2004 VIRGINIA WATERFOWL HUNTER SURVEY

by

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Abstract: A survey was conducted in the fall of 2004 to determine the preferences of Virginia waterfowl hunters on regulatory options and waterfowl hunting issues. A random sample of 3,000 names and addresses was selected from people who indicated they hunted either ducks or geese when registering with the 2003-2004 Virginia Harvest Information Program (HIP). Completed surveys were returned from 1,483 respondents for an adjusted response rate of 50.4%. The coastal area of the Commonwealth (Region 1) was the most frequently hunted region for both ducks and geese, with over half of the respondents (59%) hunting ducks in this region and 48% hunting geese. The upper piedmont area (Region 5) of the state was the second most popular region for hunting ducks (25 %) and geese (30.5%). Nearly 80% of hunters said they hunted on private land, half said they hunted on public water, 23% hunted on leased land, and 15% hunted on state Wildlife Management Areas. Waterfowl hunters identified limited places to hunt and limited time available to hunt as the biggest constraints to their participation in waterfowl hunting. Similar reasons were identified as constraints to taking a youth waterfowl hunting. More hunters preferred a daily bag limit of 5 ducks (32%), than 6 (30%), 4 (18%), or 3(9%), while 12% had no opinion. Hunters generally indicated they thought Canada geese were overabundant, e.g. 53% of respondents agreed that resident geese are a nuisance, 41% thought they were doing significant damage to agricultural crops, and 43% believed that resident goose populations are too high. Potential strategies to lower the number of Canada geese were presented to survey recipients. Seventy-seven percent favored extending the season later into February or March, 63% supported extending the hunting hours one-half hour after sunset during the September season, and 54% supported increasing the bag limit during the September season.

INTRODUCTION

The primary goal of waterfowl management in the United States, including Virginia, is to maintain populations that are compatible with ecological and human interests, including recreational and other uses. Regular surveys of waterfowl hunters are an integral part of managing waterfowl at the state, flyway, and national level to evaluate hunter satisfaction and hunter preferences. The process of setting harvest regulations annually in response to waterfowl population fluctuations (Nichols et al. 1995) has led to a rather complex system of waterfowl hunting regulations. A challenge for waterfowl managers is to take hunter desires into consideration when setting regulations and try to simplify regulations so they can be easily understood. Often, there is more than one biologically acceptable regulatory option and it is important to know which of these options is most appealing to hunters. Even "moderate changes" in seasons or bag limits have been shown to significantly affect waterfowl hunter satisfaction and retention (WMI 2004, p.5).

Waterfowl managers strive to develop regulations that are "acceptable to diverse hunter interests" that will "sustain participation of waterfowl hunters over both the short-and long-term" (WMI 2004, p.8). Input from waterfowl hunters is critical for creating regulations that are compatible with their desires. This feedback can also provide insight into constraints for participation in waterfowl hunting and options for improving hunter satisfaction.

To assist in developing regulations, VDGIF solicits public input through a series of public meeting, informal communications such as emails and phone calls, and through the use of hunter surveys. Well designed hunter surveys generally provide the best evaluation of hunter opinions because they sample the entire spectrum of waterfowl hunters. VDGIF conducted a survey of Virginia waterfowl hunters in 2000 that has been very beneficial in the regulatory process. The current survey serves as an update to the 2000 survey to assess current opinions on waterfowl hunting issues.

METHODS

A survey was conducted in the Fall of 2004 to determine the preferences of Virginia waterfowl hunters on various regulatory options and hunting issues. The Harvest Information Program (HIP) registration was used as the sampling frame for this survey to insure a valid cross section of Virginia waterfowl hunters. A HIP permit is required each year, in addition to a hunting license, to hunt migratory game birds. In Virginia, the permit is free and can be obtained by calling a toll-free phone number or via the internet. There were 13,650 duck hunters and 11,809 goose hunters registered through the Harvest Information Program (HIP) in Virginia in the 2003-04 hunting season. Surveys were sent to a random sample of 3,000 HIP registrants.

The initial mailing of the survey questionnaire (Appendix A) was sent to selected hunters in November 2004. The first page of the survey booklet included a cover letter (Appendix B) explaining the purpose and importance of the study. Each survey included a stamped, self-addressed, return envelope. Two weeks after the initial mail survey (December 2004), a reminder postcard (Appendix C) was sent to all waterfowl hunters who had not yet returned the questionnaire. Finally, a second copy of the survey was sent in January 2005 to all hunters who had not responded to the survey.

RESULTS AND DISCUSSION

Response Rate

Of the 3,000 surveys sent to HIP registrants, only 2,980 had valid addresses. Of those 2,980 surveys mailed, 1,503 responses were received for a response rate of 50.4%. Eighteen of these responses were from HIP registrants who did not identify themselves as waterfowl hunters and two of the sampled hunters were deceased. The remaining responses (n=1,483) were used in the analysis of the survey results.

Waterfowl Hunter Characteristics and Participation

Survey respondents ranged in age from 11 to 85 years old, with the average age of respondents being 45.3 years (median age=46 years and mode=48 years, Question 35). Respondents had been hunting waterfowl for an average of 21.5 years (median=20 and mode=20). Waterfowling in Virginia appears to be predominantly a male activity as only 1.5% of the respondents were female. Hunter demographics appear to have changed very little since the 2000 hunter survey. In that survey, hunters averaged 44.4 years old, and had been hunting for 22 years. Similar to the current survey, only 1% of the respondents in the 2000 survey were female.

Most of the respondents (94%) lived in Virginia at the time of the survey, and only 6% came from outside the state. Survey respondents were categorized by geographic location based on the management units delineated by the VDGIF: Region 1 encompasses the coastal plain, Region 2 is the southern Piedmont, Region 3 is the southern Blue Ridge Mountains, Region 4 is the northern Blue Ridge Mountains, and Region 5 is the northern Piedmont (See map in Appendix A). The most populated region of the state (Region 5) also contained the greatest number of waterfowl hunters (44%). Virginia's traditional waterfowl hunting area (Region 1) contained 37% of the respondents, while 11% resided in Region 2, 5% in Region 4, and 3% in Region 3. Over 85% of the respondents indicated that they hunted waterfowl in Virginia during the 2003-2004 season (Question 1, Appendix A). Hunter participation increased from 2000, when only 75% of the respondents hunted. However, the HIP sampling frame was not available in 1999, so this difference may be a function of the sampling method.

