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# Characteristics, Expenditures, and Economic Impact of Resident and Nonresident Hunters and Anglers in North Dakota, 1996-97, Season and Trends

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## Abstract

Wildlife-related recreation is an important source of economic activity in North Dakota. Using primary, survey-based data, the expenditures and economic impacts of hunters and anglers were summarized for the 1996 hunting/fishing seasons. Total resident and nonresident expenditures (including cost of licenses and additional nonresident expenditures not related to hunting/angling) came to $594 million. Almost $144 million of total expenditures was spent in rural areas by nonresidents and urban residents. Resident and nonresident hunters and anglers generated $1.6 billion in total business activity, $250 million in retail trade sales, $393 million in personal income, and supported over 21,000 jobs. These results suggest that North Dakota's resident and nonresident hunters and anglers are a vital part of the state's economy.

**Key Words:** hunter, angler, expenditures, impact, North Dakota, nonresident

## Highlights

Fish and wildlife-related recreational opportunities in North Dakota are provided by a variety of private businesses, state and federal agencies, and private landowners. Managers and policy-makers face the challenge of balancing the demand for hunting and angling activities with the supply of wildlife-related resources. The policies they are making regarding hunting and angling have an impact on the state's economy and rural communities. Therefore, the impacts from management policies on resident and nonresident hunters and anglers and on wildlife-related resources must be assessed and compared.

Mail questionnaires were distributed to a random sample of licensed hunters and anglers provided by the North Dakota Game and Fish Department (NDGF). Three license types were sampled which included: resident, nonresident, and gratis. Gratis license holders are landowners who are eligible for free licenses provided they own or lease a minimum of a quarter section of land (160 acres) and agree to hunt only on their own land. The land must also be owned or leased for agricultural purposes and actively farmed or ranched. The sample groups included 1996-97 season resident license holders for pronghorn antelope archery, pronghorn antelope firearms, special big game, deer archery, deer firearms, deer muzzleloader, furbearer, waterfowl, upland game, wild turkey (includes spring and early and late fall seasons), and open water and ice fishing. Sample groups also included 1996-97 season nonresident license holders for pronghorn archery, deer archery, deer firearms, small game, and fishing.

Resident open water anglers had the highest average season expenditures ($2,779) of all resident hunting/angling activities. Resident archery antelope hunters had the highest average daily expenditure ($450), while gratis fall wild turkey hunters had the lowest average daily ($17) and season expenditures ($50). The four activity groups of gratis hunters spent the least, both for the season and on a daily basis. Excluding them leaves fall turkey hunters spending the least for the season ($418) and archery deer hunters spending the least on average per day ($99).

Nonresident anglers had the highest season ($1,122) expenditures and archery deer hunters the highest daily ($150) expenditures of all nonresident hunters/anglers. Firearms deer hunters spent the least, on average over the nonresident season ($466), and archery antelope hunters spent the least average per day ($118).

Total direct resident and nonresident hunter/angler expenditures, excluding the cost of licenses and additional nonresident expenditures, came to $578 million. Fifty-nine percent of the total direct expenditures came from the angling activities. Resident hunters/anglers spent 94 percent ($543 million) of the total direct expenditures.

Total direct resident expenditures (excluding the cost of licenses) have increased from $151 million in 1982 to $543 million in 1996. Nonresident expenditures have increased from $6 million in 1976 to $35 million in 1996.

Resident and nonresident hunters and anglers generated $1,668 million in total business activity in North Dakota in 1996. Their expenditures accounted for $250 million in retail trade sales, and $393 million in personal income and supported over 21,000 jobs.

Total resident and nonresident expenditures (excluding cost of licenses and additional nonresident expenditures) were $578 million in 1996. Over $117 million (22 percent) of total resident expenditures were ruralized. Over $26 million (76 percent) of total nonresident expenditures were spent in rural areas. Twenty-five percent of total resident and nonresident expenditures were spent in rural areas by nonresidents and urban residents.

# Characteristics, Expenditures, and Economic Impact of Resident and Nonresident Hunters and Anglers in North Dakota, 1996-97, Season and Trends

**Tina D. Lewis, Jay A Leitch, and Aaron J. Meyer***

## Introduction

Fish and wildlife-related recreational opportunities in North Dakota are provided by a variety of private businesses, state and federal agencies, and private landowners. Managers and policy-makers face the challenge of balancing the demand for hunting and angling activities with the supply of wildlife-related resources. The policies they make regarding hunting and angling have an impact on the state's economy and on rural communities. Therefore, the impacts from management policies on resident and nonresident hunters and anglers and on wildlife-related resources must be assessed and compared.

The purpose of this study was to estimate characteristics, expenditures, and economic impacts of resident and nonresident hunters and anglers for the 1996-97 season in North Dakota. Specific objectives were to

1) identify socioeconomic characteristics of resident and nonresident hunters and anglers;
2) estimate resident and nonresident hunters' and anglers' season and daily variable, fixed, and total expenditures;
3) estimate direct and indirect economic activity resulting from resident and nonresident hunter and angler expenditures;
4) estimate the extent of nonresident and urban resident hunter and angler expenditures in rural areas; and
5) identify changes in resident and nonresident characteristics, expenditures and economic impacts using time-series data.

The time-series data set for North Dakota's hunter and angler characteristics, expenditures, and economic impacts goes back to 1976, when nonresident expenditure data were collected (Leitch and Scott 1978). Nonresident expenditure data were also collected in 1983 (Anderson and Leitch 1984). Resident expenditure data were collected in 1981 (Leitch and Kerestes 1982), 1982 (Kerestes and Leitch 1983), and 1986 (Baltezore et al. 1987). Expenditure data for resident and nonresident hunters and anglers were collected in 1991 (Baltezore and Leitch 1992). Data from this study will be added to the time-series data set and compared with past survey data to identify changes in resident and nonresident characteristics, expenditures, and economic impacts.

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Expenditures by nonresident hunters and anglers represent new money to the state. "New money" is essential for economic growth, especially for rural communities which depend on this money for economic development. The "new money" provided by nonresident hunters and anglers helps rural areas to diversify their economic bases and strengthen their economies.

Resident hunters' expenditures are considered "new money" only when in-state recreation opportunities reduce resident out-of-state expenditures. This means that the availability of hunting and angling activities in North Dakota keeps resident expenditures within the state, rather than "leaking" it to nearby states where there are similar or substitute opportunities for recreation. Resident expenditures may be considered "new money" to communities, drawing hunters and anglers from different parts of the state.

Direct economic activity is the aggregate of resident and nonresident hunter and angler expenditures. Indirect economic activity is the secondary effect from the "respending" of initial expenditures. This "respending" is called the multiplier effect. It estimates how many times a dollar spent by hunters and anglers circulates through the economy. Indirect economic activity is measured by total business activity, personal income, and employment. Direct and indirect economic activity make up the gross economic impact on the state. This shows the portion of state economic activity that is directly attributable to the hunting and angling industry.

Ruralized expenditures are those purchases of goods and services by nonresidents and urban residents in rural areas (Baltezore and Leitch 1992). Rural areas in North Dakota provide habitat for fish and wildlife and supply most of the natural resource inputs necessary for hunting and angling activities. The level of ruralized expenditures helps to determine the role of hunting and angling as an economic development tool for rural North Dakota.

Recreational activities are an important source of income and revenue that benefits all citizens of the state. The positive economic impact on North Dakota's communities created by these expenditures promotes economic growth, particularly for rural communities. They are part of an expanding recreation and tourism industry in North Dakota. In 1989, the recreation and tourism sector comprised 4 percent of the state's economic base (Leistritz and Coon 1990). It has grown to 8 percent of the state's economic base in 1995 (Coon et al. 1995). It was the fifth largest industry, in terms of contribution to the state's economy, on average in North Dakota from 1985 to 1995.

## Procedures

Various methods were used to administer surveys, estimate expenditures, determine confidence intervals, conduct significance tests, and measure economic impacts. Methods used in similar past studies were followed whenever possible and applicable for comparisons.

### Survey

A mail questionnaire was distributed to a random sample of licensed hunters and anglers provided by the North Dakota Game and Fish Department (NDGF). Three license types were

included: resident, nonresident, and gratis. Landowners who hunt are eligible for free (gratis) licenses for some species provided they own or lease a minimum of a quarter section of land (160 acres) and agree to hunt only on their own land. The land must also be owned or leased for agricultural purposes and actively farmed or ranched.

## Sample Groups and Sample Sizes

Most hunting and angling opportunities available in North Dakota during the 1996-97 season for both resident and nonresident hunters and anglers were represented by the sample groups (Table 1). Sample groups included 1996-97 season resident license holders for pronghorn antelope archery, pronghorn antelope firearms, special big game, deer archery, deer firearms, deer muzzleloader, furbearer, waterfowl, upland game, wild turkey (includes spring, and early and late fall seasons), and open water and ice fishing. Sample groups also included 1996-97 season nonresident license holders for pronghorn antelope archery, deer archery, deer firearms, small game, and fishing.

Sample sizes were determined in a manner which was consistent with the method presented in Kerestes and Leitch (1983) (Table 2). Since expenditure questionnaires were included with the annual NDGF post-season harvest survey, the sample sizes were based on expected nonresponse and on desired large samples for consistent harvest information.

## Survey Instruments

Questionnaires were designed for each sample group.[1] Questionnaire format was similar to past surveys to provide for a time-series comparison. NDGF personnel reviewed the questionnaires to confirm that their objectives would be met, to provide suggestions for improvement, and to identify any typographical errors and omissions.

## Mailings and Data Collection Problems

North Dakota State University (NDSU) personnel administered surveys for all sample groups for both questionnaire mailings. The NDGF provided envelopes for the first mailings with return address indicated. Resident and nonresident hunter names and addresses were given a questionnaire identification number sorted by zip code and printed directly on the questionnaire. Questionnaires were mailed in window envelopes with postage-paid return envelopes.

Initial mailings were sent first class, which are automatically forwarded by the post office. If the forwarding order had expired, the post office returned the questionnaire with the new address, if one was available. The new addresses were entered into the data base, and the questionnaire was immediately resent. All questionnaires were scheduled for mailing on the day after the appropriate hunting or fishing season ended (Table 1).

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[1]A representative questionnaire is included in Appendix A. Other questionnaires are available from Dr. Leitch, Department of Agricultural Economics, NDSU, Fargo.

Table 1. Sample Groups and Mailings, North Dakota Hunter and Angler Survey, 1996-97

| Activity | First Mailing Date[a,b] | Second Mailing Date[b] |
|---|---|---|
| Spring Turkey | May 27, 1996 | June 25, 1996 |
| Summer Fishing - Resident | October 11, 1996 | December 14, 1996 |
| Bighorn Sheep | October 28, 1996 | November 27, 1996 |
| Pronghorn Firearms | | |
| Resident | November 4, 1996 | January 20, 1997 |
| Gratis | November 4, 1996 | January 20, 1997 |
| Elk Unit E2 | November 18, 1996 | January 12, 1997 |
| Wild Turkey - Early | November 22, 1996 | January 20, 1997 |
| Deer Firearms | | |
| Resident | November 27, 1996 | February 11, 1997 |
| Gratis | November 27, 1996 | February 11, 1997 |
| Nonresident | November 27, 1996 | February 11, 1997 |
| Deer Muzzleloader | December 9, 1996 | January 21, 1997 |
| Elk Unit E1 | December 18, 1996 | February 3, 1997 |
| Wild Turkey | | |
| Late | December 20, 1996 | February 1, 1997 |
| Gratis | December 20, 1996 | February 1, 1997 |
| Moose | December 20, 1996 | February 7, 1997 |
| Upland Game - Resident | December 30, 1996 | February 25, 1997 |
| Waterfowl - Resident | December 30, 1996 | February 30, 1997 |
| Deer Archery - Resident | January 3, 1997 | March 10, 1997 |
| Small Game - Nonresident | January 15, 1997 | April 20, 1997 |
| Furbearers | March 24, 1997 | May 6, 1997 |
| Winter Fishing - Resident | March 24, 1997 | May 6, 1997 |
| Nonresident Fishing | March 24, 1997 | May 6, 1997 |
| Pronghorn Archery | | |
| Resident | April 15, 1997 | May 20, 1997 |
| Nonresident | April 15, 1997 | May 20, 1997 |
| Deer Archery - Nonresident | March 15, 1997 | April 20, 1997 |

[a]Two mailings were sent.
[b]Most mailing dates are approximate.

Table 2. Sample Sizes, Undeliverables, Returns and Response Rates by Activity, North Dakota Resident and Nonresident Hunters and Anglers, 1996-97

| Activity | Sample Size | Undelivered | Returned | Response Rate Percentages |
|---|---|---|---|---|
| Resident | | | | |
| Antelope Archery | 976 | 32 | 420 | 44 |
| Antelope Firearms | 1,607 | 5 | 1,084 | 68 |
| Gratis Antelope Firearms | 713 | 3 | 315 | 44 |
| Deer Archery | 2,211 | 72 | 971 | 45 |
| Deer Firearms | 1,310 | 3 | 566 | 43 |
| Gratis Deer Firearms | 87 | 0 | 35 | 40 |
| Deer Muzzleloader | 700 | 5 | 516 | 74 |
| Special Big Game[a] | 256 | 0 | 123 | 48 |
| Waterfowl | 1,999 | 37 | 714 | 36 |
| Upland Game | 1,999 | 45 | 776 | 40 |
| Spring Turkey | 1,345 | 7 | 991 | 74 |
| Gratis Spring Turkey | 87 | 1 | 70 | 81 |
| Fall Turkey (Early and Late) | 3,007 | 18 | 1,911 | 64 |
| Gratis Fall Turkey | 212 | 1 | 96 | 45 |
| Open Water Fishing | 6,999 | 152 | 2,611 | 38 |
| Ice Fishing | 6,998 | 531 | 2,563 | 40 |
| Furbearers | 5,438 | 150 | 2,088 | 39 |
| Nonresident | | | | |
| Nonresident Fishing | 2,845 | 292 | 1,083 | 42 |
| Antelope Archery | 36 | 3 | 19 | 58 |
| Deer Archery | 663 | 13 | 411 | 63 |
| Deer Firearms | 628 | 1 | 432 | 69 |
| Small Game | 2,000 | 18 | 1,275 | 64 |

[a]Includes elk, moose, and bighorn sheep.

There was one follow-up mailing. As questionnaires were returned, the questionnaire identification number was entered into the data base. After about 1 month, names in the sample who had not responded were sent a second questionnaire. Second mailings were sent bulk rate.

Some mailings were sent later than planned. For some mailings, also, the time that elapsed between the first and second mailings was greater than originally intended. Having sent the first mailings late could have affected response by giving respondents time to forget certain expenditure information. Allowing too long to elapse between mailings may have caused noticeable differences in responses between the two mailings. Organizational problems encountered with the vendor led to bad records of mailing dates, so estimates were used.

