%	37.4%	6,697
Erosion protection	5.1%	15.4%	36.7%	42.7%	6,667
Wildlife viewing and birdwatching	15.5%	26.5%	31.8%	26.2%	668
Hunting opportunities	1.4%	4.6%	21.4%	72.6%	6,687
Storage of greenhouse gases, such as carbon	20.7%	28.2%	29.1%	22.0%	6,661
Clean water	2.8%	8.7%	25.4%	63.0%	6,703
Clean air	4.2%	10.0%	27.1%	58.7%	6,693
Providing a home for wildlife	1.5%	5.1%	24.6%	68.7%	6,694
Providing a home for pollinators, such as butterflies and bees	3.9%	12.1%	32.2%	51.8%	6,687
Scenic places for inspiration or spiritual renewal	21.5%	25.9%	27.3%	25.3%	6,675

Table 4.5: Level of concern for ecological benefit

Benefits	Flyways <sup>1</sup>												National		
	Pacific			Central			Mississippi			Atlantic					
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Flooding protection	3.0	0.94	1,280	3.0	0.94	1,508	3.1	0.95	2,352	3.1	0.92	1,547	3.0	0.94	6,697
Erosion protection	3.1	0.88	1,275	3.1	0.87	1,504	3.2	0.87	2,351	3.1	0.86	1,546	3.2	0.87	6,687
Wildlife viewing and birdwatching	2.7	1.03	1,277	2.7	1.03	1,496	2.7	1.03	2,346	2.7	1.01	1,539	2.7	1.02	6,668
Hunting opportunities	3.7	1.92	1,282	3.6	0.66	1,505	3.7	0.63	2,345	3.6	0.64	1,547	3.7	0.64	6,687
Storage of greenhouse gases, such as carbon	2.5	1.06	1,276	2.4	1.06	1,499	2.6	1.04	2,340	2.6	1.04	1,536	2.5	1.05	6,661
Clean water	3.5	0.75	1,280	3.4	0.79	1,507	3.5	0.79	2,356	3.5	0.71	1,550	3.5	0.77	6,703
Clean air	3.4	0.82	1,275	3.4	0.85	1,504	3.3	2.72	2,355	3.6	2.39	1,548	3.4	0.83	6,693
Providing a home for wildlife	3.6	0.66	1,280	3.6	0.65	1,502	3.6	0.66	2,354	3.6	0.66	1,548	3.6	0.66	6,694
Providing a home for pollinators, such as butterflies and bees	3.3	0.82	1,278	3.3	0.82	1,504	3.3	0.84	2,349	3.4	0.81	1,546	3.3	0.83	6,687
Scenic places for inspiration or spiritual renewal	2.6	1.10	1,276	2.6	1.08	1,505	2.6	1.09	2,340	2.6	1.08	1,547	2.6	1.09	6,675

<sup>1</sup> Scale: 1) Not at all concerned; 2) Slightly concerned; 3) Somewhat concerned; and 4) Very concerned

Table 4.6: Level of concern for ecological benefits flyway comparison

		Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
Flooding protection	Between Groups	10.49	3	3.50	3.99	0.008	0.01
	Within Groups	5,858.30	6,682	0.88			
	Total	5,868.79	6,685				
Erosion protection	Between Groups	16.26	3	5.42	7.16	0.000	0.01
	Within Groups	5,050.75	6,672	0.76			
	Total	5,067.01	6,675				
Wildlife viewing and birdwatching	Between Groups	4.22	3	1.41	1.34	0.259	0.01
	Within Groups	6,971.43	6,653	1.05			
	Total	6,975.65	6,656				
Hunting opportunities	Between Groups	2.10	3	0.70	1.73	0.158	0.01
	Within Groups	2,701.12	6,675	0.41			
	Total	2,703.22	6,678				
Storage of greenhouse gases, such as carbon	Between Groups	35.24	3	11.75	10.69	0.000	0.01
	Within Groups	7,304.96	6,647	1.10			
	Total	7,340.19	6,650				
Clean water	Between Groups	6.51	3	2.17	3.70	0.011	0.01
	Within Groups	3,919.92	6,688	0.59			
	Total	3,926.43	6,691				
Clean air	Between Groups	8.08	3	2.69	3.94	0.008	0.01
	Within Groups	4,564.28	6,677	0.68			
	Total	4,572.35	6,680				
Providing a home for wildlife	Between Groups	0.50	3	0.17	0.38	0.764	0.01
	Within Groups	2,884.07	6,679	0.43			
	Total	2,884.57	6,682				
Providing a home for pollinators, such as butterflies and bees	Between Groups	3.51	3	1.17	1.69	0.166	0.01
	Within Groups	4,607.53	6,672	0.69			
	Total	4,611.04	6,675				
Scenic places for inspiration or spiritual renewal	Between Groups	4.24	3	1.41	1.19	0.310	0.01
	Within Groups	7,878.10	6,663	1.18			
	Total	7,882.34	6,666				

Table 4.7: Ecological services least concerned about losing

Least concerned about losing	Flyways <sup>1</sup>				National
	Pacific	Central	Mississippi	Atlantic	
Flooding protection	10.3%	8.0%	8.0%	8.3%	8.4%
Erosion protection	4.6%	5.1%	3.5%	3.9%	4.0%
Wildlife viewing and birdwatching	14.4%	12.2%	14.1%	10.7%	13.1%
Hunting opportunities	4.2%	3.3%	4.1%	3.5%	3.9%
Storage of greenhouse gases, such as carbon	32.6%	34.3%	30.4%	32.0%	31.7%
Clean water	1.0%	0.8%	0.9%	0.7%	0.8%
Clean air	2.5%	2.3%	2.6%	1.3%	2.2%
Providing a home for wildlife	0.8%	0.8%	0.7%	0.6%	0.7%
Providing a home for pollinators, such as butterflies and bees	6.3%	6.1%	5.8%	7.1%	6.2%
Scenic places for inspiration or spiritual renewal	23.3%	27.1%	30.0%	62.1%	29.0%
Valid N	1,159	919	2,309	1,524	5,931

<sup>1</sup>  $\chi^2(36) = 59.39$   $p < 0.05$ ; Cramer's V = 0.07

Table 4.8: Ecological services most concerned about losing

Most concerned about losing	Flyways <sup>1</sup>				National
	Pacific	Central	Mississippi	Atlantic	
Flooding protection	7.2%	8.4%	10.9%	8.6%	9.4%
Erosion protection	2.7%	3.0%	5.5%	5.7%	4.7%
Wildlife viewing and birdwatching	1.9%	0.6%	1.1%	0.9%	1.1%
Hunting opportunities	45.0%	45.1%	41.7%	42.9%	43.0%
Storage of greenhouse gases, such as carbon	0.6%	0.6%	0.4%	0.7%	0.5%
Clean water	15.1%	14.2%	15.4%	16.0%	15.3%
Clean air	1.5%	1.1%	1.6%	1.5%	1.5%
Providing a home for wildlife	23.8%	25.7%	20.9%	21.3%	22.2%
Providing a home for pollinators, such as butterflies and bees	1.4%	0.8%	1.7%	1.8%	1.5%
Scenic places for inspiration or spiritual renewal	0.8%	0.5%	0.8%	0.8%	0.8%
Valid N	1,168	920	2,322	1,530	5,959

<sup>1</sup>  $\chi^2(36) = 67.15$   $p < 0.05$ ; Cramer's V = 0.08

## Section 5: Discrete Choice Modeling of Waterfowl Hunting Trips

This study included a discrete choice experiment (DCE) examining the preferences of waterfowl hunters concerning different potential combinations of hunting experiences. Choice models present hypothetical scenarios to respondents to measure individuals' preferences for alternatives composed of multiple resource and management attributes (Adamowicz, Louviere & Williams 1994; Louviere, Hensher & Swait 2000; Oh et al. 2005). The approach depends on the imperfect relationship between behavioral intention and behavior (Ajzen & Fishbein 1980) yet allows estimation of the effects of all parameters of interest independently. Individuals are assumed to be utility maximizers, and respondents' choices reflect the perceived utility of the alternatives presented (McFadden 1981). Individual respondent choices reflect the personal utility of attributes and attribute levels, and are aggregated to estimate the utility of attributes and attribute levels in a population (McFadden 1981). In an economic sense, utility is simply a measure of the perceived usefulness of something to an individual. The degree to which someone chooses one circumstance over another provides the ability to measure its perceived usefulness, or utility, to that person. In general, the utility of an attribute level may be considered a reflection of relative desirability (Orme 2014).

Alternatives presented in this DCE consisted of five hunting related attributes:

1. **Harvest:** The number of waterfowl you are likely to harvest in a day;
2. **Access Effort:** How easy or difficult it is to get into, out of and around an area in order to hunt;
3. **Length of Travel:** The time you travel one-way to hunt;
4. **Quantity of Waterfowl:** The number of ducks/geese that you see in a day when hunting even if not in shooting range; and
5. **Potential for Interference/Competition:** Competition from other hunters who might interfere with your hunt in some way such as making you feel crowded or competing for hunting spots or birds.

Response options varied from 3 to 5 for each attribute (Table 5.1). In order to have adequate power to conduct this experiment, we developed 10 survey versions. In each, respondents were presented with 10 different hypothetical comparisons of hunting experiences and asked to choose one option. Each scenario included two hunting option choices plus a "none" (i.e., I would not go waterfowl hunting if these were my only choices). The background explanation of the DCE and an example of the choice scenarios are presented in Figures 5.1 and 5.2.

Nationwide, a total of 7,169 waterfowl hunters completed the entire set of 10 comparisons in the DCE. However, due to purposive oversampling in several states these respondents were distributed disproportionately relative to the actual number of waterfowl hunters in each state. For this reason, a random, proportional subsample of  $n = 2001$  waterfowl hunters was selected to use for national-level analysis. Results for the hierarchical Bayes model, including average utilities, or usefulness, for each attribute level, summarize the waterfowl hunters' preferences

for different hunting experiences. The attribute importances (Table 5.2) provide a summary of how important each of the 5 attributes were in respondents' choices.

The utilities of each level for each attribute are summarized in Table 5.3. The larger the range in the part-worth utilities (i.e. the average utilities across levels within that attribute) for an attribute, the more influential that attribute is on respondents' choices and the greater the importance of that attribute. For example, harvest was the most influential attribute in the DCE, as indicated by the largest range in part-worth utilities (range in utilities = 136; Table 5.3). The set of part-worth utilities for each attribute is scaled to sum to zero, so some part-worth utilities are necessarily negative numbers for some levels. A negative part-worth utility does not mean that the level has a negative utility; but the larger the number, the higher the utility. This means that a large positive value has higher utility than a larger negative value.

The most important attributes in the choice waterfowl hunting trips were: 1) potential for interference/competitions; 2) harvest; and 3) travel distance. The levels with the highest utility included: 1) travel times of less than 1 hour; 2) harvesting 6 birds; and 3) no competition or low competition from other hunters. The levels with the lowest utility were: 1) high competition from other hunters; 2) harvesting only 1 bird; and 3) travel times of 4 hours.

Table 5.1: Possible trip choice characteristics in discrete choice experiment

Attribute	Possible Levels
<b>Harvest:</b> The number of waterfowl you are likely to harvest in a day	1 bird 3 birds 6 birds
<b>Access Effort:</b> How easy or difficult it is to get into, out of, and around an area to hunt	Easy access that takes little effort Moderate access that takes some effort Difficult access that takes a lot of effort
<b>Length of Travel:</b> The time you travel (one-way) to hunt	30 minutes 1 hour 2 hours 3 hours 4 hours
<b>Quantity of Waterfowl:</b> The number of ducks/geese you see in a day when hunting, even if not in shooting range	25 birds or less 50 birds 250 birds 500 birds 1,000 birds
<b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt in some way, such as making you feel crowded or competing for hunting spots or birds	No competition Low competition from other hunters Moderate competition from other hunters High competition from other hunters

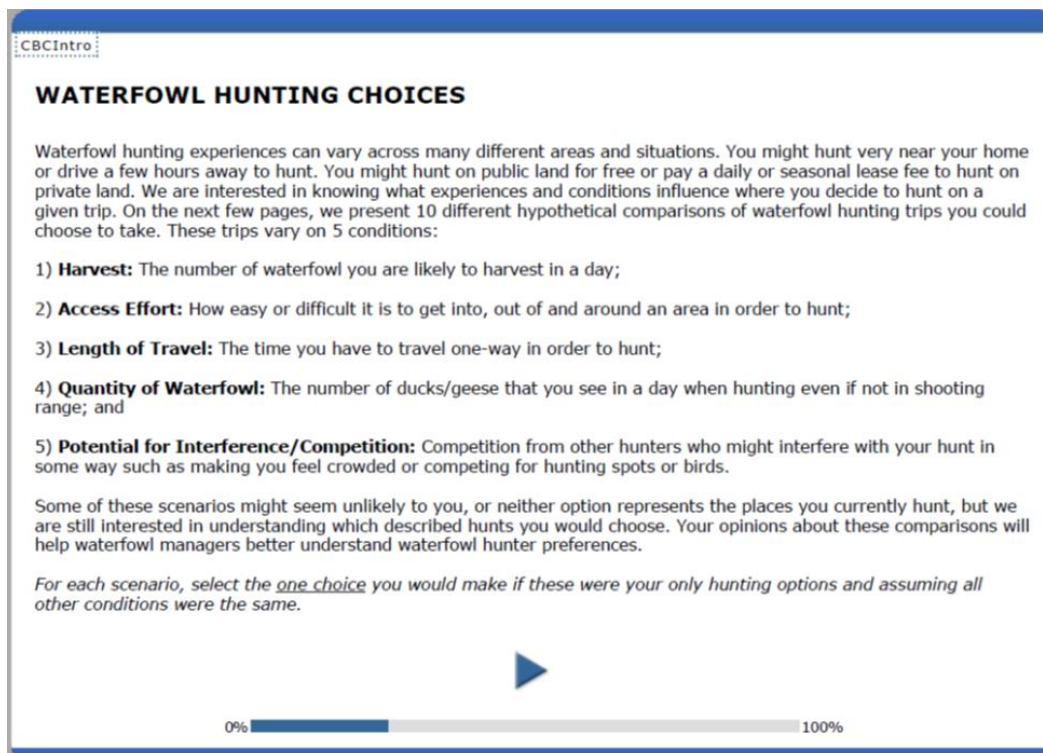


Figure 5-1: Background for discrete choice experiment (DCE) for waterfowl hunting

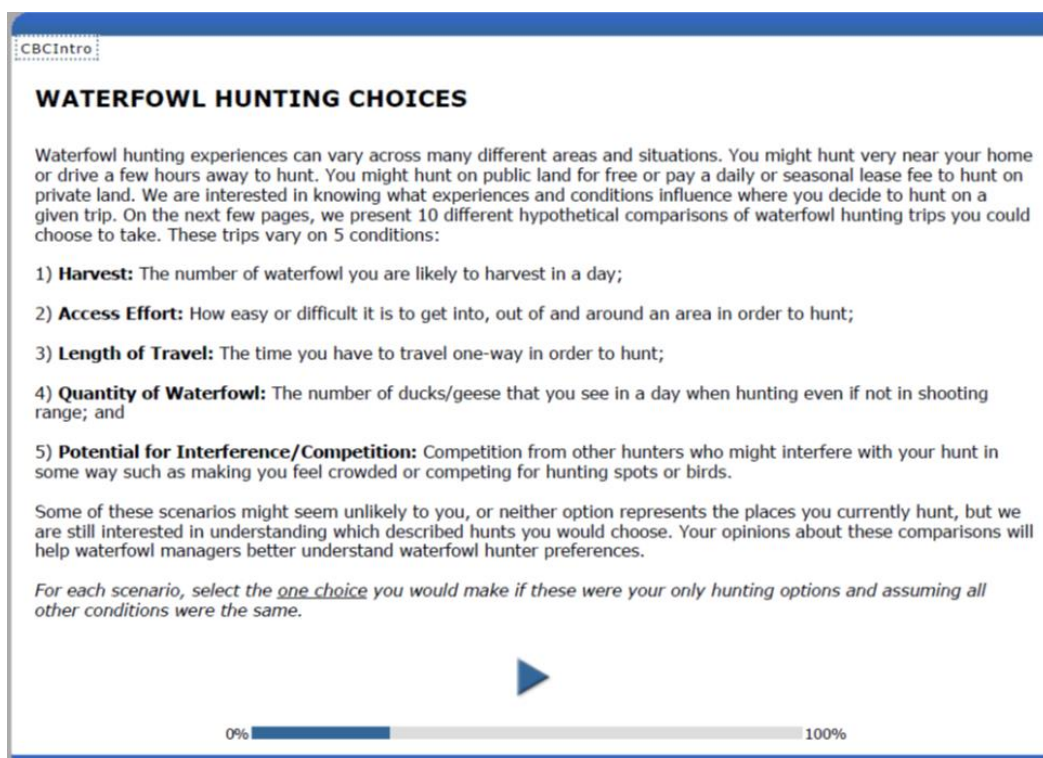


Figure 5-2: Example of choice scenario for waterfowl hunting DCE

Table 5.2: Relative attribute importance derived from hierarchical Bayes estimation

Attribute	Importance <sup>1</sup>	SD	Lower 95% CI	Upper 95% CI
Harvest	25.02	11.88	24.50	25.54
Access	10.03	5.96	9.77	10.29
Travel	24.64	10.75	24.17	25.11
Waterfowl	13.75	6.38	13.47	14.03
Potential for Interference	26.57	12.71	26.01	27.12

<sup>1</sup> n = 2001

Table 5.3: Results of hierarchical Bayes model for waterfowl hunting trip choice

Attribute	Level	Average Utilities <sup>1</sup>	SD
Harvest	1 bird	-68.22	37.60
	3 birds	18.90	10.81
	6 birds	49.32	34.99
Access Effort	Easy access that takes little effort	16.46	15.66
	Moderate access that takes some effort	11.10	9.24
	Difficult access that takes a lot of effort	-27.56	21.06
Length of Travel	30 minutes	51.47	33.53
	1 hour	39.65	24.05
	2 hours	1.69	12.74
	3 hours	-29.56	25.86
	4 hours	-63.24	33.66
Quantity of Waterfowl	25 birds or less	-31.98	19.36
	50 birds	-16.39	12.98
	250 birds	6.33	11.94
	500 birds	11.14	11.07
	1,000 birds	30.89	20.90
Potential for Interference/Competition	No competition	40.35	28.53
	Low competition from other hunters	39.73	18.71
	Moderate competition from other hunters	4.50	10.10
	High competition from other hunters	-84.59	43.05
None		-52.37	123.99

<sup>1</sup> n = 2001

## Section 6: Policy and Regulatory Preferences

### 6.1 Priorities

Nationwide, respondents gave the highest priority ranking to *having the largest duck populations possible*. Four in five respondents preferred this to be a very high (43%) or high (37%) agency priority (Table 6.1). On average, respondents said the largest duck populations possible should be a high ( $\bar{x} = 4.2$ , SD 0.83) priority (Table 6.2). *Having the largest bag limits possible* received the lowest priority ranking, with about one-third of respondents ranking it as a low (25%) or very low (9%) priority. On average, respondents said the largest bag limits possible should be a moderate ( $\bar{x} = 2.8$ , SD 0.97) priority. Respondents across all flyways tended to have very similar average ratings of priority across the regulations (table 6.2). There were statistically significant but small differences in preferred policy priorities across flyways (Table 6.3). Respondents were also asked to rank their top 3 highest priority objectives of those listed, with *having the largest duck populations possible* ranked first more frequently than any other objective across the flyways (Table 6.4).

### 6.2 Perception of Existing Policy

Nationally, most respondents did not think current policies were difficult to understand (81%) or difficult to comply with in the field (73%), and differences between flyways were negligible (Table 6.5; Table 6.6). Respondents were also asked about their preferred scenario for bag limits of duck species with typically small limits. Respondents were split in their response with about one-half favoring a maximized harvest opportunity by maintaining individual species bag limits (52%) and the other half preferring simpler regulations by creating aggregate bag limits for a combination of certain species (48%). Differences between the flyways were significant but negligible.