The location of hunting activity differed somewhat from the distribution of the respondents. Although more respondents resided in Region 5, Region 1 was the most frequently hunted area, with over half of the respondents (59%) hunting ducks in this region and 48% hunting geese. The tidewater area of Virginia is the traditional waterfowl hunting area in the Commonwealth and also has the largest waterfowl populations. Region 5 was the second most popular hunting area (25% ducks, 31% geese), followed by Region 2, Region 4 and Region 3 respectively. These results are similar the 2000 survey results where 68% of the reported harvest for ducks occurred in Region 1 followed by 16% in Region 5, 8% in Region 2, 5% in Region 3 and 3% in Region 4. However, there did appear to be an increase in hunting activity in Region 5. Changes in Canada goose distribution and hunting regulations have most likely led to this shift. Canada goose hunting regulations were fairly restrictive in Region 1 during the 2000-2005 period as efforts were undertaken to increase the migrant goose population in this area. At the same time, Goose hunting regulations in Region 5 were more liberal in an effort to

harvest more of the resident geese that reside in this area.

Waterfowlers will often travel great distances to participate in their sport not only within the state but to other regions of the United States and other countries. Twenty-seven percent indicated that they hunted outside of Virginia in the 2003-2004 season (Question 8). Better waterfowl hunting was cited by 45% of hunters who traveled out of state to hunt, 44% went out of state to have a different or new waterfowl hunting experience, and 43% went for larger waterfowl populations. The most commonly visited areas were the nearby states of North Carolina (29%), Maryland (26%), and Pennsylvania (5%). Other popular waterfowl destinations were Canada (8%) and North Dakota (4%).

Habitats and Hunting Methods Used

Virginia offers a variety of waterfowl hunting opportunities. In order to quantify hunting activities, respondents were asked to categorize the types of lands and habitats they hunted during the 2003-2004 season. Private lands were hunted by nearly 80% of the respondents, public water was hunted by 50%, leased land was hunted by 23%, and State Wildlife Management Areas were hunted by 15% (Question 4). The predominant habitats hunted included Rivers and Streams (58%), Agricultural Fields (49%), and Inland Wetlands (47%) (Question 5). These results are similar to those from the 2000 survey in which private land was hunted 66% of the time. There was an increase in hunting on State Wildlife Management areas between 2000 to 2004.

As Virginia offers diverse waterfowl hunting opportunities, there are also a variety of waterfowl hunting methods or techniques used. To gain information on commonly practiced techniques, hunters were asked which waterfowl hunting methods they used in the 2003-2004 season (Question 6). Hunting over decoys was done most frequently (90%), compared to pass shooting (44%) or jump shooting (31%). Stationary blinds were used to a greater degree (62%) than float blinds (30%). Over half the respondents (54%) hunted with a dog, and 13% hunted with a guide.

Currently, there is a debate over the use of spinning-wing decoys and their effectiveness as it relates to fair chase issues. The U.S. Fish and Wildlife Service (USFWS) is evaluating their use and some states have already banned the use of these devices. They are currently legal in Virginia, and waterfowl hunters were asked if they thought spinning-wing decoy should be regulated (Question 7). Two-thirds said they should be legal, compared to 11 % that believed spinning-wings decoys should be illegal. Twenty-two percent had no opinion on the issue. Thirty-four percent of the respondents indicated they used a spinning-wing decoy at least once during the 2003-2004 hunting season. The popularity and acceptance of motorized decoys appears to have increased in Virginia. Only half of the respondents in the 2000 survey favored the legal use of these decoys. In the 2000 survey, many hunters were concerned with the fair-chase aspects of more liberal hunting methods such as motorized decoys, electronic calls and unplugged shotguns.

The USFWS is developing an Environment Impact Statement (EIS) to address concerns about resident Canada goose populations. The EIS addresses liberalizations in hunting methods and regulations as a means to increase resident goose harvest. Respondents were asked their opinion of these potential management strategies that might be permitted for hunting resident Canada geese (Question 27). Respondents supported four of the five strategies listed: extending the September season to open in

August, extending the late season further in February and March, extending the hunting hours to ½ hour after sunset, and increasing the bag limit in September. The only option respondents did not support was the use of electronic calls during the September season (46% opposed, 27% supported). It is interesting to note that the use of electronic calls for snow goose hunting was favored by respondents in the 2000 survey, but it was stated that electronic calls would be used only as a temporary means to reduce snow goose populations to tolerable levels.

Youth Waterfowl Hunting

In the late 1990's, the USFWS added youth waterfowl days to the federal frameworks to provide a special opportunity for young hunters. States are allowed to select two consecutive hunting days, designated as "Youth Waterfowl Hunting Days," in addition to their regular duck seasons. The days must be held outside any regular duck season on a weekend, holidays, or other non-school days when youth hunters would have the maximum opportunity to participate. The days may be held up to 14 days before or after any regular duck-season frameworks or within any split of a regular duck season, or within any other open season on migratory birds. In 1996, VDGIF initiated its first youth waterfowl day as a means to introduce youngsters to waterfowl hunting. Since Sunday hunting is not allowed in Virginia, only one youth waterfowl day is generally offered.

For the designated youth waterfowl hunting day in 2004-2005 (October 23, 2004), 7% of the respondents took a youth hunting (Question 10). For the entire 2003-2004 waterfowl hunting season, 74% of the respondents said they never took a youth waterfowl hunting, 5% took a youth hunting one day, 14% took a youth hunting 2-5 days, and 7% took a youth waterfowl hunting more than fivedays. These results are very similar to those from the 2000 survey. In that survey, 10% of waterfowl hunters indicated that they took a youth hunting on the designated youth waterfowl hunting day, and for the entire 1999-2000 waterfowl season, 72% never took a youth hunting, 8% took a youth hunting one day, 15% took a youth hunting 2-5 days, and 5% took a youth hunting five or more days. Even though participation in youth waterfowl day appears to be limited and essentially constant, respondents indicated that it has been a positive impact for those that have participated and for the future of the sport.