Response Rates

After most respondents had returned their completed questionnaires, a final count was done, the number of undelivered surveys was counted, and response rates were calculated (Table 2).

Response rates were calculated as: $R=q_r/f_q-r_q$

where R = response rate,
$q_r$ = number of questionnaires returned,
$f_q$ = number of first mailing questionnaires, and
$r_q$ = number of refusals and undelivered questionnaires.

Resident response rates ranged from 36 percent for waterfowl hunters to 81 percent for gratis spring turkey hunters. Nonresident response rates ranged from 42 percent for anglers to 69 percent for deer firearms hunters. The overall average response rate was 53 percent.

**Expenditures**

Hunters and anglers spend their money on two general types of goods: durable (fixed) and nondurable (variable) (Table 3). Nondurable goods are those that either can only be used once or are used up in a relatively short time. Expenditures for nondurable goods can be called variable expenditures since the amount spent depends on the amount of time spent hunting or angling. Durable goods are those that can be used more than once and for a relatively long time. Expenditures for durable goods are called fixed expenditures. They are not related to activity levels in the short term.

Variable and fixed expenditures, as well as total season and daily expenditures, were summarized for each activity (Appendix B). Average season variable and fixed expenditures were determined by summing the individual expenditure categories for each type of expenditure. Average total season expenditures were determined by adding variable and fixed expenditures for those hunters and anglers with <u>both</u> variable and fixed expenditures. Daily expenditures were estimated by dividing season variable, fixed, and total expenditures by the number of days spent hunting or angling.

Table 3. Variable and Fixed Good Expenditure Categories

| Category | Description |
|---|---|
| Variable Expenditures | |
| Access | Fees paid to gain access to land or to launch boats |
| Ammunition | Cartridges, shot shells |
| Bait | Cost of live bait |
| Film | Film and film developing |
| Food | Food and beverages |
| Lodging | Hotel, motel... |
| Meat | Meat processing, packing, fish cleaning |
| Operating | Boat gas and oil, repairs and maintenance of equipment |
| Rentals | Boat, motor, fish house, or equipment rental |
| Taxidermy | Professional fees or materials for mounting fish, birds, or animals |
| Transportation | |
| Private | Gas, oil, repairs for vehicles on hunting/fishing trips |
| Commercial | Fares, vehicle rentals, charters |
| Veterinarian | Dog health care |
| Other | Anything used for hunting/fishing not included in above categories |
| Fixed Expenditures | |
| Arrows | Arrows |
| ATV | All terrain vehicles, snowmobiles, motorbikes |
| Binoculars | Binoculars, spotting scope... |
| Boat | Boats, motors, and trailers |
| Camping | Tents, stoves, camping equipment used while hunting/fishing |
| Clothing | Special clothing used primarily for hunting/fishing |
| Depth finder | Depth or fish finders |
| Dogs | Hunting dogs |
| Duck boat/decoys | Duck boats, decoys... |
| Fishing equipment | Rods, reels, tackle boxes, tackle... |
| Skinning Equipment | Stretchers, knives... |
| Traps | Traps, snares, trapping supplies (lures, scents) ... |
| Vehicles | Pickups, motor homes, or other vehicles bought primarily for hunting/fishing |
| Winter Fishing Equipment | Fish houses, heaters, ice augers ... |
| Weapons | Rifles, shotguns, bows, and accessories |
| Other | Game/predator calls, snowshoes, game bags, waders, and other accessories used for hunting/fishing |

## Confidence Intervals

Confidence intervals were constructed for season and daily variable, fixed, and total expenditures. A 90 percent confidence level ($\alpha = 0.05$) was chosen, and the interval was calculated using the following equation:

$$\overline{X} \pm 1.64 * (s/\sqrt{n})$$

where

$\overline{X}$ is the mean value of the sample group,
1.64 is the t-value based on a two-tailed 90 percent confidence level,
s is the standard deviation of the sample mean, and
n is the number of observations in the sample.

A 90 percent confidence level implies that there is a 90 percent probability that the true population mean falls within the confidence interval. It was assumed to be sufficient for NDGF decision-making purposes.

## Economic Impacts

Resident and nonresident hunting and angling economic impacts were assessed. Economic impacts were divided into direct and indirect impacts. The overall direct and indirect economic impacts were also determined by aggregating resident and nonresident season expenditures.

### Direct Impact

The direct impact was computed as the total dollar value of resident and nonresident hunter and angler expenditures. Average season expenditures were multiplied by the number of hunters or anglers participating in each activity to find the total expenditure for that activity. License sales were multiplied by the percentage of survey respondents participating to find the number of active hunters and anglers. The total direct economic impact was estimated by summing the total season expenditures for each activity.

### Indirect Impact

Indirect impacts were measured as the increase in economic activity generated from the respending of direct hunter/angler expenditures. They were measured for resident, nonresident, and all hunters and anglers. The North Dakota 18-Sector Input-Output Model was used to estimate these impacts (Coon et al. 1990). The model was updated with 1995 data (Coon et al. 1995). Indirect impacts were measured as changes in total business activity, retail trade sales, and employment.

### Ruralized Expenditures

Urban resident and nonresident hunter and angler expenditures in rural areas were defined as ruralized expenditures. All respondents were asked to indicate the percentage of their season expenditure they spent in rural areas (communities under 2,500 population). The percentage of ruralized spending multiplied by the seasonal average expenditure of each activity was summed for all urban residents and nonresidents to give each group's amount of expenditure in rural areas. The number of active hunters and anglers was multipled by the amount of expenditure in rural areas per person for each activity to determine the total ruralized expenditures.

### Additional Expenditures

Nonresident hunters and anglers were asked to estimate any additional expenditures they made in North Dakota not directly related to hunting or angling activities. These might include expenditures on goods and services such as clothing, appliances, or furniture. These additional expenditures were **not** included in estimates of direct or indirect expenditures.

## Resident and Nonresident Hunter/Angler Characteristics

Information on characteristics such as age, residence, and income were gathered from survey responses and summarized. Other characteristics, like participation days, distance traveled to hunting/angling areas throughout the season, and the ownership type of land hunted were also collected and summarized. These were done for both residents of North Dakota and nonresidents for the 1996-97 season. Some comparisons were made to past survey data. Spring turkey hunters were not asked to indicate their age, place of residence, or income categories.

### Residents

The average resident hunter/angler is not quite 40 years old, lives in an urban area or slightly smaller community, and earns an annual gross income of over $30,000. A summary of characteristics of resident hunters/anglers in North Dakota follows.

Age

In general, the majority of hunters and anglers in each activity fell into the 19 to 45 years of age category (Table 4). Archery hunters tend to be younger and hunters using gratis licenses (antelope, deer and turkey) tend to be older. Seventy-four percent of archery pronghorn antelope hunters were in the 19 to 45 years of age category, the most of any group. Excluding gratis hunters, the smallest percentage in that category was 50 percent, for ice anglers and fall wild turkey hunters.

Table 4. Average Age and Percentage of Resident Hunters/anglers in Each Age Group in North Dakota, by Activity, 1996-97

| Activity | Average Age | 18 Years or Less | 19 to 45 Years | 46 to 65 Years | Over 65 Years |
|---|---|---|---|---|---|
| | | ---------- percentage---------- | | | |
| Pronghorn Antelope | | | | | |
| Archery | 34 | 9 | 74 | 16 | 1 |
| Gratis | 46 | 7 | 43 | 38 | 12 |
| Firearms | 40 | 7 | 60 | 29 | 4 |
| Special Big Game | 40 | 8 | 59 | 27 | 6 |
| Deer | | | | | |
| Archery | 36 | 11 | 67 | 20 | 2 |
| Firearms | 40 | 7 | 59 | 30 | 4 |
| Gratis | 48 | 6 | 42 | 33 | 18 |
| Muzzleloader | 43 | 4 | 61 | 31 | 3 |
| Furbearer | 41 | 4 | 64 | 29 | 4 |
| Small Game | | | | | |
| Waterfowl | 42 | 6 | 55 | 32 | 7 |
| Upland | 41 | 6 | 57 | 30 | 7 |
| Turkey | | | | | |
| Fall Turkey | 40 | 14 | 50 | 30 | 6 |
| Fall (Gratis) | 48 | 7 | 37 | 38 | 18 |
| Fishing | | | | | |
| Open Water | -- | 2 | 52 | 30 | 15 |
| Ice | – | 2 | 50 | 30 | 18 |

Residence

Fall wild turkey hunters had the highest percentage of urban participants at 61 percent (Table 5). Excluding gratis hunters which are almost entirely rural, special big game hunters had the highest percentage of rural participants at 61 percent; however, this group is small and could also include some landowner-only licenses. The firearms and muzzleloader deer hunters tended to be more rural and more than half of resident anglers and furbearers respondents resided in rural areas.

The data are similar to the 1990 study (Baltezore and Leitch 1992), but the North Dakota populations trend seems to be towards more urban. The most noticeable changes occurred with pronghorns and furbearers. Furbearers and firearms pronghorns hunters tended to be more urban in 1996-97, except for archery pronghorn hunters which tended to be more rural.

Table 5. Residence of Resident North Dakota Hunters/anglers, by Activity, 1996-97

| Activity | Urban | | | Rural | | | |
|---|---|---|---|---|---|---|---|
| | City over 50,000 | City 2,500 to 50,000 | Total Urban | Community under 2,500 | Farm or Ranch | Rural Nonfarm | Total Rural |
| | percentage | | | | | | |
| Pronghorn Antelope | | | | | | | |
| Archery | 17 | 42 | 58 | 19 | 14 | 8 | 42 |
| Firearms | 24 | 33 | 57 | 19 | 12 | 11 | 43 |
| Gratis | 3 | 5 | 8 | 13 | 74 | 5 | 92 |
| Deer | | | | | | | |
| Archery | 24 | 29 | 53 | 21 | 13 | 13 | 47 |
| Firearms | 17 | 31 | 47 | 22 | 17 | 13 | 53 |
| Gratis | | 17 | 17 | | 74 | 9 | 83 |
| Muzzleloader | 22 | 22 | 44 | 22 | 22 | 12 | 56 |
| Special Big Game | 8 | 31 | 39 | 31 | 20 | 9 | 61 |
| Small Game | | | | | | | |
| Waterfowl | 26 | 27 | 53 | 24 | 14 | 9 | 47 |
| Upland | 27 | 26 | 54 | 22 | 15 | 9 | 46 |
| Wild Turkey | | | | | | | |
| Fall Turkey | 26 | 35 | 61 | 17 | 12 | 10 | 39 |
| Fall (Gratis) | 3 | 5 | 8 | 6 | 85 | 2 | 92 |
| Furbearer | 23 | 25 | 48 | 23 | 19 | 11 | 52 |
| Fishing | | | | | | | |
| Open Water | 16 | 31 | 48 | 23 | 18 | 12 | 52 |
| Ice | 16 | 33 | 50 | 22 | 16 | 12 | 50 |

## Income

All 13 resident hunting activities showed a large percentage of their participants (≥30 percent) earned $50,000 or more in gross annual household income compared to the 8 lower income categories (Table 6). In the $50,000 or more income category, all gratis hunters and fall wild turkey hunters averaged the highest percentage (about 40 percent), and archery and firearms deer hunters averaged the lowest percentage (about 30 percent). Anglers were not asked to indicate their income category. The income questions was not included on previous surveys so comparisons over time were not made.

## Ownership of Land Hunted

Overall, the hunting by residents in the state was on private land. Excluding gratis hunters which are required to hunt on their own land, 83 percent of furbearer activity occurred on private land in the 1996-97 season (Table 7). Just over 50 percent of archery pronghorn antelope hunters hunted on private land, the lowest percentage of all resident hunting activities. Over 30 percent of archery pronghorn antelope hunting occurred on federal land, as was the case in 1990 (Baltezore and Leitch 1992).

## Days of Participation

The average summer angler spent 17 days fishing during the 1996-97 season (Table 8). Furbearer hunters/trappers and archery deer hunters were the only two other participants who averaged more than 10 days. Fall wild turkey hunters (both resident and gratis) and firearms antelope hunters (both resident and gratis) had the lowest average days of participation (2 days).

Between 1981 and 1996, the average number of days participated stayed relatively stable for firearms antelope, firearms deer, muzzleloaders, special big game, spring and fall turkey hunting and ice fishing. The amount of time archery deer hunters spent hunting increased from 1990 to 1996, while the average participation days of furbearer hunters/trappers decreased from 1981 to 1982 and from that period on has remained stable. Archery antelope hunters increased from the early eighties to 1986 and decreased from 1990 to 1996. Small game hunters average days increased from the early eighties to 1990, but decreased in 1996. Open water fishing days decreased from the early eighties to 1986, and increased from 1990 to 1996.

## Distance Traveled

Special big game hunters traveled the most, on average, of any other resident hunter/angler group in 1996 (970 miles) (Table 9). In contrast, the average gratis antelope hunter traveled the shortest distance (91 miles), and muzzleloader hunters, turkey hunters, and gratis hunters tended to travel fewer miles in comparison to the other hunting groups. For most hunter/angler groups, the average miles traveled per season increased from 1981 to 1990. However, the average miles traveled per season leveled off or decreased from 1990 to 1996. An exception was furbearer respondents who still traveled less miles on average in 1996 than reported in 1981.

Table 6. Incomes of Resident Hunters in North Dakota, by Activity, 1996-97

| Activity | $50,000 or more | $40,000-$49,999 | $30,000-$39,999 | $25,000-$29,999 | $20,000-$24,999 | $15,000-$19,999 | $10,000-$14,999 | $5,000-$9,999 | Under $5,000 |
|---|---|---|---|---|---|---|---|---|---|
| | percentage | | | | | | | | |
| Pronghorn Antelope | | | | | | | | | |
| Archery | 37 | 16 | 17 | 9 | 6 | 7 | 4 | 2 | 2 |
| Firearms | 34 | 17 | 19 | 9 | 10 | 5 | 2 | 2 | 3 |
| Gratis | 41 | 9 | 13 | 8 | 10 | 7 | 4 | 3 | 6 |
| Deer | | | | | | | | | |
| Archery | 30 | 16 | 19 | 10 | 9 | 5 | 4 | 3 | 4 |
| Firearms | 29 | 16 | 20 | 10 | 9 | 6 | 4 | 2 | 3 |
| Gratis | 41 | 14 | 10 | 17 | 7 | 7 | | | 3 |
| Muzzleloader | 34 | 16 | 21 | 9 | 9 | 5 | 3 | 1 | 3 |
| Special Big Game | 33 | 19 | 20 | 6 | 7 | 8 | 3 | 2 | 3 |
| Small Game | | | | | | | | | |
| Waterfowl | 37 | 16 | 17 | 9 | 7 | 4 | 5 | 2 | 3 |
| Upland | 36 | 16 | 15 | 9 | 8 | 5 | 5 | 3 | 4 |
| Wild Turkey | | | | | | | | | |
| Fall Turkey | 39 | 16 | 15 | 9 | 8 | 5 | 3 | 2 | 4 |
| Fall (Gratis) | 41 | 16 | 8 | 7 | 14 | 7 | 5 | | 3 |
| Furbearer | 36 | 17 | 20 | 8 | 7 | 5 | 3 | 2 | 2 |

Table 7. Resident Hunting by Land Type, by Activity, North Dakota, 1996-97

| Activity | Land Type | | | |
|---|---|---|---|---|
| | Federal | State | Private | Unknown |
| | ---------- percentage---------- | | | |
| Pronghorn Antelope | | | | |
| Archery | 33 | 10 | 53 | 4 |
| Firearms | 22 | 9 | 65 | 4 |
| Gratis | 1 | 0 | 97 | 2 |
| Special Big Game | 11 | 20 | 67 | 1 |
| Deer | | | | |
| Archery | 13 | 13 | 72 | 2 |
| Firearms | 9 | 7 | 81 | 4 |
| Gratis | 0 | 0 | 94 | 6 |
| Muzzleloader | 8 | 10 | 81 | 1 |
| Furbearer | 6 | 6 | 83 | 4 |
| Small Game | | | | |
| Waterfowl | 8 | 9 | 80 | 3 |
| Upland | 8 | 10 | 78 | 4 |
| Wild Turkey | | | | |
| Combined[a] | 9 | 7 | 82 | 2 |
| Fall Gratis | 1 | 0 | 99 | 0 |
| Spring | 11 | 14 | 64 | 11 |
| Spring Gratis | 0 | 2 | 73 | 24 |

[a]Includes early and late fall seasons.