Table 6.1: Preferred agency priorities for duck hunting regulations response distribution

Regulation	Priority Level					Valid N
	Very Low	Low	Moderate	High	Very High	
Having the largest bag limit possible	9.4%	25.1%	46.2%	13.8%	5.5%	7,040
Having the longest season possible	2.5%	9.1%	36.1%	32.6%	19.7%	7,029
Having the largest duck populations possible	0.7%	1.5%	18.3%	37.0%	42.5%	7,020
Avoiding different season lengths for different duck species	6.3%	12.9%	31.5%	25.8%	23.0%	7,025
Providing the simplest regulations possible	2.0%	5.9%	25.5%	32.0%	34.6%	7,004
Reducing the number of species-specific bag limits	7.8%	19.4%	41.1%	20.5%	11.2%	7,034
Having the largest drake mallard bag limits possible	6.6%	16.6%	37.6%	30.4%	8.8%	8,122

Table 6.2: Preferred agency priorities for duck hunting regulations

Regulation	Flyways <sup>1</sup>												National		
	Pacific			Central			Mississippi			Atlantic					
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Having the largest bag limits possible	2.9	1.02	1,354	2.8	0.97	1,585	2.8	0.95	2,475	2.7	0.98	1,615	2.8	0.97	7,040
Having the longest seasons possible	3.6	0.97	1,351	3.5	0.98	1,581	3.6	0.99	2,472	3.5	1.00	1,615	3.6	0.99	7,029
Having the largest duck population possible	4.2	0.79	1,355	4.1	0.86	1,579	4.2	0.82	2,467	4.2	0.86	1,610	4.2	0.83	7,020
Avoiding different season lengths for different duck	3.5	1.20	1,347	3.5	1.19	1,581	3.5	1.15	2,470	3.3	1.11	1,616	3.5	1.16	7,025
Providing the simplest regulations possible	3.9	1.04	1,352	4.0	1.00	1,578	3.9	1.00	2,455	3.9	1.02	1,612	3.9	1.01	7,004
Reducing the number of species-specific bag limits	3.1	1.12	1,353	3.1	1.05	1,581	3	1.06	2,474	3.1	1.10	1,615	3.1	1.07	7,034
Having the largest drake mallard bag limits possible	3.3	1.03	1,534	3.1	1.03	1,753	3.2	1.01	2,865	3.1	1.04	1,967	3.2	1.03	8,122

<sup>1</sup> Scale: 1) Very low; 2) Low; 3) Moderate; 4) High; and 5) Very high

Table 6.3: Preferred agency priorities for duck hunting regulations flyway differences

		Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
Having the largest bag limits possible	Between Groups	19.16	3	6.39	6.69	0.000	0.01
	Within Groups	6,705.62	7,025	0.96			
	Total	6,724.78	7,028				
Having the longest seasons possible	Between Groups	7.09	3	2.36	2.44	0.063	0.01
	Within Groups	6,793.40	7,013	0.97			
	Total	6,800.49	7,016				
Having the largest duck populations possible	Between Groups	17.98	3	5.99	8.66	0.000	0.01
	Within Groups	4,848.27	7,006	0.69			
	Total	4,866.24	7,009				
Avoiding different season lengths for different duck species	Between Groups	33.14	3	11.05	8.20	0.000	0.01
	Within Groups	9,440.50	7,009	1.35			
	Total	9,473.64	7,012				
Providing the simplest regulations possible	Between Groups	6.30	3	2.10	2.06	0.103	0.01
	Within Groups	7,115.02	6,993	1.02			
	Total	7,121.32	6,996				
Reducing the number of species-specific bag limits	Between Groups	11.78	3	3.93	3.38	0.017	0.01
	Within Groups	8,152.28	7,019	1.16			
	Total	8,164.07	7,022				
Having the largest drake mallard bag limits possible	Between Groups	62.88	3	20.96	19.96	0.000	0.01
	Within Groups	8,519.16	8,113	1.05			
	Total	8,582.04	8,116				

Table 6.4: Ranked top 3 highest priority regulations

Regulation	Rank	Flyways				National
		Pacific	Central	Mississippi	Atlantic	
Having the largest bag limits possible	1 <sup>st</sup>	5.7%	6.5%	5.1%	4.8%	5.4%
	2 <sup>nd</sup>	10.0%	7.8%	8.0%	6.5%	7.9%
	3 <sup>rd</sup>	14.3%	11.8%	14.5%	12.8%	13.5%
	NR	70.0%	73.9%	72.5%	75.9%	73.1%
Having the longest seasons possible	1 <sup>st</sup>	20.3%	19.9%	20.4%	19.9%	20.2%
	2 <sup>nd</sup>	23.2%	20.5%	25.2%	25.4%	23.9%
	3 <sup>rd</sup>	12.8%	15.0%	10.6%	10.1%	11.8%
	NR	43.6%	44.6%	43.9%	44.6%	44.1%
Having the largest duck populations possible	1 <sup>st</sup>	44.7%	42.4%	45.3%	43.0%	44.1%
	2 <sup>nd</sup>	14.9%	16.8%	14.9%	13.9%	15.1%
	3 <sup>rd</sup>	10.6%	8.2%	7.7%	6.9%	8.1%
	NR	29.7%	32.6%	32.0%	36.2%	32.7%
Avoiding different season lengths for different duck species	1 <sup>st</sup>	2.9%	4.6%	2.8%	1.8%	3.0%
	2 <sup>nd</sup>	9.4%	12.7%	8.9%	7.4%	9.5%
	3 <sup>rd</sup>	12.1%	14.0%	11.6%	14.0%	12.7%
	NR	75.6%	68.8%	76.7%	76.9%	74.9%
Providing the simplest regulations possible	1 <sup>st</sup>	6.3%	10.0%	6.0%	7.2%	7.2%
	2 <sup>nd</sup>	14.7%	19.1%	14.7%	18.7%	16.5%
	3 <sup>rd</sup>	19.3%	20.0%	20.8%	20.3%	20.3%
	NR	59.7%	50.9%	58.5%	53.8%	56.0%
Reducing the number of species-specific bag limits	1 <sup>st</sup>	1.6%	1.9%	1.3%	1.8%	1.6%
	2 <sup>nd</sup>	5.7%	5.1%	4.6%	4.2%	4.8%
	3 <sup>rd</sup>	7.6%	10.6%	8.8%	10.9%	9.5%
	NR	85.1%	82.3%	85.2%	83.1%	84.1%
Having the largest drake mallard bag limits possible	1 <sup>st</sup>	3.3%	2.3%	2.4%	1.2%	2.3%
	2 <sup>nd</sup>	6.0%	5.2%	6.5%	3.0%	5.4%
	3 <sup>rd</sup>	7.1%	7.5%	8.8%	3.6%	7.2%
	NR	83.6%	85.0%	82.3%	92.2%	85.1%
Valid N		1,534	1,753	2,865	1,967	8,122

Table 6.5: Bag limit opinions and preferred scenario

		Flyways				National
		Pacific	Central	Mississippi	Atlantic	
<b>Are rules for current species-specific bag limits difficult to understand?</b>	Yes	15.1%	18.9%	17.7%	24.3%	18.9%
	No	84.9%	81.1%	82.3%	75.7%	81.1%
	Valid N	1,314	1,554	2,412	1,585	6,187
<b>Are the current species-specific bag limits difficult to comply with in the field?</b>	Yes	24.8%	26.9%	25.3%	33.8%	26.7%
	No	75.2%	73.1%	74.7%	66.2%	73.3%
	Valid N	1,313	1,553	2,408	1,585	6,182
<b>Preferred scenario for bag limits of duck species with smaller bag limits</b>	Maximize harvest opportunity by maintaining individual species bag limits	57.9%	49.7%	52.3%	47.8%	51.9%
	Create simpler regulations by creating aggregate bag limits for a combination of certain species	42.1%	50.3%	47.7%	52.2%	48.1%
	Valid N	1,300	1,550	2,399	1,577	6,154
<b>Significance</b>	Rules difficult to understand	$\chi^2(3) = 44.18$ $p < 0.001$ ; Cramer's $V = 0.08$				
	Limits difficult to comply with	$\chi^2(3) = 42.83$ $p < 0.001$ ; Cramer's $V = 0.08$				
	Preferred scenario	$\chi^2(3) = 32.6$ $p < 0.001$ ; Cramer's $V = 0.07$				

## Section 7: Avidity

Avidity can refer to several aspects of a recreational experience—here, it was assessed via the respondents’ involvement and identification with conservation groups and the centrality or importance of hunting for the individual. Respondents described their level of involvement with Delta Waterfowl, Ducks Unlimited, and their regional or state waterfowl association (Table 7.1). Most respondents indicated no involvement with Delta Waterfowl (83%) or regional or state waterfowl associations (81%), and a little more than half of respondents (54%) reported some level of involvement in Ducks Unlimited. On average, respondents reported having slight involvement with Duck Unlimited (Table 7.2). There were statistically significant but small differences in level of involvement in these groups across flyways. Overall, respondents in the Central Flyway reported slightly lower levels of involvement in Ducks Unlimited, while Mississippi Flyway respondents were slightly more involved with Delta Waterfowl (Tables 7.2 & 7.3). Respondents also indicated the degree to which they identified with each of 5 different identities relevant to waterfowl management: birdwatcher, duck hunter, goose hunter, other type of hunter, and conservationist. Most respondents identified strongly or very strongly as *another type of hunter* (73%), *a conservationist* (69%), and as a *duck hunter* (66%), but only 42 percent of respondents identified as a *goose hunter* and only 1 in 5 (22%) strongly identified as a birdwatcher (Table 7.4). Respondents, on average, said they only slightly identified as a birdwatcher ( $\bar{x} = 2.6$ , SD 1.18), but strongly identified as a conservationist ( $\bar{x} = 4.0$ , SD 1.02), another type of hunter ( $\bar{x} = 4.0$ , SD 1.07), and as a duck hunter ( $\bar{x} = 3.9$ , SD 1.03; Table 7.5). There were statistically significant but small differences in four out of the five social identities across the flyways, but no statistical significant difference for the birdwatcher identity which tended to be lower across all flyways (Tables 7.5 & 7.6).

Most respondents (80%) agreed that waterfowl hunting was one of the most enjoyable activities they did (Table 7.7). About one-quarter of respondents (26%) indicated if they couldn’t go waterfowl hunting they weren’t sure what they would do instead. On average, respondents slightly disagreed ( $\bar{x} = 2.7$ , SD 1.26) with the statement that they weren’t sure what they would do instead, and were neutral ( $\bar{x} = 3.0$ , SD 1.17) in their agreement on the statement that a lot of their life was organized around waterfowl hunting (Table 7.8). Differences across the flyways were small, with Central Flyway respondents indicating a slightly lower level of agreement with the statements that respondents in other flyways (Table 7.9).

Table 7.1: Level of involvement in waterfowl groups response distribution

Group	Level of Involvement				Valid N
	No Involvement	Slight Involvement	Moderate Involvement	High Involvement	
Ducks Unlimited	46.1%	35.4%	13.9%	4.6%	6,684
Delta Waterfowl	83.1%	11.6%	4.5%	0.8%	5,956
Regional or State Waterfowl Association	80.5%	13.2%	4.9%	1.4%	5,960

Table 7.2: Involvement in waterfowl groups

Group	Flyways <sup>1</sup>												National		
	Pacific			Central			Mississippi			Atlantic					
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Ducks Unlimited	1.8	0.85	1,275	1.7	0.85	1,493	1.8	0.84	2,350	1.8	0.90	1,557	1.77	0.85	6,684
Delta Waterfowl	1.2	0.48	1,064	1.2	0.52	1,329	1.3	0.62	2,150	1.2	0.51	1,372	1.23	0.56	5,956
Regional or State Waterfowl Associations	1.4	0.77	1,111	1.2	0.54	1,319	1.2	0.61	2,131	1.3	0.59	1,376	1.27	0.62	5,960

<sup>1</sup> Scale: 1) No involvement 2) Slight involvement; 3) Moderate involvement; and 4) High involvement

Table 7.3: Level of involvement in waterfowl groups flyway comparison

Group		Sum of Squares	df	Mean Square	F	Sig.	η <sup>2</sup>
Ducks Unlimited	Between Groups	9.79	3	3.26	4.45	0.004	0.01
	Within Groups	4,889.09	6,670	0.73			
	Total	4,898.88	6,673				
Delta Waterfowl	Between Groups	16.08	3	5.36	17.86	0.000	0.01
	Within Groups	1,773.68	5,911	0.30			
	Total	1,789.76	5,914				
Regional or State Waterfowl Associations	Between Groups	28.98	3	9.66	24.97	0.000	0.01
	Within Groups	2,294.49	5,931	0.39			
	Total	2,323.47	5,934				

Table 7.4: Social identity response distributions

Identify self as	Level of Involvement					Valid N
	Not at all	Slightly	Moderately	Strongly	Very Strongly	
Birdwatcher	21.5%	28.4%	28.4%	15.0%	6.8%	6,667
Duck Hunter	1.3%	9.0%	23.9%	29.3%	36.5%	6,763
Goose Hunter	9.2%	21.6%	26.6%	21.9%	20.7%	6,731
Other Type of Hunter	3.5%	6.6%	16.8%	33.8%	39.2%	6,725
Conservationist	2.0%	6.6%	22.0%	31.8%	37.6%	6,717

Table 7.5: Social Identity

	Flyways <sup>1</sup>												National		
	Pacific			Central			Mississippi			Atlantic					
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Birdwatcher	2.7	1.20	1,264	2.5	1.19	1,509	2.6	1.16	2,339	2.6	1.18	1,545	2.6	1.18	6,667
Duck Hunter	4.0	0.97	1,289	3.8	1.07	1,525	4.0	0.99	2,374	3.8	1.11	1,564	3.9	1.03	6,763
Goose Hunter	3.4	1.23	1,278	3.2	1.24	1,520	3.2	1.25	2,361	3.3	1.30	1,563	3.2	1.26	6,731
Other Type of Hunter	3.9	1.12	1,281	4.1	0.99	1,521	4.0	1.08	2,352	4.0	1.10	1,563	4.0	1.07	6,725
Conservationist	3.9	1.10	1,278	3.9	1.04	1,517	4.0	0.99	2,353	4.0	0.99	1,559	4.0	1.02	6,717

<sup>1</sup> Scale: 1) Not at all; 2) Slightly; 3) Moderately; 4) Strongly; and 5) Very strongly

Table 7.6: Social identity flyway comparisons

Identify self as		Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
Birdwatcher	Between Groups	9.82	3	3.28	2.36	0.069	0.01
	Within Groups	9,222.10	6,651	1.39			
	Total	9,231.93	6,654				
Duck Hunter	Between Groups	73.65	3	24.55	23.08	0.000	0.01
	Within Groups	7,177.61	6,748	1.06			
	Total	7,251.25	6,751				
Goose Hunter	Between Groups	52.64	3	17.55	11.15	0.000	0.00
	Within Groups	10,565.99	6,716	1.57			
	Total	10,618.62	6,719				
Other Type of Hunter	Between Groups	17.60	3	5.87	5.11	0.002	0.01
	Within Groups	7,712.75	6,713	1.15			
	Total	7,730.34	6,716				
Conservationist	Between Groups	12.97	3	4.32	4.12	0.006	0.01
	Within Groups	7,027.01	6,703	1.05			
	Total	7,039.97	6,706				

Table 7.7: Centrality of waterfowl hunting response distribution

Statement	Level of Agreement					Valid N
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Waterfowl hunting is one of the most enjoyable activities I do	0.9%	4.0%	15.4%	37.7%	42.1%	6,801
Most of my friends are in some way connected with waterfowl hunting	4.0%	18.9%	25.4%	35.9%	15.7%	6,797
Waterfowl hunting has a central role in my life	5.1%	20.0%	30.0%	26.9%	17.9%	6,795
A lot of my life is organized around waterfowl hunting	8.7%	27.3%	30.2%	20.5%	13.3%	6,798
If I couldn't go waterfowl hunting I am not sure what I would do instead	19.3%	32.0%	22.7%	14.5%	11.6%	6,803

Table 7.8: Centrality of waterfowl hunting

Statement	Flyways <sup>1</sup>												National		
	Pacific			Central			Mississippi			Atlantic					
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Waterfowl hunting is one of the most enjoyable activities I do	4.2	0.86	1,296	4.1	0.93	1,528	4.2	0.87	2,388	4.2	0.89	1,577	4.2	0.89	6,801
Most of my friends are in some way connected with waterfowl hunting	3.3	1.10	1,296	3.3	1.10	1,526	3.5	1.06	2,387	3.4	1.08	1,577	3.4	1.09	6,797
Waterfowl hunting has a central role in my life	3.4	1.10	1,295	3.2	1.15	1,528	3.4	1.13	2,386	3.3	1.13	1,576	3.3	1.13	6,795
A lot of my life is organized around waterfowl hunting	3.0	1.17	1,296	2.9	1.15	1,528	3.1	1.18	2,385	3.0	1.15	1,579	3.0	1.17	6,798
If I couldn't go waterfowl hunting I am not sure what I would do instead	2.7	1.29	1,298	2.6	1.26	1,528	2.7	1.26	2,387	2.7	1.25	1,580	2.7	1.26	6,803

<sup>1</sup> Scale: 1) Strongly disagree; 2) Disagree; 3) Neutral; 4) Agree; and 5) Strongly agree

Table 7.9: Centrality of waterfowl hunting flyway comparison

		Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
Waterfowl hunting is one of the most enjoyable activities I do	Between Groups	23.96	3	7.99	10.16	0.000	0.01
	Within Groups	5,333.41	6,786	0.79			
	Total	5,357.38	6,789				
Most of my friends are in some way connected with waterfowl hunting	Between Groups	58.53	3	19.51	16.62	0.000	0.01
	Within Groups	7,961.45	6,783	1.17			
	Total	8,019.98	6,786				
Waterfowl hunting has a central role in my life	Between Groups	40.52	3	13.51	10.59	0.000	0.01
	Within Groups	8,651.82	6,781	1.28			
	Total	8,692.34	6,784				
A lot of my life is organized around waterfowl hunting	Between Groups	51.85	3	17.28	12.83	0.000	0.01
	Within Groups	9,139.03	6,784	1.35			
	Total	9,190.88	6,787				
If I couldn't go waterfowl hunting I am not sure what I would do instead	Between Groups	18.75	3	6.25	3.92	0.008	0.01
	Within Groups	10,814.36	6,789	1.59			
	Total	10,833.11	6,792				

## Section 8: Engagement

### 8.1 Participation in Non-Hunting Conservation Activities

Almost one-half of respondents (47%) said they at least sometimes voted for candidates or ballot issues to support wetlands or waterfowl conservation often or very often; however, only about 26 percent at least sometimes advocated for political action to conserve wetlands and waterfowl and just 14 percent indicated they sometimes contacted elected officials or government agencies about wetlands and waterfowl conservation (Table 8.1). While voting for candidates or ballot issues had the highest level of support ( $\bar{x}$  = 2.4, SD 1.40), on average, waterfowl hunters reported they did this rarely (Table 8.2). On all other measured engagement activities for wetland and waterfowl conservation, a majority of waterfowl hunters indicated that they never did the activity (Table 8.1). There were statistically significant but small differences between the flyways, with the Central Flyway respondents generally reporting slightly lower average levels of involvement in the activities (Table 8.3).

Most respondents reported spending time in nature away from home (94%), fishing (93%), and engaging in nature activities in their backyard or at home (92%) during the past 12 months (Table 8.4). There were statistically significant, but small differences between flyways on six of the nature-based recreation activities (Table 8.5). Notably, a higher proportion of Central Flyway respondents (79%) than the other flyway respondents reported hunting migratory birds other than waterfowl birds. In addition, fewer Pacific Flyway respondents (75%), compared with the other flyways, reported hunting any other game animals.

Most respondents reported watching birds at their home in the past 12 months (79%). Almost two-thirds of respondents reported watching birds away from home (65%) and feeding birds at their home (62%) in the past 12 months (Table 8.6). There was a statistically significant but small difference between flyways in the proportion of respondents who installed or maintained nest boxes for birds (Table 8.7). A higher percentage of respondents in the Atlantic and Mississippi flyways than in the Pacific and Central flyways reported doing this activity.

### 8.2 Community

We used a social network approach to understand the diversity of relationships and connections that individuals have in their personal networks (Harshaw and Tindall 2005; Lin, Fu & Hsung 2001). Respondents were presented with a list of 24 avocational, occupational, and organizational structural positions and asked what relationship, if any, they had with the position through an acquaintance, close friend, relative, or self. The percentage of respondents reporting ties to the positions at each level of relationship are summarized in Tables 8.8 through 8.13.

### 8.3 Trust

Respondents were asked to rate their trust (1 = Do not trust at all to 5 = Trust completely) in several governmental institutions (Table 8.14). Trust was highest in waterfowl hunting/conservation organizations ( $\bar{x}$  = 3.5, SD 0.94) and lowest for elected officials ( $\bar{x}$  = 1.9, SD

0.90). About half (55%) of respondents trusted waterfowl organizations either a lot or completely, and 42 percent indicated slightly lower levels of trust in state wildlife agencies (Table 8.15). While analyses revealed statistically significant differences between the flyways on several items, effect sizes suggest these differences were small (Table 8.16).

#### 8.4 Support

Monetary support for conservation can take the form of donations, permit purchases, and fees. Respondents were asked about their previous support in the past year to wetland or waterfowl conservation, conservation of other birds, birdwatching and related issues, and waterfowl hunting. Possible responses to this item were \$0, less than \$250, \$250-\$999, \$1000-\$2499, \$2500-\$4999, \$5000-\$9999, and \$10,000 or more. Because of the non-normal distribution of donations (see Tables 8.18-8.21), responses were dichotomized as \$0 donation or more than \$0. Expectedly, most respondents (73%) reported having donated to waterfowl hunting (Table 8.17), as well as wetland or waterfowl conservation (64%). Few reported donating to causes related to birdwatching and related issues (9%). Analyses revealed statistically significant but negligible differences. Respondents also indicated whether they had spent money on wetland management on private lands in the previous 12 months. Most (77%) indicated that they had not (Table 8.23). The mean donation was \$2,611 in the past year, and there were no significant differences between the flyways in their reported donations.

