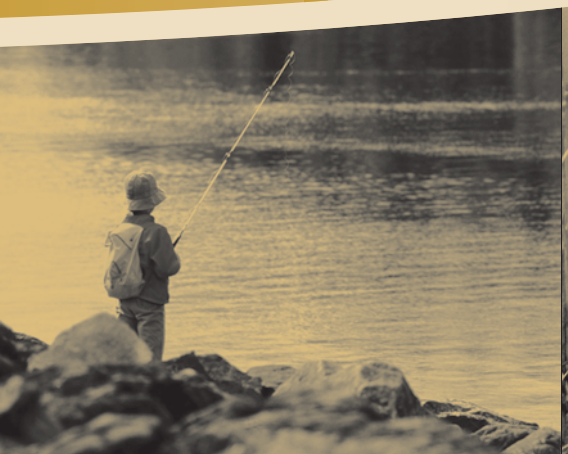
U.S. Fish & Wildlife Service

# 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

## *Missouri*



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# 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

## Missouri

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The U.S. Department of the Interior protects and manages the Nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities.

The mission of the Department's U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, and their habitats for the continuing benefit of the American people. The Service is responsible for national programs of vital importance to our natural resources, including administration of the Wildlife and Sport Fish Restoration Programs. These two programs provide financial assistance to the States for projects to enhance and protect fish and wildlife resources and to assure their availability to the public for recreational purposes. Multistate grants from these programs fund the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

## Suggested Citation

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# *Foreword*

I find duck hunting with friends in a bottomland hardwood swamp or fishing with my kids on an Oregon river bolsters my spirit and reminds me why I care about conservation and our wildlife heritage.

But wildlife-associated and vital recreation—activities such as hunting, fishing, and birding—also provide significant financial support for wildlife conservation in our Nation's economy. According to information from the newest National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, 87.5 million Americans spent more than $122 billion in 2006 on wildlife-related recreation. And this spending supports hundreds of thousands of jobs in industries and businesses.

The Survey is conducted every five years at the request of State fish and wildlife agencies to measure the importance of wildlife-based recreation to the American people. The 2006 Survey represents the 11th in a series that began in 1955. Developed in collaboration with the States, the Association of Fish and Wildlife Agencies, and national conservation organizations, the Survey has become one of the most important sources of information on fish and wildlife-related recreation in the United States.

In the 75-year history of the Sport Fish and Wildlife Restoration Programs, excise taxes on firearms, ammunition, archery, and angling equipment have generated a cumulative total of more than $10 billion for wildlife conservation efforts by State and Territorial wildlife agencies for fish and wildlife management.

My thanks go to the men and women who took time to participate in the survey, as well as to the State fish and wildlife agencies for their financial support through the Multistate Conservation Grant Programs. Without that support, the 2006 Survey would never have been possible.

I am comforted to know that my children and all Americans will have the opportunity to appreciate our Nation's rich wildlife tradition. Along with a record number of Americans, we continue to enjoy wildlife. We are laying the foundation for conservation's future.

H. Dale Hall
Director, U.S. Fish and Wildlife Service

# Survey Background and Method

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (Survey) has been conducted since 1955 and is one of the oldest and most comprehensive continuing recreation surveys. The Survey collects information on the number of anglers, hunters, and wildlife watchers; how often they participate; and how much they spend on their activities in the United States.

Preparations for the 2006 Survey began in 2004 when the Association of Fish and Wildlife Agencies (AFWA) recommended that the Fish and Wildlife Service conduct the 11th Survey of wildlife-related recreation. Funding came from the Multistate Conservation Grant Programs, authorized by Sport Fish and Wildlife Restoration Acts, as amended.

We consulted with State and Federal agencies and nongovernmental organizations such as the Wildlife Management Institute and American Sportfishing Association to determine survey content. Other sportspersons' organizations and conservation groups, industry representatives, and researchers also provided valuable advice.

Four regional technical committees were set up under the auspices of the AFWA to ensure that State fish and wildlife agencies had an opportunity to participate in all phases of survey planning and design. The committees were made up of agency representatives.

Data collection for the Survey was carried out by the U.S. Census Bureau in two phases. The first phase was the screen which began in April 2006. During this phase, the Census Bureau interviewed a sample of 85,000 households nationwide to determine who in the household had fished, hunted, or wildlife watched in 2005, and who had engaged or planned to engage in those activities in 2006. In most cases, one adult household member provided information for all members. The screen primarily covered 2005 activities while the next, more in-depth phase covered 2006 activities. For more information on 2005 data, refer to Appendix B.

The second phase of data collection consisted of three detailed interview waves. The first began in April 2006 concurrent with the screen, the second in September 2006, and the last in January 2007. Interviews were conducted with samples of likely anglers, hunters, and wildlife watchers who were identified in the initial screening phase. Interviews were conducted primarily by phone, with in-person interviews for respondents who could not be reached by phone. Respondents in the second survey phase were limited to those who were at least 16 years old. Each respondent provided information pertaining only to his or her activities and expenditures. Sample sizes were designed to provide statistically reliable results at the state level. Information on sampling procedures, sample sizes, and response rates is found in Appendix D.

## Comparability With Previous Surveys

The 2006 Survey questions and methodology were similar to those used in the 2001, 1996, and 1991 Surveys. Therefore, the estimates are comparable.

The methodology of these Surveys did differ importantly from the 1985 and 1980 Surveys, so these estimates are not directly comparable to those of earlier surveys. Changes in methodology included reducing the recall period over which respondents had to report their activities and expenditures. Previous Surveys used a 12-month recall period, which resulted in greater reporting bias. Research found that the amount of activity and expenditures reported in 12-month recall surveys was overestimated in comparison with that reported using shorter recall periods.

# *Highlights*

# Introduction

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation reports results from interviews with U.S. residents about their fishing, hunting, and wildlife watching. This report focuses on 2006 participation and expenditures of persons 16 years of age and older.

The Survey is a snapshot of one year. The information it collected tells us how many people participated and how much they spent on their activities in the State in 2006. It does not tell us how many anglers, hunters, and wildlife watchers there were because many do not participate every year. For example, based on information collected by the Survey's household screen and detailed phase, we can estimate that about 33 percent more anglers and hunters participated nationally in at least 1 of the 4 years prior to the survey year 2006.

In addition to 2006 estimates, we also provide trend information in the Highlights section and Appendix C of the report. The 2006 numbers reported can be compared with those in the 1991, 1996, and 2001 Survey reports because they used similar methodologies. The 2006 estimates should not be directly compared with results from Surveys conducted earlier than 1991 because of changes in methodology to improve accuracy.