Since its inception, youth day has been held around the third Saturday in October. To explore changes that might increase youth participation, hunters were asked their preferences for the youth waterfowl hunting day. "After the October season" was chosen by 45% of hunters, "After the end of the regular season" was preferred by 33% of the respondents, and 23% chose "Prior to the October segment". This result is consistent with the current youth hunting date and indicates that no change is warranted.

Constraints to youth participation were assessed in Question 13. A place to hunt, and time to hunt, were identified as the biggest constraints to taking a youth waterfowl hunting. Fifty-nine percent of respondents either strongly agreed or agreed that limited places to hunt were a constraint to youth participation and 53.3 % of respondents indicated that limited time to hunt was a constraint. Other concerns such as equipment needs, or other recreational activities were much less important factors, and only 6.1% of respondents indicated that taking a youth hunting was too much of an effort.

Waterfowl Zones and Splits

September Teal Season – September teal seasons and/or bonus teal bags were initiated in the late 1960's to provide harvest opportunities on green-winged and blue-winged teal. Blue-winged teal are a lightly harvested species that is generally unavailable during the regular duck season. They are one of the earliest migrants, and many pass through Virginia in August and September, prior to the opening of the regular duck season. Green-winged teal generally arrive a bit later, in September and October, and may remain in the state throughout the winter. Special teal seasons were discontinued in the 1980's due to a drought on the prairies and a decline in teal numbers. Habitat conditions and teal populations improved in the late 1990's and special teal seasons were reinstated in 1998. Virginia has held a special September teal season in the eastern portion of the state for the past six years. The season is only permitted east of I-95 because this is where most of the teal are found. Participation in these teal seasons is thought to be low and the survey results confirmed this observation. Only 10% of respondents indicated they participated in the 2003 September season (Question 3). Similarly, only 10% of the respondents in the 2000 survey hunted during this season, indicating that interest in this season has changed little over the past fiveyears.

Zones and Splits - The USFWS provides the basic framework for waterfowl season dates and bag limits. The state can be more restrictive than the Federal Frameworks, but must stay within these federal guidelines. Every five years states have the option to adjust their duck hunting zones if they desire. In the 2006-2007 waterfowl season, VDGIF will have the option to maintain the current zones or divide the state into two or three separate zones for duck hunting (i.e. East/West or East/Central/West). Hunters were given four options for zone/split configurations and were asked to what extent they favored or opposed each of the options. A statewide zone with two splits was the preferred option, with 53% of the respondents indicating they either strongly favored or favored that combination. This is the option that is currently offered in Virginia, so there appears to be little reason to change. This option is also supported by the results of the 2000 survey. The least favored options were three zones with no splits, and three zones with one split allowed in each zone (< 20% for both, Question 14). Survey recipients were also asked to indicate their preference of several zoning options that were presented (see Question 15).

Season Dates and Splits – The October segment of the duck season is generally held during the first or second week of October. This 4-day segment had historically been held from Wednesday through Saturday. In the 2004-2005 season, the October segment was shifted a day later and was held from Thursday through Monday to take advantage of a Monday Holiday (Columbus Day). To get some feedback on this change, respondents were asked their preference for this season (Question 17). Forty-seven percent favored the Wednesday through Saturday option while 34% favored the Thursday through Monday (Columbus Holiday) option. Respondents favored this season being held during the second (34%) or the third (34%) week of October, versus the first week (22%). The preferred (mode) segment length for the October season was fourdays when there were 60 days available for the entire season (Question 16). However, when given shorter season frameworks, the most preferred October segment was zero days. This may indicated that respondents prefer hunting in the later season.

In 2002, after continued requests from a number of waterfowl hunters, the federal

duck hunting frameworks were changed, extending the closing date of the duck season from the traditional date of January 20 to the last Sunday in January (last Saturday for those states like Virginia with no Sunday Hunting). The biological effects of this late closing date are as yet unknown, but are a concern for waterfowl managers. To assess the attitudes of Virginia hunters, survey recipients were asked their preference for the duck season closing date. Ninety-two percent of the respondents chose the last Saturday in January (Question 18). In the 2000 survey, the latter closing date was also preferred even if a penalty (a reduction in the total number of hunting days) was incurred. Many general comments received during the survey also favored later closing dates.

Hunters were also asked their opinion of three options relative to the break between the middle and late segments of the duck season (Question 19). Forty-five percent chose to eliminate the break between Middle and Late segments, 37% wanted the week-long break during the first week of December, and 18% chose the break during the second week of December.

Special Species Regulations – Some species of waterfowl are of concern to managers because their populations have declined or their populations are relatively small. Managers must often consider if offering some limited hunting opportunity for these species is acceptable or if doing so would complicate regulations or cause problems for hunter in the field. For two species of concern (pintail and canvasback) where a full season is sometimes not biologically acceptable, respondents were asked their opinion of two options (Question 23): 1) Season should be either open for the entire season or closed all season, (i.e. no season within a season), or 2) I support a shorter season for these species within the longer general season. The majority of hunters (66%) stated that they preferred the shorter season for these species of concern within the regular duck season. Hunters said they would prefer these partial seasons to be held in the last 30 days of the duck season (Question 23).

Bag Limits

The federal framework has allowed a daily bag limit of six ducks since the late 1990's. Virginia has selected a daily bag limit of five ducks since that time because of concern for certain species and input from hunters that a smaller bag limit was sufficient. To assess hunter opinion, respondents were asked to choose what daily bag limit they most favored, ranging from three to six ducks (Question 20). Over 32% of respondents selected five ducks a day, 30% chose six ducks per day, 18% chose four per day, and 9% chose three. In the 2000 survey, 55% favored a five duck per day limit, 51% favored a four per day bag limit, and 45% chose a six duck per day limit.