Table 8. Average Days Residents Spent Hunting/fishing in North Dakota, by Activity, 1981, 1982, 1986, 1990, and 1996

| Activity | 1981 | 1982 | 1986 | 1990 | 1996 |
|---|---|---|---|---|---|
| | ---------- days ---------- | | | | |
| Pronghorn Antelope | | | | | |
| Archery | NA | 4 | 7 | 8 | 6 |
| Firearms | NA | 2 | 2 | 2[a] | 2 |
| Gratis | NA | NA | NA | -- | 2 |
| Deer | | | | | |
| Archery | 13 | 14 | 13 | 14 | 16 |
| Firearms | 4 | 4 | 5 | 4[a] | 4 |
| Gratis | NA | NA | NA | -- | 3 |
| Muzzleloader | NA | NA | NA | 4 | 3 |
| Special Big Game | 4 | 5 | 4 | 5 | 5 |
| Small Game | | | | | |
| Waterfowl | 7 | 6 | 8 | 11 | 8 |
| Upland | 6 | 5 | 9 | 13 | 8 |
| Wild Turkey | | | | | |
| Combined[b] | 2 | 2 | 2 | 2[a] | 2 |
| Fall Gratis | NA | NA | NA | -- | 2 |
| Spring | NA | NA | NA | 3 | 3 |
| Spring Gratis | NA | NA | NA | NA | 4 |
| Furbearer | 17 | 12 | 12 | 12 | 13 |
| Fishing | | | | | |
| Open Water | 22 | 18 | 13 | 13 | 17 |
| Ice | NA | NA | 12 | 11 | 10 |

[a]Includes gratis hunters.
[b]Includes early and late fall seasons.

Table 9. Average Miles Traveled to Hunt/fish by North Dakota Residents, by Activity, 1981, 1982, 1986, 1990, and 1996

| Activity | 1981 | 1982 | 1986 | 1990 | 1996 |
|---|---|---|---|---|---|
| | ---------- miles ---------- | | | | |
| Pronghorn Antelope | | | | | |
| Archery | NA | 467 | 688 | 777 | 737 |
| Firearms | NA | 513 | 366 | 418[a] | 637 |
| Gratis | NA | NA | NA | -- | 91 |
| Deer | | | | | |
| Archery | 437 | 164 | 465 | 654 | 674 |
| Firearms | 270 | 205 | 338 | 335[a] | 375 |
| Gratis | NA | NA | NA | -- | 112 |
| Muzzleloader | NA | NA | NA | 247 | 215 |
| Special Big Game | 397 | 567 | 583 | 1,131 | 970 |
| Small Game | | | | | |
| Waterfowl | 476 | NA | 480 | 904 | 779 |
| Upland | 415 | NA | 521 | 869 | 878 |
| Wild Turkey | | | | | |
| Combined[cb] | 249 | 207 | 232 | 340[a] | 277 |
| Fall Gratis | NA | NA | NA | -- | 128 |
| Spring | NA | NA | NA | 270 | 311 |
| Spring Gratis | NA | NA | NA | NA | 98 |
| Furbearer | 796 | 612 | 636 | 625 | 694 |
| Fishing | | | | | |
| Open Water | NA | 103 | 649 | 860 | 815 |
| Ice | NA | NA | 651 | 672 | 495 |

[a]Includes gratis hunters.
[b]Includes early and late fall seasons.

Value of a Day of Hunting/Angling

Special big game hunters valued their hunting day higher than any other resident hunter/angler ($148) (Table 10). Ice fishing participants valued their fishing day at $33 per day, the lowest of any resident hunter/angler. Most values were under $100 for each activity. There appears to be a lot of variability in the average value of a day reported by the various activity groups during the period 1981 to 1996. The general trend has been a decreasing average value of a day, particularly for deer and antelope (both archery and firearms), special big game, furbearers and ice fishing. A second group including small game, turkey and open water fishing increased from the early eighties to 1986, then decreased in 1990 and either stabilized or increased by 1996.

Table 10. Average Value of a Day Spent Hunting/fishing in North Dakota, Estimated by Resident Respondents, by Activity, 1996 Dollars, 1981, 1982, 1986, 1990, and 1996

| Activity | 1981 | 1982 | 1986 | 1990 | 1996 |
|---|---|---|---|---|---|
| | ---------- 1996 dollars ---------- | | | | |
| Pronghorn Antelope | | | | | |
| Archery | NA | NA | 74 | 65 | 69 |
| Firearms | NA | NA | NA | 110[a] | 96 |
| Gratis | NA | NA | NA | -- | 64 |
| Deer | | | | | |
| Archery | 768 | NA | 64 | 61 | 46 |
| Firearms | 186 | NA | 79 | 69[a] | 52 |
| Gratis | NA | NA | NA | -- | 36 |
| Muzzleloader | NA | NA | NA | 384 | 55 |
| Special Big Game | 1308 | 523 | 388 | 144 | 148 |
| Small Game | | | | | |
| Waterfowl | 69 | NA | 99 | 67 | 52 |
| Upland | 69 | NA | 109 | 50 | 61 |
| Wild Turkey | | | | | |
| Combined[b] | 178 | NA | 285 | 58[a] | 57 |
| Fall Gratis | NA | NA | NA | -- | 34 |
| Spring | NA | NA | NA | 65 | 128 |
| Spring Gratis | NA | NA | NA | NA | 49 |
| Furbearer | 183 | 148 | 67 | 66 | 41 |
| Fishing | | | | | |
| Open Water | 79 | NA | 498 | 49 | 122 |
| Ice | NA | NA | 50 | 44 | 33 |

[a]Includes gratis hunters.
[b]Includes early and late fall seasons.

**Nonresidents**

The average nonresident hunter/angler in North Dakota is in his mid-40s, lives in an urban community, and has an annual gross income of over $40,000.

Age

The majority of nonresident hunters and anglers fell into the age category of 19 to 45 years (Table 11). The largest percentage in that category was archery pronghorn antelope hunters (78 percent), and the smallest percentage was for nonresident anglers (41 percent).

Table 11. Average Age and Percentage of Nonresident Hunters/anglers in Each Age Group in North Dakota, by Activity, 1996-97

| Activity | Average Age | 18 Years or Less | 19 to 45 Years | 46 to 65 Years | Over 65 Years |
|---|---|---|---|---|---|
| | | ---------- percentage---------- | | | |
| Pronghorn Antelope | | | | | |
| Archery | 38 | 0 | 78 | 22 | 0 |
| Deer | | | | | |
| Archery | 41 | 2 | 69 | 28 | 1 |
| Firearms | 44 | 2 | 55 | 38 | 5 |
| Small Game | 46 | 2 | 50 | 41 | 8 |
| Fishing | -- | 1 | 41 | 40 | 18 |

Residence

Firearms deer hunters had the highest percentage of urban participants (79 percent) (Table 12). At 47 percent, archery deer hunters had the highest percentage of rural participants. All nonresident hunting/angling groups indicated a majority of participants coming from urban areas.

Income

A majority of hunters in each nonresident hunting activity, except archery antelope hunting, reported having an annual gross household income of more than $50,000 (Table 13). In the $50,000 or more income category, small game hunters averaged the highest percentage of hunters at 62 percent. Archery pronghorn antelope hunters averaged the lowest percentage of hunters in the category at 42 percent.

Table 12. Residence of Nonresident North Dakota Hunters/anglers, by Activity, 1996

| Activity | Urban | | | Rural | | | |
|---|---|---|---|---|---|---|---|
| | City over 50,000 | City 2,500 to 50,000 | Total Urban | Community under 2,500 | Farm or Ranch | Rural Nonfarm | Total Rural |
| | percentage | | | | | | |
| Pronghorn Antelope | | | | | | | |
| Archery | 21 | 37 | 58 | 5 | 16 | 21 | 42 |
| Deer | | | | | | | |
| Archery | 19 | 34 | 53 | 15 | 9 | 24 | 47 |
| Firearms | 42 | 36 | 79 | 7 | 3 | 12 | 21 |
| Small Game | 36 | 32 | 68 | 13 | 4 | 15 | 32 |
| Fishing | 31 | 32 | 62 | 14 | 8 | 15 | 38 |

Table 13. Average Incomes of Nonresident Hunters in North Dakota, by Activity, 1996-97

| Activity | $50,000 or more | $40,000-$49,999 | $30,000-$39,999 | $25,000-$29,999 | $20,000-$24,999 | $15,000-$19,999 | $10,000-$14,999 | $5,000-$9,999 | Under $5,000 |
|---|---|---|---|---|---|---|---|---|---|
| | percentage | | | | | | | | |
| Pronghorn Antelope | | | | | | | | | |
| Archery | 42 | 26 | 16 | 5 | 11 | 0 | 0 | 0 | 0 |
| Deer | | | | | | | | | |
| Archery | 53 | 20 | 14 | 7 | 3 | 1 | 1 | 0 | 0 |
| Firearms | 59 | 15 | 13 | 6 | 4 | 1 | 1 | 0 | 0 |
| Small Game | 62 | 14 | 10 | 7 | 3 | 2 | 1 | 0 | 0 |

Ownership of Land Hunted

Over 80 percent of nonresident deer firearms hunting occurred on private land in the 1996-97 season (Table 14). Archery pronghorn antelope hunters and archery deer hunters had the lowest percentages of hunting on private land for all nonresident hunters at 71 percent. Overall, the majority of nonresident hunters hunted on private land. Twenty-one percent of archery deer hunters hunted on federal land.

The proportion of small game hunting that occurred on the land ownership categories measured changed little from 1976 to 1996 (Table 14). During that same time period firearms and archery deer hunters tended to use private land slightly more in 1976 and 1996, however, the 1990 data showed a drastic increase in public land use, particularly federally-owned.

Table 14. Nonresident Hunting by Land Type, by Activity, North Dakota, 1976, 1983, 1990, and 1996

| Activity | 1976 | 1983 | 1990 | 1996 |
|---|---|---|---|---|
| | ---------- percentage---------- | | | |
| Pronghorn Antelope | | | | |
| Archery | | | | |
| Federal | 14 | NA | 40 | 12 |
| State | 21 | NA | 10 | 17 |
| Private | 61 | NA | 47 | 71 |
| Unknown | 4 | NA | 3 | 1 |
| Deer | | | | |
| Archery | | | | |
| Federal | 18 | 19 | 25 | 21 |
| State | 25 | 19 | 14 | 7 |
| Private | 56 | 59 | 60 | 71 |
| Unknown | 1 | 3 | 1 | 1 |
| Firearms | | | | |
| Federal | 11 | 12 | 8 | 6 |
| State | 9 | 7 | 9 | 7 |
| Private | 78 | 78 | 81 | 84 |
| Unknown | 2 | 3 | 2 | 3 |
| Small Game | | | | |
| Federal | 12 | 12 | 10 | 10 |
| State | 12 | 9 | 11 | 13 |
| Private | 72 | 75 | 76 | 75 |
| Unknown | 4 | 4 | 3 | 3 |

Days of Participation

Nonresident anglers spent more days participating in their sport than any other nonresident hunting/angling group (9 days) (Table 15). Firearms deer hunters spent only 3 days, the least time of any nonresident group.

Between 1976 and 1996, participation days for most nonresident hunters/anglers did not change. Archery pronghorn antelope hunters experienced a decline in participation days over that time, from 9 days in 1976 to 6 days in 1996, while nonresident anglers showed a slight increase from 1990 (6 days) to 1996 (9 days).

Table 15. Average Days Nonresidents Spent Hunting/fishing in North Dakota, by Activity, 1976, 1983, 1990, and 1996

| Activity | 1976 | 1983 | 1990 | 1996 |
|---|---|---|---|---|
| | ---------- days ---------- | | | |
| Pronghorn Antelope | | | | |
| Archery | 9 | NA | 7 | 6 |
| Deer | | | | |
| Archery | 7 | 8 | 8 | 7 |
| Firearms | 4 | 4 | 4 | 3 |
| Small Game | 5 | 4 | 5 | 6 |
| Fishing | NA | 8 | 6 | 9 |

Distance Traveled

Nonresident archery pronghorn antelope hunters traveled the farthest distance for all trips, more than any other nonresident group (1,897 miles) (Table 16). At 993 miles, firearms deer hunters traveled the shortest distance.

It is difficult to compare the miles traveled for the 1996-97 season with miles traveled data from past seasons in which one-way distance from respondents' homes to where they hunted or fished was requested. However, in 1990, archery pronghorn antelope and archery deer hunters were asked for miles traveled for all trips. In both these groups, total miles traveled increased from 1990 to 1996.

Table 16. Average Miles Traveled to Hunt/fish by Nonresidents in North Dakota, by Activity, 1976, 1983, 1990, and 1996

| Activity | 1976 | 1983 | 1990 | 1996 |
|---|---|---|---|---|
| | ---------- miles ---------- | | | |
| Pronghorn Antelope | | | | |
| Archery | 535 | NA | 1,529[a] | 1897[a] |
| Deer | | | | |
| Archery | 373 | 502 | 1,169[a] | 1357[a] |
| Firearms | 588 | 639 | 567 | 993[a] |
| Small Game | 482 | 701 | 610 | 1369[a] |
| Fishing | NA | 696 | 489 | 1047[a] |

[a]Miles traveled for all trips rather than just the one-way distance from the respondents' homes to where they hunted.