The report also provides information on participation in wildlife recreation in 2005, particularly of persons 6 to 15 years of age. The 2005 information is provided in Appendix B. Information about the Survey's scope and coverage is in Appendix D. The remainder of this section defines important terms used in the Survey.

This report does not provide information about the State's wildlife resources. That, and additional information on wildlife-related recreation, may be obtained from State fish and wildlife agencies. The Association of Fish and Wildlife Agencies can provide the addresses and telephone numbers of those agencies. The Association's Web site is <www.fishwildlife.org>.

## Wildlife-Associated Recreation

Wildlife-associated recreation is fishing, hunting, and wildlife-watching activities. These categories are not mutually exclusive because many individuals participated in more than one activity. Wildlife-associated recreation is reported in two major categories: (1) fishing and hunting and (2) wildlife watching, which includes observing, photographing, and feeding fish or wildlife.

## Fishing and Hunting

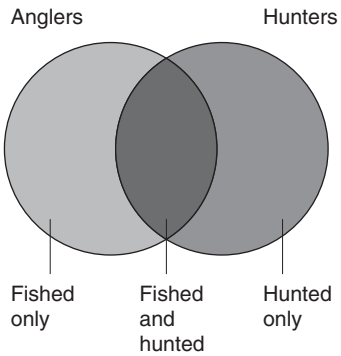
This Survey reports information about residents of the United States who fished or hunted in 2006, regardless of whether they were licensed. The fishing and hunting sections report information for three groups: (1) sportspersons, (2) anglers, and (3) hunters.

## Sportspersons

Sportspersons are those who fished or hunted. Individuals who fished or hunted commercially in 2006 are reported as sportspersons only if they also fished or hunted for recreation. The sportspersons group is composed of three subgroups, as shown in the diagram on this page: (1) those that fished and hunted, (2) those that only fished, and (3) those that only hunted.

The total number of sportspersons is equal to the sum of people who only fished, only hunted, and both hunted and fished. It is not the sum of all anglers and all hunters because those people who both fished and hunted are included in both the angler and hunter population and would be incorrectly counted twice.

**Sportspersons**




## Anglers

Anglers are sportspersons who only fished plus those who fished and hunted. Anglers include not only licensed hook and line anglers, but also those who have no license and those who use special methods such as fishing with spears.

Three types of fishing are reported: (1) freshwater, excluding the Great Lakes, (2) Great Lakes, and (3) saltwater. Since many anglers participated in more than one type of fishing, the total number of anglers is less than the sum of the three types of fishing.

## Hunters

Hunters are sportspersons who only hunted plus those who hunted and fished. Hunters include not only licensed hunters using rifles and shotguns but also those who had no license and those who hunted with a bow and arrow, primitive firearm, or pistol or handgun.

Four types of hunting are reported: (1) big game, (2) small game, (3) migratory bird, and (4) other animals. Since many hunters participated in more than one type of hunting, the sum of hunters for big game, small game, migratory bird, and other animals exceeds the total number of hunters.

## Wildlife Watchers

Since 1980, the National Survey has included information on wildlife-watching activities in addition to fishing and hunting. The 1991, 1996, 2001, and 2006 Surveys, unlike the 1980 and 1985 Surveys, collected data only for activities where the *primary* purpose was wildlife watching. The 1980 and 1985 Surveys included estimates of unplanned wildlife watching around the home and while on trips taken for another purpose.

The 2006 Survey uses a strict definition of wildlife watching. Participants must either take a "special interest" in wildlife around their homes or take a trip for the "primary purpose" of wildlife watching. Secondary wildlife watching, such as incidentally observing wildlife while pleasure driving, is not included.

Two types of wildlife watching are reported: (1) away-from-home (formerly nonresidential) activities and (2) around-the-home (formerly residential) activities. Because some people participated in more than one type of wildlife watching, the sum of participants in each type will be greater than the total number of wildlife watchers. The two types of wildlife-watching activity are explained next.

## Away-From-Home Wildlife Watching

This group includes persons who took trips or outings of at least 1 mile from home for the primary purpose of observing, feeding, or photographing fish and wildlife. Trips to fish, hunt, or scout and trips to zoos, circuses, aquariums, and museums are not considered wildlife-watching activities.

## Around-the-Home Wildlife Watching

This group includes those who participated within 1 mile of home and involves one or more of the following: (1) closely observing or trying to identify birds or other wildlife; (2) photographing wildlife; (3) feeding birds or other wildlife; (4) maintaining natural areas of at least 1/4 acre where benefit to wildlife is the primary concern; (5) maintaining plantings (shrubs, agricultural crops, etc.) where benefit to wildlife is the primary concern; or (6) visiting public parks within 1 mile of home for the primary purpose of observing, feeding, or photographing wildlife.

# 2006 Missouri Summary

## Activities in Missouri by Residents and Nonresidents

### Fishing

| | |
|---|---|
| **Anglers** | **1,076,000** |
| Days of fishing | 16,569,000 |
| Average days per angler | 15 |
| Total expenditures | $1,093,206,000 |
| Trip-related | $457,963,000 |
| Equipment and other | $635,243,000 |
| Average per angler | $1,003 |
| Average trip expenditure per day | $28 |

### Hunting

| | |
|---|---|
| **Hunters** | **608,000** |
| Days of hunting | 9,714,000 |
| Average days per hunter | 16 |
| Total expenditures | $1,146,240,000 |
| Trip-related | $234,468,000 |
| Equipment and other | $911,772,000 |
| Average per hunter | $1,848 |
| Average trip expenditure per day | $24 |

### Wildlife Watching

| | |
|---|---|
| **Total wildlife-watching participants** | **2,248,000** |
| Away-from-home participants | 842,000 |
| Around-the-home participants | 1,966,000 |
| Days of participation away from home | 14,757,000 |
| Average days of participation away from home | 18 |
| Total expenditures | $869,075,000 |
| Trip-related | $219,932,000 |
| Equipment and other | $649,143,000 |
| Average per participant | $351 |
| Average trip expenditure per day | $15 |

## Activities in Missouri by Nonresidents

### Fishing

| | |
|---|---|
| **Anglers** | **206,000** |
| Days of fishing | 1,306,000 |
| Average days per angler | 6 |
| Total expenditures | $137,280,000 |
| Trip-related | $92,585,000 |
| Equipment and other | $44,695,000 |
| Average per angler | $668 |
| Average trip expenditure per day | $71 |

### Hunting

| | |
|---|---|
| **Hunters** | **69,000** |
| Days of hunting | 544,000 |
| Average days per hunter | 8 |
| Total expenditures | $253,790,000 |
| Trip-related | $55,132,000 |
| Equipment and other | $198,658,000 |
| Average per hunter | $3,689 |
| Average trip expenditure per day | $101 |

### Wildlife Watching

| | |
|---|---|
| **Total wildlife-watching participants** | **231,000** |
| Away-from-home participants | 231,000 |
| Around-the-home participants | (X) |
| Days of participation away from home | 1,312,000 |
| Average days of participation away from home | 6 |
| Total expenditures | $129,310,000 |
| Trip-related | $76,331,000 |
| Equipment and other | $52,979,000 |
| Average per participant | $371 |
| Average trip expenditure per day | $58 |

(X) Not applicable.