Restrictive bag limits for individual species of concern are often established as a means of limiting harvest. Mallards are one species for which there are restrictive bag limits. The federal frameworks allow a bag limit of only two hen mallards per day. Some hunters have voiced the opinion that the limit on hen mallards should be only one per day. In this survey (Question 21), respondents preferred (41%) a bag limit of two hen mallards versus one hen mallard (31%). Wood ducks are another species with a restrictive bag limit. The wood duck bag limit has been two birds per day for nearly 20 years, but managers are considering increasing the bag limit to three birds per day for a limited portion of the season. When asked their preferences for wood duck bag limits during the October season segment, 28% wanted a bag limit of

two wood ducks and 56% chose a bag limit of three wood ducks (Question 22).

Canada Geese

Virginia has several Canada goose hunting zones/seasons that are based on goose population affiliations and goose distribution across the state. A September season is held statewide to provide opportunities to harvest resident geese. A regular season is offered in the Eastern Zone that targets migrant Canada geese from the Atlantic Population, and regular and late seasons are offered in the Western Zone that target predominantly resident Canada geese in that area. Forty-one percent of respondents indicated they hunted Canada geese during the September season. During the regular Canada goose season in 2003-2004, 48% of respondents indicated that they hunted in the eastern zone compared to 37% who said they hunted in the western zone. Thirty-six percent of respondents indicated they hunted in the late season in the western zone.

Bag limit preferences for migrant Canada geese (in the Eastern Canada goose zone) were also assessed (Question 24). The migrant Canada goose population declined in the late 1980's and early 1990's and the hunting season in the Eastern Canada Goose Hunting Zone was closed from 1995-1998. As the population recovered, hunting seasons were reopened and are continuing to be expanded as the population continues to increase. The season reopened in 1999 for six days with a one-goose daily bag limit. By 2003-04, the season had been extended to 45 days but the bag limit remained at one goose per day. In the 2004-05 season, the bag limit was one goose for the first 25 days, then two geese per day for the last 20 days. Managers are assessing what bag limit will be biologically appropriate for managing migrant goose populations in the long-term. In that regard, Question 24 was included in the survey to assess hunter opinion about potential bag limits. Three percent of respondents chose a bag limit of one goose, 12% chose one goose for the first half of the season and two for the second half, 32% selected a bag limit of two Canada geese, 41% chose a bag limit of three, and 12% said they had no opinion.

Resident Canada Geese

The resident Canada goose population increased significantly during the 1980's and early 1990's, peaking at over 250,000 in the mid-1990's. Special hunting seasons were established in September (in 1993) and in late January-February (1995) to help manage resident goose populations. These seasons have been effective in reducing resident goose numbers in areas where geese are accessible to hunters. The population has been steadily declining by 11% annually since 1999, and the 2004 population estimate is 143,741 +/- 25%.

Respondents were given information about the reduction in Virginia's resident Canada goose population and asked their opinions about resident geese (Question 25). The majority of hunters (57%) agreed with the statement "Regulations should be liberalized to further reduce resident Canada goose populations". For the next statement, "Regulations should be set to manage resident Canada goose populations at current levels," 49.3% of waterfowl hunters strongly agreed or agreed, and 31.5% strongly disagreed or disagreed. The majority of respondents did not agree with the final statement, "Regulations should be restricted to increase resident Canada goose population levels." In fact, 49.8% strongly disagreed with the statement and only 17.3% strongly agreed or agreed.

Although the statewide numbers of resident Canada geese have been decreasing in recent years, responses to Question 28 generally indicated that respondents thought Canada goose numbers were increasing. These responses could be a function of changing goose distribution that have made Canada geese more visible to the public and led to human-goose interactions in urban areas. For example, 53% of responding hunters strongly agreed or agreed that "Resident geese are a nuisance" and 40.9% strongly agreed or agreed that "Resident geese are doing significant damage to agricultural crops where I live." Over 43% of the hunters strongly agreed or agreed that "Resident goose populations are too high where I live." Only 21% of hunters strongly agreed or agreed that they had noticed a decrease in resident goose populations where they live compared to 61% who strongly disagreed or disagreed. Finally, 53% of respondents strongly agreed or agreed that they have noticed an increase in the resident goose numbers where they live.

Despite the fact that many waterfowl hunters may perceive resident Canada geese as a nuisance or responsible for agricultural damage, 45% of waterfowl hunters strongly agreed or agreed with the statement "Resident geese provide aesthetic benefits to me." Over half of the respondents strongly agreed that "Resident geese provide recreational hunting benefits to me" and another 27% agreed with this statement. These results indicate the value the resident Canada goose resource is providing both in terms of hunting opportunities and aesthetic benefits.

Hunters in Virginia have recently been given more opportunities to hunt resident geese in an effort to reduce their numbers. Hunters were asked if they started or returned to waterfowl hunting because of these new opportunities to hunt resident geese. Over 17% of the respondents said that they started or returned to waterfowl hunting because of these new opportunities.

Waterfowl Hunting and Regulations

Respondents were asked what they felt were constraints to their participation in waterfowl hunting in Virginia (Question 28). The constraints identified by adult hunters were similar to those cited as constraints to youth participation. Respondents most frequently identified limited places to hunt (70%) and limited time available to hunt (59%) as constraints to their participation. Similarly, in the 2000 survey, 79% and 74% of respondents, respectively, identified limited places to hunt and limited time to hunt as constraints to waterfowl hunting. Several of the constraints listed were not seen as limitations to waterfowl hunting (< 50% of respondents listed them as a constraint). These included concerns about safety and weather, difficulty of duck identification, cost or needs of equipment, and cost of license.

Respondents were also asked about their perceptions and opinions regarding the establishment of waterfowl regulations in Virginia. Over three-quarters (82%) of the respondents stated that seasons and bag limits should be based on the biology of the species (79% in 2000), and 57% of respondents disagreed with the statement that seasons and bag limits should be based on hunter preferences (67% disagreed in 2000). Fifty-eight percent of the waterfowl hunters said they would like to provide more input into this process (72% in 2000) and over 70% said that it is the hunters' responsibility to provide input into waterfowl regulations. Almost 43% of respondents thought that VDGIF needs to do a better job soliciting input from hunters (Question 30). When asked their preferred

method for providing input for setting waterfowl regulations, 28% preferred to email their comments to VDGIF, 24% wanted to attend a public meeting, and 16% wanted to participate in a focus group or advisory panel of waterfowl hunters. Respondents were also encouraged to list other means to solicit input. Surveys such as this one were strongly noted as well as web-base interactions such as a forum or poll.