Table 8.1: Participation in conservation activities response distribution

Activity	Level of Involvement					Valid N
	Never	Rarely	Sometimes	Often	Very Often	
Worked on land improvement project related to wetlands or waterfowl conservation	60.0%	14.4%	16.7%	6.4%	2.4%	6,651
Attended meetings about wetlands or waterfowl	62.0%	18.4%	15.1%	3.0%	1.5%	6,633
Volunteered my personal time and effort to conserve wetlands and waterfowl	63.6%	15.8%	14.6%	4.1%	1.9%	6,636
Contacted elected officials or government agencies about wetlands and waterfowl conservation	74.4%	12.0%	10.6%	2.2%	0.7%	6,639
Voted for candidates or ballot issues to support wetlands or waterfowl conservation	43.7%	8.8%	22.0%	17.1%	8.4%	6,642
Advocated for political action to conserve wetlands and waterfowl	61.6%	12.1%	15.5%	7.3%	3.5%	6,613

Table 8.2: Level of involvement in wetlands or waterfowl conservation in past 12 months

Statement	Flyways <sup>1</sup>												National		
	Pacific			Central			Mississippi			Atlantic					
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
Worked on land improvement project related to wetlands or waterfowl conservation	1.8	1.09	1,269	1.7	1.06	1,493	1.8	1.12	2,341	1.8	1.05	1,536	1.77	1.09	6,651
Attended meetings about wetlands or waterfowl	1.7	0.97	1,269	1.6	0.90	1,490	1.7	0.94	2,334	1.7	0.98	1,530	1.63	0.94	6,633
Volunteered my personal time and effort to conserve wetlands and waterfowl	1.7	1.03	1,270	1.5	0.92	1,487	1.7	1.01	2,334	1.7	1.03	1,531	1.65	1.00	6,636
Contacted elected officials or government agencies about wetlands and waterfowl conservation	1.5	0.89	1,271	1.4	0.81	1,498	1.4	0.81	2,330	1.4	0.80	1,531	1.43	0.82	6,639
Voted for candidates or ballot issues to support wetlands or waterfowl conservation	2.5	1.43	1,270	2.2	1.38	1,497	2.4	1.37	2,328	2.4	1.44	1,538	2.38	1.40	6,642
Advocated for political action to conserve wetlands and waterfowl	1.9	1.23	1,266	1.7	1.1	1491	1.8	1.13	2,320	1.8	1.19	1,526	1.79	1.16	6,613

<sup>1</sup> Scale: 1) Never; 2) Rarely; 3) Sometimes; 4) Often; and 5) Very Often

Table 8.3: Level of involvement in wetlands and waterfowl conservation in past 12 months flyway comparison

		Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
Worked on land improvement project related to wetlands or waterfowl conservation	Between Groups	27.47	3	9.16	7.78	0.000	0.01
	Within Groups	7,812.01	6,634	1.18			
	Total	7,839.48	6,637				
Attended meetings about wetlands or waterfowl conservation	Between Groups	12.27	3	4.09	4.58	0.003	0.01
	Within Groups	5,901.84	6,618	0.89			
	Total	5,914.10	6,621				
Volunteered time and effort to conserve wetlands and waterfowl	Between Groups	32.76	3	10.92	11.00	0.000	0.01
	Within Groups	6,572.30	6,621	0.99			
	Total	6,605.06	6,624				
Contacted elected officials or government agencies about wetlands and waterfowl conservation	Between Groups	9.17	3	3.06	4.50	0.004	0.01
	Within Groups	4,505.44	6,625	0.68			
	Total	4,514.61	6,628				
Voted for candidates or ballot issues to support wetlands or waterfowl conservation	Between Groups	42.44	3	14.15	7.20	0.000	0.01
	Within Groups	13,021.43	6,629	1.96			
	Total	13,063.87	6,632				
Advocated for political action to conserve wetlands and waterfowl	Between Groups	43.826	3	14.609	10.87	0.000	0.01
	Within Groups	8,867.68	6,599	1.344			
	Total	8,911.50	6,602				

Table 8.4: Participation in nature-based recreation

Activity	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
Spending time in nature away from home	95.8%	94.6%	93.2%	92.2%	93.7%
Viewing wildlife	84.6%	83.9%	83.1%	84.9%	83.9%
Learning about nature	54.6%	49.1%	56.0%	58.5%	54.7%
Backyard/at home nature activities	91.4%	90.1%	92.8%	92.9%	92.0%
Fishing	92.6%	93.8%	93.5%	92.6%	93.3%
Hunting migratory birds other than waterfowl	68.1%	78.5%	65.9%	72.3%	70.4%
Hunting other game birds	82.2%	82.0%	77.2%	80.5%	79.7%
Hunting any other game animals	76.3%	85.9%	86.3%	87.7%	85.0%
Valid N range	(1,274 to 1,291)	(1496 to 1509)	(2,343 to 2,365)	(1,544 to 1,557)	(6,666 to 6732)

Table 8.5: Participation in nature-based recreation flyway comparison

	Chi-Square	df	Cramer's V
Spending time in nature away from home	19.03*	3	0.05
Viewing wildlife	2.97	3	0.02
Learning about nature	29.70*	3	0.07
Backyard/at home nature activities	11.23*	3	0.04
Fishing	2.81	3	0.02
Hunting migratory birds other than waterfowl	76.10*	3	0.11
Hunting other game birds	19.38*	3	0.05
Hunting any other game animals	86.53*	3	0.11

\*p &lt; 0.001

Table 8.6: Participation in wild bird activities

Activity	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
Watching birds at my home	80.1%	77.0%	79.4%	81.1%	79.4%
Feeding birds at my home	55.9%	56.3%	65.1%	68.1%	62.3%
Watching birds away from my home	70.4%	64.1%	63.9%	66.2%	65.3%
Photographing birds or filming birds	31.3%	27.7%	23.7%	31.4%	27.2%
Counting/monitoring birds	10.6%	11.1%	12.1%	14.7%	12.2%
Keeping track of the birds seen on a list	9.4%	9.1%	9.8%	9.7%	9.5%
Installing or maintaining nest boxes for birds	22.7%	24.7%	40.9%	42.7%	34.9%
Valid N range	(1,259 to 1,289)	(1463 to 1506)	(2,286 to 2,353)	(1,507 to 1,557)	(6528 to 6,711)

Table 8.7: Participation in wild bird activities flyway comparison

		Chi-Square	df	Cramer's V
Activity	Watching birds at my home	8.43*	3	0.04
	Feeding birds at my home	74.62***	3	0.11
	Watching birds away from my home	17.93***	3	0.05
	Photographing birds or filming birds	37.13***	3	0.08
	Counting/monitoring birds	13.38**	3	0.05
	Keeping track of the birds seen on a list	0.55	3	0.01
	Installing or maintaining nest boxes for birds	227.44***	3	0.19

\*p < 0.05 \*\*p < 0.01 \*\*\*p < 0.001

Table 8.8: Personal community – Recreation

Personal Community		Flyways				National
		Pacific	Central	Mississippi	Atlantic	
Birdwatcher	Acquaintance	33.6%	28.6%	28.5%	29.6%	29.5%
	Close friend	21.8%	18.6%	22.1%	24.0%	21.6%
	Relative	25.6%	25.3%	31.4%	27.2%	28.3%
	Myself	35.3%	33.7%	37.7%	35.6%	36.0%
Angler	Acquaintance	53.7%	52.6%	53.6%	51.6%	53.0%
	Close friend	71.6%	72.0%	70.9%	71.2%	71.3%
	Relative	63.9%	67.3%	67.5%	61.7%	65.8%
	Myself	81.1%	78.5%	78.9%	80.7%	79.5%
Waterfowl hunter	Acquaintance	61.3%	58.0%	60.8%	56.6%	59.4%
	Close friend	77.0%	76.8%	77.5%	76.9%	77.1%
	Relative	63.5%	65.8%	66.8%	61.2%	65.0%
	Myself	90.0%	88.9%	90.7%	89.4%	89.9%
Other hunter	Acquaintance	61.5%	61.9%	63.9%	60.9%	62.5%
	Close friend	77.3%	78.8%	77.8%	77.6%	77.9%
	Relative	68.4%	76.2%	73.5%	69.0%	72.5%
	Myself	82.3%	88.2%	86.4%	86.3%	86.2%
Valid N		1,307	1,533	2,392	1,579	6,818

Table 8.9: Personal community – Agencies

Personal Community		Flyways				National
		Pacific	Central	Mississippi	Atlantic	
State park manager/employee	Acquaintance	23.5%	26.1%	25.7%	26.2%	25.6%
	Close friend	9.8%	9.7%	8.4%	9.5%	9.1%
	Relative	2.7%	3.3%	4.0%	3.6%	3.6%
	Myself	1.1%	1.2%	1.6%	1.9%	1.5%
National park manager/employee	Acquaintance	25.7%	25.1%	23.2%	24.3%	24.2%
	Close friend	8.0%	7.8%	7.3%	8.4%	7.7%
	Relative	3.1%	3.8%	3.4%	2.4%	3.2%
	Myself	0.9%	0.4%	0.7%	0.2%	0.5%
Federal wildlife agency manager/employee	Acquaintance	22.4%	22.4%	21.6%	23.2%	22.2%
	Close friend	7.0%	8.0%	6.3%	6.8%	6.9%
	Relative	1.8%	2.2%	2.5%	2.2%	2.3%
	Myself	1.9%	1.5%	1.2%	0.8%	1.3%
State wildlife agency manager/employee	Acquaintance	29.8%	30.7%	31.8%	33.6%	31.6%
	Close friend	12.6%	13.4%	14.0%	11.8%	13.3%
	Relative	3.2%	4.6%	4.7%	4.7%	4.4%
	Myself	2.3%	2.2%	2.6%	1.9%	2.3%
Valid N		1,306	1,533	2,392	1,579	6,818

Table 8.10: Personal community - Environmental occupations

Personal Community		Flyways				National
		Pacific	Central	Mississippi	Atlantic	
Farmer/Rancher	Acquaintance	48.3%	50.1%	45.8%	44.2%	46.8%
	Close friend	47.3%	53.1%	45.1%	45.5%	47.3%
	Relative	33.1%	46.4%	37.9%	30.5%	37.7%
	Myself	17.2%	23.2%	17.8%	15.8%	18.6%
Outdoor educator	Acquaintance	30.9%	30.1%	29.9%	34.4%	31.0%
	Close friend	17.8%	16.4%	17.8%	18.0%	17.5%
	Relative	5.9%	7.9%	6.6%	5.4%	6.6%
	Myself	7.4%	8.7%	7.9%	8.0%	8.0%
Wildlife artist	Acquaintance	24.1%	18.9%	19.3%	25.2%	21.1%
	Close friend	9.0%	6.2%	6.6%	8.2%	7.1%
	Relative	4.6%	4.7%	5.4%	6.2%	5.3%
	Myself	2.8%	2.5%	2.2%	2.8%	2.5%
Wildlife biologist	Acquaintance	30.3%	28.6%	26.7%	28.6%	28.0%
	Close friend	14.0%	14.3%	13.1%	12.0%	13.3%
	Relative	4.7%	5.4%	3.9%	3.8%	4.3%
	Myself	4.0%	3.8%	2.6%	2.5%	3.1%
Wildlife photographer	Acquaintance	29.9%	28.4%	24.5%	28.3%	26.9%
	Close friend	17.7%	14.8%	12.6%	14.6%	14.3%
	Relative	13.2%	10.6%	11.1%	11.8%	11.5%
	Myself	15.9%	11.5%	9.5%	11.6%	11.3%
Valid N		1,306	1,533	2,392	1,579	6,818

Table 8.11: Personal community: Conservation organizations

Personal Community		Flyways				National
		Pacific	Central	Mississippi	Atlantic	
Member of fishing/conservation organizations	Acquaintance	34.8%	30.8%	30.4%	34.6%	32.0%
	Close friend	33.0%	29.2%	32.0%	33.0%	31.7%
	Relative	19.7%	19.0%	21.4%	19.2%	20.1%
	Myself	25.4%	21.9%	22.5%	27.1%	23.7%
Member of national conservation organization	Acquaintance	18.3%	15.5%	14.3%	16.1%	15.5%
	Close friend	10.7%	8.0%	8.1%	7.9%	8.4%
	Relative	8.3%	5.3%	6.2%	6.4%	6.3%
	Myself	8.6%	4.8%	4.4%	6.3%	5.4%
Member of local conservation organization	Acquaintance	22.6%	23.5%	24.2%	24.1%	23.8%
	Close friend	21.3%	21.3%	21.1%	20.9%	21.1%
	Relative	11.9%	14.4%	14.1%	12.2%	13.5%
	Myself	18.8%	19.9%	17.3%	18.5%	18.3%
Member of local naturalist organization	Acquaintance	11.0%	10.3%	11.3%	12.3%	11.2%
	Close friend	5.3%	4.3%	6.1%	5.6%	5.5%
	Relative	2.8%	2.5%	3.1%	2.8%	2.8%
	Myself	3.4%	2.3%	2.7%	3.8%	3.0%
Valid N		1,305	1,533	2,392	1,579	6,815

Table 8.12: Personal community - Hunting organizations

Personal Community		Flyways				National
		Pacific	Central	Mississippi	Atlantic	
Member of Ducks Unlimited	Acquaintance	48.2%	45.9%	48.2%	47.5%	47.5%
	Close friend	56.6%	55.3%	61.0%	59.6%	58.8%
	Relative	39.4%	40.9%	44.6%	37.9%	41.7%
	Myself	47.5%	44.0%	48.8%	49.7%	47.7%
Member of Delta Waterfowl	Acquaintance	12.5%	21.0%	27.0%	19.3%	22.0%
	Close friend	12.9%	18.9%	27.8%	19.3%	21.9%
	Relative	6.6%	10.0%	15.9%	8.7%	11.8%
	Myself	7.8%	9.8%	15.1%	8.5%	11.5%
Member of state waterfowl association	Acquaintance	22.2%	17.0%	20.9%	20.5%	20.1%
	Close friend	21.1%	15.2%	19.4%	17.3%	18.3%
	Relative	11.6%	5.8%	9.8%	6.2%	8.4%
	Myself	17.3%	6.5%	9.5%	9.6%	10.0%
Member of non-waterfowl hunting organization	Acquaintance	38.1%	34.6%	36.3%	35.0%	35.9%
	Close friend	41.3%	38.2%	37.8%	39.8%	38.8%
	Relative	28.8%	27.6%	27.1%	23.0%	26.7%
	Myself	31.9%	30.4%	28.7%	30.4%	29.9%
Valid N		1,306	1,533	2,390	1,579	6,815

Table 8.13: Personal community - Bird groups

Personal Community		Flyways				National
		Pacific	Central	Mississippi	Atlantic	
Member of birding group	Acquaintance	18.9%	15.4%	13.6%	18.9%	15.8%
	Close friend	7.2%	5.7%	5.6%	7.2%	6.2%
	Relative	5.5%	80.0%	5.3%	4.8%	4.9%
	Myself	1.2%	1.6%	1.7%	1.3%	1.5%
Member of bird conservation group	Acquaintance	19.1%	16.7%	15.3%	18.0%	16.7%
	Close friend	9.7%	9.1%	8.4%	10.0%	9.1%
	Relative	7.2%	6.1%	7.4%	7.7%	7.1%
	Myself	5.1%	5.0%	4.4%	4.7%	4.7%
Member of ornithological group	Acquaintance	11.0%	10.6%	8.9%	10.8%	10.0%
	Close friend	2.5%	3.7%	3.2%	2.5%	3.1%
	Relative	2.2%	1.4%	1.9%	1.6%	1.8%
	Myself	0.9%	1.2%	0.6%	0.4%	0.7%
Valid N		1,305	1,533	2,390	1,579	6,815

Table 8.14: Trust in various institutions

Statement	Flyways <sup>1</sup>												National		
	Pacific			Central			Mississippi			Atlantic					
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
State wildlife agencies	3.0	1.03	1,291	3.4	0.97	1,511	3.2	1.01	2,366	3.2	0.99	1,552	3.2	1.01	6,730
Federal wildlife and land management agencies	2.9	1.04	1,288	3.1	1.09	1,506	3.0	1.06	2,360	3.0	1.02	1,553	3.0	1.06	6,717
Elected officials	1.8	0.85	1,280	2.0	0.94	1,507	1.9	0.90	2,360	1.9	0.90	1,550	1.9	0.90	6,708
Waterfowl hunting/conservation organizations	3.5	0.96	1,289	3.5	0.95	1,514	3.5	0.93	2,359	3.5	0.92	1,553	3.5	0.94	6,724
Birding/bird conservation organizations	2.6	1.10	1,258	2.8	1.08	1,463	2.8	1.06	2,294	2.7	1.12	1,529	2.8	1.08	6,548
Other conservation organizations	2.6	1.01	1,259	2.8	0.98	1,472	2.9	0.97	2,300	2.7	1.03	1,527	2.8	0.99	6,564
University researchers/scientists	2.7	1.08	1,276	2.9	1.06	1,498	2.9	1.04	2,338	2.9	0.72	1,548	2.9	1.06	6,668

<sup>1</sup> Scale: 1) Do not trust at all; 2) Trust a little; 3) Trust somewhat; 4) Trust a lot; and 5) Trust completely

Table 8.15: Trust in various institutions response distributions

Institution	Level of Trust					Valid N
	Do not trust at all	Trust a little	Trust somewhat	Trust a lot	Trust completely	
State wildlife agencies	6.1%	16.1%	35.7%	34.2%	8.0%	6,730
Federal wildlife and land management agencies	9.6%	19.7%	36.8%	27.2%	6.7%	6,717
Elected officials	38.7%	35.8%	20.7%	4.0%	0.7%	6,708
Waterfowl hunting/conservation organizations	3.1%	10.5%	31.3%	43.1%	12.1%	6,724
Birding/bird conservation organizations	15.3%	23.7%	35.7%	20.8%	4.4%	6,548
Other conservation organizations	11.3%	24.7%	41.4%	18.9%	3.6%	6,564
University researchers/scientists	11.9%	21.8%	37.7%	23.3%	5.2%	6,668

Table 8.16: Trust in various institutions flyway comparison

Statement		Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
State wildlife agencies	Between Groups	121.43	3	40.48	40.46	0.000	0.00
	Within Groups	6,718.78	6,716	1.00			
	Total	6,840.21	6,719				
Federal wildlife and land management agencies	Between Groups	37.80	3	12.60	11.32	0.000	0.01
	Within Groups	7,462.55	6,703	1.11			
	Total	7,500.34	6,706				
Elected officials	Between Groups	28.52	3	9.51	11.79	0.000	0.00
	Within Groups	5,397.81	6,692	0.81			
	Total	5,426.33	6,695				
Waterfowl hunting/conservation organizations	Between Groups	2.58	3	0.86	0.97	0.405	0.01
	Within Groups	5,952.62	6,711	0.89			
	Total	5,955.20	6,714				
Birding/bird conservation organizations	Between Groups	54.80	3	18.27	15.52	0.000	0.01
	Within Groups	7,696.54	6,539	1.18			
	Total	7,751.34	6,542				
Other conservation organizations	Between Groups	65.374	3	21.791	22.05	0.000	0.01
	Within Groups	6,474.98	6,553	0.988			
	Total	6,540.35	6,556				
University researchers/scientists	Between Groups	35.33	3	11.777	10.45	0.000	0.01
	Within Groups	7,500.50	6,656	1.127			
	Total	7,535.83	6,659				

Table 8.17: Percent making donation greater than \$0 in past year

Causes	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
Wetland or waterfowl conservation	66.6%	63.0%	63.5%	64.0%	64.0%
Conservation of other birds	26.6%	25.6%	25.9%	27.1%	26.2%
Birdwatching and related issues	9.7%	8.8%	9.0%	8.7%	9.0%
Waterfowl hunting	69.7%	63.5%	66.0%	70.5%	66.8%
Valid N	(1,016 to 1,258)	(1,363 to 1,496)	(2,138 to 2,327)	(1,372 to 1,519)	(5,991 to 6,612)

Table 8.18: Percent making donations flyway comparison

	<b>Causes</b>	<b>Chi-Square</b>	<b>df</b>	<b>Cramer's V</b>
Percent donating money in past year	Wetland of waterfowl conservation	27.50	18	0.04
	Conservation of other birds	22.20	18	0.04
	Birdwatching and related issues	18.42	18	0.03
	Waterfowl hunting	54.34***	18	0.05

\*\*\*p&lt;0.001

Table 8.19: Donations to wetland or waterfowl conservation

<b>Cause</b>	<b>Donation Amount</b>	<b>Flyways</b>				<b>National</b>
		<b>Pacific</b>	<b>Central</b>	<b>Mississippi</b>	<b>Atlantic</b>	
Wetland or waterfowl conservation	\$0	33.4%	37.0%	36.5%	36.0%	36.0%
	Less than \$250	46.5%	47.0%	47.7%	47.9%	47.4%
	\$250 to \$999	14.9%	12.4%	12.7%	12.0%	12.8%
	\$1,000 to \$2,499	3.6%	2.4%	2.1%	2.4%	2.4%
	\$2,500 to \$4,999	1.0%	0.6%	0.3%	0.6%	0.5%
	\$5,000 to \$9,999	0.3%	0.1%	0.4%	0.5%	0.4%
	\$10,000 or more	0.3%	0.5%	0.3%	0.6%	0.4%
	Valid N	1,258	1,496	2,325	1,518	6,612

Table 8.20: Donations to conservation of other bird species

<b>Cause</b>	<b>Donation Amount</b>	<b>Flyways</b>				<b>National</b>
		<b>Pacific</b>	<b>Central</b>	<b>Mississippi</b>	<b>Atlantic</b>	
Conservation of other bird species	\$0	73.4%	74.4%	74.1%	72.9%	73.8%
	Less than \$250	23.0%	21.2%	21.2%	23.2%	21.9%
	\$250 to \$999	2.5%	3.5%	3.8%	2.7%	3.3%
	\$1,000 to \$2,499	0.6%	0.4%	0.8%	0.9%	0.7%
	\$2,500 to \$4,999	0.3%	0.3%	0.1%	0.1%	0.2%
	\$5,000 to \$9,999	0.1%	0.0%	0.0%	0.1%	0.0%
	\$10,000 or more	0.1%	0.1%	0.0%	0.1%	0.1%
	Valid N	1,124	1,369	2,163	1,396	6,082

Table 8.21: Donations to birdwatching and related issues

Cause	Donation Amount	Flyways				National
		Pacific	Central	Mississippi	Atlantic	
Birdwatching and related issues	\$0	90.3%	91.0%	91.0%	91.3%	91.0%
	Less than \$250	9.1%	7.7%	7.8%	7.6%	7.9%
	\$250 to \$999	0.5%	0.9%	0.7%	1.0%	0.8%
	\$1,000 to \$2,499	0.0%	0.1%	0.4%	0.1%	0.2%
	\$2,500 to \$4,999	0.0%	0.1%	0.0%	0.0%	0.0%
	\$5,000 to \$9,999	0.0%	0.0%	0.0%	0.0%	0.0%
	\$10,000 or more	0.1%	0.1%	0.1%	0.0%	0.1%
	Valid N	1,096	1,353	2,138	1,372	5,991

Table 8.22: Donations to waterfowl hunting and hunting related issues

Cause	Donation Amount	Flyways				National
		Pacific	Central	Mississippi	Atlantic	
Waterfowl hunting and hunting related issues	\$0	30.3%	36.5%	34.0%	29.5%	33.2%
	Less than \$250	45.4%	41.6%	46.7%	47.8%	45.6%
	\$250 to \$999	16.0%	15.5%	14.0%	15.2%	14.9%
	\$1,000 to \$2,499	4.6%	4.6%	3.8%	5.1%	4.4%
	\$2,500 to \$4,999	2.3%	0.9%	1.1%	1.2%	1.3%
	\$5,000 to \$9,999	0.5%	0.2%	0.2%	0.5%	0.3%
	\$10,000 or more	0.9%	0.6%	0.2%	0.7%	0.5%
	Valid N	1,254	1,484	2,309	1,519	6,576

Table 8.23: Money spent on wetlands management on private lands in past 12 months

		Flyway				National
		Pacific	Central	Mississippi	Atlantic	
<b>In the past 12 months did you personally spend money for wetlands management on private lands?<sup>1</sup></b>	No	76.5%	81.0%	76.1%	76.1%	77.3%
	Yes	23.5%	19.0%	23.9%	22.7%	22.7%
	Valid N	1,296	1,517	2,380	1,567	6,771
<b>Amount (\$) Donated<sup>2</sup></b>	Mean	\$6,082	\$2,726	\$1,610	\$2,162	\$2,611
	SD	\$56,925	\$10,149	\$2,895	\$6,737	\$2,611
	Valid N	128	66	211	155	554

<sup>1</sup> significance:  $\chi^2(3) = 19.84$   $p < 0.01$ ; Cramer's V = 0.04

<sup>2</sup> significance:  $F(3, 543) = 1.08$   $\eta^2 = 0.00$

## Section 9: Respondent Characteristics

Respondents answered a series of sociodemographic questions regarding race, ethnicity, gender, age, education, profession, rural land ownership, urban/rural residence, urban/rural upbringing, income, and state of residence. Respondents were predominantly white (97%; Tables 9.1, 9.2), non-Hispanic (99%; Table 9.3), and male (97%; Table 9.4).