Value of a Day Hunting/Angling

The most any nonresidents valued a single hunting or angling day was, on average, $101 by both firearms and archery deer hunters (Table 17). The least an average day was valued was $64 by archery pronghorn antelope hunters. In general, between 1983 and 1996, nonresident hunters and anglers estimates of a hunting/fishing day's value decreased. The four groups surveyed in all three years showed a marked decrease from 1983 to 1990 with increases in 1996.

Table 17. Average Value of a Day Spent Hunting/fishing in North Dakota, Estimated by Nonresident Respondents, by Activity, 1996 Dollars, 1983, 1990, and 1996

| Activity | 1983 | 1990 | 1996 |
|---|---|---|---|
| | ---------- 1996 dollars ---------- | | |
| Pronghorn Antelope | | | |
| Archery | NA | 86 | 64 |
| Deer | | | |
| Archery | 150 | 72 | 101 |
| Firearms | 178 | 97 | 101 |
| Small Game | 151 | 84 | 91 |
| Fishing | 145 | 59 | 83 |

# Resident and Nonresident Hunter/Angler Expenditures

Average daily and season total expenditures and projected total expenditures for the population were estimated for each resident and nonresident activity. Resident and nonresident projected total expenditures in the 1996 season were compared to those from previous survey years to identify changes in expenditure patterns over time. Nonresident additional expenditures not related to hunting and angling expenditures were also summarized.

**Daily and Season Expenditures**

Resident average daily expenditures ranged from $17 for gratis fall wild turkey hunters to $450 for archery antelope hunters (Table 18). Resident average season expenditures ranged from $50 for gratis fall wild turkey hunters to $2,779 for summer anglers (Appendix B).

The four activity groups of gratis hunters spent the least, both for the season and on a daily basis. Excluding them leaves fall turkey hunters spending the least for the season ($418) and archery deer hunters spending the least for average daily expenditures ($99). Nonresident average daily expenditures ranged from $118 for archery antelope hunters to $150 for archery deer. Anglers had the highest seasonal expenditures of $1,122 compared to the rest of the nonresident activities. Firearms deer hunters spent the least of all the nonresidents over the season ($466).

From 1982 to 1986, resident average season expenditures increased for all activities, except furbearer hunters/trappers (Table 19). From 1986 to 1990, resident average season expenditures went down, in general, except for waterfowl, gratis wild turkey, furbearer, and open water and ice fishing categories (Figures 2 and 3). Between 1990 and 1996, the average season expenditures for residents increased for half of the activities and decreased for the other half. Those that increased include archery pronghorn antelope, archery deer, gratis deer, muzzleloader deer, upland game, fall wild turkey, and spring turkey. Those that decreased include firearms pronghorn antelope, gratis antelope, firearms deer, special big game, waterfowl, gratis turkey, furbearer, and open water and ice fishing categories (Figures 1, 2, and 3).

Resident average daily expenditures were generally lower in 1990 compared to 1996 (Table 19). Gratis wild turkey, furbearer, and open water and ice fishing activities were exceptions (Figures 5 and 6). Half of the activities showed an increase in average daily expenditures from 1990 to 1996, and half showed a decrease. Those that increased include archery pronghorn antelope, gratis deer, muzzleloader deer, waterfowl, upland game, fall wild turkey, and spring wild turkey. Those that decreased include firearms pronghorn antelope, gratis antelope, archery deer, firearms deer, special big game, gratis wild turkey, furbearer, and open water and ice fishing (Figures 4, 5, and 6).

Nonresident average season expenditures were higher in 1976 than in 1983 for archery deer and firearms deer hunters and lower for small game hunters (Table 20). Between 1983 and 1990, average season expenditures went up for archery deer and small game hunters and for anglers. Over that same period, firearms deer hunters spent less per season, on average. Most activity groups averaged a higher season expenditure in 1996 than in 1990, with the exception of firearms deer hunters, whose average season expenditures continued to decrease.

Table 18. Average Season and Daily Expenditures, by Activity, Resident and Nonresident Hunter/angler Survey, 1996-97

| Activity | Average Days | Expenditure | | | |
|---|---|---|---|---|---|
| | | Season | | Daily | |
| | | Mean | C.I.[a] | Mean | C.I.[a] |
| | | ----------dollars---------- | | | |
| **Residents** | | | | | |
| Pronghorn Antelope | | | | | |
| Archery | 6 | 1,777 | ±457 | 450 | ±195 |
| Firearms | 2 | 623 | ±137 | 387 | ±103 |
| Gratis | 2 | 117 | ±38 | 70 | ±24 |
| Special Big Game | 5 | 976 | ±261 | 325 | ±72 |
| Deer | | | | | |
| Archery | 16 | 1,270 | ±288 | 99 | ±24 |
| Firearms | 4 | 632 | ±187 | 174 | ±52 |
| Muzzleloader | 3 | 1,168 | ±454 | 442 | ±205 |
| Gratis | 3 | 201 | ±73 | 82 | ±35 |
| Furbearer | 13 | 1,215 | ±232 | 220 | ±69 |
| Small Game | | | | | |
| Waterfowl | 8 | 1,226 | ±417 | 193 | ±71 |
| Upland | 8 | 1,289 | ±277 | 246 | ±82 |
| Wild Turkey | | | | | |
| Combined[b] | 2 | 418 | ±116 | 263 | ±84 |
| Fall Gratis | 2 | 50 | ±22 | 17 | ±6 |
| Spring | 3 | 705 | ±304 | 359 | ±201 |
| Spring Gratis | 4 | 200 | ±117 | 48 | ±25 |
| Fishing | | | | | |
| Open Water | 17 | 2,779 | ±352 | 230 | ±35 |
| Ice | 10 | 1,011 | ±253 | 121 | ±39 |
| **Nonresidents** | | | | | |
| Pronghorn Antelope | | | | | |
| Archery | 6 | 685 | ±166 | 118 | ±32 |
| Deer | | | | | |
| Archery | 7 | 957 | ±262 | 150 | ±43 |
| Firearms | 3 | 466 | ±49 | 145 | ±14 |
| Small Game | 6 | 705 | ±55 | 131 | ±9 |
| Fishing | 9 | 1,122 | ±252 | 145 | ±35 |

[a]Indicates a 90 percent confidence interval ($\alpha = 0.05$).
[b]Includes early and late fall seasons.

Table 19. Average Season and Daily Expenditures, by Activity, Resident Hunters and Anglers, 1996 Dollars, 1982, 1986, 1990, and 1996

| Activity | Season | | | | Daily | | | |
|---|---|---|---|---|---|---|---|---|
| | 1982 | 1986 | 1990 | 1996 | 1982 | 1986 | 1990 | 1996 |
| | ---------- 1996 dollars[a] ---------- | | | | | | | |
| Pronghorn Antelope | | | | | | | | |
| Archery | 819 | 1,606 | 1,316 | 1,777 | 260 | 343 | 187 | 450 |
| Firearms | 651 | 864 | 672 | 623 | 431 | 683 | 390 | 387 |
| Gratis | NA | 769 | 334 | 117 | NA | 709 | 145 | 70 |
| Deer | | | | | | | | |
| Archery | 326 | 1,035 | 848 | 1,270 | 35 | 97 | 100 | 99 |
| Firearms | 431 | 822 | 720 | 632 | 150 | 290 | 208 | 174 |
| Muzzleloader | NA | NA | 601 | 1,168 | NA | NA | 209 | 442 |
| Gratis | NA | NA | 166 | 201 | NA | NA | 50 | 82 |
| Special Big Game | 1,274 | 2,083 | 1,750 | 976 | 546 | 1,170 | 516 | 325 |
| Small Game | | | | | | | | |
| Waterfowl | 281 | 827 | 1,345 | 1,226 | 47 | 120 | 116 | 193 |
| Upland | 247 | 1,168 | 852 | 1,289 | 46 | 248 | 76 | 246 |
| Wild Turkey | | | | | | | | |
| Combined[b] | 84 | 651 | 187 | 418 | 46 | 489 | 101 | 263 |
| Fall Gratis | NA | 46 | 76 | 50 | NA | 22 | 31 | 17 |
| Spring | NA | NA | 320 | 705 | NA | NA | 218 | 359 |
| Spring Gratis | NA | NA | NA | 200 | NA | NA | NA | 48 |
| Furbearer | 898 | 894 | 1,251 | 1,215 | NA | NA | 250 | 220 |
| Fishing | | | | | | | | |
| Open Water | 990 | 1,756 | 2,837 | 2,779 | 76 | 175 | 256 | 230 |
| Ice | NA | 378 | 1,047 | 1,011 | NA | 46 | 155 | 121 |

[a]Adjusted to 1996 dollars, using the Consumer Price Index.
[b]Includes early and late fall, and winter seasons.

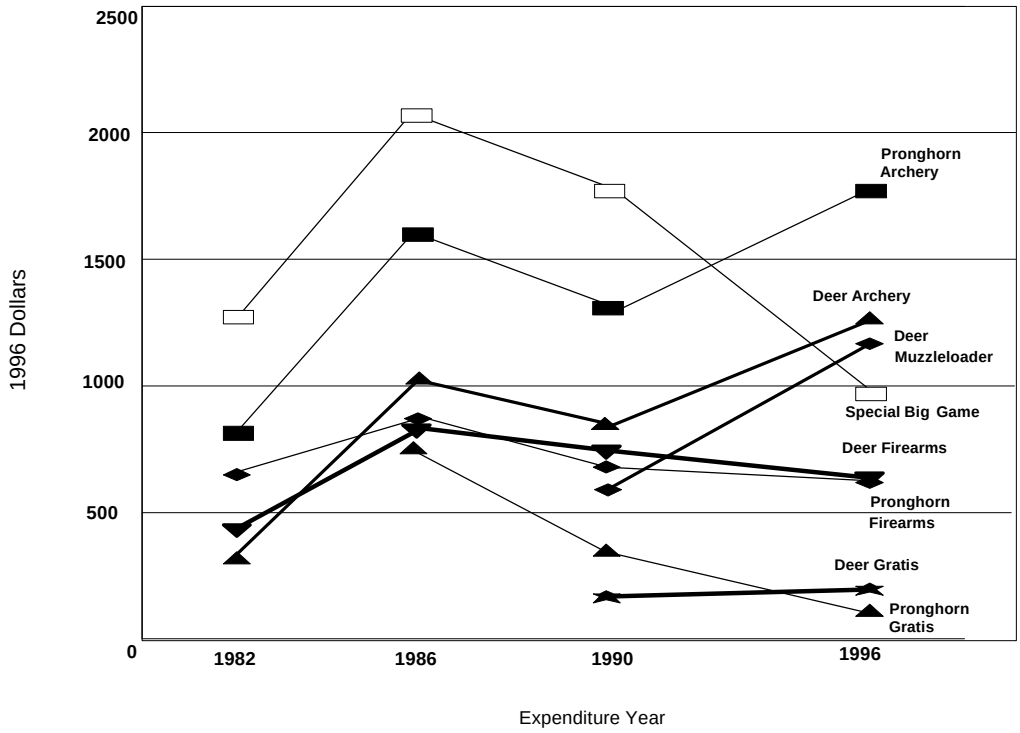


Figure 1. Resident average season expenditures, big game activity, from 1982 to 1996.

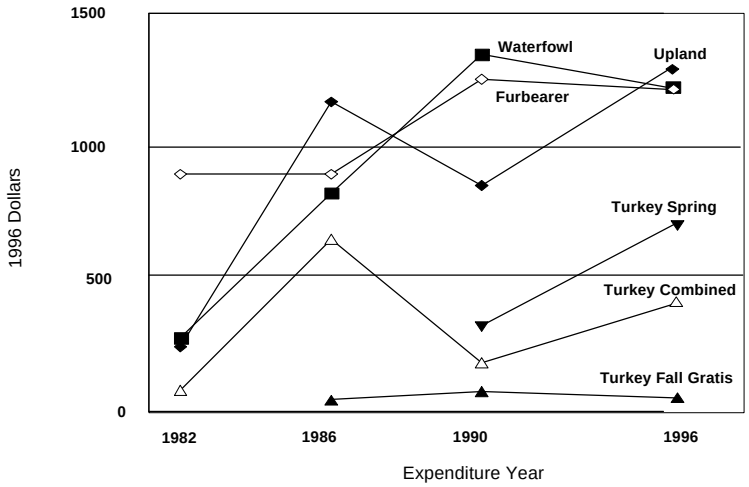


Figure 2. Resident average season expenditures, small game activity, from 1982 to 1996.

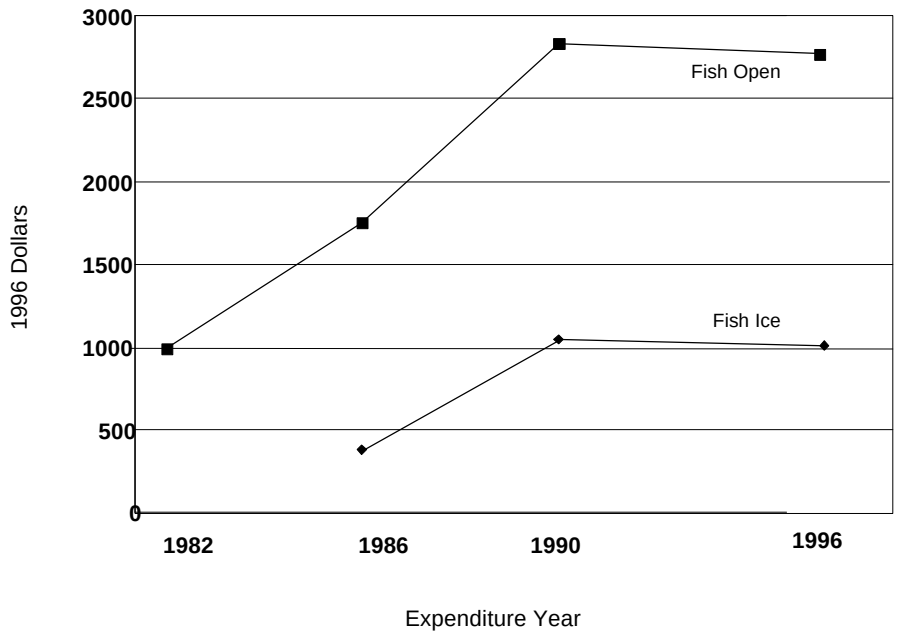


Figure 3. Resident average season expenditures, fishing activity, from 1982 to 1996.