Virginia waterfowl hunters got their information about waterfowl from a variety of sources. The most common sources for waterfowl information was friends (56%), conservation and hunting organizations (52%), VDGIF pamphlets or brochures (47%), the DGIF website (44%), and popular magazines (35%).

The last question (Question 33) was exploratory in nature. Respondents were asked to identify the waterfowl hunting and management issues they thought the VDGIF should be addressing. A common theme was the perception of limited hunting access and limited opportunities for waterfowl hunting in Virginia. Two other issues were blind laws and Sunday hunting, both of which have been long standing issues that are controversial among waterfowl community.

SUMMARY

The results from this survey will provide important information for making regulatory decisions about waterfowl bag limits, seasons, and hunting zones in Virginia. Information obtained from other forms of input such as public meetings, telephone calls and email comments are also helpful. However, these forms of input lack scientifically sound sampling methods that are necessary when drawing conclusions about the desires of the total waterfowl hunter population. This survey included a broader group of waterfowl hunters than the other forms of input because hunters were randomly selected from of the entire population of Virginia goose and duck hunters.

Statewide surveys like this are also important in the national scheme of waterfowl management. Since 1995, the USFWS and the Flyway Councils have used the concept of Adaptive Harvest Management (AHM) when setting duck regulations in the United States. A great benefit of AHM is that objective decisions can be made even when there is disagreement among waterfowl professionals about the effects that hunting and other factors have on waterfowl populations (AHM Task Force 2004). Waterfowl hunter questionnaires are included as part of the AHM process to assess hunter opinions and satisfaction. Regular surveys of the consumptive users of the waterfowl resource provide insight into the range of regulatory options that might be available to harvest managers. The information gathered in this survey will be beneficial to both the regulatory process and the waterfowling public in Virginia.

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Appendix A. Waterfowl Survey Questionnaire with responses

Virginia Department of Game and Inland Fisheries

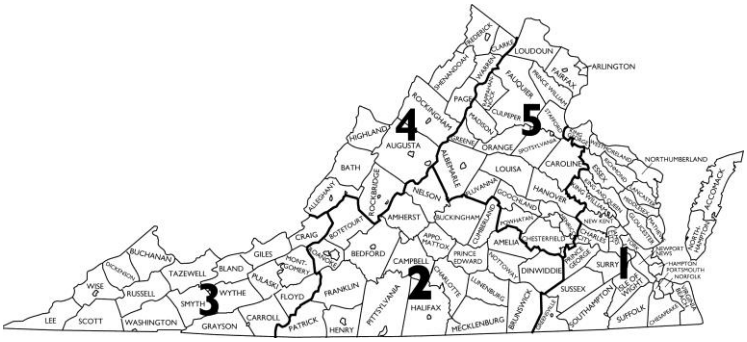
2004 Waterfowl Survey

Please answer each of the following questions completely. **All responses to questions will be kept in strictest confidence. Results from this study will be reported only in a combined total, never attributed to any individual.**

1. Did you hunt waterfowl in Virginia during the 2003-2004 season? **n=1472**

❑ **No 14.3%** ❑ **Yes 85.7%**

Region	Ducks	Geese
1	58.7%	47.6%
2	14.6%	12.8%
3	4.5%	4.0%
4	5.3%	5.6%
5	25.1%	30.5%



2. Did you hunt Canada geese in 2003-2004 in Virginia? (Check all that apply) **n=1264**

- ❑ September Season **41.5%**
- ❑ Regular season Eastern Canada goose zone (east of I-95) **48.3%**
- ❑ Regular season Western Canada goose zone (west of I-95) **36.7%**
- ❑ Late season Western Canada goose zone (January 15 to February 15) **35.6%**

3. Did you hunt teal during the special September teal season in Virginia in 2003-2004? **n=1333**

❑ Yes **10.3%** ❑ No **89.8%**

4. Did you hunt on the following types of areas during the 2003-2004 waterfowl season in Virginia? (Check all that apply) **n=1286**

❑ Private land	**79.3%**	❑ Leased land	**23.3%**
❑ Public water	**50.1%**	❑ State Wildlife Management area	**14.7%**
❑ USFWS National Wildlife Refuge	**5.1%**	❑ Other state land	**4.9%**
❑ Military installations	**6.9%**	❑ Other federal land	**4.1%**
❑ Other (please specify) _____	**2.3%**		

5. Which of the following types of habitats did you hunt during the 2003-2004 waterfowl season in Virginia? (Check all that apply) **n=1289**

- ❑ Rivers and streams **57.9%**
- ❑ Coastal Salt marshes **28.8%**
- ❑ Managed impoundments **12.7%**
- ❑ Lakes and reservoirs **25.4%**
- ❑ Inland Wetlands (Pot holes, Beaver ponds) **47.1%**
- ❑ Coastal Freshwater or Brackish marshes **26.1%**
- ❑ Agricultural field **49.0%**

6. Which of the following waterfowl hunting methods did you use in 2003-2004 in Virginia? (Check all that apply) **n=1261**

- ❑ Hunt over decoys **90.2%**
- ❑ Stationary blind **62.2%**
- ❑ Hunt with a dog **53.6%**
- ❑ Pass shoot **44.2%**
- ❑ Floating blind **29.7%**
- ❑ A spinning wing decoy **34.3%**
- ❑ Jump shoot **31.0%**
- ❑ Hire a guide **13.0%**

7. Should the use of a spinning wing decoy or electronic decoy in Virginia be: **n=1390**

❑ Legal **67.6%** ❑ Illegal **10.8%** ❑ No opinion **21.5%**

8. Did you waterfowl hunt outside of Virginia during the 2003-2004 season? **n=1351**

❑ Yes **27.0%** ❑ No **73.0%**

9. If **yes**, what was the reason you hunted out of state? (Check all that apply) **n=362**

- ❑ Larger waterfowl populations **42.5%**
- ❑ Better waterfowl hunting **45.2%**
- ❑ Greater access/more places to hunt **39.5%**
- ❑ To have a different or new waterfowl hunting experience **44.0%**
- ❑ Visit family/friends **28.4%**
- ❑ Other_____ **19.0%**

Where did you hunt? (Please list all states and/or provinces) **n=347**

North Carolina 28.5% **Maryland 25.6%** **Canada 8.1%**
Pennsylvania 5.2% **North Dakota 4.0%**

How many times during the 2003-2004 waterfowl season did you hunt outside of Virginia? **6.32** **n=354**

Each year there is one designated youth waterfowl hunting day where only youth 15 years old and younger are allowed to hunt. For the 2004-2005 hunting season, the youth waterfowl hunting day was October 23, 2004. We would like to know if you have participated in this year's youth waterfowl hunting day and your opinions about this designated day.