## Activities in Missouri by Residents

### Fishing

| | |
|---|---|
| **Anglers** | **871,000** |
| Days of fishing | 15,263,000 |
| Average days per angler | 18 |
| Total expenditures | $955,926,000 |
| Trip-related | $365,378,000 |
| Equipment and other | $590,548,000 |
| Average per angler | $1,098 |
| Average trip expenditure per day | $24 |

### Hunting

| | |
|---|---|
| **Hunters** | **540,000** |
| Days of hunting | 9,171,000 |
| Average days per hunter | 17 |
| Total expenditures | $892,450,000 |
| Trip-related | $179,336,000 |
| Equipment and other | $713,114,000 |
| Average per hunter | $1,654 |
| Average trip expenditure per day | $20 |

### Wildlife Watching

| | |
|---|---|
| **Total wildlife-watching participants** | **2,017,000** |
| Away-from-home participants | 611,000 |
| Around-the-home participants | 1,966,000 |
| Days of participation away from home | 13,445,000 |
| Average days of participation away from home | 22 |
| Total expenditures | $739,765,000 |
| Trip-related | $143,601,000 |
| Equipment and other | $596,164,000 |
| Average per participant | $367 |
| Average trip expenditure per day | $11 |

## Activities by Missouri Residents Both Inside and Outside Missouri

### Fishing

| | |
|---|---|
| **Anglers** | **931,000** |
| Days of fishing | 16,227,000 |
| Average days per angler | 17 |
| Total expenditures | $1,032,407,000 |
| Trip-related | $431,857,000 |
| Equipment and other | $600,550,000 |
| Average per angler | $1,109 |
| Average trip expenditure per day | $27 |

### Hunting

| | |
|---|---|
| **Hunters** | **560,000** |
| Days of hunting | 9,685,000 |
| Average days per hunter | 17 |
| Total expenditures | $1,027,698,000 |
| Trip-related | $249,595,000 |
| Equipment and other | $778,103,000 |
| Average per hunter | $1,836 |
| Average trip expenditure per day | $26 |

### Wildlife Watching

| | |
|---|---|
| **Total wildlife-watching participants** | **2,059,000** |
| Away-from-home participants | 709,000 |
| Around-the-home participants | 1,966,000 |
| Days of participation away from home | 14,924,000 |
| Average days of participation away from home | 21 |
| Total expenditures | $976,593,000 |
| Trip-related | $365,259,000 |
| Equipment and other | $611,334,000 |
| Average per participant | $474 |
| Average trip expenditure per day | $24 |

# *Wildlife-Associated Recreation*

## Participation in Missouri

The 2006 Survey found that 2.9 million Missouri residents and nonresidents 16 years old and older fished, hunted, or wildlife watched in Missouri. Of the total number of participants, 1.1 million fished, 608 thousand hunted, and 2.2 million participated in wildlife-watching activities, which include observing, feeding, and photographing wildlife. The sum of anglers, hunters, and wildlife watchers exceeds the total number of participants in wildlife-related recreation because many individuals engaged in more than one wildlife-related activity.

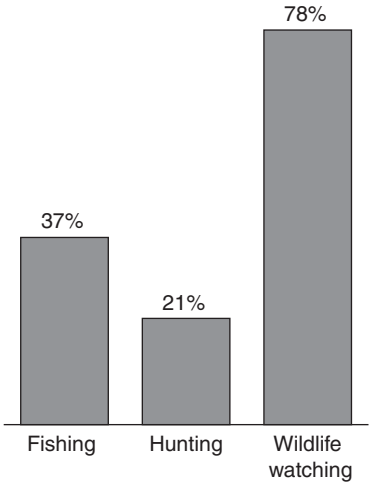
## Participation by 6-to-15-Year-Old Missouri Residents

The focus of the National Survey is on the activity of participants 16 years old and older. However, the activity of 6- to 15-year-olds can be calculated using the screening data covering the year 2005. It is assumed for estimation purposes that the relative activity levels of 6-to-15-year-old participants and participants 16 years old and older remained the same in 2005 and 2006. Based on this assumption, in addition to the 931 thousand resident anglers 16 years old and older, there were 251 thousand resident anglers 6 to 15 years old. Also, in addition to the 560 thousand residents 16 years old and older who hunted, there were 66 thousand 6-to-15-year-old residents who hunted. Finally, there were 2.1 million Missouri residents 16 years old and older and 341 thousand 6- to 15-year-olds who wildlife watched. Further information on 6- to 15-year-olds is provided in Appendix B.

## Expenditures in Missouri

In 2006, state residents and nonresidents spent $3.4 billion on wildlife recreation in Missouri. Of that total, trip-related expenditures were $912 million and equipment purchases totaled $1.7 billion. The remaining $778 million was spent on licenses, contributions, land ownership and leasing, and other items.

**Percent of Total Participants by Activity**
(Total: 2.9 million participants)



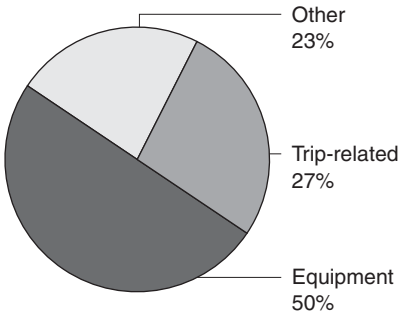

**Participants in Wildlife-Associated Recreation in Missouri: 2006**
(U.S. residents 16 years old and older)

| | |
|---|---|
| **Total** | **2.9 million** |
| **Sportspersons** | |
| **Total** | **1.3 million** |
| Anglers | 1.1 million |
| Hunters | 608 thousand |
| **Wildlife Watchers** | |
| **Total** | **2.2 million** |
| Away from home | 842 thousand |
| Around the home | 2.0 million |

Note: Detail does not add to total because of multiple responses.