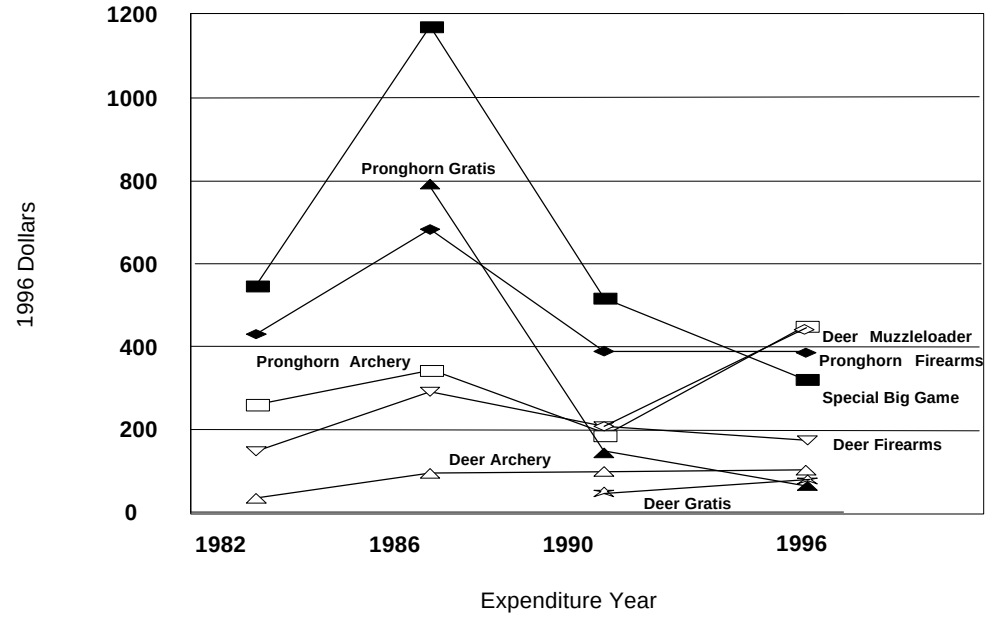


Figure 4. Resident average daily expenditures, big game activity, from 1982 to 1996.

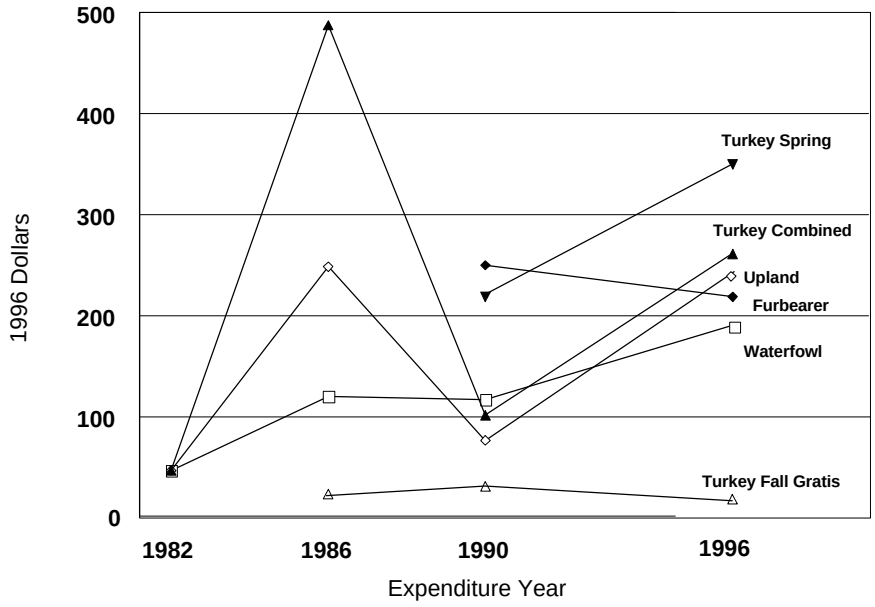


Figure 5. Resident average daily expenditures, small game activity, from 1982 to 1996.


Figure 6. Resident average daily expenditures, fishing activity, from 1982 to 1996.

Table 20. Average Season Expenditures, by Activity, Nonresident Hunters and Anglers, 1996 Dollars, 1976, 1983, 1990, and 1996

| Activity | Season | | | |
|---|---|---|---|---|
| | 1976 | 1983 | 1990 | 1996 |
| | ---------- 1996 dollars[a] ---------- | | | |
| Pronghorn Antelope | | | | |
| Archery | NA | NA | 442 | 685 |
| Deer | | | | |
| Archery | 618 | 299 | 681 | 957 |
| Firearms | 618 | 576 | 559 | 466 |
| Small Game | 598 | 640 | 675 | 705 |
| Fish | NA | 677 | 802 | 1,122 |

[a]Adjusted to 1996 dollars, using the Consumer Price Index.

**Projected Total Expenditures**

Total expenditures for each activity were contingent upon the number of licenses sold (Table 21), the participation rate (Table 21), and the average season expenditures (Table 18). For an estimate of the total direct economic impact that hunter/angler expenditures have on the North Dakota economy, total expenditures among individual activities and the cost of licenses were added together. Total expenditures were estimated for residents and nonresidents. Resident and nonresident total expenditures were added to get a total expenditure for hunters/anglers.

Total direct resident and nonresident hunter/angler expenditures during the 1996-97 seasons in North Dakota were $583 million (Table 22). Excluding the cost of licenses, total expenditures were $578 million. Only 21 percent of the resident expenditures can be attributed to small game (Figure 7), while 40 percent of nonresident expenditures was attributed to small game (Figure 8). Fifty-nine percent of total direct expenditures can be attributed to angling activities. Over 20 percent of total direct expenditures by hunters and anglers can be attributed to small game hunting in the state (Figure 9). Resident expenditures accounted for 94 percent ($543 million) of the total direct expenditures.

Resident hunter/angler expenditures have increased from $151 million in 1982 to $543 million in 1996 (Table 23). Between 1990 and 1996, resident expenditures increased by 34 percent. Nonresident expenditures have increased from $6 million in 1976 to $35 million in 1996. From 1976 to 1983, nonresident expenditures increased by 194 percent. From 1983 to 1990, their expenditures decreased slightly, and rose again by 95 percent from 1990 to 1996.

Table 21. License Sales, Active Participants, and Participation Rates, North Dakota Hunters and Anglers, 1996-97

| Activity | License Sales | Participation Rate | Active Participants[a] |
|---|---|---|---|
| | | ----- percent----- | |
| RESIDENTS | | | |
| Pronghorn Antelope | | | |
| Archery | 1,169 | 92.0 | 1,075 |
| Firearms | 1,607 | 95.5 | 1,535 |
| Gratis | 713 | 80.7 | 575 |
| Special Big Game | 256 | 97.6 | 250 |
| Deer | | | |
| Archery | 11,172 | 94.7 | 10,580 |
| Firearms | 86,226 | 98.4 | 84,846 |
| Gratis | 8,931 | 85.7 | 7,654 |
| Muzzleloader | 700 | 92.6 | 648 |
| Furbearer | 40,340 | 70.6 | 28,480 |
| Small Game | | | |
| Waterfowl | 60,714 | 63.5 | 38,553 |
| Upland | 60,714 | 84.0 | 51,000 |
| Wild Turkey | | | |
| Combined[b] | 3,007 | 81.8 | 2,460 |
| Fall Gratis | 234 | 64.2 | 150 |
| Spring | 1,335 | 89.6 | 1,196 |
| Spring Gratis | 110 | 71.0 | 78 |
| Fishing | | | |
| Open Water | 116,114 | 88.2 | 102,413 |
| Ice | 116,114 | 30.7 | 35,647 |
| NONRESIDENTS | | | |
| Pronghorn Antelope | | | |
| Archery | 83 | 100 | 83 |
| Deer | | | |
| Archery | 694 | 97.1 | 674 |
| Firearms | 932 | 97.5 | 909 |
| Small Game | 19,848 | 99.3 | 19,709 |
| Fishing | 18,123 | 98.0 | 17,761 |

[a]Number of active participants based on the percentage of survey respondents actually participating in each activity during the 1996-97 season.
[b]Includes early and late fall seasons.

Table 22. Total Direct Resident and Nonresident Hunter/angler Expenditures in North Dakota, by Activity, 1996-97

| | Resident | | Nonresident | | Total | |
|---|---|---|---|---|---|---|
| **Activity** | Expenditure | Percentage | Expenditure | Percentage | Expenditure | Percentage |
| Pronghorn Antelope[a] | 2,933,000[b] | 0.5 | 57,000 | 0.2 | 2,990,000 | 0.5 |
| Deer[b] | 69,321,000[c] | 12.8 | 1,068,000 | 3.1 | 70,389,000 | 12.2 |
| Special Big Game | 244,000 | 0.1 | 0 | 0.0 | 244,000 | 0.1 |
| Small Game[c] | 113,006,000 | 20.8 | 13,887,000 | 39.7 | 126,893,000 | 22.0 |
| Wild Turkey[d] | 1,896,000[e] | 0.3 | 0 | 0.0 | 1,896,000 | 0.3 |
| Furbearer | 34,589,000 | 6.4 | 0 | 0.0 | 34,589,000 | 6.0 |
| Total Hunting | 221,989,000 | 40.9 | 15,012,000 | 43.0 | 237,001,000 | 41.0 |
| Hunting Percentage | 93.7 | | 6.3 | | 100.0 | |
| Total Fishing | 320,680,000 | 59.1 | 19,925,000 | 57.0 | 340,605,000 | 59.0 |
| Fishing Percentage | 94.1 | | 5.9 | | 100.0 | |
| Total Hunting and Fishing | 542,669,000 | 100.0 | 34,937,000 | 100.0 | 577,606,000 | 100.0 |
| Percentage | 94.0 | | 6.0 | | 100.0 | |
| Cost of Licenses | 3,761,000 | | 2,030,000 | | 5,791,000 | |
| Grand Total | 546,430,000 | | 36,967,000 | | 583,397,000 | |

[a]Includes archery, firearms and gratis hunters.
[b]Includes archery, firearms, gratis and muzzleloader hunters.
[c]Includes upland game and waterfowl hunters.
[d]Includes gratis hunters, spring and fall seasons combined.

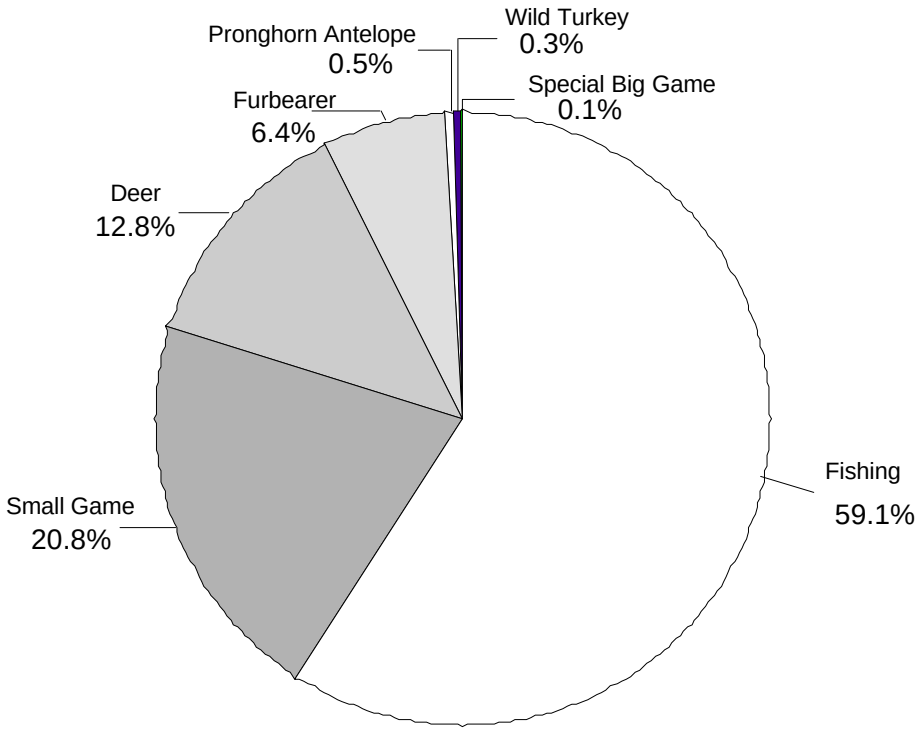


Figure 7. Resident direct expenditures percentages, by activity for 1996-1997.

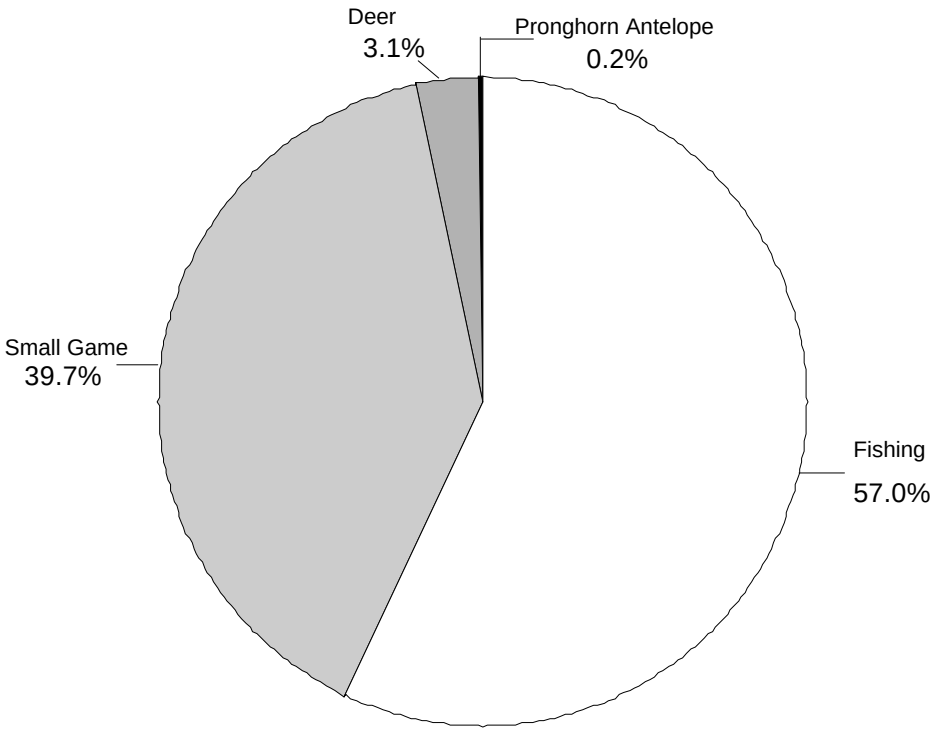


Figure 8. Nonresident direct expenditures percentages, by activity for 1996-1997.