After removing any respondents under the age of 18, the average age of respondents was 47 years old, with negligible differences between flyways (Table 9.5). Slightly more than half of respondents reported having a Bachelor's degree (33%) or graduate/professional-level education (20%; Table 9.6). Most respondents indicated that a nature related profession was not their primary source of personal income (85%), with significant but negligible differences between flyways (Table 9.7). About half of respondents (49%) made less than \$75,000 per year in personal income, while about one-quarter (28%) made more than \$150,000 (Table 9.8).

Half of respondents (50%) did not own rural land (Table 9.9). There were significant but small differences in rural land ownership among the flyways, with respondents in the Mississippi and Atlantic flyways more likely to own land in a rural area. Respondents in the Pacific flyway who owned rural land, on average, owned more land than respondents from the other flyways. One-third of respondents (34%) indicated their current residence was in a medium to large urban area (Table 9.10). Respondents in the Pacific and Central flyways were more likely to indicate living in a medium or large urban area, while residents in the Mississippi and Atlantic flyways were more likely to live in small towns or rural areas. Respondents also reported the population size of the area where they grew up, and almost 1 out of 3 (30%) of respondents grew up in a medium or large urban area, with this being more common in the Pacific Flyway than the other flyways (Table 9.11).

Table 9.1: Race

Respondent Race	Flyways				National
	Pacific	Central	Mississippi	Atlantic	
American Indian/Native American	4.2%	3.7%	2.1%	2.7%	2.9%
Asian	1.0%	0.5%	0.7%	0.6%	0.7%
Black or African American	0.5%	0.3%	0.4%	0.4%	0.4%
Native Hawaiian or Pacific Islander	0.5%	0.3%	0.1%	0.2%	0.2%
White	95.1%	96.4%	97.7%	97.1%	96.9%
Valid N	1,300	1,521	2,367	1,570	6,761

Table 9.2: Race significance tests flyway comparison

Race	Chi-Square	df	Cramer's V
American Indian/Native American	16.12***	3	0.05
Asian	2.77	3	0.02
Black or African American	0.33	3	0.01
Native Hawaiian or Pacific Islander	4.35	3	0.03
White	20.15***	3	0.06

\*\*\*p &lt; 0.001

Table 9.3: Ethnicity

Ethnicity	Flyways <sup>1</sup>					National
	Pacific	Central	Mississippi	Atlantic		
Hispanic or Latino	Yes	3.1%	1.9%	0.9%	0.8%	1.4%
	No	96.9%	98.1%	99.1%	99.2%	98.6%
	Valid N	1,262	1,492	2,324	1,536	6,624

<sup>1</sup> $\chi^2$  (3, 6614) = 33.64 p < 0.001 Cramer's V = 0.07

Table 9.4: Gender

Gender	Flyways <sup>1</sup>				National
	Pacific	Central	Mississippi	Atlantic	
Male	97.1%	96.3%	97.8%	97.2%	97.2%
Female	2.9%	3.7%	2.2%	2.8%	2.8%
Valid N	1,286	1,512	2,357	1,562	6,725

<sup>1</sup> $\chi^2$  (3, 6,717) = 7.58 N.S.

Table 9.5: Age (restricted 18-90 old)

	Flyways <sup>1</sup>				National
	Pacific	Central	Mississippi	Atlantic	
Mean	49.4	46.9	47.1	47.3	47.4
SD	15.6	14.8	15.2	14.9	15.2
Valid N	1,534	1,752	2,848	1,967	8,102

<sup>1</sup>F (3, 8096) = 10.25 p < 0.001  $\eta^2$  = 0.00

Table 9.6: Education

Level of Education	Flyways <sup>1</sup>				National
	Pacific	Central	Mississippi	Atlantic	
Some high school or less	1.3%	0.5%	1.6%	1.3%	1.2%
High school diploma or GED	13.1%	11.5%	14.9%	16.5%	14.2%
Some college (no degree)	22.9%	18.1%	19.2%	19.6%	19.6%
Associate's degree	10.0%	12.5%	12.8%	13.5%	12.5%
Bachelor's degree	30.8%	36.2%	32.5%	31.2%	32.9%
Graduate or professional school	21.8%	21.1%	19.0%	17.8%	19.7%
Valid N	1,273	1,488	2,320	1,537	6,625

<sup>1</sup> $\chi^2$  (15, 6618) = 55.98 p < 0.001 Cramer's V = 0.05

Table 9.7: Nature-related profession

		Flyways <sup>1</sup>				National
		Pacific	Central	Mississippi	Atlantic	
Is a nature-related profession a primary source of personal income?	Yes	17.2%	15.2%	15.3%	15.0%	15.5%
	No	82.8%	84.8%	84.7%	85.0%	84.5%
	Valid N	1,287	1,509	2,355	1,558	6,717

<sup>1</sup> $\chi^2$  (3, 6709) = 3.53 N.S.

Table 9.8: Income

Personal Income	Flyways <sup>1</sup>				National
	Pacific	Central	Mississippi	Atlantic	
Less than \$24,999	8.3%	7.0%	9.7%	8.3%	8.6%
\$25,000 to \$49,999	16.3%	14.9%	17.6%	17.6%	16.8%
\$50,000 to \$74,999	19.9%	22.3%	23.7%	22.5%	22.6%
\$75,000 to \$99,999	16.0%	17.6%	18.1%	17.0%	17.4%
\$100,000 to \$124,999	13.8%	14.5%	11.8%	12.2%	12.8%
\$125,000 to \$149,999	6.9%	6.5%	5.5%	5.3%	5.9%
\$150,000 to \$199,999	6.0%	6.0%	5.9%	6.6%	6.1%
\$200,000 to \$249,999	4.1%	3.1%	2.7%	3.5%	3.2%
\$250,000 to \$299,999	2.3%	3.1%	1.4%	1.4%	1.9%
\$300,000 or more	6.4%	4.8%	3.7%	5.6%	4.7%
Valid N	1,195	1,406	2,144	1,415	6,163

<sup>1</sup> $\chi^2$  (27, 6160) = 63.63 p < 0.001 Cramer's V = 0.06

Table 9.9: Rural land ownership

		Flyways <sup>1</sup>				National
		Pacific	Central	Mississippi	Atlantic	
Do you own land in a rural area? <sup>1</sup>	Yes	40.2%	43.1%	55.1%	52.0%	49.6%
	No	59.8%	56.9%	44.9%	48.0%	50.4%
	Valid N	1,288	1,505	2,352	1,564	6,054
Acres of rural land owned <sup>2</sup>	Mean	544	431	195	190	281
	SD	3836.2	2571.7	791.2	2011.5	2045.0
	Valid N	484	589	1,210	752	3,085

<sup>1</sup> $\chi^2$  (3, 6709) = 101.57 p < 0.001 Cramer's V = 0.12

<sup>2</sup>F (3, 3030) = 4.20 p < 0.01  $\eta^2$  = 0.01

Table 9.10: Urban and rural residence

Current Residence	Flyways <sup>1</sup>				National
	Pacific	Central	Mississippi	Atlantic	
Large urban area (500,000 or more)	16.8%	19.0%	8.8%	9.7%	12.5%
Medium urban area (50,000 to 499,999)	29.8%	24.6%	18.6%	17.8%	21.4%
Small city (10,000 to 49,999)	23.9%	19.7%	22.0%	20.0%	21.4%
Small town (2,000 to 9,999)	16.5%	15.6%	20.9%	28.4%	20.5%
Rural area (less than 2,000)	13.1%	21.1%	29.7%	24.2%	24.2%
Valid N	1,287	1,507	2,357	1,561	6,719

<sup>1</sup> $\chi^2$  (12, 6712) = 351.72 p < 0.001 Cramer's V = 0.13

Table 9.11: Urban and rural upbringing

Where Grew Up	Flyways <sup>1</sup>				National
	Pacific	Central	Mississippi	Atlantic	
Large urban area (500,000 or more)	15.9%	14.6%	10.5%	10.0%	12.1%
Medium urban area (50,000 to 499,999)	23.7%	17.8%	16.6%	15.4%	17.7%
Small city (10,000 to 49,999)	24.9%	20.6%	20.1%	19.9%	20.9%
Small town (2,000 to 9,999)	20.6%	19.2%	23.6%	29.0%	23.2%
Rural area (less than 2,000)	14.9%	27.9%	29.2%	25.7%	26.2%
Valid N	1,267	1,483	2,331	1,524	6,616

<sup>1</sup> $\chi^2$  (12, 6605) = 182.80 p < 0.001 Cramer's V = 0.10

## Section 10: Non-response Survey Summary

We developed a shortened, mail-out survey to assess differences between those who completed the NWHS online and those who did not (Appendix B). We mailed the non-response survey to 3,991 individuals in the Atlantic Flyway (Upper Atlantic = 1324, Middle Atlantic = 1334, Lower Atlantic = 1333); 4,037 individuals in the Central Flyway (Upper Central = 1366, Middle Central = 1344, Lower Central = 1337); 4,005 individuals in the Mississippi Flyway (Upper Mississippi = 1332, Middle Mississippi = 1338, Lower Mississippi = 1335); and 3,967 individuals in the Pacific Flyway (Upper Pacific = 1300, Middle Pacific = 1334, Lower Pacific = 1333) who did complete a survey online. A total of 432 hunters from the Atlantic Flyway (10.8%); 483 hunters from the Central Flyway (12.0%), 495 hunters from the Mississippi Flyway (12.4%), and 469 hunters from the Pacific Flyway (11.8%) returned a survey in the mail by May 31, 2017. The flyway specific reports for waterfowl hunters provide detailed tables of results from the non-response effort along with highlights of difference between non-respondents and respondents within each flyway. Data were not weighted to try to adjust for differences, but key differences between respondents and non-respondents are highlighted in the flyway-level summary reports. The summary of non-response findings for each flyway are provided below.

### 10.1 Atlantic Flyway

Non-respondents in the Atlantic Flyway reported that they were slightly younger on average (21.4) when they began waterfowl hunting than web survey respondents (22.1). Compared to web survey respondents (10.8%), a larger percentage of non-respondents indicated that they do not hunt either ducks or geese (21.8%). However, there were no substantive difference in the number of years in the past 5 or the number of days non-respondents and respondents reported waterfowl hunting each year.

Similar percentages of non-respondents and respondents shared the circumstances under which they hunted and whether they took single or multiple-day hunting trips, and a majority of respondents and non-respondents reported hunting on public lands or waters. Non-respondents and respondents rated the importance of different species very similarly, with over 60% reporting mallards as very or extremely important to them.

Although less than 10% of hunters who responded to the web survey indicated that would need to harvest 5 or more ducks a day to feel satisfied, about 17% of non-respondents reported they needed to harvest 5 or more ducks to feel satisfied. However, respondents and non-respondents reported similar levels of acceptability of daily bag limits season lengths.

Slightly larger percentages of non-respondents perceived crowding, hunting pressure, interference from other hunters, conflict with other hunters and lack of public place to hunt to be severe or very severe problems. However, non-respondents and respondents reported very similar ratings of satisfaction with different characteristics of their hunting experiences and similar rating of priority for duck hunting regulations.

Non-respondents had similar mean scores as respondents on items measuring the centrality of waterfowl hunting to their personal lives. The gender, age, and ethnicity of respondents and non-respondents also were very similar, but non-respondents had slightly lower average education and income levels and tended to be more rural.

## 10.2 Central Flyway

Non-respondents in the Central Flyway reported that they were slightly younger on average (16.5) than web survey respondents (20.0) when they began hunting waterfowl. Compared to web survey respondents (4.5%), a larger percentage of non-respondents indicated that they do not hunt either ducks or geese (15.5%). However, there were no substantive difference in the number of years in the past 5 or the number of days non-respondents and respondents reported hunting each year.

Similar percentages of non-respondents and respondents shared the circumstances under which they hunted and whether they took single or multiple-day hunting trips, and a majority of respondents and non-respondents reported hunting on public lands or waters. Non-respondents and respondents rated the importance of different species very similarly, with over 60% indicating mallards as very or extremely important.

Although, only about 10% of hunters who responded to the web survey indicated that would need to harvest 5 or more ducks a day to feel satisfied, almost 25% of non-respondents reported they needed to harvest 5 or more ducks to feel satisfied. However, respondents and non-respondents reported similar levels of acceptability of daily bag limits season lengths.

Slightly larger percentages of non-respondents perceived crowding, hunting pressure, interference from other hunters, conflict with other hunters and lack of public place to hunt to be severe or very severe problems. However, non-respondents and respondents reported very similar ratings of satisfaction with different characteristics of their hunting experiences and similar rating of priority for duck hunting regulations.

Non-respondents had similar mean scores as respondents on items measuring the centrality of waterfowl hunting to their personal lives. The gender, age, and ethnicity of respondents and non-respondents also were very similar, but non-respondents had slightly lower average education and income levels and tended to be more rural in residence.

## 10.3 Mississippi Flyway

Non-respondents in the Mississippi Flyway reported that they were slightly younger on average (16.5) when they began waterfowl hunting than web survey respondents (19.8). Compared to web survey respondents (8.5%), a larger percentage of non-respondents indicated that they do not hunt either ducks or geese (26.1%). However, there were no substantive difference in the number of years in the past 5 or the number of days non-respondents and respondents reported waterfowl hunting each year.

Similar percentages of non-respondents and respondents shared the circumstances under which they hunted and whether they took single or multiple-day hunting trips, and a majority of respondents and non-respondents reported hunting on public lands or waters. Non-respondents and respondents rated the importance of different species very similarly, with a majority indicating mallards as very or extremely important.

Although less than 10% of hunters who responded to the web survey indicated that would need to harvest 5 or more ducks a day to feel satisfied, almost 15% of non-respondents reported they needed to harvest 5 or more ducks to feel satisfied. However, respondents and non-respondents reported similar levels of acceptability of daily bag limits season lengths.

Slightly larger percentages of non-respondents perceived crowding, hunting pressure, interference from other hunters, conflict with other hunters and lack of public place to hunt to be severe or very severe problems. However, non-respondents and respondents reported very similar ratings of satisfaction with different characteristics of their hunting experiences and similar rating of priority for duck hunting regulations.

Non-respondents had similar mean scores as respondents on items measuring the centrality of waterfowl hunting to their personal lives. The gender, age, and ethnicity of respondents and non-respondents also were very similar, but non-respondents had slightly lower average education and income levels and tended to be more rural.

#### 10.4 Pacific Flyway

On average, non-respondents in the Pacific Flyway reported that they were slightly younger on average (17.5) when they began waterfowl hunting than web survey respondents (20.4). Compared to web survey respondents (5.5%), a larger percentage of non-respondents indicated that they do not hunt either ducks or geese (12.8%), and a slightly lower percentage of non-respondents (65.1%) hunter reported hunting each of the past 5 years than did web survey respondents (69.1%). However, there were no substantive difference in the number days non-respondents and respondents reported hunting each year.

Similar percentages of non-respondents and respondents shared the circumstances under which they hunted and whether they took single or multiple-day hunting trips, and a majority of respondents and non-respondents reported hunting on public lands or waters. Non-respondents and respondents rated the importance of different species very similarly, with over 70% indicating mallards as very or extremely important.

Although less than 15% of hunters who responded to the web survey indicated that would need to harvest 5 or more ducks a day to feel satisfied, almost 25% of non-respondents reported they needed to harvest 5 or more ducks to feel satisfied. However, respondents and non-respondents reported similar levels of acceptability of daily bag limits season lengths.

Slightly larger percentages of non-respondents perceived crowding, hunting pressure, interference from other hunters, conflict with other hunters and lack of public place to hunt to be severe or very severe problems. However, non-respondents and respondents reported very similar ratings of satisfaction with different characteristics of their hunting experiences and similar rating of priority for duck hunting regulations.

Non-respondents had similar mean scores as respondents on items measuring the centrality of waterfowl hunting to their personal lives. The gender, age, ethnicity, and residential location of respondents and non-respondents also were very similar, but non-respondents had slightly lower average education and income levels.

## Section 11: References

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## Section 12: Appendices

### 12.1 Appendix A: Survey Instrument

## NATIONAL SURVEY OF WATERFOWL HUNTERS



Thank you for participating in the national survey of waterfowl hunters. You are one of only a relatively few waterfowl hunters in your state being contacted to participate in this study. Your state wildlife management agency is helping to sponsor this study because it is important to them to understand your waterfowl hunting experiences and what you think might improve them. We are working closely with your state waterfowl managers and the National Flyway Council to complete this study. The survey will take about 20 minutes to complete, and we greatly appreciate your time and effort. Your responses are very important to the study and will be used to help guide and improve waterfowl management in the future. Please be assured that your participation in the study, and all of your responses, will be kept confidential. You must be 18 or older to participate. Thank you for your help!

**Please enter your Access Code listed in the letter that we sent to you into the box below:**

Submit Personal Access Code:



Please click on the blue arrow to move to the next page of the survey.



Q1

Q1

Which of the following statements best describes your pursuits in waterfowl hunting? *Please select one.*

Q1=1

I hunt only ducks

Q1=2

I hunt ducks and geese

Q1=3

I hunt only geese

Q1=4

I hunt neither ducks nor geese

Q2

Q2

How old were you when you started waterfowl hunting? *Please type in an age.*

Age

***Please use the blue arrows at the bottom of each page to move forward to complete new questions or backward to review questions in the survey.***



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Q3

Q3

How many years of the last 5 years have you hunted WATERFOWL? *Please select one.*

Q3=1

None

Q3=2

1 year

Q3=3

2 years

Q3=4

3 years

Q3=5

4 years

Q3=6

5 years



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Q4D

## Q4 Ducks

Over the last five years, about how many DUCKS did you harvest in a year ON AVERAGE? *Please select one.*

Q4D=1



5 or less

Q4D=2



Between 6 and 10

Q4D=3



Between 11 and 20

Q4D=4



Between 21 and 50

Q4D=5



More than 50



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Q4G

## Q4 Geese

Over the last five years, about how many GEESE did you harvest in a year ON AVERAGE? *Please select one.*

Q4G=1



5 or less

Q4G=2



Between 6 and 10

Q4G=3



Between 11 and 20

Q4G=4



Between 21 and 50

Q4G=5



More than 50



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Q5

Q5

Over the last five years, about how many days did you usually hunt WATERFOWL in a year? *Please select one.*

Q5=1

5 days or less

Q5=2

6 to 10 days

Q5=3

11 to 20 days

Q5=4

21 to 30 days

Q5=5

More than 30 days

Q6

Q6

During **LAST YEAR'S (2015)** waterfowl hunting season, how many days did you hunt for WATERFOWL? (If you did not hunt enter "0").



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Q7

Q7

How many times do you feel that you need to shoot a daily bag limit of ducks/geese to have a satisfying season? *Please select one.*

Q7=1

Never

Q7=2

On at least one of my hunts

Q7=3

Occasionally on my hunts

Q7=4

Most of my hunts

Q7=5

Every time I hunted

Q8

Q8

How many times did you shoot a limit of ducks/geese **last year's season (2015)**? *Please select one.*

Q8=1

Never

Q8=2

On at least one of my hunts

Q8=3

Occasionally on my hunts

Q8=4

Most of my hunts

Q8=5

Every time I hunted

Q8=6

I did not hunt in 2015



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Q9

Q9

Under what circumstances do you typically go hunting? *Please select one.*

Q9=1

When I plan the hunt myself

Q9=2

When someone else invites me

Q9=3

Both when I plan the hunt or someone else invites me

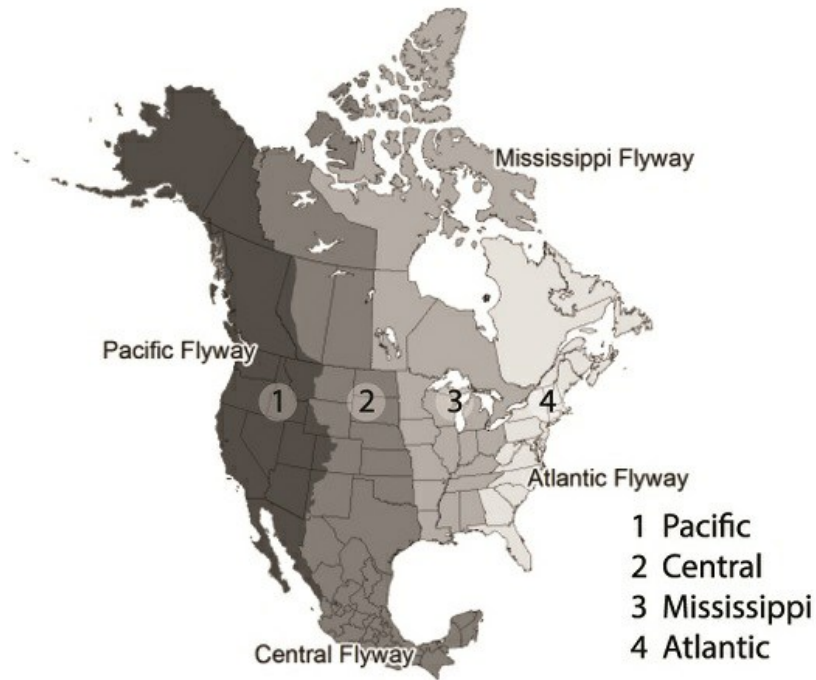


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Q10A. In the United States and Canada, waterfowl are managed across four Flyways: Pacific, Central, Mississippi, and Atlantic. These Flyways are illustrated below:



In which Flyway did you hunt most often last year (2015) or the year you last hunted? *Please select one.*

Q10F=1

☐

**1-Pacific Flyway** (AK, AZ, CA, ID, Western MT, NV, OR, UT, WA, BC,YT)

Q10F=2

☐

**2-Central Flyway** (CO, Eastern MT, KS, ND, NE, NM, OK, SD, TX, WY, AB, NT, SK)

Q10F=3

☐

**3-Mississippi Flyway** (AL, AR, IA, IL, IN, LA, KY, MI, MN, MO, MS, OH, TN, WI, MB, NU, ON)

Q10F=4

☐

**4-Atlantic Flyway** (CT, DE, FL, GA, MA, MD, ME, NC, NH, NJ, NY, PA, RI, SC, VA, VT, WV, NB, NL, NS, PE, QC)



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Q10S

Q10B

In which US State or Canadian Province have you hunted waterfowl most often over the past 5 years?