Source: Tables 3, 24, and 39.

**Wildlife-Associated Recreation Expenditures in Missouri**
(Total: $3.4 billion)



# *Sportspersons*

In 2006, 1.3 million state resident and nonresident sportspersons 16 years old and older fished or hunted in Missouri. This group comprised 1.1 million anglers (83 percent of all sportspersons) and 608 thousand hunters (47 percent of all sportspersons). Among the 1.3 million sportspersons who fished or hunted in the state, 691 thousand (53 percent) fished but did not hunt in Missouri. Another 223 thousand (17 percent) hunted but did not fish there. The remaining 385 thousand (30 percent) fished and hunted in Missouri in 2006.

**Sportspersons' Participation in Missouri**
(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Sportspersons (fished or hunted)** | **1.3 million** |
| **Anglers** | **1.1 million** |
| Fished only | 691 thousand |
| Fished and hunted | 385 thousand |
| **Hunters** | **608 thousand** |
| Hunted only | 223 thousand |
| Hunted and fished | 385 thousand |

Note: Detail does not add to total because of multiple responses.

Source: Table 1.

# Anglers

## Participants and Days of Fishing

In 2006, 1.1 million state residents and nonresidents 16 years old and older fished in Missouri. Of this total, 871 thousand anglers (81 percent) were state residents and 206 thousand anglers (19 percent) were nonresidents. Anglers fished a total of 16.6 million days in Missouri—an average of 15 days per angler. State residents fished 15.3 million days—92 percent of all fishing days in Missouri. Nonresidents fished 1.3 million days in Missouri—8 percent of all fishing days in the state.

A large majority of Missouri residents who fished anywhere in the United States did so in their resident state. There were 931 thousand Missouri residents 16 years old and older who fished in the United States in 2006 for a total of 16.2 million days. An estimated 94 percent of all Missouri residents who fished did so in their home state. Of all fishing days by Missouri residents, 94 percent or 15.3 million were in their home state.

Some state residents fished in states other than Missouri. In 2006, 179 thousand Missouri residents fished in other states—19 percent of all residents fishing in any state. They fished 1.2 million days as nonresidents, representing 7 percent of all days fished by Missouri residents. For further details about fishing in Missouri, see Table 3.

### Anglers in Missouri

(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Anglers** | **1.1 million** |
| Resident | 871 thousand |
| Nonresident | 206 thousand |
| **Days of fishing** | **16.6 million** |
| Resident | 15.3 million |
| Nonresident | 1.3 million |

Source: Table 3.

### In State/Out of State

(State residents 16 years old and older)

| | |
|---|---|
| **Missouri anglers** | **931 thousand** |
| In Missouri | 871 thousand |
| In other states | 179 thousand |
| **Days of fishing** | **16.2 million** |
| In Missouri | 15.3 million |
| In other states | 1.2 million |

Note: Detail does not add to total because of multiple responses.

Source: Table 3.

## Fishing Expenditures in Missouri

All fishing-related expenditures in Missouri totaled $1.1 billion in 2006. Trip-related expenditures, which include food and lodging, transportation, and other trip expenses, totaled $458 million—42 percent of all fishing expenditures. Expenditures for food and lodging were $187 million and transportation expenditures were $136 million. Other trip expenses, such as equipment rental, bait, and cooking fuel, totaled $135 million. Each angler spent an average of $425 on trip-related costs during 2006.

Anglers spent $517 million on equipment in Missouri in 2006, 47 percent of all fishing expenditures. Fishing equipment (rods, reels, line, etc.) spending totaled $135 million—26 percent of the equipment total. Auxiliary equipment expenditures (tents, special fishing clothes, etc.) and special equipment expenditures (boats, vans, etc.) amounted to $382 million—74 percent of the equipment total. Special and auxiliary equipment are items that were purchased for fishing but could be used in activities other than fishing.

The purchase of other items, such as magazines, membership dues, licenses, permits, stamps, and land leasing and ownership, amounted to $118 million—11 percent of all fishing expenditures. For more details about fishing expenditures in Missouri, see Tables 19 and 21 through 23.

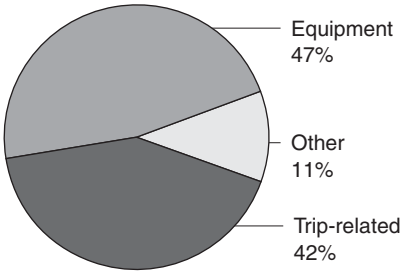
### Fishing Expenditures in Missouri

(State residents and nonresidents 16 years old and older)

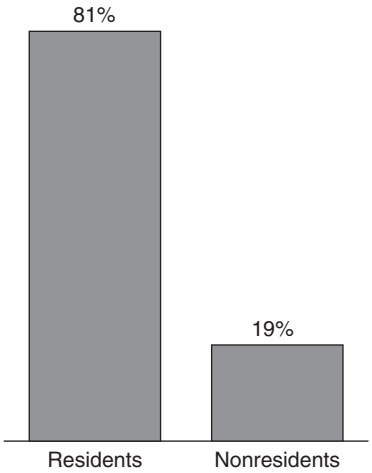
| | |
|---|---|
| **Total** | **$1.1 billion** |
| Trip-related | $458 million |
| Equipment | $517 million |
| Fishing | $135 million |
| Auxiliary and special | $382 million |
| Other | $118 million |

Source: Table 19.

**Fishing Expenditures in Missouri**
(Total: $1.1 billion)




**Percent of Anglers by Residence**
(Total: 1.1 million participants)



# Hunters

## Participants and Days of Hunting

In 2006, there were 608 thousand residents and nonresidents 16 years old and older who hunted in Missouri. Resident hunters numbered 540 thousand, accounting for 89 percent of the hunters in Missouri. There were 69 thousand nonresidents who hunted in Missouri—11 percent of the state's hunters. Residents and nonresidents hunted 9.7 million days in 2006, an average of 16 days per hunter. Residents hunted 9.2 million days in Missouri or 94 percent of all hunting days, while nonresidents spent 544 thousand days hunting in Missouri or 6 percent of all hunting days.

There were 560 thousand Missouri residents 16 years old and older who hunted in the United States in 2006 for a total of 9.7 million days. An estimated 96 percent of all Missouri residents who hunted did so in their home state. Of all hunting days by Missouri residents, 95 percent or 9.2 million were spent pursuing game in their home state.