10. Did you take a youth hunting on the designated youth waterfowl-hunting day on October 23, 200 **n=1404**

❑ Yes **7.3%** ❑ No **92.7%**

11. How often did you take a youth (15 or younger) waterfowl hunting during the 2003-2004 season? **n=1277**

- ❑ Never **74.0%**
- ❑ 1 day **5.0%**
- ❑ 2-5 days **14.0%**
- ❑ More than 5 days **7.0%**

12. What would have been your preferences for the youth waterfowl hunting day in the 2004-2005 season? **n=1040**

- ❑ Prior to the 4 day October segment (October 7-11) **22.5%**
- ❑ After the October Segment (As it was this year (October 23)) **44.9%**
- ❑ After the end of the regular season (i.e., First Saturday in February (February 5)) **32.6%**

13. What do you feel are the constraints for taking a youth waterfowl hunting in Virginia? **n=1106**

	Strongly Agree		**Does Not Matter**		**Strongly Disagree**
Too much of an effort required to take youth hunting……	**2.2**	**3.9**	**33.0**	**12.3**	**48.4**
Hunter education requirement…….	**19.4**	**9.4**	**31.1**	**9.7**	**30.3**
Difficulty of duck identification……..	**13.5**	**15.7**	**37.2**	**13.8**	**19.7**
Conflicts with other youth recreational opportunities……. (football, soccer)	**16.0**	**23.0**	**37.4**	**8.5**	**15.2**
Limited places to hunt…….	**36.1**	**22.8**	**24.7**	**6.1**	**10.2**
Limited time to hunt……	**26.4**	**26.9**	**29.7**	**6.7**	**10.3**
Equipment needs too great and/or expensive……..	**6.9**	**13.4**	**43.0**	**14.7**	**22.0**
Waterfowl regulations are too complicated…….	**15.7**	**14.8**	**34.5**	**13.2**	**21.8**
Concerned about violating laws……..	**14.5**	**14.7**	**30.0**	**13.8**	**27.1**
Not enough waterfowl to make it worthwhile…….	**15.1**	**18.9**	**32.0**	**13.9**	**20.1**
Conflicts with other recreational users…… (e.g. boaters, fishermen)	**6.9**	**9.4**	**42.0**	**15.0**	**26.7**
Don't know any interested youth……	**20.9**	**14.8**	**22.9**	**11.6**	**29.7**
I do not perceive any constraints to youth…….. waterfowl hunting in Virginia	**27.5**	**20.1**	**29.5**	**11.2**	**11.7**

We would like to have your opinion on future duck regulations in Virginia. The United States Fish and Wildlife Service provides the basic frameworks within which states must select waterfowl season dates and bag limits. The state can be more restrictive than the Federal Frameworks, but we must stay within these federal guidelines. The answers to the following questions will help us better address the preferences of our duck hunters.

14. In two years (the 2006-2007 waterfowl season), VDGIF will decide whether to maintain our current or divide the state into two or three separate zones for duck hunting (i.e East/West or East/Central/West). Zone and segment options can only be changed at 5-year intervals, so the options selected would remain in effect for the following 5 years. To what extent would you favor or oppose each option? **n=1122**

	Strongly Favor		**Does Not Matter**		**Strongly Oppose**
Statewide zone, two splits…….. (i.e., three season segments as we currently have)	**37.9**	**14.6**	**33.8**	**5.0**	**8.7**
Two zones, one split allowed in each zone…… (i.e., two segments within each zone)	**9.4**	**12.8**	**50.7**	**10.3**	**16.8**

Three zones, no splits …… (i.e., only one continuous segment within each zone)	**11.5**	**6.6**	**47.4**	**11.0**	**23.4**
Three zones, one split allowed in each zone…….. (i.e., two segments within each zone)	**7.8**	**8.7**	**49.2**	**11.1**	**23.2**

15. What is your opinion of the potential duck hunting zones listed below if Virginia opted for two or three zones? **n=1057**

	Strongly Favor		**Does Not Matter**		**Strongly Oppose**
Same as Canada goose boundaries……	**28.6**	**12.9**	**44.0**	**5.9**	**8.5**
East/West separated by Route 29……..	**8.6**	**7.0**	**53.6**	**9.8**	**21.0**
East/West separated by I-95……..…….	**25.6**	**15.4**	**43.2**	**5.5**	**9.9**
East/Central/West, separated by I-95 and the Blue Ridge.	**14.7**	**12.3**	**48.8**	**8.5**	**15.3**

Add other suggestions you may have _____

_____

16. Currently, the duck season in Virginia is 60 days. Please indicate your preference for the length of the October segment when the Virginia season length is 60, 50, and 45 day duck seasons. **n=1175**

These results are all means, taking out all of the responses that were larger than 30 days.

a. How many days would you prefer for the October Segment if Virginia had a 60 day season? **7.32**

b. How many days would you prefer for the October Segment if Virginia had a 50 day season? **6.05**

c. How many days would you prefer for the October Segment if Virginia had a 45 day season? **5.33**