Q11

Q11

Do you primarily take day trips or overnight/multi-day trips when you waterfowl hunt? *Please select one.*

Q11=1



Primarily day trips

Q11=2



Primarily overnight or multi-day trips

Q11=3



Both about equally

Q12

Q12

Please indicate where you do most of your waterfowl hunting? *Please select one.*

Q12=1



Public land or waters

Q12=2



Private property owned by you, your family or in partnership with someone else

Q12=3



Private property owned by a friend or another landowner who gives you permission to hunt for free

Q12=4



Private property you lease or pay to hunt on

Q12=5



Guest on private property someone else leases or pays to hunt on



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## Q13

How important is it to you to hunt the following in the Central Flyway? *Select one for each category.*

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Diving ducks (e.g., scaup/bluebills, canvasback, redheads, etc.)	Q13C_r1=1 <input type="radio"/>	Q13C_r1=2 <input type="radio"/>	Q13C_r1=3 <input type="radio"/>	Q13C_r1=4 <input type="radio"/>	Q13C_r1=5 <input type="radio"/>
Mallards	Q13C_r2=1 <input type="radio"/>	Q13C_r2=2 <input type="radio"/>	Q13C_r2=3 <input type="radio"/>	Q13C_r2=4 <input type="radio"/>	Q13C_r2=5 <input type="radio"/>
Other dabbling ducks (e.g., gadwall, pintails, teal, etc.)	Q13C_r3=1 <input type="radio"/>	Q13C_r3=2 <input type="radio"/>	Q13C_r3=3 <input type="radio"/>	Q13C_r3=4 <input type="radio"/>	Q13C_r3=5 <input type="radio"/>
Geese	Q13C_r4=1 <input type="radio"/>	Q13C_r4=2 <input type="radio"/>	Q13C_r4=3 <input type="radio"/>	Q13C_r4=4 <input type="radio"/>	Q13C_r4=5 <input type="radio"/>



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## Q13

How important is it to you to hunt the following in the Mississippi Flyway? *Select one for each category.*

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Diving ducks (e.g., scaup/bluebills, canvasback, redheads, etc.)	Q13M_r1=1 <input type="radio"/>	Q13M_r1=2 <input type="radio"/>	Q13M_r1=3 <input type="radio"/>	Q13M_r1=4 <input type="radio"/>	Q13M_r1=5 <input type="radio"/>
Mallards	Q13M_r2=1 <input type="radio"/>	Q13M_r2=2 <input type="radio"/>	Q13M_r2=3 <input type="radio"/>	Q13M_r2=4 <input type="radio"/>	Q13M_r2=5 <input type="radio"/>
Other dabbling ducks (e.g., gadwall, pintails, teal, etc.)	Q13M_r3=1 <input type="radio"/>	Q13M_r3=2 <input type="radio"/>	Q13M_r3=3 <input type="radio"/>	Q13M_r3=4 <input type="radio"/>	Q13M_r3=5 <input type="radio"/>
Geese	Q13M_r4=1 <input type="radio"/>	Q13M_r4=2 <input type="radio"/>	Q13M_r4=3 <input type="radio"/>	Q13M_r4=4 <input type="radio"/>	Q13M_r4=5 <input type="radio"/>



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## Q13

How important is it to you to hunt the following in the Atlantic Flyway? *Select one for each category.*

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Diving ducks (e.g., scaup/bluebills, bufflehead, canvasback, ring-necked duck, etc.)	Q13ATL_r1=1 <input type="radio"/>	Q13ATL_r1=2 <input type="radio"/>	Q13ATL_r1=3 <input type="radio"/>	Q13ATL_r1=4 <input type="radio"/>	Q13ATL_r1=5 <input type="radio"/>
Seaducks (e.g., scoter, eider, and long-tailed)	Q13ATL_r2=1 <input type="radio"/>	Q13ATL_r2=2 <input type="radio"/>	Q13ATL_r2=3 <input type="radio"/>	Q13ATL_r2=4 <input type="radio"/>	Q13ATL_r2=5 <input type="radio"/>
Mallards	Q13ATL_r3=1 <input type="radio"/>	Q13ATL_r3=2 <input type="radio"/>	Q13ATL_r3=3 <input type="radio"/>	Q13ATL_r3=4 <input type="radio"/>	Q13ATL_r3=5 <input type="radio"/>
Wood ducks	Q13ATL_r4=1 <input type="radio"/>	Q13ATL_r4=2 <input type="radio"/>	Q13ATL_r4=3 <input type="radio"/>	Q13ATL_r4=4 <input type="radio"/>	Q13ATL_r4=5 <input type="radio"/>
Black ducks	Q13ATL_r5=1 <input type="radio"/>	Q13ATL_r5=2 <input type="radio"/>	Q13ATL_r5=3 <input type="radio"/>	Q13ATL_r5=4 <input type="radio"/>	Q13ATL_r5=5 <input type="radio"/>
Other ducks (e.g., teal, pintails, etc.)	Q13ATL_r6=1 <input type="radio"/>	Q13ATL_r6=2 <input type="radio"/>	Q13ATL_r6=3 <input type="radio"/>	Q13ATL_r6=4 <input type="radio"/>	Q13ATL_r6=5 <input type="radio"/>
Canada geese	Q13ATL_r7=1 <input type="radio"/>	Q13ATL_r7=2 <input type="radio"/>	Q13ATL_r7=3 <input type="radio"/>	Q13ATL_r7=4 <input type="radio"/>	Q13ATL_r7=5 <input type="radio"/>
Snow geese	Q13ATL_r8=1 <input type="radio"/>	Q13ATL_r8=2 <input type="radio"/>	Q13ATL_r8=3 <input type="radio"/>	Q13ATL_r8=4 <input type="radio"/>	Q13ATL_r8=5 <input type="radio"/>
Brant	Q13ATL_r9=1 <input type="radio"/>	Q13ATL_r9=2 <input type="radio"/>	Q13ATL_r9=3 <input type="radio"/>	Q13ATL_r9=4 <input type="radio"/>	Q13ATL_r9=5 <input type="radio"/>



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## Q13

How important is it to you to hunt the following in the Pacific Flyway? *Select one for each category.*

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Diving ducks (e.g., scaup/bluebills, canvasback, redheads, etc.)	Q13PAC_r1=1 <input type="radio"/>	Q13PAC_r1=2 <input type="radio"/>	Q13PAC_r1=3 <input type="radio"/>	Q13PAC_r1=4 <input type="radio"/>	Q13PAC_r1=5 <input type="radio"/>
Seaducks (e.g., scoter, eider, long-tail, etc.)	Q13PAC_r2=1 <input type="radio"/>	Q13PAC_r2=2 <input type="radio"/>	Q13PAC_r2=3 <input type="radio"/>	Q13PAC_r2=4 <input type="radio"/>	Q13PAC_r2=5 <input type="radio"/>
Mallards	Q13PAC_r3=1 <input type="radio"/>	Q13PAC_r3=2 <input type="radio"/>	Q13PAC_r3=3 <input type="radio"/>	Q13PAC_r3=4 <input type="radio"/>	Q13PAC_r3=5 <input type="radio"/>
Pintails	Q13PAC_r4=1 <input type="radio"/>	Q13PAC_r4=2 <input type="radio"/>	Q13PAC_r4=3 <input type="radio"/>	Q13PAC_r4=4 <input type="radio"/>	Q13PAC_r4=5 <input type="radio"/>
Other dabbling ducks (e.g., teal, wood duck, etc.)	Q13PAC_r5=1 <input type="radio"/>	Q13PAC_r5=2 <input type="radio"/>	Q13PAC_r5=3 <input type="radio"/>	Q13PAC_r5=4 <input type="radio"/>	Q13PAC_r5=5 <input type="radio"/>
Geese	Q13PAC_r6=1 <input type="radio"/>	Q13PAC_r6=2 <input type="radio"/>	Q13PAC_r6=3 <input type="radio"/>	Q13PAC_r6=4 <input type="radio"/>	Q13PAC_r6=5 <input type="radio"/>



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## Q14

Please indicate how much of a problem the following are in the state where you hunt waterfowl most.  
*Select one for each.*

	Not at all	Slight problem	Moderate problem	Severe problem	Very severe problem
a. Crowding at hunting areas	Q14_r1=1 <input type="radio"/>	Q14_r1=2 <input type="radio"/>	Q14_r1=3 <input type="radio"/>	Q14_r1=4 <input type="radio"/>	Q14_r1=5 <input type="radio"/>
b. Hunting pressure	Q14_r2=1 <input type="radio"/>	Q14_r2=2 <input type="radio"/>	Q14_r2=3 <input type="radio"/>	Q14_r2=4 <input type="radio"/>	Q14_r2=5 <input type="radio"/>
c. Interference from other waterfowl hunters	Q14_r3=1 <input type="radio"/>	Q14_r3=2 <input type="radio"/>	Q14_r3=3 <input type="radio"/>	Q14_r3=4 <input type="radio"/>	Q14_r3=5 <input type="radio"/>
d. Conflict with other waterfowl hunters in places I hunt	Q14_r4=1 <input type="radio"/>	Q14_r4=2 <input type="radio"/>	Q14_r4=3 <input type="radio"/>	Q14_r4=4 <input type="radio"/>	Q14_r4=5 <input type="radio"/>
e. Lack of public places for waterfowl hunting	Q14_r5=1 <input type="radio"/>	Q14_r5=2 <input type="radio"/>	Q14_r5=3 <input type="radio"/>	Q14_r5=4 <input type="radio"/>	Q14_r5=5 <input type="radio"/>



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## Q15

In the state where you hunt ducks most often, how dissatisfied or satisfied are you with: *Select one for each*

	Very Dissatisfied	Somewhat Dissatisfied	Neutral	Somewhat Satisfied	Very Satisfied
a. The number of ducks you see during the season	Q15_r1=1 <input type="radio"/>	Q15_r1=2 <input type="radio"/>	Q15_r1=3 <input type="radio"/>	Q15_r1=4 <input type="radio"/>	Q15_r1=5 <input type="radio"/>
b. The number of ducks you harvest during the season	Q15_r2=1 <input type="radio"/>	Q15_r2=2 <input type="radio"/>	Q15_r2=3 <input type="radio"/>	Q15_r2=4 <input type="radio"/>	Q15_r2=5 <input type="radio"/>
c. The number of days in the duck season	Q15_r3=1 <input type="radio"/>	Q15_r3=2 <input type="radio"/>	Q15_r3=3 <input type="radio"/>	Q15_r3=4 <input type="radio"/>	Q15_r3=5 <input type="radio"/>
d. The number of ducks in the daily limit	Q15_r4=1 <input type="radio"/>	Q15_r4=2 <input type="radio"/>	Q15_r4=3 <input type="radio"/>	Q15_r4=4 <input type="radio"/>	Q15_r4=5 <input type="radio"/>
e. The number of ducks typically present during the hunting season	Q15_r5=1 <input type="radio"/>	Q15_r5=2 <input type="radio"/>	Q15_r5=3 <input type="radio"/>	Q15_r5=4 <input type="radio"/>	Q15_r5=5 <input type="radio"/>
f. Quality of habitat where you hunt	Q15_r6=1 <input type="radio"/>	Q15_r6=2 <input type="radio"/>	Q15_r6=3 <input type="radio"/>	Q15_r6=4 <input type="radio"/>	Q15_r6=5 <input type="radio"/>
g. Your overall duck hunting experience	Q15_r7=1 <input type="radio"/>	Q15_r7=2 <input type="radio"/>	Q15_r7=3 <input type="radio"/>	Q15_r7=4 <input type="radio"/>	Q15_r7=5 <input type="radio"/>



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Q16a

Q16a

What is the minimum number of ducks you have to harvest in a day to feel satisfied with the hunt?

Q16b

Q16b

What is the smallest daily bag limit you would accept before you would no longer hunt ducks?

Q16c

Q16c

What is the minimum number of days in a waterfowl hunting season you would accept before you would no longer hunt ducks?



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## WATERFOWL HUNTING CHOICES

Waterfowl hunting experiences can vary across many different areas and situations. You might hunt very near your home or drive a few hours away to hunt. You might hunt on public land for free or pay a daily or seasonal lease fee to hunt on private land. We are interested in knowing what experiences and conditions influence where you decide to hunt on a given trip. On the next few pages, we present 10 different hypothetical comparisons of waterfowl hunting trips you could choose to take. These trips vary on 5 conditions:

- 1) **Harvest:** The number of waterfowl you are likely to harvest in a day;
- 2) **Access Effort:** How easy or difficult it is to get into, out of and around an area in order to hunt;
- 3) **Length of Travel:** The time you have to travel one-way in order to hunt;
- 4) **Quantity of Waterfowl:** The number of ducks/geese that you see in a day when hunting even if not in shooting range; and
- 5) **Potential for Interference/Competition:** Competition from other hunters who might interfere with your hunt in some way such as making you feel crowded or competing for hunting spots or birds.

Some of these scenarios might seem unlikely to you, or neither option represents the places you currently hunt, but we are still interested in understanding which described hunts you would choose. Your opinions about these comparisons will help waterfowl managers better understand waterfowl hunter preferences.

*For each scenario, select the one choice you would make if these were your only hunting options and assuming all other conditions were the same.*



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If these were your only options for a waterfowl hunt, which would you choose?  
Choose by clicking one of the buttons below:

(1 of 10)

	Option 1	Option 2	WOULD NOT GO
<b>Harvest:</b> Number of waterfowl you likely harvest in a day	One bird	3 birds	NONE: I would not go waterfowl hunting if these were my only choices.
<b>Access Effort:</b> How easy or difficult it is to get into, out of and around an area in order to hunt	Easy access that takes little effort	Moderate access that takes some effort	
<b>Length of Travel:</b> The time you have to travel one-way in order to hunt	3 hours	30 minutes	
<b>Quantity of Waterfowl:</b> The number of ducks/geese that you see in a day when hunting even if not in shooting range	50 birds	1,000 birds or more	
<b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt	High competition from other hunters	Moderate competition from other hunters	
<b>Choose one option</b>	HunterDC_Random1=1 <input type="radio"/>	HunterDC_Random1=2 <input type="radio"/>	HunterDC_Random1=3 <input type="radio"/>



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If these were your only options for a waterfowl hunt, which would you choose?  
Choose by clicking one of the buttons below:

(2 of 10)

	Option 1	Option 2	WOULD NOT GO
<b>Harvest:</b> Number of waterfowl you likely harvest in a day	3 birds	6 birds	NONE: I would not go waterfowl hunting if these were my only choices.
<b>Access Effort:</b> How easy or difficult it is to get into, out of and around an area in order to hunt	Difficult access that takes a lot of effort	Easy access that takes little effort	
<b>Length of Travel:</b> The time you have to travel one-way in order to hunt	4 hours	4 hours	
<b>Quantity of Waterfowl:</b> The number of ducks/geese that you see in a day when hunting even if not in shooting range	250 birds	25 birds or less	
<b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt	No competition	Low competition from other hunters	
<b>Choose one option</b>	HunterDC_Random2=1 <input type="radio"/>	HunterDC_Random2=2 <input type="radio"/>	HunterDC_Random2=3 <input type="radio"/>



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If these were your only options for a waterfowl hunt, which would you choose?  
Choose by clicking one of the buttons below:

(3 of 10)

	Option 1	Option 2	WOULD NOT GO
<b>Harvest:</b> Number of waterfowl you likely harvest in a day	6 birds	3 birds	NONE: I would not go waterfowl hunting if these were my only choices.
<b>Access Effort:</b> How easy or difficult it is to get into, out of and around an area in order to hunt	Difficult access that takes a lot of effort	Moderate access that takes some effort	
<b>Length of Travel:</b> The time you have to travel one-way in order to hunt	2 hours	1 hour	
<b>Quantity of Waterfowl:</b> The number of ducks/geese that you see in a day when hunting even if not in shooting range	500 birds	500 birds	
<b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt	High competition from other hunters	Low competition from other hunters	
<b>Choose one option</b>	HunterDC_Random3=1 <input type="radio"/>	HunterDC_Random3=2 <input type="radio"/>	HunterDC_Random3=3 <input type="radio"/>



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If these were your only options for a waterfowl hunt, which would you choose?  
Choose by clicking one of the buttons below:

(4 of 10)

	Option 1	Option 2	WOULD NOT GO
<b>Harvest:</b> Number of waterfowl you likely harvest in a day  <b>Access Effort:</b> How easy or difficult it is to get into, out of and around an area in order to hunt  <b>Length of Travel:</b> The time you have to travel one-way in order to hunt  <b>Quantity of Waterfowl:</b> The number of ducks/geese that you see in a day when hunting even if not in shooting range  <b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt	One bird  Easy access that takes little effort  3 hours  250 birds  Moderate competition from other hunters	One bird  Moderate access that takes some effort  2 hours  25 birds or less  No competition	NONE: I would not go waterfowl hunting if these were my only choices.
<b>Choose one option</b>	HunterDC_Random4=1 <input type="radio"/>	HunterDC_Random4=2 <input type="radio"/>	HunterDC_Random4=3 <input type="radio"/>



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If these were your only options for a waterfowl hunt, which would you choose?  
Choose by clicking one of the buttons below:

(5 of 10)

	Option 1	Option 2	WOULD NOT GO
<b>Harvest:</b> Number of waterfowl you likely harvest in a day	One bird	6 birds	NONE: I would not go waterfowl hunting if these were my only choices.
<b>Access Effort:</b> How easy or difficult it is to get into, out of and around an area in order to hunt	Difficult access that takes a lot of effort	Difficult access that takes a lot of effort	
<b>Length of Travel:</b> The time you have to travel one-way in order to hunt	30 minutes	1 hour	
<b>Quantity of Waterfowl:</b> The number of ducks/geese that you see in a day when hunting even if not in shooting range	25 birds or less	50 birds	
<b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt	Low competition from other hunters	High competition from other hunters	
<b>Choose one option</b>	HunterDC_Random5=1 <input type="radio"/>	HunterDC_Random5=2 <input type="radio"/>	HunterDC_Random5=3 <input type="radio"/>



0%  100%

If these were your only options for a waterfowl hunt, which would you choose?  
Choose by clicking one of the buttons below:

(6 of 10)

	Option 1	Option 2	WOULD NOT GO
<b>Harvest:</b> Number of waterfowl you likely harvest in a day	6 birds	3 birds	NONE: I would not go waterfowl hunting if these were my only choices.
<b>Access Effort:</b> How easy or difficult it is to get into, out of and around an area in order to hunt	Moderate access that takes some effort	Easy access that takes little effort	
<b>Length of Travel:</b> The time you have to travel one-way in order to hunt	1 hour	2 hours	
<b>Quantity of Waterfowl:</b> The number of ducks/geese that you see in a day when hunting even if not in shooting range	1,000 birds or more	50 birds	
<b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt	Moderate competition from other hunters	No competition	
<b>Choose one option</b>	HunterDC_Random6=1 <input type="radio"/>	HunterDC_Random6=2 <input type="radio"/>	HunterDC_Random6=3 <input type="radio"/>



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If these were your only options for a waterfowl hunt, which would you choose?  
Choose by clicking one of the buttons below:

(7 of 10)

	Option 1	Option 2	WOULD NOT GO
<b>Harvest:</b> Number of waterfowl you likely harvest in a day	6 birds	One bird	NONE: I would not go waterfowl hunting if these were my only choices.
<b>Access Effort:</b> How easy or difficult it is to get into, out of and around an area in order to hunt	Easy access that takes little effort	Difficult access that takes a lot of effort	
<b>Length of Travel:</b> The time you have to travel one-way in order to hunt	30 minutes	3 hours	
<b>Quantity of Waterfowl:</b> The number of ducks/geese that you see in a day when hunting even if not in shooting range	500 birds	1,000 birds or more	
<b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt	Low competition from other hunters	High competition from other hunters	
<b>Choose one option</b>	HunterDC_Random7=1 <input type="radio"/>	HunterDC_Random7=2 <input type="radio"/>	HunterDC_Random7=3 <input type="radio"/>



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100%

If these were your only options for a waterfowl hunt, which would you choose?  
Choose by clicking one of the buttons below:

(8 of 10)

	Option 1	Option 2	WOULD NOT GO
<b>Harvest:</b> Number of waterfowl you likely harvest in a day	3 birds	6 birds	NONE: I would not go waterfowl hunting if these were my only choices.
<b>Access Effort:</b> How easy or difficult it is to get into, out of and around an area in order to hunt	Moderate access that takes some effort	Moderate access that takes some effort	
<b>Length of Travel:</b> The time you have to travel one-way in order to hunt	4 hours	3 hours	
<b>Quantity of Waterfowl:</b> The number of ducks/geese that you see in a day when hunting even if not in shooting range	1,000 birds or more	250 birds	
<b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt	High competition from other hunters	Moderate competition from other hunters	
<b>Choose one option</b>	HunterDC_Random8=1 <input type="radio"/>	HunterDC_Random8=2 <input type="radio"/>	HunterDC_Random8=3 <input type="radio"/>