Some state residents hunted in states other than Missouri. Altogether, 79 thousand or 14 percent of all Missouri hunters hunted in other states. Their 550 thousand days of hunting in other states represented 6 percent of all days Missouri residents spent hunting in 2006. For more information on hunting activities by Missouri residents, see Table 3.

### Hunters in Missouri

(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Hunters** | **608 thousand** |
| Resident | 540 thousand |
| Nonresident | 69 thousand |
| **Days of hunting** | **9.7 million** |
| Resident | 9.2 million |
| Nonresident | 544 thousand |

Source: Table 3.

### In State/Out of State

(State residents 16 years old and older)

| | |
|---|---|
| **Missouri hunters** | **560 thousand** |
| In Missouri | 540 thousand |
| In other states | 79 thousand |
| **Days of hunting** | **9.7 million** |
| In Missouri | 9.2 million |
| In other states | 550 thousand |

Note: Detail does not add to total because of multiple responses.

Source: Table 3.

## Hunting Expenditures in Missouri

All hunting-related expenditures in Missouri totaled $1.1 billion in 2006. Trip-related expenses, such as food and lodging, transportation, and other trip expenses, totaled $234 million—20 percent of total expenditures. Expenditures for food and lodging were $90 million and transportation expenditures were $108 million. Other trip expenses, such as equipment rental, totaled $36 million for the year. The average trip-related expenditure per hunter was $386.

Hunters spent $499 million on equipment—44 percent of all hunting expenditures. Hunting equipment (guns, ammunition, etc.) totaled $284 million and made up 57 percent of all equipment costs. Hunters spent $215 million on auxiliary equipment (tents, special hunting clothes, etc.) and special equipment (boats, vans, etc.), accounting for 43 percent of total equipment expenditures for hunting. Special and auxiliary equipment are items that were purchased for hunting but could be used in activities other than hunting.

The purchase of other items, such as magazines, membership dues, licenses, permits, and land leasing and ownership, cost hunters $413 million—36 percent of all hunting expenditures. For more details on hunting expenditures in Missouri, see Tables 20 through 23.

### Hunting Expenditures in Missouri

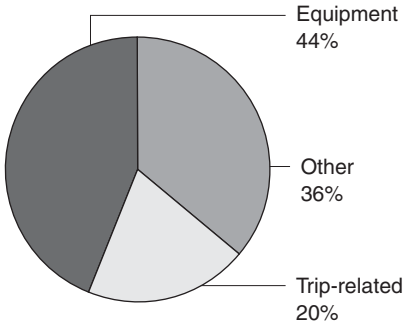
(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Total** | **$1.1 billion** |
| Trip-related | $234 million |
| Equipment | $499 million |
| Hunting | $284 million |
| Auxiliary and special | $215 million |
| Other | $413 million |

Source: Table 20.

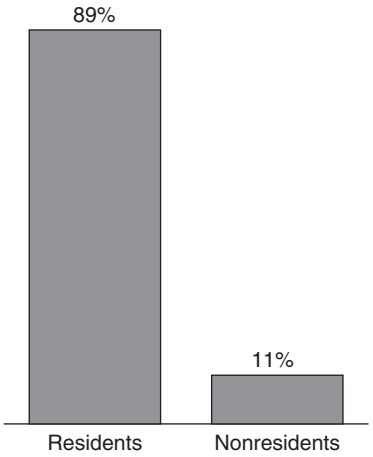
### Hunting Expenditures in Missouri

(Total: $1.1 million)




### Percent of Hunters by Residence

(Total: 608 thousand participants)



# Wildlife Watchers

## Participants and Days of Activity

In 2006, 2.2 million U.S. residents 16 years old and older fed, observed, or photographed wildlife in Missouri. Most of them, 87 percent (2.0 million), enjoyed their activities close to home and are called "around-the-home" participants. Those persons who enjoyed wildlife at least 1 mile from home are called "away-from-home" participants. People participating in away-from-home activities in Missouri in 2006 numbered 842 thousand—37 percent of all wildlife watchers in Missouri. Of the 842 thousand, 611 thousand were state residents and 231 thousand were nonresidents.

Missouri residents 16 years old and older who enjoyed away-from-home wildlife watching within their state totaled 611 thousand. Of this group, 597 thousand participants observed wildlife, 202 thousand fed wildlife, and 285 thousand photographed wildlife. Since some individuals engaged in more than 1 of the 3 away-from-home activities during the year, the sum of wildlife observers, feeders, and photographers exceeds the total number of away-from-home participants.

Missouri residents spent 13.4 million days engaged in away-from-home wildlife-watching activities in their state. They spent 9.7 million days observing wildlife, 1.5 million days feeding wildlife, and 2.8 million days photographing wildlife. The sum of days observing, feeding, and photographing wildlife exceeds the total days of wildlife-watching activity because individuals engaged in more than one activity on some days. For further details about away-from-home activities, see Table 25.

Missouri residents also took an active interest in wildlife around their homes. In 2006, 2.0 million state residents enjoyed observing, feeding, and photographing wildlife within 1 mile of their homes. Among this around-the-home group, 1.7 million fed, 1.3 million observed, and 541 thousand photographed wildlife around their homes. Another 439 thousand participants maintained natural areas of 1/4 acre or

### Wildlife-Watching Participants in Missouri

(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Total** | **2.2 million** |
| Around the home | 2.0 million |
| Away from home | 842 thousand |

Note: Detail does not add to total because of multiple responses.

Source: Table 24.

### Away-From-Home Wildlife-Watching Participation in Missouri

(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Participants, total** | **842 thousand** |
| Observe wildlife | 814 thousand |
| Feed wildlife | 303 thousand |
| Photograph wildlife | 413 thousand |
| **Days, total** | **14.8 million** |
| Observe wildlife | 10.8 million |
| Feed wildlife | 1.6 million |
| Photograph wildlife | 3.4 million |

Note: Detail does not add to total because of multiple responses.

Source: Table 25.

### Around-the-Home Wildlife-Watching Participation in Missouri

(State residents 16 years old and older)

| | |
|---|---|
| **Total** | **2.0 million** |
| Feed wildlife | 1.7 million |
| Observe wildlife | 1.3 million |
| Photograph wildlife | 541 thousand |
| Maintain natural areas | 439 thousand |
| Maintain plantings | 340 thousand |
| Visit public areas | 275 thousand |

Note: Detail does not add to total because of multiple responses.

Source: Table 27.

more for wildlife; 340 thousand participants maintained plantings for the benefit of wildlife; and 275 thousand participants visited public parks within a mile of home because of the wildlife. Summing the number of participants in these six activities results in an estimate that exceeds the total number of around-the-home participants because many people participated in more than one type of around-the-home activity. In addition, 31 percent of resident around-the-home wildlife watchers also enjoyed wildlife away from home. For further details about Missouri residents participating in around-the-home wildlife-watching activities, see Table 27.