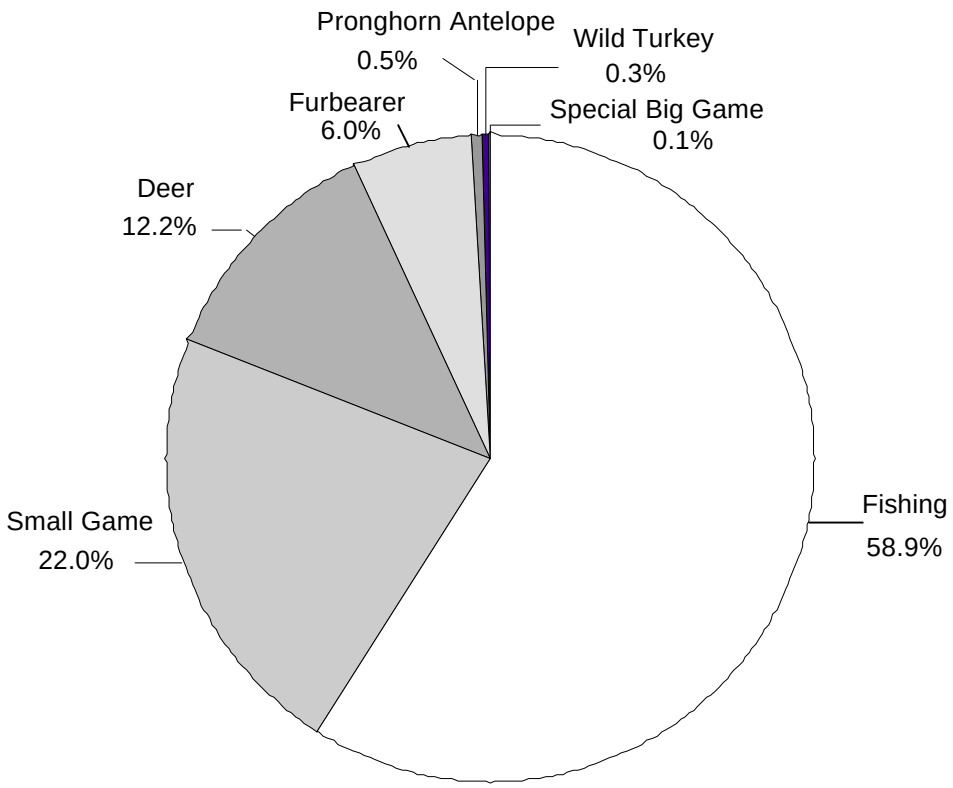


Figure 9. Total direct resident and nonresident expenditures, by activity for 1996-1997.

Table 23. Resident and Nonresident Total Direct Expenditures (Excluding License Fees) and Percentage Change, 1996 Dollars, Various Survey Years

| | **Residents** | | **Nonresidents** | |
|---|---|---|---|---|
| Survey Year | Total | Percent Change[a] | Total | Percent Change[a] |
| | - 1996 dollars[b] - | | - 1996 dollars[b] - | |
| 1976 | NA | NA | 6,317,416 | NA |
| 1982 | 150,612,160 | NA | NA | NA |
| 1983 | NA | NA | 18,565,532 | 194 |
| 1986 | 428,378,520 | 184 | NA | NA |
| 1990 | 403,998,710 | (6) | 17,956,557 | (3) |
| 1996 | 542,669,000 | 34 | 34,937,000 | 95 |

[a]Represents the percentage change from the previous survey year.
[b]Adjusted to 1996 dollars, using the Consumer Price Index.

**Additional Nonresident Expenditures**

Nonresident anglers spent an average $584 per angler in the 1996-97 season on goods and services not directly related to angling (Table 24). Nonresident archery deer hunters had the least additional expenditures of the season, averaging $191 per hunter. However, nonresident archery antelope hunters also spent the smallest total direct expenditures ($24,000). Additional expenditures increased from 1990 to 1996 for each activity (Table 25). Nonresident archery antelope hunters' additional expenditures increased by 96 percent from 1990 to 1996.

Table 24. Average Additional[a] Expenditures per Hunter/angler and Additional Total Direct Expenditures for All Hunters/anglers, 1996-97

| Activity | Average Additional Expenditures Per Hunter/Angler | Additional Total Direct Expenditures For All Hunters/Anglers |
|---|---|---|
| | ---------- dollars ---------- | |
| Archery Antelope | 284 | 24,000 |
| Archery Deer | 191 | 129,000 |
| Firearms Deer | NA | NA |
| Small Game | NA | NA |
| Fishing | 584 | 10,364,000 |

[a]Items unrelated to hunting or angling.

Table 25. Average Additional[a] Expenditures per Hunter/angler for All Nonresident Hunters/anglers, by Activity, 1996 Dollars, 1990 and 1996

| Activity | 1990 | 1996 | Percent Change |
|---|---|---|---|
| | ---------- 1996 dollars --------- | | |
| Archery Antelope | 145 | 284 | 96 |
| Archery Deer | 148 | 191 | 29 |
| Firearms Deer | 124 | NA | NA |
| Small Game | 107 | NA | NA |
| Fishing | 323 | 584 | 81 |

[a]Items unrelated to hunting or angling.

## Economic Impact of Resident and Nonresident Hunters/Anglers

Resident and nonresident hunters and anglers accounted for $1,667 million in total business activity in North Dakota in 1996 (Table 26). These expenditures generated $250 million in retail trade and $393 million in personal income. Hunting and angling participation and expenditures supported over 21,000 jobs in North Dakota.

Table 26. Retail Trade, Personal Income, Total Business Activity, and Employment Generated by Resident and Nonresident Hunter/angler Expenditures in North Dakota, 1996-97

| Group | Retail Trade | Personal Income | Total Business Activity | Secondary Employment |
|---|---|---|---|---|
| | ----------thousand dollars---------- | | | -----jobs------ |
| Residents | 234,314 | 367,919 | 1,562,220 | 19,796 |
| Nonresidents | 15,851 | 24,890 | 105,685 | 1,333 |
| Total | 250,165 | 392,809 | 1,667,905 | 21,129 |

## Resident and Nonresident Ruralized Expenditures

The percent of urban residents' expenditures in rural areas in North Dakota ranged from 19 percent for gratis spring turkey hunters to 61 percent for special big game hunters (Table 27). The seasonal amount spent per hunter/angler ranged from $16 for gratis fall wild turkey hunters to $1,167 for archery antelope hunters. About $117 million of urban resident expenditures was "ruralized" (spent in rural communities with populations less than 2,500). Ruralized urban expenditures accounted for about 20 percent of total direct resident hunter/angler expenditures.

The percentage of nonresident expenditures in rural areas in North Dakota ranged from 66 percent for firearms deer hunters to 78 percent for small game hunters (Table 28). The seasonal amount spent per hunter/angler ranged from $306 for firearms deer hunters to $849 for anglers. Nonresidents spent $26 million (76 percent) of total nonresident direct expenditures in rural areas of North Dakota in the 1996-97 season.

Table 27. Urban Resident Hunter and Angler Expenditures in Rural Areas in North Dakota, by Activity, 1996-97

| Activity | Ruralized Spending | Urban Participants | Seasonal Amount per Hunter/Angler | Amount all Hunters/Anglers |
|---|---|---|---|---|
| | -----%---- | | ---------- dollars ---------- | |
| Pronghorn Antelope | | | | |
| Archery | 43 | 627 | 1,167 | 731,000 |
| Firearms | 54 | 880 | 330 | 290,000 |
| Gratis | 32 | 54 | 67 | 4,000 |
| Special Big Game | 61 | 98 | 596 | 58,000 |
| Deer | | | | |
| Archery | 31 | 5,639 | 520 | 2,931,000 |
| Firearms | 40 | 40,387 | 342 | 13,818,000 |
| Gratis | 50 | 1,148 | 145 | 167,000 |
| Muzzleloader | 31 | 288 | 187 | 54,000 |
| Furbearer | 59 | 12,873 | 864 | 11,125,000 |
| Small Game | | | | |
| Waterfowl | 45 | 21,898 | 494 | 10,827,000 |
| Upland | 42 | 28,254 | 637 | 17,995,000 |
| Wild Turkey | | | | |
| Fall Turkey | 42 | 1,503 | 181 | 272,000 |
| Fall (Gratis) | 37 | 12 | 16 | |
| Spring Turkey[a] | 47 | 718 | 331 | 237,000 |
| Spring (Gratis)[a] | 19 | 13 | 38 | |
| Fishing | | | | |
| Open Water | 35 | 50,490 | 1,047 | 52,862,000 |
| Ice | 44 | 17,360 | 348 | 6,040,000 |
| Total in Rural Areas | | | | 117,411,000 |

[a]Estimated from fall survey.

Table 28. Nonresident Hunter and Angler Expenditures in Rural Areas in North Dakota, by Activity, 1996-97

| Activity | Rural Spending | Seasonal Amount per Hunter/Angler | Amount All Hunters/Anglers |
|---|---|---|---|
| | ----%---- | ----------dollars---------- | |
| Pronghorn Antelope Archery | 72 | 473 | 39,000 |
| Deer Archery | 75 | 638 | 430,000 |
| Deer Firearms | 66 | 306 | 278,000 |
| Small Game | 78 | 536 | 10,566,000 |
| Fishing | 74 | 849 | 15,074,000 |
| Total in Rural Areas | | | 26,387,000 |

## Summary

Resident open water anglers had the highest average season expenditure ($2,779) of all resident hunting/angling activities. Resident archery antelope hunters had the highest average daily expenditure ($450), while gratis fall wild turkey hunters had the lowest average daily ($17) and season ($50) expenditures. The four activity groups of gratis hunters spent the least, both for the season and on a daily basis. Excluding them leaves fall turkey hunters the least for the season ($418) and archery deer hunters spending the least for average daily expenditures ($99).

Nonresident anglers had the highest season ($1,122) expenditures and archery deer hunters the highest daily ($150) expenditures of all nonresident hunters/anglers. Firearms deer hunters spent the least, on average over the nonresident season ($466), and archery antelope hunters spent the least average per day ($118).

Total direct resident and nonresident hunter/angler expenditures, excluding the cost of licenses and additional nonresident expenditures, came to $578 million. Fifty-nine percent of the total direct expenditures came from angling activities. Resident hunters/anglers spent 94 percent ($543 million) of the total direct expenditures.

Total direct resident expenditures (excluding the cost of licenses) have increased from $151 million in 1982 to $543 million in 1996. Nonresident expenditures have increased from $6 million in 1976 to $35 million in 1996.

Resident and nonresident hunters and anglers generated $1,668 million in total business activity in North Dakota in 1996. Their expenditures accounted for $250 million in retail trade sales, and $393 million in personal income and supported over 21,000 jobs.

Total resident and nonresident expenditures (excluding cost of licenses and additional nonresident expenditures) were $578 million in 1996. Over $117 million (22 percent) of total resident expenditures were ruralized. Over $26 million (76 percent) of total nonresident expenditures were spent in rural areas. Twenty-five percent of total resident and nonresident expenditures were spent in rural areas by nonresidents and urban residents.

## Conclusions

North Dakota's resident and nonresident hunters and anglers are a vital part of the state's economy. Their expenditures represented 8 percent of the state's economic base and supported 8 percent of the state's employment in 1996. This is an increase from 1990, where resident and nonresident expenditures represented 5 percent of the state's economic base and supported 6 percent of the state's employment.

North Dakota's population experienced an 8 percent decline from 1984 to 1991. Since 1991, however, the population has increased slightly but steadily, by about 1 percent per year (Figure 10). The percentage of the population who are hunters and anglers has also increased since 1991, along with license sales (Figures 11, 12, and 13). These increases in population, percentages of hunters/anglers, and license sales may account for the increase in overall expenditures of hunters and anglers between 1991 and 1996.

Nonresident hunting and fishing license sales are on the increase as well. Fishing license sales experienced a 29 percent increase from 1991-1996, and hunting license sales experienced an 88 percent increase. The rise in both resident and nonresident license sales suggest that hunting and angling in North Dakota are regaining their popularity.

Fishing license sales have not reached the level that was achieved in 1982, when both resident and nonresident sales peaked. Although licensed hunters (residents and nonresidents) are at their highest during this period there may still be some hunting/fishing capacity available for further increases in activity for some sportsmen groups. Continued increases in hunting and angling and thus hunting/angling expenditures can further help to increase economic activity in North Dakota. The major benefactors of this increase in activity would be rural residents, especially since nonresidents make most of their expenditures related to hunting/angling in rural areas.

The responsibility of the North Dakota Game and Fish Department is to manage the state's fish and wildlife resources. This involves meeting the growing demands of resident hunters and anglers. Previous research has found that a considerable number of resident hunters and anglers would hunt elsewhere if North Dakota could not provide adequate hunting and fishing opportunities (Leitch and Baltezore 1993). NDGF should focus on keeping resident hunting and angling in the state to maintain and diversify the state's economic base. A secondary consideration should be to identify any excess capacity which could provide hunting and angling opportunities for nonresident hunters and anglers. Nonresident hunters and anglers are important participants in expanding the state's economic base and are responsible for bringing new wealth to the state and its rural areas.

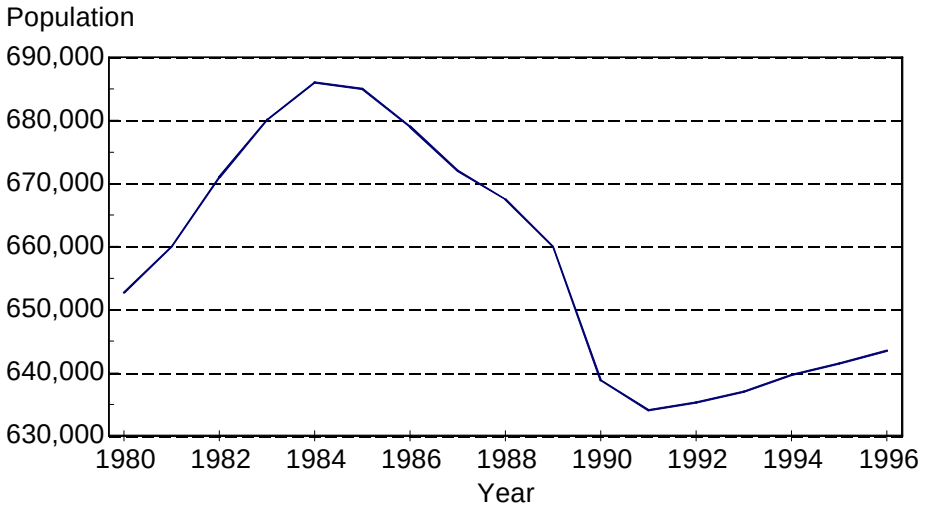


Figure 10. North Dakota Population, 1980-1996.
Source: North Dakota State Data Center

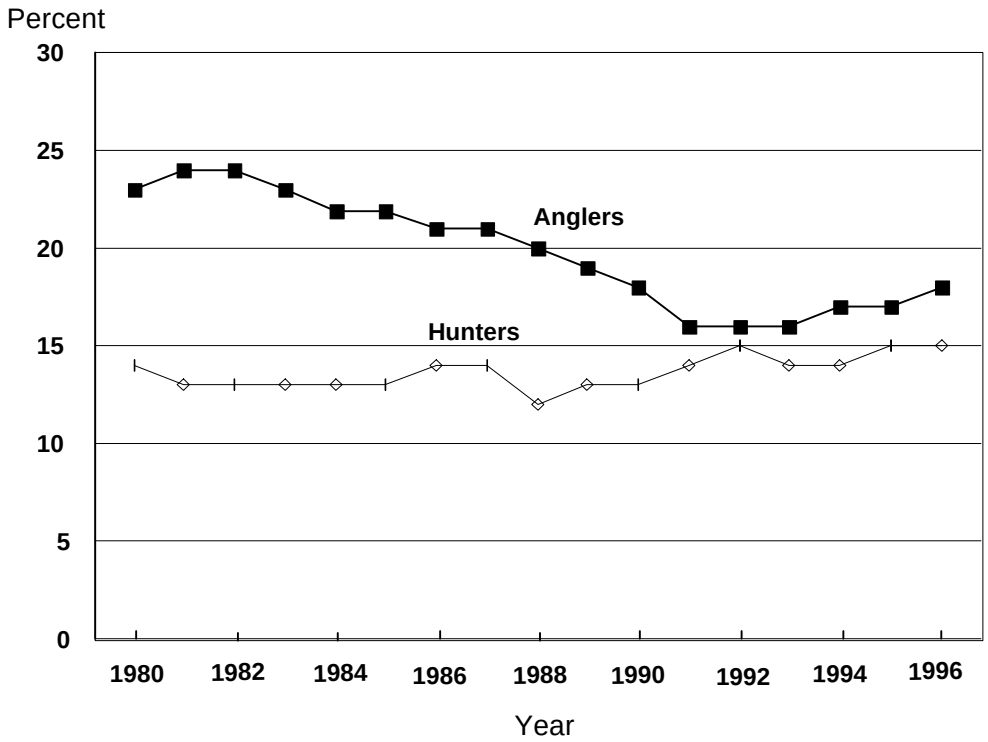


Figure 11. Percentage of North Dakota population who are hunters/anglers, 1980-1996.