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If these were your only options for a waterfowl hunt, which would you choose?  
Choose by clicking one of the buttons below:

(9 of 10)

	Option 1	Option 2	WOULD NOT GO
<b>Harvest:</b> Number of waterfowl you likely harvest in a day	3 birds	6 birds	NONE: I would not go waterfowl hunting if these were my only choices.
<b>Access Effort:</b> How easy or difficult it is to get into, out of and around an area in order to hunt	Easy access that takes little effort	Difficult access that takes a lot of effort	
<b>Length of Travel:</b> The time you have to travel one-way in order to hunt	1 hour	4 hours	
<b>Quantity of Waterfowl:</b> The number of ducks/geese that you see in a day when hunting even if not in shooting range	250 birds	25 birds or less	
<b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt	Moderate competition from other hunters	No competition	
<b>Choose one option</b>	HunterDC_Random9=1 <input type="radio"/>	HunterDC_Random9=2 <input type="radio"/>	HunterDC_Random9=3 <input type="radio"/>



0%  100%

If these were your only options for a waterfowl hunt, which would you choose?  
Choose by clicking one of the buttons below:

(10 of 10)

	Option 1	Option 2	WOULD NOT GO
<b>Harvest:</b> Number of waterfowl you likely harvest in a day	3 birds	One bird	NONE: I would not go waterfowl hunting if these were my only choices.
<b>Access Effort:</b> How easy or difficult it is to get into, out of and around an area in order to hunt	Easy access that takes little effort	Difficult access that takes a lot of effort	
<b>Length of Travel:</b> The time you have to travel one-way in order to hunt	2 hours	30 minutes	
<b>Quantity of Waterfowl:</b> The number of ducks/geese that you see in a day when hunting even if not in shooting range	25 birds or less	500 birds	
<b>Potential for Interference/Competition:</b> Competition from other hunters who might interfere with your hunt	Moderate competition from other hunters	No competition	
<b>Choose one option</b>	HunterDC_Random10=1 <input type="radio"/>	HunterDC_Random10=2 <input type="radio"/>	HunterDC_Random10=3 <input type="radio"/>



0%  100%

## Q18a

How much priority should state and federal agencies give the following when setting annual duck hunting regulations? *Select one for each.*

	Very Low	Low	Moderate	High	Very High
Having the largest bag limits possible	Q18a_r1=1 <input type="radio"/>	Q18a_r1=2 <input type="radio"/>	Q18a_r1=3 <input type="radio"/>	Q18a_r1=4 <input type="radio"/>	Q18a_r1=5 <input type="radio"/>
Having the longest seasons possible	Q18a_r2=1 <input type="radio"/>	Q18a_r2=2 <input type="radio"/>	Q18a_r2=3 <input type="radio"/>	Q18a_r2=4 <input type="radio"/>	Q18a_r2=5 <input type="radio"/>
Having the largest duck populations possible	Q18a_r3=1 <input type="radio"/>	Q18a_r3=2 <input type="radio"/>	Q18a_r3=3 <input type="radio"/>	Q18a_r3=4 <input type="radio"/>	Q18a_r3=5 <input type="radio"/>
Avoiding different season lengths for different duck species	Q18a_r4=1 <input type="radio"/>	Q18a_r4=2 <input type="radio"/>	Q18a_r4=3 <input type="radio"/>	Q18a_r4=4 <input type="radio"/>	Q18a_r4=5 <input type="radio"/>
Providing the simplest regulations possible	Q18a_r5=1 <input type="radio"/>	Q18a_r5=2 <input type="radio"/>	Q18a_r5=3 <input type="radio"/>	Q18a_r5=4 <input type="radio"/>	Q18a_r5=5 <input type="radio"/>
Reducing the number of species-specific bag limits (i.e., bag limits that apply to specific species instead of the general duck bag limit)	Q18a_r6=1 <input type="radio"/>	Q18a_r6=2 <input type="radio"/>	Q18a_r6=3 <input type="radio"/>	Q18a_r6=4 <input type="radio"/>	Q18a_r6=5 <input type="radio"/>
Having the largest drake mallard bag limits possible	Q18a_r7=1 <input type="radio"/>	Q18a_r7=2 <input type="radio"/>	Q18a_r7=3 <input type="radio"/>	Q18a_r7=4 <input type="radio"/>	Q18a_r7=5 <input type="radio"/>



0%

100%

## Q18b

Of all the options listed below, please rank your top three to indicate your highest priorities. Use the numbers 1, 2, and 3, with 1 being your highest priority, 2 being your second highest priority and 3 being your third highest priority. Use each number only once.

- Q18b\_1  Having the largest bag limits possible
- Q18b\_2  Having the longest seasons possible
- Q18b\_3  Having the largest duck populations possible
- Q18b\_4  Avoiding different season lengths for different duck species
- Q18b\_5  Providing the simplest regulations possible
- Q18b\_6  Reducing the number of species-specific bag limits (i.e., bag limits that apply to specific species instead of the general duck bag limit)
- Q18b\_7  Having the largest drake mallard bag limits possible



0%  100%

Duck bag limits restrict how many ducks can be bagged each day. For some duck species, the bag limit per day is different than the general duck bag limit. Such bag limits are termed "species-specific" bag limits.

Q19

Q19

For the states where you hunt, are the rules and regulations for current species-specific bag limits difficult to understand?

Q19=1

Yes

Q19=2

No

Q20

Q20

For the states where you hunt, are the current species-specific bag limits difficult to comply with in the field?

Q20=1

Yes

Q20=2

No

Q21

Q21

Please indicate your preferred scenario for bag limits of **duck species that typically have smaller bag limits**.

Q21=1

Maximize harvest opportunity by maintaining individual species bag limits.

Q21=2

Create simpler regulations by creating aggregate bag limits for a combination of certain species (e.g., a diving duck limit).



0%  100%

Next we have a few questions about your hunting experiences and the regulations within the Central Flyway.

Do you primarily hunt waterfowl in the High Plains portion of North Dakota, South Dakota, Nebraska, Kansas, Oklahoma or Texas, or in one of the following states: Colorado, Montana, New Mexico or Wyoming?

CentralScreen=1

YES



CentralScreen=2

NO



0%



100%

## Q22

Please indicate the approach you would favor for setting bag limits for duck species other than mallards during 74-day seasons. (*Select one*).

C1=1

☐

Offer simpler regulations by keeping bag limits the same from one year to the next and limited to the following three categories:

6-bird daily bag for duck species at low risk of being overharvested,

3-bird daily bag limit (within 6-bird total daily bag) for duck species at medium risk of being overharvested,

1-bird daily bag limit (within 6-bird total daily bag) for duck species at high risk of being overharvested.

C1=2

☐

Offer the largest bag limit as possible for every duck species by allowing daily bag limits to change from one year to the next for 10 or more species. (Note: This is how regulations are currently set.)

C1=3

☐

No preference



0%



100%

C2

### Q23


Please indicate if you find each of the following combinations of season lengths and daily bag limits to be acceptable or unacceptable for a restrictive season when duck numbers and habitat conditions will not support a 74-day season with a daily bag limit of 6 ducks. (Please select one for each season option).

	Acceptable--I would still hunt	Unacceptable--I would NOT hunt
A: <b>SEASON LENGTH:</b> 32 days <b>BAG LIMIT:</b> 4 ducks	<div>C2_r1=1</div> <input type="radio"/>	<div>C2_r1=2</div> <input type="radio"/>
B: <b>SEASON LENGTH:</b> 39 days <b>BAG LIMIT:</b> 3 ducks	<div>C2_r2=1</div> <input type="radio"/>	<div>C2_r2=2</div> <input type="radio"/>
C: <b>SEASON LENGTH:</b> 46 days <b>BAG LIMIT:</b> 2 ducks	<div>C2_r3=1</div> <input type="radio"/>	<div>C2_r3=2</div> <input type="radio"/>

C2b

Of the 3 options listed above, which represents your most preferred option for a restricted season.



0%  100%

C3

### Q24

Would you accept a lower daily bag limit of 4 ducks per day if you could harvest 4 ducks of any kind? (Please select one).

C3=1

Yes

C3=2

No

C3=3

Does not matter to me

C4

### Q25

Which one statement best describes how you feel about the drake mallard daily bag limit over the last five years in the state where you hunted most. (Please select one).

C4=1

The drake mallard daily bag limit was too low

C4=2

The drake mallard daily bag limit was about right

C4=3

The drake mallard daily bag limit was too high

C4=4

No opinion



0%

100%

## Q26

What "liberal" season length would you most prefer? (Note: The "liberal" seasons are now 74 days long). (Select one).

C5=1

☐

Reduce the liberal season length from 74 to 60 days. (Note: This change could result in fewer bag limit changes from one year to the next for some species)

C5=2

☐

Maintain the liberal season length of 74 days similar to the past 20 years

C5=3

☐

Increase the liberal season length from 74 to 81 days. (Note: This change could result in a higher chance of having more moderate (45-day) and restrictive (30-day) seasons.)

C5=4

☐

No preference



0%



100%

## Q22

Please indicate the approach you would favor for setting bag limits for duck species other than mallards during 97-day seasons. (*Select one*).

CHP1=1

☐

Offer simpler regulations by keeping bag limits the same from one year to the next and limited to the following three categories:

6-bird daily bag for duck species at low risk of being overharvested,

3-bird daily bag limit (within 6-bird total daily bag) for duck species at medium risk of being overharvested,

1-bird daily bag limit (within 6-bird total daily bag) for duck species at high risk of being overharvested.

CHP1=2

☐

Offer the largest bag limit as possible for every duck species by allowing daily bag limits to change from one year to the next for 10 or more species. (Note: This is how regulations are currently set.)

CHP1=3

☐

No preference



0%



100%

## Q23

Please indicate if you find each of the following combinations of season lengths and daily bag limits to be acceptable or unacceptable for a restrictive season when duck numbers and habitat conditions will not support a 97-day season with a daily bag limit of 6 ducks. (Please select one for each season option).

	Acceptable--I would still hunt	Unacceptable--I would NOT hunt
A: <b>SEASON LENGTH:</b> 32 days <b>BAG LIMIT:</b> 4 ducks	<div>CHP2_r1=1</div> <input type="radio"/>	<div>CHP2_r1=2</div> <input type="radio"/>
B: <b>SEASON LENGTH:</b> 39 days <b>BAG LIMIT:</b> 3 ducks	<div>CHP2_r2=1</div> <input type="radio"/>	<div>CHP2_r2=2</div> <input type="radio"/>
C: <b>SEASON LENGTH:</b> 46 days <b>BAG LIMIT:</b> 2 ducks	<div>CHP2_r3=1</div> <input type="radio"/>	<div>CHP2_r3=2</div> <input type="radio"/>

CHP2b1

Of the 3 options listed above, which represents your most preferred option for a restricted season.



0% 100%

CHP3

Q24

Would you accept a lower daily bag limit of 4 ducks per day if you could harvest 4 ducks of any kind? (Please select one).

CHP3=1

Yes

CHP3=2

No

CHP3=3

Does not matter to me

CHP4

Q25

Which one statement best describes how you feel about the drake mallard daily bag limit over the last five years in the state where you hunted most. (Please select one).

CHP4=1

The drake mallard daily bag limit was too low

CHP4=2

The drake mallard daily bag limit was about right

CHP4=3

The drake mallard daily bag limit was too high

CHP4=4

No opinion



0%  100%

## Q26

What "liberal" season length would you most prefer? (Note: The "liberal" seasons are now 97 days long). (Select one).

- ☐ CHP5=1 Reduce the liberal season length from 97 to 81 days. (Note: This change could result in fewer bag limit changes from one year to the next for some species)
- ☐ CHP5=2 Maintain the liberal season length of 97 days similar to the past 20 years
- ☐ CHP5=3 Increase the liberal season length from 97 to 104 days. (Note: This change could result in a higher chance of having more moderate (45-day) and restrictive (30-day) seasons.)
- ☐ CHP5=4 No preference



0%  100%

Miss

Next we have a few questions about your hunting experiences and the regulations within the Mississippi Flyway.

M1

Q22

Please indicate the approach you would favor for setting bag limits for duck species other than mallards during 60-day seasons. (*Select one*).

M1=1

☐

Offer simpler regulations by keeping bag limits the same from one year to the next and limited to the following three categories:

6-bird daily bag for duck species at low risk of being overharvested,

3-bird daily bag limit (within 6-bird total daily bag) for duck species at medium risk of being overharvested,

1-bird daily bag limit (within 6-bird total daily bag) for duck species at high risk of being overharvested.

M1=2

☐

Offer the largest bag limit as possible for every duck species by allowing daily bag limits to change from one year to the next for 10 or more species. (Note: This is how regulations are currently set.)

M1=3

☐

No preference



0% 100%

M2

## Q23

Please indicate if you find each of the following combinations of season lengths and daily bag limits to be acceptable or unacceptable for a restrictive season when duck numbers and habitat conditions will not support a 60-day season with a daily bag limit of 6 ducks. (Please select one for each season option).

	Acceptable--I would still hunt	Unacceptable--I would NOT hunt
A: <b>SEASON LENGTH:</b> 23 days <b>BAG LIMIT:</b> 4 ducks	M2_r1=1 <input type="radio"/>	M2_r1=2 <input type="radio"/>
B: <b>SEASON LENGTH:</b> 30 days <b>BAG LIMIT:</b> 3 ducks	M2_r2=1 <input type="radio"/>	M2_r2=2 <input type="radio"/>
C: <b>SEASON LENGTH:</b> 37 days <b>BAG LIMIT:</b> 2 ducks	M2_r3=1 <input type="radio"/>	M2_r3=2 <input type="radio"/>

M2b

Of the 3 options listed above, which represents your most preferred option for a restricted season.



0%  100%

M3

### Q24

Would you accept a lower daily bag limit of 4 ducks per day if you could harvest 4 ducks of any kind? (Please select one).

M3=1

Yes

M3=2

No

M3=3

Does not matter to me

M4

### Q25

Which one statement best describes how you feel about the drake mallard daily bag limit over the last five years in the state where you hunted most. (Please select one).

M4=1

The drake mallard daily bag limit was too low

M4=2

The drake mallard daily bag limit was about right

M4=3

The drake mallard daily bag limit was too high

M4=4

No opinion



0%

100%

## Q26

What "liberal" season length would you most prefer? (Note: The "liberal" seasons are now 60 days long). (Select one).

- ☐ M5=1 Reduce the liberal season length from 60 to 53 days. (Note: This change could result in fewer bag limit changes from one year to the next for some species)
- ☐ M5=2 Maintain the liberal season length of 60 days similar to the past 20 years
- ☐ M5=3 Increase the liberal season length from 60 to 74 days. (Note: This change could result in a higher chance of having more moderate (45-day) and restrictive (30-day) seasons.)
- ☐ M5=4 No preference



0%  100%

Next we have a few questions about your hunting experiences and the regulations within the Pacific Flyway.

PAC1

Q22

How many scaup did you harvest last year? (Enter number below).

PAC2

Q23

When scaup populations decline, scaup bag limits become more restrictive. Please indicate your preference regarding the following scaup restrictive bag limits: (Select one).

PAC2=1

☐

3 for part of the season

PAC2=2

☐

2 for the entire season

PAC3

Q24

If it was found that that the 'mallard hen restriction' was not needed to sustain the population of mallards in the Pacific Flyway, would you oppose or support removing this restriction (in other words, the total mallard daily bag limit could include any combination of males and females)? (Select one).

PAC3=1

☐

Strongly oppose

PAC3=2

☐

Somewhat oppose

PAC3=3

☐

Neutral

PAC3=4

☐

Somewhat support

PAC3=5

☐

Strongly support



0%  100%

PAC4

### Q25

Pacific Flyway duck seasons have been liberal for many years. Please indicate your preference regarding the following two management options:

PAC4=1



**Option 1:** Set liberal seasons for almost all years when duck numbers are high, and close the season when duck numbers are low.

PAC4=2



**Option 2:** Set liberal seasons for most years when duck numbers are high, set moderate seasons when duck numbers are at lower levels, and close the season when duck numbers are very low.

PAC5

### Q26

The Pacific Flyway daily bag limit for pintails has been restricted many years, due to lower pintail numbers. Please indicate your preference regarding the following pintail restrictive bag limits:

PAC5=1



Bag limit of 2 pintail for most years, low risk of closed pintail seasons

PAC5=2



Bag limits of 3 pintail for few years or 1 pintail for most years, low risk of closed pintail seasons

PAC5=3



Bag limit of 1 pintail for most years, lowest risk of closed pintail seasons



0%



100%

Next we have a few questions about your hunting experiences and the regulations within the Atlantic Flyway.

## Q22

What single, most important action should state/provincial wildlife agencies take to increase your satisfaction with waterfowl hunting? (Please select only one below).

Atlantic1=1

☐

Acquire more lands to provide waterfowl habitat and hunting access

Atlantic1=2

☐

Better manage existing habitats to either grow more ducks in breeding areas or support wintering and migrating waterfowl

Atlantic1=3

☐

Reduce license and/or permit fees

Atlantic1=4

☐

Provide more educational opportunities to become better waterfowl hunters



0%  100%

## Q23

Please rank how important each of the following considerations are to your waterfowl hunting satisfaction. Please rank your responses from 1 (most important) to 6 (least important) using each rank only once.

- |             |                      |  |
|-------------|----------------------|--|
| Atlantic2_1 | <input type="text"/> | Having a quality place to hunt waterfowl   |
| Atlantic2_2 | <input type="text"/> | Hunting in an area where there is no crowding or interference from other hunters |
| Atlantic2_3 | <input type="text"/> | Seeing waterfowl while hunting   |
| Atlantic2_4 | <input type="text"/> | Having the chance to shoot/harvest waterfowl                                     |
| Atlantic2_5 | <input type="text"/> | Successfully harvesting at least one bird  |
| Atlantic2_6 | <input type="text"/> | Attaining a full bag limit   |



0%  100%

## Q24

In the mid-1980s a restriction was placed on the number of hen (female) mallards you could harvest per day in response to concerns about declining mallard populations in the Prairies. Biologists have concluded that this restriction is no longer necessary in the Atlantic Flyway. Which of the following statements most closely represents how you feel about the hen mallard restriction (Please select one below):

Atlantic3=1



If it is no longer necessary, the hen mallard restriction should be removed

Atlantic3=2



Even if it is no longer necessary, the hen mallard restriction should be retained

Atlantic3=3



No opinion (the hen mallard restriction does not affect my hunting activity or satisfaction)



0%



100%

ATLantic4

### Q25

How do the current species-specific duck bag limits and restrictions affect your hunting activity?  
(Please select one).

ATLantic4=1

☐

Does not affect my hunting activity

ATLantic4=2

☐

Somewhat limits my hunting activity

ATLantic4=3

☐

Severely limits my hunting activity

ATLantic4=4

☐

Current bag limits and restrictions prevent me from hunting.

ATLantic5

### Q26

Would you support lowering the daily duck bag limit from the current 6 ducks to 4 birds per day if you could harvest 4 ducks of any species with the exceptions of black ducks and mottled ducks which would each remain at 1 bird?

ATLantic5=1

☐

YES

ATLantic5=2

☐

NO



0%



100%

## Q27

We are interested in knowing how much waterfowl hunting means to you. Please indicate how much you disagree or agree with the following statements about your personal participation in waterfowl hunting. (*Select one for each*)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Waterfowl hunting is one of the most enjoyable activities I do.	<input type="radio"/> Q27_r1=1	<input type="radio"/> Q27_r1=2	<input type="radio"/> Q27_r1=3	<input type="radio"/> Q27_r1=4	<input type="radio"/> Q27_r1=5
Most of my friends are in some way connected with waterfowl hunting.	<input type="radio"/> Q27_r2=1	<input type="radio"/> Q27_r2=2	<input type="radio"/> Q27_r2=3	<input type="radio"/> Q27_r2=4	<input type="radio"/> Q27_r2=5
Waterfowl hunting has a central role in my life.	<input type="radio"/> Q27_r3=1	<input type="radio"/> Q27_r3=2	<input type="radio"/> Q27_r3=3	<input type="radio"/> Q27_r3=4	<input type="radio"/> Q27_r3=5
A lot of my life is organized around waterfowl hunting.	<input type="radio"/> Q27_r4=1	<input type="radio"/> Q27_r4=2	<input type="radio"/> Q27_r4=3	<input type="radio"/> Q27_r4=4	<input type="radio"/> Q27_r4=5
If I couldn't go waterfowl hunting I am not sure what I would do instead	<input type="radio"/> Q27_r5=1	<input type="radio"/> Q27_r5=2	<input type="radio"/> Q27_r5=3	<input type="radio"/> Q27_r5=4	<input type="radio"/> Q27_r5=5



0%  100%

Q28

### Q28a

During this past season did you take anyone waterfowl hunting who had never waterfowl hunted before?

Q28=1



Yes

Q28=2



No



0%



100%

Q28skip

## Q28b

If you did, who did you introduce? (*Select all that apply*).

Q28skip\_1

☐

My own child(ren)

Q28skip\_2

☐

Related child(ren)

Q28skip\_3

☐

Other Child(ren)

Q28skip\_4

☐

Adult close family (i.e. brother/sister)

Q28skip\_5

☐

Adult extended family (i.e. cousin/uncle)

Q28skip\_6

☐

Adult friend

Q28skip\_7

☐

Co-worker

Q28skip\_8

☐

Q28skip\_8\_other

Other (please specify)



0%  100%

## Q29

A person can think of themselves in a variety of ways. Please indicate the extent to which you identify yourself as a/an...(Select one for each).