## Wild Bird Observers

Bird watching attracted many wildlife enthusiasts in Missouri. In 2006, 1.6 million people observed birds around the home and on trips in the state. A majority, 77 percent (1.2 million) observed wild birds around the home while 48 percent (750 thousand) took trips away from home to watch birds.

## Wildlife-Watching Expenditures in Missouri

Wildlife watchers spent $869 million on wildlife-watching activities in Missouri in 2006. Trip-related expenditures, including food and lodging ($86 million), transportation ($121 million), and other trip expenses ($13 million), such as equipment rental, amounted to $220 million. This summation comprised 25 percent of all wildlife-watching expenditures by participants. The average of the trip-related expenditures for away-from-home participants was $232 per person in 2006.

Wildlife-watching participants spent $411 million on equipment—47 percent of all their expenditures. Specifically, wildlife-watching equipment (binoculars, special clothing, etc.) expenditures totaled $316 million, 77 percent of the equipment total. Auxiliary equipment expenditures (tents, backpacking equipment, etc.) and special equipment expenditures (campers, trucks, etc.) amounted to $95 million—23 percent of all equipment costs. Special and auxiliary equipment are items that were purchased for wildlife-watching recreation but can be used in activities other than wildlife-watching activities.

Other items purchased by wildlife-watching participants, such as magazines, membership dues and contributions, land leasing and ownership, and plantings, totaled $238 million—27 percent of all wildlife-watching expenditures. For more details about wildlife-watching expenditures in Missouri, see Table 31.

### Wild Bird Observers in Missouri
(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Participants, total** | **1.6 million** |
| Around the home | 1.2 million |
| Away from home | 750 thousand |
| **Days, total** | **181.2 million** |
| Around the home | 171.3 million |
| Away from home | 9.9 million |

Note: Detail does not add to total because of multiple responses.

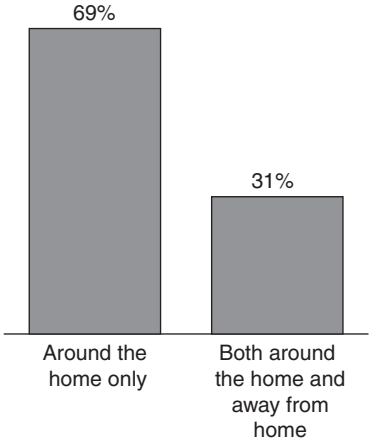
Source: Table 29.

### Wildlife-Watching Expenditures in Missouri
(State residents and nonresidents 16 years old and older)

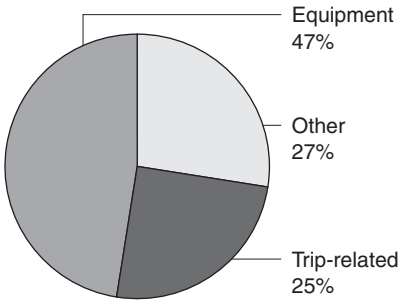
| | |
|---|---|
| **Total** | **$869 million** |
| Trip-related | $220 million |
| Equipment | $411 million |
| Wildlife watching | $316 million |
| Auxiliary and special | $95 million |
| Other | $238 million |

Source: Table 31.

### Around-the-Home and Away-From-Home Participation by Missouri Residents
(Total: 2.0 million participants)




### Wildlife-Watching Expenditures in Missouri
(Total: $869 million)



# 1996–2006 Comparisons

Comparing the estimates from the 1996, 2001, and 2006 Surveys gives a perspective on the state of wildlife-related recreation in the late 1990s and early-to-mid 2000s in Missouri. Only the most general recreation comparisons are presented here.

The best way to compare estimates from surveys is not to compare the estimates themselves but to compare the confidence intervals around the estimates. A 90-percent confidence interval around an estimate gives the range of estimates that 90 percent of all possible representative samples would supply. If the 90-percent confidence intervals of two surveys' estimates overlap, it is not possible to say the two estimates are statistically different.

The state resident estimates cover the participation and expenditure activity of Missouri residents anywhere in the United States. The in-state estimates cover the participation, day, and expenditure activity of U.S. residents in Missouri.

The expenditure estimates were made comparable by adjusting the estimates for inflation—all estimates are in 2006 dollars.

**Missouri 1996 and 2006 Comparison**
(Numbers in thousands)

| | 1996 | 2006 | Percent change |
|---|---|---|---|
| **Fishing** | | | |
| Anglers in state | 1,209 | 1,076 | * |
| Days in state | 14,682 | 16,569 | * |
| In-state expenditures by U.S. anglers | $905,576 | $1,093,206 | * |
| State resident anglers | 935 | 931 | * |
| Total expenditures by state residents | $815,777 | $1,032,407 | * |
| **Hunting** | | | |
| Hunters in state | 552 | 608 | * |
| Days in state | 8,508 | 9,714 | * |
| In-state expenditures by U.S. hunters | $880,048 | $1,146,240 | * |
| State resident hunters | 499 | 560 | * |
| Total expenditures by state residents | $855,339 | $1,027,698 | * |
| **Away-From-Home Wildlife Watching** | | | |
| Participants in state | 791 | 842 | * |
| Days in state | 8,598 | 14,757 | * |
| State resident participants | 528 | 709 | * |
| **Around-the-Home Wildlife Watching** | | | |
| Total participants | 1,600 | 1,966 | 23 |
| Observers | 1,278 | 1,300 | * |
| Feeders | 1,480 | 1,684 | * |
| **Wildlife-Watching Expenditures** | | | |
| In-state expenditures by U.S. wildlife watchers | $654,312 | $869,075 | * |
| Total expenditures by state residents | $609,483 | $976,593 | * |

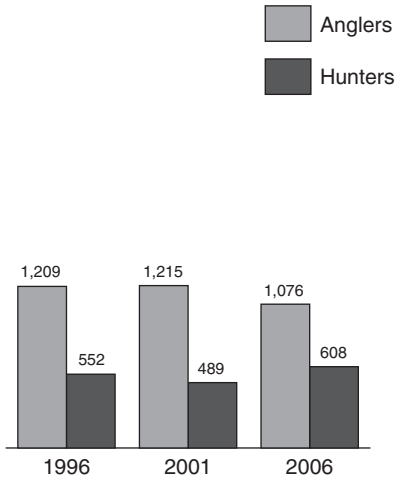
* Not different from zero at the 10 percent level of significance.