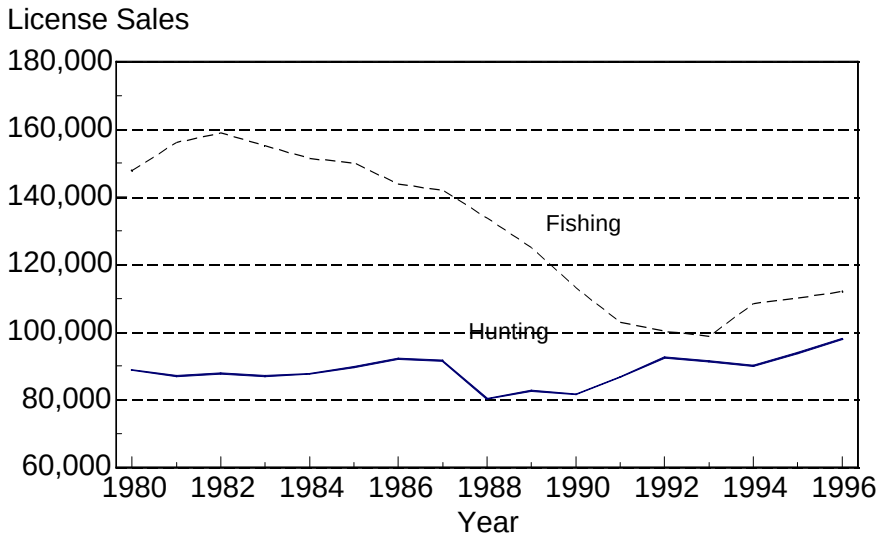


Figure 12. North Dakota resident hunting/fishing license sales, 1980-1996.

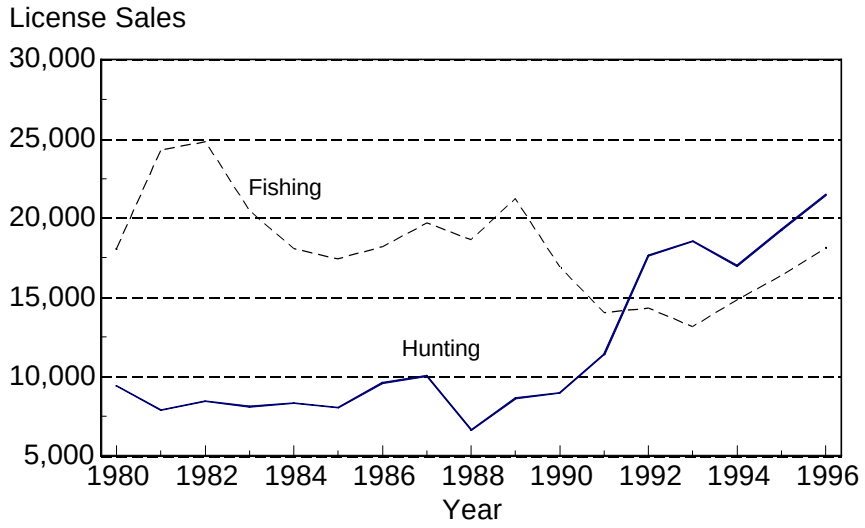


Figure 13. North Dakota nonresident hunting/fishing license sales, 1980-1996.

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# Appendix A

# Representative Questionnaire

# Appendix B

# Summary of Expenditures

## Resident Archery Pronghorn Antelope

**Appendix Table B1. Resident archery pronghorn antelope hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 0.33 | |
| Film | 3.70 | |
| Food | 63.05 | |
| Guide | 0.41 | |
| Lodging | 13.57 | |
| Meat | 5.40 | |
| Other | 6.46 | |
| Taxidermy | 9.56 | |
| Transportation | 125.33 | |
| Season | 227.81 | ± 19.18[b] (n=365; sd=223.42) |
| Daily | 48.35 | ± 4.26 (n=360; sd=49.24) |
| Fixed: | | |
| Binoculars | 54.73 | |
| Camping | 45.28 | |
| Clothing | 56.09 | |
| Other | 12.51 | |
| Vehicle | 1210.63 | |
| Weapons | 134.47 | |
| Season | 1513.71 | ± 436.97 (n=335; sd=4876.74) |
| Daily | 397.33 | ± 190.23 (n=330; sd=2107.16) |
| Total Fixed and Variable: | | |
| Season | 1777.00 | ± 457.00 (n=327; sd=4974.58) |
| Daily | 450.11 | ± 195.31 (n=327; sd=2131.54) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

## Resident Firearms Pronghorn Antelope

**Appendix Table B2. Resident firearms pronghorn antelope hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 0.16 | |
| Ammunition | 12.97 | |
| Film | 2.98 | |
| Food | 47.43 | |
| Guide | 0.15 | |
| Lodging | 26.60 | |
| Meat | 23.93 | |
| Other | 3.75 | |
| Taxidermy | 23.05 | |
| Transportation | 74.65 | |
| | | |
| Season | 214.77 | ± 8.83[b] (n=999; sd=170.18) |
| Daily | 124.34 | ± 6.50 (n=999; sd=125.29) |
| | | |
| Fixed: | | |
| Binoculars | 20.64 | |
| Camping | 7.06 | |
| Clothing | 18.53 | |
| Other | 2.44 | |
| Vehicle | 352.25 | |
| Weapons | 34.4 | |
| | | |
| Season | 420.98 | ± 139.52 (n=994; sd=2682.26) |
| Daily | 257.56 | ± 99.71 (n=994; sd=1916.92) |
| | | |
| Total Fixed and Variable: | | |
| Season | 623.00 | ± 137.00 (n=988; sd=2720.83) |
| Daily | 386.58 | ± 102.60 (n=988; sd=1947.21) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

## Gratis Pronghorn Antelope

**Appendix Table B3. Gratis pronghorn antelope hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 0 | |
| Ammunition | 5.09 | |
| Film | 0.28 | |
| Food | 5.61 | |
| Guide | 0 | |
| Lodging | 0 | |
| Meat | 12.65 | |
| Other | 0.49 | |
| Taxidermy | 7.61 | |
| Transportation | 13.84 | |
| Season | 46.42 | ± 11.09[b] (n=200; sd=95.62) |
| Daily | 28.96 | ± 8.47 (n=200; sd=73.05) |
| Fixed: | | |
| Binoculars | 9.53 | |
| Camping | 1.46 | |
| Clothing | 8.50 | |
| Other | 2.70 | |
| Vehicle | 15.93 | |
| Weapons | 31.50 | |
| Season | 69.88 | ± 34.72 (n=200; sd=299.41) |
| Daily | 39.15 | ± 19.77 (n=200; sd=170.48) |
| Total Fixed and Variable: | | |
| Season | 117.08 | ± 38.08 (n=197; sd=333.64) |
| Daily | 70.15 | ± 23.95 (n=197; sd=204.95) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

## Special Big Game

**Appendix Table B4. Special big game hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 17.12 | |
| Ammunition | 16.16 | |
| Film | 10.25 | |
| Food | 109.62 | |
| Guide | 11.30 | |
| Lodging | 71.91 | |
| Meat | 78.09 | |
| Other | 19.42 | |
| Taxidermy | 134.71 | |
| Transportation | 151.73 | |
| Season | 615.55 | ± 60.94[b] (n=144; sd=445.92) |
| Daily | 242.31 | ± 45.54 (n=144; sd=333.22) |
| Fixed: | | |
| Binoculars | 28.65 | |
| Camping | 16.00 | |
| Clothing | 34.35 | |
| Other | 16.31 | |
| Vehicle | 232.93 | |
| Weapons | 44.25 | |
| Season | 365.71 | ± 251.25 (n=144; sd=1838.45) |
| Daily | 61.56 | ± 26.41 (n=144; sd=193.28) |
| Total Fixed and Variable: | | |
| Season | 975.81 | ± 260.61 (n=143; sd=1907.59) |
| Daily | 325.15 | ± 72.03 (n=143; sd=415.88) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

## Resident Archery Deer

**Appendix Table B5. Resident archery deer hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 1.56 | |
| Film | 4.84 | |
| Food | 64.92 | |
| Guide | 0.02 | |
| Lodging | 6.58 | |
| Meat | 32.08 | |
| Other | 9.05 | |
| Taxidermy | 19.90 | |
| Transportation | 129.39 | |
| Season | 268.33 | ± 22.60[b] (n=599; sd=337.35) |
| Daily | 26.34 | ± 3.45 (n=582; sd=50.72) |
| Fixed: | | |
| Binoculars | 32.05 | |
| Camping | 20.54 | |
| Clothing | 62.92 | |
| Other | 16.56 | |
| Vehicle | 737.80 | |
| Weapons | 113.34 | |
| Season | 983.22 | ± 274.57 (n=551; sd=3930.01) |
| Daily | 72.18 | ± 22.72 (n=537; sd=321.08) |
| Total Fixed and Variable: | | |
| Season | 1270.00 | ± 288.00 (n=527; sd=4117.96) |
| Daily | 98.54 | ± 23.56 (n=527; sd=329.73) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

**Appendix Table B6. Resident firearms deer hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 0.19 | |
| Ammunition | 16.99 | |
| Film | 1.78 | |
| Food | 40.12 | |
| Guide | 0.50 | |
| Lodging | 7.44 | |
| Meat | 48.53 | |
| Other | 1.94 | |
| Taxidermy | 6.04 | |
| Transportation | 63.75 | |
| Season | 195.74 | ± 15.84[b] (n=540; sd=224.46) |
| Daily | 58.60 | ± 4.58 (n=540; sd=64.85) |
| Fixed: | | |
| Binoculars | 17.56 | |
| Camping | 0.94 | |
| Clothing | 30.01 | |
| Other | 3.98 | |
| Vehicle | 343.64 | |
| Weapons | 44.42 | |
| Season | 444.09 | ± 187.42 (n=543; sd=2662.99) |
| Daily | 117.23 | ± 51.87 (n=543; sd=737.05) |
| Total Fixed and Variable: | | |
| Season | 631.88 | ± 186.85 (n=540; sd=2364.23) |
| Daily | 174.42 | ± 51.97 (n=540; sd=722.16) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

## Resident Muzzleloader Deer

**Appendix Table B7. Resident muzzleloader deer hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 1.04 | |
| Ammunition | 13.27 | |
| Film | 0.96 | |
| Food | 20.48 | |
| Guide | 0.11 | |
| Lodging | 1.85 | |
| Meat | 13.18 | |
| Other | 2.21 | |
| Taxidermy | 6.62 | |
| Transportation | 48.81 | |
| Season | 108.75 | ± 9.88[b] (n=460; sd=129.22) |
| Daily | 36.79 | ± 4.06 (n=460; sd=53.11) |
| Fixed: | | |
| Binoculars | 24.68 | |
| Camping | 7.38 | |
| Clothing | 29.75 | |
| Other | 12.63 | |
| Vehicle | 940.22 | |
| Weapons | 71.46 | |
| Season | 1089.70 | ± 450.31 (n=323; sd=4934.75) |
| Daily | 406.40 | ± 199.94 (n=323; sd=2191.06) |
| Total Fixed and Variable: | | |
| Season | 1167.97 | ± 454.14 (n=319; sd=4989.45) |
| Daily | 442.14 | ± 205.22 (n=319; sd=2213.24) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

## Gratis Deer

**Appendix Table B8. Gratis deer hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 0 | |
| Ammunition | 11.71 | |
| Film | 0.47 | |
| Food | 12.65 | |
| Guide | 0 | |
| Lodging | 0 | |
| Meat | 64.35 | |
| Other | 1.18 | |
| Taxidermy | 8.38 | |
| Transportation | 23.88 | |
| Season | 127.78 | ± 37.69[b] (n=32; sd=130.01) |
| Daily | 53.10 | ± 18.39 (n=32; sd=63.44) |
| Fixed: | | |
| Binoculars | 0 | |
| Camping | 0 | |
| Clothing | 7.32 | |
| Other | 1.18 | |
| Vehicle | 0 | |
| Weapons | 59.56 | |
| Season | 68.06 | ± 48.77 (n=34; sd=173.42) |
| Daily | 30.28 | ± 26.32 (n=34; sd=93.59) |
| Total Fixed and Variable: | | |
| Season | 201.09 | ± 72.70 (n=32; sd=236.96) |
| Daily | 82.28 | ± 34.69 (n=32; sd=116.22) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

## Resident Furbearer

**Appendix Table B9. Resident furbearer hunter/trapper expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 0.05 | |
| Ammunition | 22.16 | |
| Film | 1.74 | |
| Food | 37.71 | |
| Guide | 0 | |
| Lodging | 5.06 | |
| Other | 4.40 | |
| Taxidermy | 6.27 | |
| Transportation | 111.98 | |
| Season | 189.81 | ± 22.78[b] (n=882; sd=412.52) |
| Daily | 26.52 | ± 2.52 (n=754; sd=42.23) |
| Fixed: | | |
| Binoculars | 49.20 | |
| Calls | 7.27 | |
| Camping | 13.03 | |
| Clothing | 41.69 | |
| Other | 4.21 | |
| Skinning Equipment | 5.69 | |
| Traps | 13.82 | |
| Vehicle | 604.54 | |
| Weapons | 114.61 | |
| Season | 856.54 | ± 197.49 (n=692; sd=3167.79) |
| Daily | 189.07 | ± 68.02 (n=573; sd=992.81) |
| Total Fixed and Variable: | | |
| Season | 1215.28 | ± 232.13 (n=570; sd=3466.68) |
| Daily | 219.81 | ± 68.69 (n=570; sd=999.92) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