	Not at all	Slightly	Moderately	Strongly	Very strongly
Birdwatcher	Q29_r1=1 <input type="radio"/>	Q29_r1=2 <input type="radio"/>	Q29_r1=3 <input type="radio"/>	Q29_r1=4 <input type="radio"/>	Q29_r1=5 <input type="radio"/>
Duck Hunter	Q29_r2=1 <input type="radio"/>	Q29_r2=2 <input type="radio"/>	Q29_r2=3 <input type="radio"/>	Q29_r2=4 <input type="radio"/>	Q29_r2=5 <input type="radio"/>
Goose Hunter	Q29_r3=1 <input type="radio"/>	Q29_r3=2 <input type="radio"/>	Q29_r3=3 <input type="radio"/>	Q29_r3=4 <input type="radio"/>	Q29_r3=5 <input type="radio"/>
Other Type of Hunter	Q29_r4=1 <input type="radio"/>	Q29_r4=2 <input type="radio"/>	Q29_r4=3 <input type="radio"/>	Q29_r4=4 <input type="radio"/>	Q29_r4=5 <input type="radio"/>
Conservationist	Q29_r5=1 <input type="radio"/>	Q29_r5=2 <input type="radio"/>	Q29_r5=3 <input type="radio"/>	Q29_r5=4 <input type="radio"/>	Q29_r5=5 <input type="radio"/>



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## Q30

We are interested in knowing about your "personal community" and whether you know people in certain kinds of occupations and people affiliated with certain types of organizations. Among your relatives, close friends, or acquaintances, are there people who participate in the following activities, have the following jobs or who belong to the following organizations? Also, would you classify yourself in any of the following areas? (Select all that apply for each row or leave blank for "no one" in that row).

	Acquaintance	Close Friend	Relative	Myself
Angler	<input type="checkbox"/> Q30_r1_c1	<input type="checkbox"/> Q30_r1_c2	<input type="checkbox"/> Q30_r1_c3	<input type="checkbox"/> Q30_r1_c4
Birdwatcher	<input type="checkbox"/> Q30_r2_c1	<input type="checkbox"/> Q30_r2_c2	<input type="checkbox"/> Q30_r2_c3	<input type="checkbox"/> Q30_r2_c4
Farmer/Rancher	<input type="checkbox"/> Q30_r3_c1	<input type="checkbox"/> Q30_r3_c2	<input type="checkbox"/> Q30_r3_c3	<input type="checkbox"/> Q30_r3_c4
National park manager/employee	<input type="checkbox"/> Q30_r4_c1	<input type="checkbox"/> Q30_r4_c2	<input type="checkbox"/> Q30_r4_c3	<input type="checkbox"/> Q30_r4_c4
Outdoor educator	<input type="checkbox"/> Q30_r5_c1	<input type="checkbox"/> Q30_r5_c2	<input type="checkbox"/> Q30_r5_c3	<input type="checkbox"/> Q30_r5_c4
State/provincial park manager/employee	<input type="checkbox"/> Q30_r6_c1	<input type="checkbox"/> Q30_r6_c2	<input type="checkbox"/> Q30_r6_c3	<input type="checkbox"/> Q30_r6_c4
Waterfowl hunter	<input type="checkbox"/> Q30_r7_c1	<input type="checkbox"/> Q30_r7_c2	<input type="checkbox"/> Q30_r7_c3	<input type="checkbox"/> Q30_r7_c4
Other type of hunter (e.g., small/big game)	<input type="checkbox"/> Q30_r8_c1	<input type="checkbox"/> Q30_r8_c2	<input type="checkbox"/> Q30_r8_c3	<input type="checkbox"/> Q30_r8_c4
State/provincial wildlife agency manager/employee	<input type="checkbox"/> Q30_r9_c1	<input type="checkbox"/> Q30_r9_c2	<input type="checkbox"/> Q30_r9_c3	<input type="checkbox"/> Q30_r9_c4
Federal wildlife agency manager/employee	<input type="checkbox"/> Q30_r10_c1	<input type="checkbox"/> Q30_r10_c2	<input type="checkbox"/> Q30_r10_c3	<input type="checkbox"/> Q30_r10_c4
Wildlife artist (amateur or professional)	<input type="checkbox"/> Q30_r11_c1	<input type="checkbox"/> Q30_r11_c2	<input type="checkbox"/> Q30_r11_c3	<input type="checkbox"/> Q30_r11_c4
Wildlife biologist	<input type="checkbox"/> Q30_r12_c1	<input type="checkbox"/> Q30_r12_c2	<input type="checkbox"/> Q30_r12_c3	<input type="checkbox"/> Q30_r12_c4
Wildlife photographer (amateur or professional)	<input type="checkbox"/> Q30_r13_c1	<input type="checkbox"/> Q30_r13_c2	<input type="checkbox"/> Q30_r13_c3	<input type="checkbox"/> Q30_r13_c4

Q30 is continued on the next screen.



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**Q30 (Continued).** We are interested in knowing about your "personal community" and whether you know people in certain kinds of occupations and people affiliated with certain types of organizations. Among your relatives, close friends, or acquaintances, are there people who participate in the following activities, have the following jobs or who belong to the following organizations? Would you classify yourself in any of the following areas? (Select all that apply for each row or leave blank for "no one" in that row).

	Acquaintance	Close Friend	Relative	Myself
Member of a fishing/conservation organizations (e.g., Trout Unlimited; Izaak Walton)	Q30cont_r1_c1 <input type="checkbox"/>	Q30cont_r1_c2 <input type="checkbox"/>	Q30cont_r1_c3 <input type="checkbox"/>	Q30cont_r1_c4 <input type="checkbox"/>
Member of birding and birdwatching groups (e.g., American Birding Association)	Q30cont_r2_c1 <input type="checkbox"/>	Q30cont_r2_c2 <input type="checkbox"/>	Q30cont_r2_c3 <input type="checkbox"/>	Q30cont_r2_c4 <input type="checkbox"/>
Member of bird conservation groups (e.g., National Audubon Society, including local chapters; American Bird Conservancy, Cornell Lab, bird observatories)	Q30cont_r3_c1 <input type="checkbox"/>	Q30cont_r3_c2 <input type="checkbox"/>	Q30cont_r3_c3 <input type="checkbox"/>	Q30cont_r3_c4 <input type="checkbox"/>
Member of ornithological societies and groups (e.g., Western field ornithologist, National or regional ornithological societies)	Q30cont_r4_c1 <input type="checkbox"/>	Q30cont_r4_c2 <input type="checkbox"/>	Q30cont_r4_c3 <input type="checkbox"/>	Q30cont_r4_c4 <input type="checkbox"/>
Member of Ducks Unlimited	Q30cont_r5_c1 <input type="checkbox"/>	Q30cont_r5_c2 <input type="checkbox"/>	Q30cont_r5_c3 <input type="checkbox"/>	Q30cont_r5_c4 <input type="checkbox"/>
Member of Delta Waterfowl	Q30cont_r6_c1 <input type="checkbox"/>	Q30cont_r6_c2 <input type="checkbox"/>	Q30cont_r6_c3 <input type="checkbox"/>	Q30cont_r6_c4 <input type="checkbox"/>
Member of state or regional waterfowl association	Q30cont_r7_c1 <input type="checkbox"/>	Q30cont_r7_c2 <input type="checkbox"/>	Q30cont_r7_c3 <input type="checkbox"/>	Q30cont_r7_c4 <input type="checkbox"/>
Member of a hunting/conservation organizations not focused on waterfowl(e.g., National Wild Turkey Federation, Rocky Mountain Elk Foundation)	Q30cont_r8_c1 <input type="checkbox"/>	Q30cont_r8_c2 <input type="checkbox"/>	Q30cont_r8_c3 <input type="checkbox"/>	Q30cont_r8_c4 <input type="checkbox"/>
Member of other local/regional conservation organizations	Q30cont_r9_c1 <input type="checkbox"/>	Q30cont_r9_c2 <input type="checkbox"/>	Q30cont_r9_c3 <input type="checkbox"/>	Q30cont_r9_c4 <input type="checkbox"/>
Member of local naturalist organizations	Q30cont_r10_c1 <input type="checkbox"/>	Q30cont_r10_c2 <input type="checkbox"/>	Q30cont_r10_c3 <input type="checkbox"/>	Q30cont_r10_c4 <input type="checkbox"/>
Member of other national/international conservation organizations (e.g., The Nature Conservancy, Sierra Club, World Wildlife Fund)	Q30cont_r11_c1 <input type="checkbox"/>	Q30cont_r11_c2 <input type="checkbox"/>	Q30cont_r11_c3 <input type="checkbox"/>	Q30cont_r11_c4 <input type="checkbox"/>



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## Q31

Please indicate your level of involvement with the following organizations in the past 12 months, even if you were not a member. (*Select one for each*).

	No Involvement	Slight Involvement	Moderate Involvement	High Involvement
Ducks Unlimited	<input type="radio"/> Q31_r1=1	<input type="radio"/> Q31_r1=2	<input type="radio"/> Q31_r1=3	<input type="radio"/> Q31_r1=4
Delta Waterfowl	<input type="radio"/> Q31_r2=1	<input type="radio"/> Q31_r2=2	<input type="radio"/> Q31_r2=3	<input type="radio"/> Q31_r2=4
Regional/State Waterfowl Association	<input type="radio"/> Q31_r3=1	<input type="radio"/> Q31_r3=2	<input type="radio"/> Q31_r3=3	<input type="radio"/> Q31_r3=4



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## Q32

How much trust do you have in the following organizations to keep your best interest in mind as a waterfowl hunter? (Select one for each organization).

	Do not trust at all	Trust a little	Trust somewhat	Trust a lot	Trust completely
State wildlife agencies	Q32_r1=1 <input type="radio"/>	Q32_r1=2 <input type="radio"/>	Q32_r1=3 <input type="radio"/>	Q32_r1=4 <input type="radio"/>	Q32_r1=5 <input type="radio"/>
Federal wildlife and land management agencies	Q32_r2=1 <input type="radio"/>	Q32_r2=2 <input type="radio"/>	Q32_r2=3 <input type="radio"/>	Q32_r2=4 <input type="radio"/>	Q32_r2=5 <input type="radio"/>
Elected officials	Q32_r3=1 <input type="radio"/>	Q32_r3=2 <input type="radio"/>	Q32_r3=3 <input type="radio"/>	Q32_r3=4 <input type="radio"/>	Q32_r3=5 <input type="radio"/>
Waterfowl hunting/conservation organizations	Q32_r4=1 <input type="radio"/>	Q32_r4=2 <input type="radio"/>	Q32_r4=3 <input type="radio"/>	Q32_r4=4 <input type="radio"/>	Q32_r4=5 <input type="radio"/>
Birding/bird conservation organizations	Q32_r5=1 <input type="radio"/>	Q32_r5=2 <input type="radio"/>	Q32_r5=3 <input type="radio"/>	Q32_r5=4 <input type="radio"/>	Q32_r5=5 <input type="radio"/>
Other conservation organizations	Q32_r6=1 <input type="radio"/>	Q32_r6=2 <input type="radio"/>	Q32_r6=3 <input type="radio"/>	Q32_r6=4 <input type="radio"/>	Q32_r6=5 <input type="radio"/>
University/college researchers/scientists	Q32_r7=1 <input type="radio"/>	Q32_r7=2 <input type="radio"/>	Q32_r7=3 <input type="radio"/>	Q32_r7=4 <input type="radio"/>	Q32_r7=5 <input type="radio"/>



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## Q33

Please indicate how much money you personally donated to the following causes in the past 12 months. (Select one amount for each).

Total amount donated in \$	\$0	Less than \$250	\$250 to \$999	\$1000 to \$2499	\$2500 to \$4999	\$5000 to \$9999	\$10,000 or more
Wetland and/or waterfowl conservation	<input type="radio"/> Q33_r1=1	<input type="radio"/> Q33_r1=2	<input type="radio"/> Q33_r1=3	<input type="radio"/> Q33_r1=4	<input type="radio"/> Q33_r1=5	<input type="radio"/> Q33_r1=6	<input type="radio"/> Q33_r1=7
Conservation of other bird species	<input type="radio"/> Q33_r2=1	<input type="radio"/> Q33_r2=2	<input type="radio"/> Q33_r2=3	<input type="radio"/> Q33_r2=4	<input type="radio"/> Q33_r2=5	<input type="radio"/> Q33_r2=6	<input type="radio"/> Q33_r2=7
Birdwatching and related issues	<input type="radio"/> Q33_r3=1	<input type="radio"/> Q33_r3=2	<input type="radio"/> Q33_r3=3	<input type="radio"/> Q33_r3=4	<input type="radio"/> Q33_r3=5	<input type="radio"/> Q33_r3=6	<input type="radio"/> Q33_r3=7
Waterfowl hunting and hunting related issues	<input type="radio"/> Q33_r4=1	<input type="radio"/> Q33_r4=2	<input type="radio"/> Q33_r4=3	<input type="radio"/> Q33_r4=4	<input type="radio"/> Q33_r4=5	<input type="radio"/> Q33_r4=6	<input type="radio"/> Q33_r4=7



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Q34

### Q34

In the past 12 months did you personally spend money for wetlands management on private lands?

Q34=1

☐

No

Q34=2

☐

Q34\_2\_other

Yes— if so, how much did you spend? (Please round to the nearest \$500 if more than \$1000)

Q34=3

☐

Yes, but I'd rather not say how much



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## Q35

Please indicate your level of involvement in the following **wetlands or waterfowl conservation** activities in the **last 12 months**. (Please select one for each activity. )

	Never	Rarely	Sometimes	Often	Very often
Worked on land improvement projects related to wetlands or waterfowl conservation	Q35_r1=1 <input type="radio"/>	Q35_r1=2 <input type="radio"/>	Q35_r1=3 <input type="radio"/>	Q35_r1=4 <input type="radio"/>	Q35_r1=5 <input type="radio"/>
Attended meetings about wetlands or waterfowl conservation	Q35_r2=1 <input type="radio"/>	Q35_r2=2 <input type="radio"/>	Q35_r2=3 <input type="radio"/>	Q35_r2=4 <input type="radio"/>	Q35_r2=5 <input type="radio"/>
Volunteered my personal time and effort to conserve wetlands or waterfowl	Q35_r3=1 <input type="radio"/>	Q35_r3=2 <input type="radio"/>	Q35_r3=3 <input type="radio"/>	Q35_r3=4 <input type="radio"/>	Q35_r3=5 <input type="radio"/>
Contacted elected officials or government agencies about wetlands or waterfowl conservation	Q35_r4=1 <input type="radio"/>	Q35_r4=2 <input type="radio"/>	Q35_r4=3 <input type="radio"/>	Q35_r4=4 <input type="radio"/>	Q35_r4=5 <input type="radio"/>
Voted for candidates or ballot issues to support wetlands or waterfowl conservation	Q35_r5=1 <input type="radio"/>	Q35_r5=2 <input type="radio"/>	Q35_r5=3 <input type="radio"/>	Q35_r5=4 <input type="radio"/>	Q35_r5=5 <input type="radio"/>
Advocated for political action to conserve wetlands or waterfowl	Q35_r6=1 <input type="radio"/>	Q35_r6=2 <input type="radio"/>	Q35_r6=3 <input type="radio"/>	Q35_r6=4 <input type="radio"/>	Q35_r6=5 <input type="radio"/>



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## Q36

In the last 12 months, have you participated in the following nature-based activities? (*Please select "Yes" or "No" for each*).

Yes	No	
<input type="radio"/> Q36_r1=1	<input type="radio"/> Q36_r1=2	Spending time in nature away from home (e.g., picnicking, relaxing in nature, camping)
<input type="radio"/> Q36_r2=1	<input type="radio"/> Q36_r2=2	Viewing wildlife (e.g., wildlife watching, bird watching, bird feeding, wildlife photography)
<input type="radio"/> Q36_r3=1	<input type="radio"/> Q36_r3=2	Learning about nature (e.g., attending festivals or lectures, visiting a nature center)
<input type="radio"/> Q36_r4=1	<input type="radio"/> Q36_r4=2	Backyard/at-home nature activities (e.g., gardening, landscaping)
<input type="radio"/> Q36_r5=1	<input type="radio"/> Q36_r5=2	Fishing
<input type="radio"/> Q36_r6=1	<input type="radio"/> Q36_r6=2	Hunting migratory birds other than waterfowl (doves, woodcock, rails, etc.)
<input type="radio"/> Q36_r7=1	<input type="radio"/> Q36_r7=2	Hunting other game birds (grouse, pheasants, turkey)
<input type="radio"/> Q36_r8=1	<input type="radio"/> Q36_r8=2	Hunting any other game animals (deer, elk, rabbit, etc.)
<input type="radio"/> Q36_r9=1	<input type="radio"/> Q36_r9=2	Other (please specify if yes) <input type="text"/> Q36_r9_other



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Q37

Q37

In the **last 12 months**, which of the following activities related to **wild birds** did you participate in, if any? (Please select "Yes" or "No" for each).

	Yes	No
Watching birds at my home	<div>Q37_r1=1</div> <input type="radio"/>	<div>Q37_r1=2</div> <input type="radio"/>
Feeding birds at my home	<div>Q37_r2=1</div> <input type="radio"/>	<div>Q37_r2=2</div> <input type="radio"/>
Watching birds away from my home	<div>Q37_r3=1</div> <input type="radio"/>	<div>Q37_r3=2</div> <input type="radio"/>
Photographing or filming birds	<div>Q37_r4=1</div> <input type="radio"/>	<div>Q37_r4=2</div> <input type="radio"/>
Counting/monitoring birds (e.g., Christmas or Backyard Bird Count)	<div>Q37_r5=1</div> <input type="radio"/>	<div>Q37_r5=2</div> <input type="radio"/>
Keeping track of the birds you see on a list, online or on paper	<div>Q37_r6=1</div> <input type="radio"/>	<div>Q37_r6=2</div> <input type="radio"/>
Installing or maintaining nest boxes for birds	<div>Q37_r7=1</div> <input type="radio"/>	<div>Q37_r7=2</div> <input type="radio"/>



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## Your Opinions about Wetlands

In this section we would like to know what you think about wetlands.

Wetlands include swamps, marshes, bogs, shallow ponds (less than 6 feet deep), and shallow areas on lakeshores and seashores. Some wetlands are only wet some of the year, while others are wet year round. They can be in cities or in rural areas and can be the size of a basketball court or cover several square miles.



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## Q38

Wetlands perform a variety of functions which are beneficial to people. When wetlands are lost or degraded, these benefits can be greatly reduced or disappear altogether. Below is a list of benefits that are threatened due to loss of wetlands. How concerned would you be if the following benefits were reduced in your community due to the loss of wetlands? (*Please select one for each benefit*).

Benefit	Not at all concerned	Slightly concerned	Somewhat concerned	Very concerned
A. Flooding protection	Q38_r1=1 <input type="radio"/>	Q38_r1=2 <input type="radio"/>	Q38_r1=3 <input type="radio"/>	Q38_r1=4 <input type="radio"/>
B. Erosion protection	Q38_r2=1 <input type="radio"/>	Q38_r2=2 <input type="radio"/>	Q38_r2=3 <input type="radio"/>	Q38_r2=4 <input type="radio"/>
C. Wildlife viewing and birdwatching	Q38_r3=1 <input type="radio"/>	Q38_r3=2 <input type="radio"/>	Q38_r3=3 <input type="radio"/>	Q38_r3=4 <input type="radio"/>
D. Hunting opportunities	Q38_r4=1 <input type="radio"/>	Q38_r4=2 <input type="radio"/>	Q38_r4=3 <input type="radio"/>	Q38_r4=4 <input type="radio"/>
E. Storage of greenhouse gases, such as carbon	Q38_r5=1 <input type="radio"/>	Q38_r5=2 <input type="radio"/>	Q38_r5=3 <input type="radio"/>	Q38_r5=4 <input type="radio"/>
F. Clean water	Q38_r6=1 <input type="radio"/>	Q38_r6=2 <input type="radio"/>	Q38_r6=3 <input type="radio"/>	Q38_r6=4 <input type="radio"/>
G. Clean air	Q38_r7=1 <input type="radio"/>	Q38_r7=2 <input type="radio"/>	Q38_r7=3 <input type="radio"/>	Q38_r7=4 <input type="radio"/>
H. Providing a home for wildlife	Q38_r8=1 <input type="radio"/>	Q38_r8=2 <input type="radio"/>	Q38_r8=3 <input type="radio"/>	Q38_r8=4 <input type="radio"/>
I. Providing a home for animals such as butterflies and bees that pollinate plants and crops	Q38_r9=1 <input type="radio"/>	Q38_r9=2 <input type="radio"/>	Q38_r9=3 <input type="radio"/>	Q38_r9=4 <input type="radio"/>
J. Scenic places for inspiration or spiritual renewal	Q38_r10=1 <input type="radio"/>	Q38_r10=2 <input type="radio"/>	Q38_r10=3 <input type="radio"/>	Q38_r10=4 <input type="radio"/>



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Q39

### Q39

Which of the wetlands benefits listed on the previous page would you be most concerned about being substantially reduced in your community? Please select the benefit you are most concerned about losing.

Q39a

Which of the wetlands benefits listed on the previous page would you be least concerned about being substantially reduced in your community? Please select the benefit you are least concerned about losing. *Be sure to select a different benefit than you selected above.*



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## About You

To help us compare your responses to those of others, we have some questions about you. Please be assured that all of your answers will remain completely confidential.

Q40

Q40

In what year were you born? (Enter last 2 digits)

Year 19:

Q41

Q41

Are you . . . ?

Q41=1

Male



Q41=2

Female



0%



100%

Q42

Q42

What is the highest level of education you have completed? *Please select only one.*

Q43

Q43

Is a nature-related profession (such as farming, fisheries, forestry, environmental science, or conservation) the primary source of your **PERSONAL** income? *Please select only one.*

Q43=1

Yes

☐

Q43=2

No

☐

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Q44

Q44

Do you own land in a rural area (outside of an urban or suburban area)?