17. Which October segment framework would you most favor? **n=1057**

	Strongly Favor		**Does Not Matter**		**Strongly Oppose**
Wednesday through Saturday……...	**32.4**	**14.2**	**35.4**	**7.2**	**10.0**
Thursday through Monday (Columbus Day)……	**19.7**	**14.0**	**41.9**	**8.4**	**16.0**
Saturday through Wednesday……... (Including Columbus Day)	**15.1**	**11.1**	**44.3**	**10.7**	**18.8**
During the first week of October……..	**13.7**	**8.1**	**46.1**	**12.5**	**19.7**
During the second week of October……	**18.9**	**14.3**	**42.9**	**8.7**	**15.1**
During the third week of October……	**29.2**	**14.0**	**37.1**	**6.9**	**12.8**

18. Currently, the Federal Framework for duck seasons allows Virginia to end the season on the last Saturday in January. Would you prefer waterfowl season to: **n=1398**

- ❑ Close on January 20 **8.0%**
- ❑ Close on the last Saturday in January **91.6%**

19. Currently, Virginia has three segments, Early (October), Mid (Thanksgiving), and Late. What is your preference for the mid and late seasons? **n=1344**

- ❑ Eliminate the break between Mid and Late segments. Run the season back from the last day of the season framework **45.2%**
- ❑ A week break during the first week in December **36.5%**
- ❑ A week break during the second week in December **17.6%**

20. Which of these daily bag limits for ducks do you most favor? **n=1424**

- ❑ Three **8.6%**
- ❑ Four **17.6%**
- ❑ Five **32.2%**
- ❑ Six **29.8%**
- ❑ No opinion **11.5%**

21. What is your preference for the bag limit for hen mallards? **n=1427**

- ❑ One **30.5%**
- ❑ Two **40.5%**
- ❑ No restrictions (Hen mallard bag equal to total mallard bag) **17.4%**
- ❑ No opinion **10.7%**

22. What is your preference for the bag limit for wood ducks during the October season? **n=1426**

- ❑ Two **27.7%**
- ❑ Three **55.6%**
- ❑ No opinion **16.5%**

23. For species of concerns (i.e., pintails and canvasbacks) that may not support a full 60-day season, please indicate your opinions for the following: **n=1312**

- ❑ Season should be either open for the entire season or closed all season. (I **do not** support a season within a season) **33.9%**
- ❑ I support a shorter season for these species within the longer general season. **65.6%**

If a season within a season were permitted for pintails, please select your preference: **n=1191**

- ❑ First 30 days of the season **22.7%**
- ❑ Last 30 days **75.6%**

24. What is your preference for the bag limit for migrant Canada geese (Eastern Canada Goose Zone)? **n=1415**

- ❑ One **3.4%**
- ❑ One for 1st half of the season, two for the second half **11.1%**
- ❑ Two **31.6%**
- ❑ Three **41.4%**
- ❑ No opinion **12.4%**

25. Monitoring programs show that the resident Canada goose populations have been reduced from a high of more than **250,000** in **1997** to **150,000** in **2004**. Indicate your level of agreement with the following: **n=1208**

	Strongly Agree		Does Not Matter		Strongly Disagree
Regulations should be liberalized to further reduce resident Canada goose populations.	**42.4**	**14.6**	**15.2**	**10.6**	**17.1**
Regulations should be set to manage resident Canada goose populations at current levels.	**30.0**	**19.3**	**19.2**	**12.3**	**19.2**
Regulations should be restricted to increase resident Canada goose population levels.	**10.7**	**6.6**	**17.8**	**15.0**	**49.8**

26. Indicate your level of agreement with the following statements: **n=1343**

	Strongly Agree		Does Not Matter		Strongly Disagree
Resident geese provide aesthetic benefits to me	**21.8**	**23.3**	**29.0**	**9.9**	**16.0**
Resident geese provide recreational hunting benefits to me.	**52.6**	**27.4**	**12.9**	**2.9**	**4.2**
Resident geese are a nuisance	**29.1**	**24.2**	**19.8**	**10.6**	**16.4**
Resident geese are doing significant damage to agricultural crops where I live	**22.1**	**18.8**	**29.4**	**13.6**	**16.0**
Resident goose populations are too high where I live	**24.7**	**18.7**	**22.2**	**15.4**	**19.1**
I support the removal and destruction of Canada geese in urban areas	**18.4**	**16.2**	**20.3**	**13.6**	**31.6**
I have noticed a decrease in the resident goose numbers where I live	**7.9**	**13.0**	**17.8**	**22.5**	**38.7**
I have noticed an increase in the resident goose numbers where I live	**29.8**	**22.9**	**20.2**	**12.4**	**14.7**

27. Other hunting methods may become available for use during resident Canada goose seasons. Please indicate your level of support for each of the following: **n=1355**

	Strongly Support		Does Not Matter		Strongly Do Not Support
Extend September resident Canada goose season earlier to August 15 (Aug 15-Sept. 25)	**31.9**	**14.3**	**21.4**	**10.5**	**21.8**
Extend the Late resident Canada goose season later into February/March	**54.9**	**21.8**	**14.5**	**2.9**	**5.9**
Extend hunting hours ½ hour after sunset during the September season	**46.1**	**17.0**	**21.5**	**4.4**	**11.0**
Use of electronic call during the September season	**18.9**	**8.2**	**26.9**	**8.6**	**37.4**
Increase bag limit during the September season	**35.7**	**18.1**	**23.8**	**7.0**	**15.2**

28. In the section below, please indicate what you feel are constraints to your participation in waterfowl hunting in Virginia: **n=1240**