## Missouri 2001 and 2006 Comparison
(Numbers in thousands)

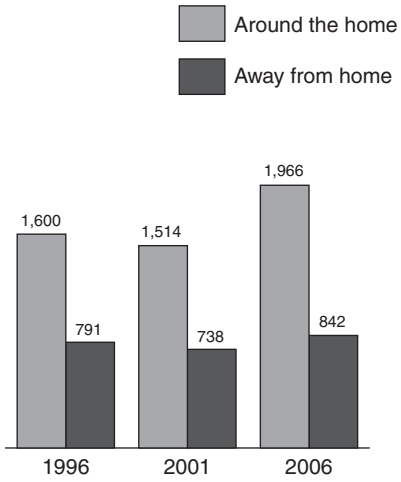
| | 2001 | 2006 | Percent change |
|---|---|---|---|
| **Fishing** | | | |
| Anglers in state | 1,215 | 1,076 | * |
| Days in state | 13,279 | 16,569 | * |
| In-state expenditures by U.S. anglers | $849,886 | $1,093,206 | * |
| State resident anglers | 982 | 931 | * |
| Total expenditures by state residents | $864,038 | $1,032,407 | * |
| **Hunting** | | | |
| Hunters in state | 489 | 608 | * |
| Days in state | 6,606 | 9,714 | * |
| In-state expenditures by U.S. hunters | $484,215 | $1,146,240 | 137 |
| State resident hunters | 413 | 560 | 36 |
| Total expenditures by state residents | $559,468 | $1,027,698 | 84 |
| **Away-From-Home Wildlife Watching** | | | |
| Participants in state | 738 | 842 | * |
| Days in state | 12,448 | 14,757 | * |
| State resident participants | 581 | 709 | * |
| **Around-the-Home Wildlife Watching** | | | |
| Total participants | 1,514 | 1,966 | 30 |
| Observers | 1,003 | 1,300 | 30 |
| Feeders | 1,372 | 1,684 | 23 |
| **Wildlife-Watching Expenditures** | | | |
| In-state expenditures by U.S. wildlife watchers | $511,582 | $869,075 | 70 |
| Total expenditures by state residents | $555,227 | $976,593 | * |

* Not different from zero at the 10 percent level of significance.

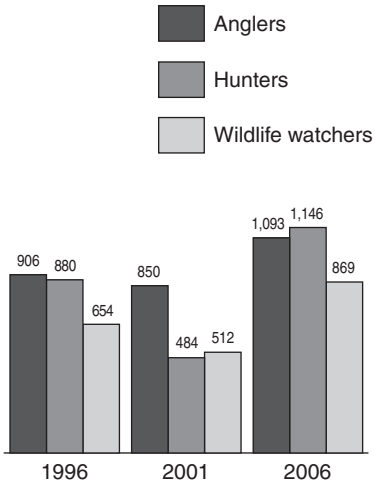
**Number of People Who Hunted and Fished in Missouri: 1996–2006**
(In thousands)




**Number of People Who Wildlife Watched in Missouri: 1996–2006**
(In thousands)




**Total Expenditures by Participants in Missouri**
(In millions of 2006 dollars)



# Guide to Statistical Tables

## Purpose and Coverage of Tables

The statistical tables of this report were designed to meet a wide range of needs for those interested in wildlife-related recreation. Special terms used in these tables are defined in Appendix A.

The tables are based on responses to the 2006 Survey, which was designed to collect data about participation in wildlife-related recreation. To have taken part in the Survey, a respondent must have been a U.S. resident (a resident of one of the 50 states or the District of Columbia). No one residing outside the United States (including U.S. citizens) was eligible for interviewing. Therefore, reported state and national totals do not include participation by those who were not U.S. residents or who were U.S. citizens residing outside the United States.

## Comparability With Previous Surveys

The numbers reported can be compared with those in the 1991, 1996, and 2001 Survey Reports. The methodology used in 2006 was similar to that used in those Surveys. These results should not be directly compared to results from Surveys earlier than 1991 since there were major changes in methodology in 1991. These changes were made to improve accuracy in the estimates.

## Coverage of an Individual Table

Since the Survey covers many activities in various places by participants of different ages, all table titles, headnotes, stubs, and footnotes are designed to identify and articulate each item being reported in the table. For example, the title of Table 2 shows that data about anglers and hunters, their days of participation, and their number of trips are reported by type of activity. By contrast, the title of Table 7 indicates that it contains data on freshwater anglers and the days they fished for different species.

## Percentages Reported in the Tables

Percentages are reported in the tables for the convenience of the user. When exclusive groups are being reported, the base of a percentage is apparent from its context because the percents add to 100 percent (plus or minus a rounding error). For example, Table 2 reports the number of trips taken by big game hunters, those taken by small game hunters, those taken by migratory bird hunters, and those taken by hunters pursuing other animals. These comprise 100 percent because they are exclusive categories.

Percents should not add to 100 when nonexclusive groups are being reported. Using Table 2 as an example again, note that adding the percentages associated with the total number of big game hunters, total small game hunters, total migratory bird hunters, and total hunters of other animals will not yield total hunters because respondents could hunt for more than one type of game.

When the base of the percentage is not apparent in context, it is identified in a footnote. For example, Table 15 reports two percentages with different bases: one base being the number of total participants at the head of the column and the other base being the total population who are described by the row category. Footnotes are used to clarify the bases of the reported percentages.

## Footnotes to the Tables

Footnotes are used to clarify the information or items that are being reported in a table. Symbols in the body of a table indicate important footnotes. These symbols are used in the tables to refer to the same footnote each time they appear:

* Estimate based on a sample size of 10–29.

... Sample size too small to report data reliably because there were fewer than 10 responses.

W Less than .5 dollars.

Z Less than 0.5 percent.

X Not applicable.

NA Not asked.

Estimates based upon fewer than 10 responses are regarded as being based on a sample size that is too small for reliable reporting. An estimate based upon at least 10 but fewer than 30 responses is treated as an estimate based on a small sample size. Other footnotes appear, as necessary, to qualify or clarify the estimates reported in the tables. In addition, these two important footnotes appear frequently:

- Detail does not add to total because of multiple responses.
- Detail does not add to total because of multiple responses and nonresponse.

"Multiple responses" is a term used to reflect the fact that individuals or their characteristics fall into more than one category. Using Table 12 as an example, those who hunt for big game, small game, migratory birds, and other animals are counted only once as a hunter in the "Total, all hunting" row. Another example is Table 15, where total anglers and hunters add up to more than total sportspersons. Totals will be smaller than the sum of subcategories when multiple responses exist.