Q44=1

Q44\_1\_other

☐

Yes--if so, how many acres do you own in total

Q44=2

☐

No



0%



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## Q45

Which of these categories best describes the place where you a) live now and b) where you lived during most of the time you were growing up (that is, until age 16)? *Please select only one in each row.*

	Large urban area (population 500,000 or more)	Medium Urban area (population between 50,000 and 499,999)	Small city (population between 10,000 and 49,999)	Small town (population between 2,000 and 9,999)	Rural area (population less than 2,000)
a) Where you live now	<div>Q45_r1=1</div> <input type="radio"/>	<div>Q45_r1=2</div> <input type="radio"/>	<div>Q45_r1=3</div> <input type="radio"/>	<div>Q45_r1=4</div> <input type="radio"/>	<div>Q45_r1=5</div> <input type="radio"/>
b) Where you grew up	<div>Q45_r2=1</div> <input type="radio"/>	<div>Q45_r2=2</div> <input type="radio"/>	<div>Q45_r2=3</div> <input type="radio"/>	<div>Q45_r2=4</div> <input type="radio"/>	<div>Q45_r2=5</div> <input type="radio"/>



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Q46

Q46

Please indicate which of the following categories applies to your total **personal** income for last year?  
*Please select only one.*

Q47

Q47

What ethnicity do you consider yourself? *Please select only one.*

Q47=1

☐

Hispanic or Latino

Q47=2

☐

Not Hispanic or Latino

Q48

Q48

From what racial origin(s) do you consider yourself? *Please check all that apply.*

Q48\_1

☐

American Indian or Native Alaskan

Q48\_2

☐

Asian

Q48\_3

☐

Black or African American

Q48\_4

☐

Native Hawaiian or other Pacific Islander

Q48\_5

☐

White



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## Comments

Please let us know about any key concerns you might have with any portion of the survey.

**Thanks very much for your comments and the time and effort you have put into helping us with the review!**



0%  100%

Thanks

Thanks you for your time and effort. We appreciate your interest in the study. Your responses will be recorded when you advance to the next screen.



0%  100%

Thanks!

We appreciate your interest in the study. Many of our questions are about current waterfowl hunting experiences, so at this time we are only focusing on active waterfowl hunters. We hope you get the opportunity to continue hunting in the future.



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**Note:**

When respondents take the survey in regular mode this page will not be displayed. Respondents will be redirected to the link below:

<http://flyways.us/>

Powered by Sawtooth Software, Inc.

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## 12.2 Appendix B: Non-response Survey Instrument

Format Adjusted

<IDNUM>

### National Waterfowl Hunter Survey

1. Which of the following statements best describes your pursuits in waterfowl hunting? (Check only one)

- ☐ I hunt only ducks
- ☐ I hunt ducks and geese
- ☐ I hunt only geese
- ☐ I hunt neither ducks nor geese → **GO TO QUESTION 17**

2. How old were you when you started waterfowl hunting? \_\_\_\_\_ Age (write in number)

3. How many of the last 5 years have you hunted WATERFOWL? (Circle one number below or check the box for "0")

1      2      3      4      5      Years      ☐ 0 (None) → **GO TO QUESTION 17**

4. Over the last five years, about how many days did you usually hunt WATERFOWL in a year? (Check only one)

- ☐ 5 days or less
- ☐ 6 to 10 days
- ☐ 11 to 20 days
- ☐ 21 to 30 days
- ☐ More than 30 days

5. Under what circumstances do you typically go hunting? (Check only one).

- ☐ When I plan the hunt myself
- ☐ When someone else invites me
- ☐ Both when I plan the hunt or someone else invites me

6. In which state/province have you hunted ducks most over the last 5 years? \_\_\_\_\_

7. How important is it to you to hunt the following: (Check one box for each)

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Diving ducks (scaup/bluebills, canvasback, redheads, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mallards	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pintails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other dabbling ducks (teal, wood ducks, gadwall, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geese	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Please indicate how much of a problem the following are in the state where you hunt ducks most.  
(Check one box for each)

	Not at all	Slight Problem	Moderate Problem	Severe Problem	Very Severe Problem	Don't Know
a. Crowding at hunting areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Hunting pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Interference from other hunters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Conflict with other hunters in places I hunt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Lack of public places for waterfowl hunting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. In the state where you hunt ducks most often, how satisfied or dissatisfied are you with: (Check one box for each)

	Very Satisfied	Somewhat Satisfied	Neutral	Somewhat Dissatisfied	Very Dissatisfied
a. The number of ducks you see during the season	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Number of ducks you harvest during the season	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. The number of days in the duck season	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The number of ducks in the daily limit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Your overall hunting experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. The number of ducks typically present during the hunting season	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Quality of habitat where you hunt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. What is the minimum number of ducks you have to harvest in a day to feel satisfied with the hunt?  
(Circle one number)

0      1      2      3      4      5      6      7      More than 7      DUCKS

11. What is the smallest daily bag limit you would accept before you would no longer hunt ducks? (Circle one or check the box)

1      2      3      4      5      6      DUCKS

or ☐ I'll hunt with any size daily bag limit

12. What is the minimum number of days in a waterfowl hunting season you would accept before you would no longer hunt ducks? (Circle one below or check the box)

10      15      20      25      30      35      40      45      50      55      60      Days

or ☐ I'll hunt with any season length

13. Do you primarily take day trips or overnight/multi-day trips when you waterfowl hunt? (Check only one)

☐ Primarily day trips      ☐ Primarily overnight or multi-day trips      ☐ Both about equally

14. Please indicate where you do most of your waterfowl hunting? (Check only one).

- ☐ Public land or waters
- ☐ Private property owned by you, your family or in partnership with someone else
- ☐ Private property owned by a friend or another landowner who gives you permission to hunt for free
- ☐ Private property you lease or pay to hunt on

15. How much priority should state and federal agencies give the following when setting annual duck hunting regulations? (Please rate the priority of each by checking a box).

	Very Low	Low	Moderate	High	Very High
Having the largest bag limits possible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having the longest seasons possible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Avoiding different season lengths for different duck species	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining unique hunting traditions (e.g., diving duck hunting)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reducing the number of species-specific bag limits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Having as large of mallard drake bag limits as possible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. We are interested in knowing how much waterfowl hunting means to you. Please indicate how much you disagree or agree with the following statements about your involvement in waterfowl hunting. (Check one for each)

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
a. Waterfowl hunting is one of the most enjoyable activities I do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Most of my friends are in some way connected with waterfowl hunting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Waterfowl hunting has a central role in my life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. A lot of my life is organized around waterfowl hunting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. If I couldn't go waterfowl hunting I am not sure what I would do instead	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. A person can think of themselves in a variety of ways. On a scale of "1" to "7", where "1" is "not at all" and "7" is "completely", how much would you identify yourself as the following?

	Not at all			Moderately			Completely
Birdwatcher	1	2	3	4	5	6	7
Duck Hunter	1	2	3	4	5	6	7
Goose Hunter	1	2	3	4	5	6	7
Other hunter	1	2	3	4	5	6	7
Conservationist	1	2	3	4	5	6	7

18. In the last 12 months, have you participated in the following nature-based activities? *Please check Yes or No for each.*

<input type="checkbox"/> Yes	<input type="checkbox"/> No	Spending time in nature away from home (e.g., picnicking, relaxing in nature, camping, hiking)
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Viewing wildlife (e.g., wildlife watching, bird watching, bird feeding, wildlife photography)
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Learning about nature (e.g., attending festivals or lectures, visiting a nature center)
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Backyard/at-home nature activities (e.g., gardening, landscaping)
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Fishing
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Hunting other migratory birds (doves, woodcock, rail, etc.)
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Hunting other game birds (grouse, pheasants)
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Hunting all other game animals (deer, elk, rabbit, etc.)
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Watching birds at my home
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Feeding birds at my home
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Watching birds away from my home
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Photographing or filming birds
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Counting/monitoring birds (e.g. Christmas or Backyard Bird Count)
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Recording the birds you see on a list, online or on paper
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Installing or maintaining nest boxes for birds

**About You** To help us compare your responses to those of others, we have some questions about you. Please be assured that all of your answers will remain completely confidential.

19. In what year were you born? 19\_\_\_\_\_

20. Are you...? ☐ Male ☐ Female

21. What is the highest level of education you have completed? (*Check one*).

- |   |  |
|---|--|
| <input type="checkbox"/> Some high school or less   | <input type="checkbox"/> Associate's degree (2 years)    |
| <input type="checkbox"/> High school diploma or GED | <input type="checkbox"/> Bachelor's degree (4 years)     |
| <input type="checkbox"/> Some college (no degree)   | <input type="checkbox"/> Graduate or professional school |

22. Do you own land in a rural area (outside of an urban or suburban area)?

- ☐ No ☐ Yes → If YES how many acres do you own in total  
\_\_\_\_\_ ACRES

23. Which of these categories best describes the place where you live now? (*Check one*)

- ☐ Large urban area (population of 500,000 or more)
- ☐ Medium urban area (population between 50,000 and 499,999)
- ☐ Small city (population between 10,000 and 49,999)
- ☐ Small town (population between 2,000 and 9,999)
- ☐ Rural area (population less than 2,000)

24. Please indicate which of the following categories applies to your personal income for the last 12 months? (*Check one*).

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Less than \$24,999 | <input type="checkbox"/> \$75,000-\$99,999   | <input type="checkbox"/> \$200,000-\$249,999 |
| <input type="checkbox"/> \$25,000-\$49,999  | <input type="checkbox"/> \$100,000-\$149,999 | <input type="checkbox"/> \$250,000-\$299,999 |
| <input type="checkbox"/> \$50,000-\$74,999  | <input type="checkbox"/> \$150,000-\$199,999 | <input type="checkbox"/> \$300,000 or more   |

25. What ethnicity do you consider yourself? (*Check one*).

- ☐ Hispanic or Latino
- ☐ Not Hispanic or Latino

26. From what racial origin(s) do you consider yourself? (*Please check all that apply*).

- ☐ American Indian or Alaskan Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or other Pacific Islander
- ☐ White

27. Please let us know why you chose not to complete the survey online earlier? (*Check all that apply*)

- |  |  |
|--|--|
| <input type="checkbox"/> I didn't receive the invitation in the mail           | <input type="checkbox"/> I don't like to answer questions online |
| <input type="checkbox"/> I don't have access to the internet                   | <input type="checkbox"/> I don't hunt ducks or geese             |
| <input type="checkbox"/> I have internet access, but couldn't open the website | <input type="checkbox"/> I didn't think the survey applied to me |
| <input type="checkbox"/> I didn't have time to complete the study earlier      |  |

### 12.3 Appendix C: Contact E-mails

November , 2016

<FirstName> <LastName>  
<Address>  
<City> <State> <Zip>

Dear <Name>,

We are contacting you to participate in a national study about waterfowl hunting and management. We are working in close collaboration with the **<Agency>** to complete this study. We are coordinating the study at the University of Minnesota for your state and the National Flyway Council (NFC). We are contacting you because you purchased a license to hunt migratory waterfowl in **<Homestate>**, and we believe you have a very important point-of-view to share about waterfowl hunting and management.

To simplify the survey process, the survey is designed to be completed online. To complete the survey, please go to the secure website: **<https://duckhuntersurvey.org/login.html>**

Because it is a secure website, you will need to enter the survey website address in your web browser (Internet Explorer, Mozilla Firefox, Safari, Chrome). Typically you will enter this address in the web address bar located in the upper left corner of your web browser screen. You CANNOT get to the survey website by searching for it on a search engine such as Google or Yahoo.

To start the survey, enter the following **Access Code: «Password»**

It is important to note that your survey code is unique and cannot be used more than once. If you have trouble getting to the web address please e-mail us at: **umn.duckhunter@gmail.com** and we will forward a link to the survey website.

The survey will take about 20 minutes to complete and we greatly appreciate your time and effort. Your participation and responses are very important because they will help guide waterfowl management into the future. Participation in this study is voluntary. If you decide to participate, you are free to not answer any question on the survey. We will treat your involvement in this study with confidentiality, and the records of this study will be kept private and secure.

Please contact us if you have any questions after reading this letter. Please e-mail us at **umn.duckhunter@gmail.com** or call **612-625-3718** if you have any questions. Thank you very much for helping us with this important study!

Regards,

State Logos in Text Box Here

December, 2016

<FirstName> <LastName>  
<Address>  
<City> <State> <Zip>

2<sup>nd</sup> ltr

Dear <Name>,

We contacted you about 10 days ago to participate in a national study of waterfowl hunters. We are working in close collaboration with the **<Agency>** to complete this study and contacting you because you purchased a license to hunt migratory waterfowl in **<Homestate>**. We believe you have a very important point-of-view to share about waterfowl hunting and management. If you have not already completed the survey, we ask that you do so now.

To simplify the survey process, the survey is designed to be completed online. To complete the survey, please go to the secure website: **<https://duckhuntersurvey.org/login.html>**

Because it is a secure website, you will need to enter the survey website address in your web browser (Internet Explorer, Mozilla Firefox, Safari, Chrome). Typically you will enter this address in the web address bar located in the upper left corner of your web browser screen. You CANNOT get to the survey website by searching for it on a search engine such as Google or Yahoo.

To start the survey, enter the following **Access Code: «Password»**

It is important to note that your survey code is unique and cannot be used more than once. If you have trouble getting to the web address please e-mail us at: **umn.duckhunter@gmail.com** and we will forward a link to the survey website.

The survey will take about 20 minutes to complete and we greatly appreciate your time and effort. Your participation and responses are very important because they will help guide waterfowl management into the future. Participation in this study is voluntary. We will treat your involvement in this study with confidentiality, and the records of this study will be kept private and secure.

Please contact us if you have any questions after reading this letter. Please e-mail us at **umn.duckhunter@gmail.com** or call **612-625-3718** if you have any questions. Thank you very much for helping us with this important study!

Regards,

Insert State Logos in Text Box  
Here

January, 2017

<FirstName> <LastName>

<Address>

<City> <State> <Zip>

3RD ltr

Dear <Name>,

About one month ago, we sent you a request to participate in a web-based nationwide study of waterfowl hunters. To the best of our knowledge we have not yet received a response from you. We are working in close collaboration with the <Agency> to complete this study. If you have not already completed the survey, we ask that you do so now.

The survey is designed to be completed online, and you can use a computer, tablet or smartphone. The following address should take you to a secure website:

**<https://duckhuntersurvey.org/login.html>**

Because it is a secure website, you will need to enter the survey website address in your web browser (Internet Explorer, Mozilla Firefox, Safari, Chrome). Typically you will enter this address in the web address bar located in the upper left corner of your web browser screen. You CANNOT get to the survey website by searching for it on a search engine such as Google or Yahoo.

To start the survey, enter the following **Access Code: «Password»**

It is important to note that your survey code is unique and cannot be used more than once. If you have trouble getting to the web address please e-mail us at: **umn.duckhunter@gmail.com** and we will forward a link to the survey website.

The survey will take about 20 minutes to complete and we greatly appreciate your time and effort. Your participation and responses are very important because they will help guide waterfowl management into the future. Participation in this study is voluntary. We will treat your involvement in this study with confidentiality, and the records of this study will be kept private and secure.

Please contact us if you have any questions after reading this letter. Please e-mail us at **umn.duckhunter@gmail.com** or call **612-625-3718** if you have any questions. Thank you very much for helping us with this important study!

Regards,

February 10, 2017

<FirstName> <LastName>  
<Address>  
<City> <State> <Zip>

Dear <Name>,

During the past couple of months, we contacted you to participate in a web-based nationwide study of waterfowl hunters. We are working in close collaboration with the **<Agency>** to complete this study. To the best of our knowledge we have not yet received a response from you. If you have not already completed the survey online, we ask that you do so now if at all possible.

We really want to include you in the online study if possible and are interested in your responses even if you have not hunted in a few years.

The survey is designed to be completed online, and you can use a computer, tablet or smartphone. The following address **<https://duckhuntersurvey.org/login.html>** will take you to the website.

To start the survey, enter the following **Access Code: <PASSWORD>**

You will need to enter the survey website address in your web browser (Internet Explorer, Mozilla Firefox, Safari, Chrome). Typically you will enter this address in the web address bar located in the upper left corner of your web browser screen. You CANNOT get to the survey website by searching for it on a search engine such as Google or Yahoo.

If you have trouble getting to the web address please e-mail us at: umnwild1@umn.edu and we will forward a link to the survey website.

The survey will take about 20 minutes to complete and we greatly appreciate your time and effort. Thank you so much for helping us with this important study!

Regards,

PS: If you cannot get access to the internet, we will be following up with a short mail survey in about 1 month.

March 31, 2017

<FirstName> <LastName>  
<Address>  
<City> <State> <Zip>

<idcode>

Dear <FirstName>,

During the past winter, we contacted you to participate in a web-based nationwide study of waterfowl hunters. We are working in close collaboration with the **<Agency>** to complete this study.

To the best of our knowledge you did not complete the survey online. We really want to include you in the study if possible. We have enclosed a shortened copy of the survey that you can complete and mail back to us in the enclosed postage paid envelope. We are interested in your responses regardless of how much you waterfowl hunt or even if you have not hunted in a few years.

The findings from this study will be used to help plan and manage for waterfowl across North America. Hearing from hunters like you is important to helping improve hunter experiences in the future.

The survey will take about 10 minutes to complete and we greatly appreciate your time and effort. The study is voluntary and all your responses will be kept confidential.

Thank you so much for helping us with this important study!

Regards,

A handwritten signature in dark ink, appearing to read "Sue Schroeder". The signature is fluid and cursive, with the first name "Sue" and last name "Schroeder" clearly distinguishable.

Sue Schroeder, Research Associate

## Appendix D: Institutional Review Board Determination

UNIVERSITY OF MINNESOTA

### DETERMINATION OF HUMAN SUBJECT RESEARCH

Route this form to:

See instructions below.

U Wide Form:  
UM 1571

June 2014

This form is used to help researchers determine if a project requires IRB review. It also provided documentation that the IRB has reviewed the project description and issued a determination.

Additional information that may assist you in determining whether or not to submit an application can be found on the IRB website. See [Does My Research Need IRB Review?](#) and Guidance and FAQs [IRB Review of Exempt Research](#).

Please allow up to five (5) business days for review and response.

Email completed form to [irb@umn.edu](mailto:irb@umn.edu)

**Based on the information provided, this project does not meet the regulatory definition of human subjects research. Additional IRB review is NOT required.**



#### Project Title

Provide the grant title below if the project is funded.

Assessing the preferences of stakeholders and waterfowl management professionals to inform the implementation of the North American Waterfowl Management Plan

#### Section 1 Contact Information

Name (last name, First name MI)

Fulton, David C.

Highest Earned Degree:

PhD

Preferred contact information: [dcfulton@umn.edu](mailto:dcfulton@umn.edu)

Preferred email at which you may be contacted by IRB staff.

#### Affiliation and contact information

☒ University of Minnesota ☐ Fairview ☐ Gillette

U of M Required Contact information

U of M Internet ID (x.500):

dcfulton

University Department:

FWCB

Version 1.2

Updated June 2014, check <http://www.irb.umn.edu> for the latest version

## Section 2 Summary of Activities

**2.1 Provide a brief description of your project. Include a description of what any participants will be asked to do and a description of the data accessed and/or collected (1,000 character limit).**

Individuals will be asked to complete an online survey focused on waterfowl hunting regulations, conditions that influence the choice of waterfowl hunting or bird viewing recreational trips, importance of hunting and viewing, beliefs about wetland conservation, and some demographics including income within broad categories. We are targeting 10,000 completed surveys nationwide. The data will be aggregated at the regional and national levels and market analysis will be conducted to better understand the preferences for hunting and viewing experiences among different segments of the study population. This information will be used to help set objectives for national level management plans of waterfowl, wetlands, and other bird species related to wetlands.

**2.2 Are all of the data used in this project publicly available, e.g. blog, aggregate data, etc.?**

Yes ☒ No

## Section 3 Is this Project Human Subjects Research as Defined by Federal Regulations?

Research is defined in the [Code of Federal Regulations, 45CFR46.102\(d\)](#), as *a systematic investigation designed to develop or contribute to generalizable knowledge*

**The Belmont report states** "...the term 'research' designates an activity designed to test a hypothesis or answer a research question(s) [and] permit conclusions to be drawn... Research is usually described in a formal protocol that sets forth an objective and a set of procedures to reach that objective."

**Research** generally does **not** include operational activities such as routine outbreak investigations and disease monitoring and studies for internal management purposes such as program evaluation, quality assurance, quality improvement, fiscal or program audits, marketing studies or contracted-for services.

**Generalizable knowledge** is information where the intended use of the research findings can be applied to populations or situations beyond that studied. Note that publishing the results of a project does not automatically meet the definition of generalizable knowledge.

<p><b>3.1 Do you have a specific research question or hypothesis?</b></p> <p><input checked="" type="checkbox"/> Yes      No</p>
<p><b>3.2 Is your primary intent to generate knowledge that can be applied broadly to the group/condition under study?</b></p> <p><input checked="" type="checkbox"/> Yes      No</p>
<p><b>Human subject is defined in the Code of Federal Regulations, 45CFR46.102(f)(1or2), as a living individual <i>about whom</i> an investigator obtains data through intervention or interaction or identifiable private information.</b></p> <p>The specimen(s)/data/information must be collected from or be <b>about</b> live subjects. Research on cadavers, autopsy specimens or specimens/information from subjects now deceased is not human subjects research.</p>
<p><b>3.3 Does this project involve intervention or interaction with a living individual or group of individuals? (e.g. confidential surveys, interviews, medical or educational testing)</b></p> <p><input checked="" type="checkbox"/> Yes      No</p>
<p><b>3.4 Does this project involve access to identifiable private data or specimens from living individuals?</b></p> <p>Yes      <input checked="" type="checkbox"/> No</p>
<p><b>3.5 Does this project consist exclusively of interviewing or surveying subjects about his/her area of expertise, with a focus on policies, practices, and/or procedures (e.g. the collected data does not focus on personal opinion or private information)?</b></p> <p><input checked="" type="checkbox"/> Yes      No</p>
<p><b>3.6 Is the project meant to record the stories, knowledge or experiences of individuals? Oral histories typically do not intend to answer a research question or hypothesis.</b></p> <p><input type="checkbox"/> Yes      <input checked="" type="checkbox"/> No</p>

If a protocol exists for this project it must be submitted for review. Submit this request along with any supplemental documents that may aid in review of your project to the University of Minnesota IRB at [irb@umn.edu](mailto:irb@umn.edu).