	Strongly Agree		Does Not Matter		Strongly Disagree
Limited places to hunt……	**46.2**	**24.2**	**13.8**	**5.9**	**9.9**
Limited time I have available to hunt……	**31.3**	**27.7**	**20.3**	**8.3**	**12.4**
Cost of license……	**6.8**	**7.6**	**34.8**	**13.7**	**37.0**
Blind Laws……	**20.3**	**13.1**	**37.8**	**10.2**	**18.6**
Difficulty of duck identification……..	**8.6**	**14.4**	**29.7**	**13.5**	**33.8**
Conflicts with other recreational opportunities……	**7.5**	**14.6**	**38.2**	**12.9**	**26.5**
Equipment needs too great and/or expensive……..	**4.7**	**10.4**	**37.0**	**16.5**	**31.4**
Not enough waterfowl to make it worthwhile……	**12.1**	**21.7**	**27.4**	**17.7**	**21.1**
Waterfowl regulations are too complicated……	**16.5**	**20.5**	**26.5**	**14.5**	**22.0**
Concerned about violating laws…….	**16.2**	**17.1**	**25.3**	**14.1**	**27.2**
Conflicts with other recreational users…… (e.g. boaters, fishermen)	**5.9**	**11.5**	**38.0**	**16.7**	**27.8**
Concerns about safety and weather…….	**4.4**	**9.7**	**34.7**	**16.0**	**35.3**
I do not perceive any constraints to my waterfowl hunting	**17.3**	**19.3**	**28.5**	**15.5**	**19.1**

29. Did you start or return to waterfowl hunting because of new resident goose hunting opportunities?
❑ Yes **17.3%** ❑ No **82.7% n=1363**

30. The following statements relate to your perceptions and opinions about the establishment of waterfowl regulations in Virginia. Please indicate to what extent you agree with the following: **n=1327**

	Strongly Agree		Does Not Matter		Strongly Disagree
The state sets waterfowl hunting regulations without…… any input from the public	**15.1**	**20.2**	**23.1**	**22.0**	**19.6**
The public input that is provided has an influence …… on the final regulatory decisions	**13.0**	**30.1**	**28.9**	**15.0**	**13.0**
I would like to provide more input into setting regulations..	**28.9**	**28.9**	**34.1**	**5.0**	**2.9**
Seasons and bag limits should be based…… on hunter preferences	**11.0**	**14.3**	**17.5**	**24.0**	**33.1**
Seasons and bag limits should be based…….. on the biology of the species	**50.2**	**31.7**	**11.0**	**3.3**	**3.7**
I understand how waterfowl regulations are set……	**17.9**	**32.0**	**21.8**	**15.1**	**13.3**
I have no interest in how waterfowl regulations are set……	**4.3**	**4.7**	**16.0**	**23.9**	**50.8**
VDGIF should do a better job of soliciting input…….	**19.1**	**23.6**	**31.6**	**15.5**	**9.7**
It is a hunter's responsibility to provide input for …… waterfowl regulations	**33.6**	**36.6**	**17.8**	**6.7**	**4.7**

31. What is your preferred method to provide input for setting waterfowl regulations?

- ❑ Attend a public meeting **24.0% n=313**
- ❑ Email comments to VDGIF **28.3% n=370**
- ❑ Internet message board on VDGIF homepage **12.9% n=168**
- ❑ Letter to VDGIF **6.4% n=84**
- ❑ Phone call to VDGIF **5.6% n=73**
- ❑ Focus group or advisory panel comprised of waterfowl hunters **16.2% n=211**
- ❑ Other: (Most listed more than one of the options above) **6.7% n=87**

32. Where do you get information regarding waterfowl? **n=1386**

- ❑ VDGIF website **43.7%**
- ❑ VDGIF brochure or regulation pamphlet **46.9%**
- ❑ VDGIF presentations **5.7%**
- ❑ VDGIF staff **9.9%**
- ❑ Internet websites/forums **20.0%**
- ❑ Popular magazines **35.4%**
- ❑ Local media/newspapers **23.8%**
- ❑ Television **22.4%**
- ❑ Conservation/hunting organizations (Ducks Unlimited, Delta Waterfowl) **52.3%**
- ❑ Friends **56.0%**
- ❑ Other **4.7%**

33. What are relevant issues to you in waterfowling and waterfowl management that VDGIF should be exploring?

_____

_____

_____

_____

These last questions will help us understand some basic information about waterfowl hunters in Virginia. Please answer each question.

34. What year were you born? **1958 and 8 months (or 45.33 years old) n=1395**

35. Approximately how many years have you been hunting waterfowl? **21.5 years (mean) n=1410**

36. What county (or city) do you live in? **n=1301** _____

37. Gender: ❑ Male **98.5%** ❑ Female **1.5% n=1413**

Thank you for taking the time to complete this survey. Your answers are very important to the successful management of waterfowl in Virginia. Please place your completed survey in the envelope that was provided. If you have any questions regarding the study or this questionnaire, please contact:

Coren Jagnow, Survey Coordinator
Virginia Dept. of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230
(804) 367-0730
coren.jagnow@dgif.virginia.gov

Appendix B. Cover letter for first survey mailing

November 15, 2004

Dear Waterfowl Hunter:

Thank you for participating in Virginia's Harvest Information Program (HIP) last season. Your participation in HIP has provided you with an opportunity to have input into Virginia's 2005 waterfowl season structure. We randomly selected 3000 HIP registered hunters, like you, who indicated they hunted ducks or geese last season and mailed them the enclosed questionnaire. Through this process we are pleased to be able to increase our knowledge and understanding of what waterfowl hunters would like the VDGIF to consider when setting seasons and bag limits in the future.

Please take a few minutes to complete the enclosed questionnaire. Return your questionnaire by placing it in the postage paid return envelope. If you have any questions, please do not hesitate to contact the agency's survey coordinator, Coren Jagnow, at 804-367-0730 or email her at coren.jagnow@dgif.virginia.gov. Thank you for your time and input.

Sincerely,

Robert Ellis
Assistant Director, Wildlife Division
Virginia Department of Game and Inland Fisheries

Appendix C. Reminder Postcard

Two weeks ago a questionnaire seeking your opinions about waterfowl hunting in Virginia was mailed to you. Your name was drawn in a random sample of Virginia's waterfowl hunters.

If you have already completed the survey and returned it, please accept our sincere thanks. If not, please do so at your earliest possible convenience. Because it has been sent only to a small, but representative sample of waterfowl hunters in Virginia it is important that yours also be included in the study if the results are to accurately represent waterfowl hunters' opinions.

If you have not received this questionnaire, or it was misplaced, please call Coren Jagnow at (804) 367-0730 and she will mail another questionnaire to you today.

Sincerely,

Robert Ellis
Assistant Director, Wildlife Division
Virginia Department of Game and Inland Fisheries