**Appendix Table B10. Resident waterfowl hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 1.13 | |
| Ammunition | 71.43 | |
| Film | 4.15 | |
| Food | 67.46 | |
| Guide | 0.05 | |
| Lodging | 17.90 | |
| Meat | 8.28 | |
| Other | 3.64 | |
| Taxidermy | 14.71 | |
| Transportation | 135.82 | |
| Veterinarian | 12.13 | |
| Season | 353.83 | ± 33.32[b] (n=381; sd=396.58) |
| Daily | 57.12 | ± 6.94 (n=361; sd=80.43) |
| Fixed: | | |
| Binoculars | 22.69 | |
| Boat | 20.84 | |
| Camping | 7.69 | |
| Clothing | 69.71 | |
| Decoys | 30.58 | |
| Dogs | 10.14 | |
| Other | 2.02 | |
| Vehicle | 596.70 | |
| Weapons | 91.06 | |
| Season | 851.38 | ± 366.55 (n=379; sd=4351.16) |
| Daily | 225.84 | ± 163.33 (n=359; sd=1886.98) |
| Total Fixed and Variable: | | |
| Season | 1225.99 | ± 416.97 (n=358; sd=4476.12) |
| Daily | 192.63 | ± 71.17 (n=358; sd=1917.15) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

**Appendix Table B11. Resident upland game hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 2.08 | |
| Ammunition | 50.95 | |
| Film | 5.45 | |
| Food | 88.08 | |
| Guide | 2.64 | |
| Lodging | 24.43 | |
| Meat | 19.13 | |
| Other | 4.0 | |
| Taxidermy | 15.54 | |
| Transportation | 169.28 | |
| Veterinarian | 17.71 | |
| Season | 399.26 | ± 41.08[b] (n=568; sd=597.06) |
| Daily | 57.27 | ± 6.36 (n=439; sd=81.31) |
| Fixed: | | |
| Binoculars | 17.46 | |
| Camping | 14.69 | |
| Clothing | 51.51 | |
| Dogs | 10.54 | |
| Other | 5.98 | |
| Vehicle | 704.84 | |
| Weapons | 79.82 | |
| Season | 884.86 | ± 262.45 (n=568; sd=3814.04) |
| Daily | 163.12 | ± 80.56 (n=439; sd=1029.25) |
| Total Fixed and Variable: | | |
| Season | 1289.12 | ± 277.06 (n=439; sd=3833.52) |
| Daily | 246.40 | ± 81.55 (n=439; sd=1041.87) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

**Appendix Table B12. Resident fall wild turkey hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 0.72 | |
| Ammunition | 7.63 | |
| Film | 1.39 | |
| Food | 23.65 | |
| Guide | 0.02 | |
| Lodging | 9.32 | |
| Meat | 0.76 | |
| Other | 1.47 | |
| Taxidermy | 1.32 | |
| Transportation | 38.54 | |
| Season | 84.95 | ± 4.70[b] (n=1469; sd=109.76) |
| Daily | 48.12 | ± 2.67 (n=1469; sd=62.45) |
| Fixed: | | |
| Binoculars | 8.02 | |
| Camping | 1.67 | |
| Clothing | 14.46 | |
| Other | 2.04 | |
| Vehicle | 296.02 | |
| Weapons | 24.61 | |
| Season | 331.93 | ± 111.96 (n=1458; sd=2606.84) |
| Daily | 215.67 | ± 81.65 (n=1458; sd=1901.09) |
| Total Fixed and Variable: | | |
| Season | 418.12 | ± 115.79 (n=1457; sd=2625.13) |
| Daily | 263.08 | ± 84.10 (n=1457; sd=1910.79) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

**Appendix Table B13. Resident spring wild turkey hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 11.11 | |
| Ammunition | 9.5 | |
| Film | 5.92 | |
| Food | 25.74 | |
| Lodging | 43.98 | |
| Meat | 8.8 | |
| Other | 35.55 | |
| Taxidermy | 90.25 | |
| Transportation | 45.52 | |
| Season | 106.04 | ± 7.86[b] (n=315; sd=85.06) |
| Daily | 59.72 | ± 6.02 (n=315; sd=65.17) |
| Fixed: | | |
| Binoculars | 109.09 | |
| Camping | 55.11 | |
| Clothing | 54.68 | |
| Other | 31.29 | |
| Vehicle | 6807.73 | |
| Weapons | 275.96 | |
| Season | 589.18 | ± 296.77 (n=315; sd=3211.69) |
| Daily | 389.46 | ± 229.71 (n=315; sd=2485.95) |
| Total Fixed and Variable: | | |
| Season | 705.22 | ± 303.56 (n=315; sd=3209.36) |
| Daily | 359.18 | ± 201.04 (n=315; sd=2489.57) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

## Gratis Wild Turkey

**Appendix Table B14. Gratis wild turkey hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 0 | |
| Ammunition | 6.5 | |
| Film | 0.06 | |
| Food | 7.15 | |
| Guide | 0 | |
| Lodging | 0 | |
| Meat | 0.44 | |
| Other | 0 | |
| Taxidermy | 0 | |
| Transportation | 18.86 | |
| Season | 32.12 | ± 12.57[b] (n=60; sd=59.36) |
| Daily | 11.12 | ± 3.64 (n=60; sd=17.22) |
| Fixed: | | |
| Binoculars | 2.62 | |
| Camping | 0.79 | |
| Clothing | 9.82 | |
| Other | 0.60 | |
| Vehicle | 0 | |
| Weapons | 2.38 | |
| Season | 17.32 | ± 12.14 (n=59; sd=56.87) |
| Daily | 5.95 | ± 3.68 (n=59; sd=17.22) |
| Total Fixed and Variable: | | |
| Season | 49.76 | ± 22.22 (n=59; sd=99.40) |
| Daily | 17.15 | ± 5.50 (n=59; sd=25.78) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

**Appendix Table B15. Resident summer angler expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 6.47 | |
| Bait | 39.22 | |
| Boat / fish house gas | 66.12 | |
| Boat / fish house rental | 3.06 | |
| Film | 7.45 | |
| Food | 128.71 | |
| Lodging | 36.64 | |
| Meat | 2.70 | |
| Other | 10.80 | |
| Repairs | 57.29 | |
| Taxidermy | 5.33 | |
| Transportation | 161.88 | |
| Season | 519.99 | ± 28.34[b] (n=1693; sd=711.00) |
| Daily | 38.17 | ± 2.18 (n=1669; sd=54.40) |
| Fixed: | | |
| Boat | 659.07 | |
| Camping | 91.09 | |
| Clothing | 47.52 | |
| Depth Finder | 30.20 | |
| Other | 15.44 | |
| Rods | 59.10 | |
| Tackle | 54.52 | |
| Vehicle | 1102.88 | |
| Season | 1900.18 | ± 260.70 (n=1559; sd=6276.58) |
| Daily | 173.61 | ± 30.97 (n=1535; sd=739.87) |
| Total Fixed and Variable: | | |
| Season | 2779.32 | ± 351.56 (n=1497; sd=6642.54) |
| Daily | 229.93 | ± 35.42 (n=1497; sd=764.79) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

**Appendix Table B16. Resident ice angler expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Bait | 19.73 | |
| Fish house heater fuel | 10.93 | |
| Fish house rental | 2.71 | |
| Film | 1.39 | |
| Food | 55.67 | |
| Lodging | 6.51 | |
| Meat | 1.55 | |
| Other | 4.45 | |
| Repairs | 12.19 | |
| Taxidermy | 4.26 | |
| Transportation | 88.32 | |
| Season | 207.93 | ± 22.39[b] (n=617; sd=339.20) |
| Daily | 28.78 | ± 5.39 (n=616; sd=81.53) |
| Fixed: | | |
| Auger | 36.86 | |
| Clothing | 29.48 | |
| Depth Finder | 16.22 | |
| Fish House | 41.86 | |
| Other | 7.41 | |
| Rods | 22.93 | |
| Tackle | 23.45 | |
| Vehicle | 575.65 | |
| Season | 753.89 | ± 239.59 (n=476; sd=3187.29) |
| Daily | 94.22 | ± 38.59 (n=475; sd=512.90) |
| Total Fixed and Variable: | | |
| Season | 1011.39 | ± 252.96 (n=469; sd=3274.35) |
| Daily | 121.26 | ± 39.30 (n=469; sd=518.91) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

## Nonresident Archery Pronghorn Antelope

**Appendix Table B17. Nonresident archery pronghorn antelope hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 31.58 | |
| Film | 7.84 | |
| Food | 147.89 | |
| Guide | 0 | |
| Lodging | 53.95 | |
| Meat | 13.68 | |
| Other | 38.00 | |
| Taxidermy | 29.47 | |
| Transportation | 181.32 | |
| Season | 503.74 | ± 102.83[b] (n=19; sd=273.31) |
| Daily | 85.25 | ± 18.76 (n=19; sd=49.87) |
| Fixed: | | |
| Binoculars | 17.86 | |
| Camping | 17.64 | |
| Clothing | 30.86 | |
| Other | 57.86 | |
| Vehicle | 0 | |
| Weapons | 3.57 | |
| Season | 127.78 | ± 89.02 (n=14; sd=203.11) |
| Daily | 22.75 | ± 17.28 (n=14; sd=39.42) |
| Total Fixed and Variable: | | |
| Season | 685.36 | ± 165.58 (n=14; sd=375.48) |
| Daily | 118.25 | ± 32.46 (n=14; sd=71.78) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

**Appendix Table B18. Nonresident archery deer hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 86.73 | |
| Film | 7.92 | |
| Food | 134.99 | |
| Guide | 65.10 | |
| Lodging | 91.17 | |
| Meat | 9.83 | |
| Other | 42.00 | |
| Taxidermy | 11.37 | |
| Transportation | 157.88 | |
| Season | 607.00 | ± 40.81[b] (n=384; sd=487.68) |
| Daily | 102.14 | ± 9.52 (n=379; sd=112.99) |
| Fixed: | | |
| Binoculars | 5.47 | |
| Camping | 9.90 | |
| Clothing | 37.77 | |
| Other | 16.63 | |
| Vehicle | 244.51 | |
| Weapons | 15.76 | |
| Season | 330.05 | ± 249.02 (n=257; sd=2434.23) |
| Daily | 50.22 | ± 40.01 (n=252; sd=387.29) |
| Total Fixed and Variable: | | |
| Season | 956.58 | ± 262.73 (n=251; sd=2547.76) |
| Daily | 149.50 | ± 43.26 (n=251; sd=408.30) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

**Appendix Table B19. Nonresident firearms deer hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 0.64 | |
| Ammunition | 13.87 | |
| Film | 3.29 | |
| Food | 109.82 | |
| Guide | 3.21 | |
| Lodging | 33.38 | |
| Meat | 36.46 | |
| Other | 25.61 | |
| Taxidermy | 7.91 | |
| Transportation | 138.08 | |
| Season | 372.85 | ± 27.26[b] (n=420; sd=340.65) |
| Daily | 121.10 | ± 10.45 (n=420; sd=130.64) |
| Fixed: | | |
| Binoculars | 6.23 | |
| Camping | 6.94 | |
| Clothing | 20.61 | |
| Other | 5.23 | |
| Vehicle | 26.00 | |
| Weapons | 25.73 | |
| Season | 71.10 | ± 23.28 (n=420; sd=290.92) |
| Daily | 22.13 | ± 8.15 (n=420; sd=101.85) |
| Total Fixed and Variable: | | |
| Season | 465.95 | ± 49.43 (n=420; sd=467.80) |
| Daily | 145.23 | ± 13.58 (n=420; sd=169.77) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

## Nonresident Small Game

**Appendix Table B20. Nonresident small game hunter expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 7.49 | |
| Ammunition | 36.01 | |
| Film | 4.70 | |
| Food | 149.70 | |
| Guide | 40.66 | |
| Lodging | 125.05 | |
| Meat | 4.59 | |
| Other | 20.53 | |
| Taxidermy | 7.63 | |
| Transportation | 157.90 | |
| Veterinarian | 5.61 | |
| Season | 575.37 | ± 22.56[b] (n=1232; sd=482.77) |
| Daily | 68.39 | ± 3.98 (n=655; sd=62.20) |
| Fixed: | | |
| Binoculars | 1.33 | |
| Camping | 2.19 | |
| Clothing | 24.78 | |
| Dogs | 0.21 | |
| Other | 6.61 | |
| Vehicle | 26.42 | |
| Weapons | 15.18 | |
| Season | 84.62 | ± 40.85 (n=752; sd=683.10) |
| Daily | 11.14 | ± 6.04 (n=425; sd=75.92) |
| Total Fixed and Variable: | | |
| Season | 704.64 | ± 54.59 (n=423; sd=1123.54) |
| Daily | 131.05 | ± 9.14 (n=423; sd=102.13) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.

**Appendix Table B21. Nonresident angler expenditures, 1996.**

| Expenditure Category[a] | Mean | |
|---|---|---|
| | - dollars - | |
| Variable: | | |
| Access | 2.26 | |
| Bait | 23.61 | |
| Boat / fish house gas | 33.99 | |
| Boat / fish house rental | 5.71 | |
| Film | 4.93 | |
| Food | 136.15 | |
| Lodging | 75.88 | |
| Meat | 1.06 | |
| Other | 13.98 | |
| Repairs | 18.19 | |
| Taxidermy | 3.17 | |
| Transportation | 143.79 | |
| Season | 470.16 | ± 36.91[b] (n=562; sd=533.48) |
| Daily | 83.70 | ± 7.14 (n=560; sd=102.99) |
| Fixed: | | |
| Auger | 7.05 | |
| Boat | 394.08 | |
| Camping | 9.99 | |
| Clothing | 10.78 | |
| Depth Finder | 11.04 | |
| Fish House | 0 | |
| Other | 6.15 | |
| Rods | 25.27 | |
| Tackle | 37.42 | |
| Vehicle | 314.99 | |
| Season | 817.26 | ± 330.19 (n=315; sd=3573.31) |
| Daily | 84.76 | ± 56.16 (n=313; sd=605.81) |
| Total Fixed and Variable: | | |
| Season | 1122.31 | ± 251.73 (n=306; sd=3826.35) |
| Daily | 252.08 | ± 35.03 (n=306; sd=619.01) |

[a]For further explanation of categories, see Table 3.
[b]Indicates a 90 percent confidence interval.