"Nonresponse" exists because the Survey questions were answered voluntarily and some respondents did not or could not answer all the questions. Totals are greater than the sum of subcategories when nonresponses have occurred. This occurs because some respondents answered the question that provided the category estimate but did not answer the subcategory questions.

## Table 1. **Fishing and Hunting in Missouri by Resident and Nonresident Sportspersons: 2006**

(Population 16 years old and older. Numbers in thousands)

| Sportspersons | Total, state residents and nonresidents | | State residents | | Nonresidents | |
|---|---|---|---|---|---|---|
| | Number | Percent of sportspersons | Number | Percent of resident sportspersons | Number | Percent of nonresident sportspersons |
| **Total sportspersons (fished or hunted)** | **1,300** | **100** | **1,038** | **100** | **262** | **100** |
| **Total anglers** | **1,076** | **83** | **871** | **84** | **206** | **78** |
| Fished only | 691 | 53 | 498 | 48 | 194 | 74 |
| Fished and hunted | 385 | 30 | 373 | 36 | ... | ... |
| **Total hunters** | **608** | **47** | **540** | **52** | **69** | **26** |
| Hunted only | 223 | 17 | 167 | 16 | *56 | *22 |
| Hunted and fished | 385 | 30 | 373 | 36 | ... | ... |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

## Table 2. **Anglers and Hunters, Days of Participation, and Trips in Missouri by Type of Fishing and Hunting: 2006**

(Population 16 years old and older. Numbers in thousands)

| Type of fishing and hunting | Participants | | Days of participation | | Trips | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **FISHING** | | | | | | |
| **Total, all fishing** | **1,076** | **100** | **16,569** | **100** | **11,916** | **100** |
| Total, all freshwater | 1,076 | 100 | 16,569 | 100 | 11,916 | 100 |
| Freshwater, except Great Lakes | 1,076 | 100 | 16,569 | 100 | 11,916 | 100 |
| Great Lakes | ... | ... | ... | ... | ... | ... |
| Saltwater | ... | ... | ... | ... | ... | ... |
| **HUNTING** | | | | | | |
| **Total, all hunting** | **608** | **100** | **9,714** | **100** | **9,000** | **100** |
| Big game | 502 | 83 | 6,973 | 72 | 5,549 | 62 |
| Small game | 237 | 39 | 2,078 | 21 | 1,921 | 21 |
| Migratory bird | 87 | 14 | 892 | 9 | 739 | 8 |
| Other animals | *39 | *6 | *844 | *9 | *791 | *9 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

## Table 3. **Anglers and Hunters, Trips, and Days of Participation: 2006**

(Population 16 years old and older. Numbers in thousands)

| Anglers and hunters, trips, and days of participation | Activity in Missouri | | | | | | Activity by Missouri residents in United States | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | State residents | | Nonresidents | | Total, in state of residence and in other states | | In state of residence | | In other states | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| **FISHING** | | | | | | | | | | | | |
| Total anglers | 1,076 | 100 | 871 | 81 | 206 | 19 | 931 | 100 | 871 | 94 | 179 | 19 |
| Total trips | 11,916 | 100 | 11,300 | 95 | 616 | 5 | 12,032 | 100 | 11,300 | 94 | 732 | 6 |
| Total days of fishing | 16,569 | 100 | 15,263 | 92 | 1,306 | 8 | 16,227 | 100 | 15,263 | 94 | 1,152 | 7 |
| Average days of fishing | 15 | (X) | 18 | (X) | 6 | (X) | 17 | (X) | 18 | (X) | 6 | (X) |
| **HUNTING** | | | | | | | | | | | | |
| Total hunters | 608 | 100 | 540 | 89 | 69 | 11 | 560 | 100 | 540 | 96 | *79 | *14 |
| Total trips | 9,000 | 100 | 8,762 | 97 | 239 | 3 | 9,099 | 100 | 8,762 | 96 | *337 | *4 |
| Total days of hunting | 9,714 | 100 | 9,171 | 94 | 544 | 6 | 9,685 | 100 | 9,171 | 95 | *550 | *6 |
| Average days of hunting | 16 | (X) | 17 | (X) | 8 | (X) | 17 | (X) | 17 | (X) | *7 | (X) |

(X) Not applicable. * Estimate based on a sample size of 10–29.

Note: Detail does not add to total because of multiple responses.

## Table 4. **Missouri Resident Anglers and Hunters by Place Fished or Hunted: 2006**

(State population 16 years old and older. Numbers in thousands)

| Place fished or hunted | Anglers | | Hunters | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| **Total, all places** | **931** | **100** | **560** | **100** |
| In-state only | 745 | 80 | 480 | 86 |
| In-state and other states | 126 | 14 | *59 | *11 |
| In other states only | *54 | *6 | ... | ... |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail may not add to total because of multiple responses and nonresponse.

## Table 5. **Missouri Resident Anglers and Hunters, Days of Participation, and Trips in the United States by Type of Fishing and Hunting: 2006**

(State population 16 years old and older. Numbers in thousands)

| Type of fishing and hunting | Participants | | Days of participation | | Trips | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **FISHING** | | | | | | |
| **Total, all fishing** | **931** | **100** | **16,227** | **100** | **12,032** | **100** |
| Total, all freshwater | 917 | 99 | 16,198 | 100 | 12,003 | 100 |
| Freshwater, except Great Lakes | 917 | 99 | 16,198 | 100 | 12,003 | 100 |
| Great Lakes | ... | ... | ... | ... | ... | ... |
| Saltwater | *27 | *3 | *38 | *(Z) | *29 | *(Z) |
| **HUNTING** | | | | | | |
| **Total, all hunting** | **560** | **100** | **9,685** | **100** | **9,099** | **100** |
| Big game | 466 | 83 | 6,922 | 71 | 5,537 | 61 |
| Small game | 238 | 43 | 2,205 | 23 | 1,987 | 22 |
| Migratory bird | *80 | *14 | *827 | *9 | *783 | *9 |
| Other animals | *38 | *7 | *879 | *9 | *793 | *9 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably. (Z) Less than 0.5 percent.

Note: Detail does not add to total because of multiple responses.

## Table 6. **Freshwater Anglers, Trips, Days of Fishing, and Type of Water Fished: 2006**

(Population 16 years old and older. Numbers in thousands)

| Anglers, trips, and days of fishing | Activity in Missouri | | | | | |
|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | State residents | | Nonresidents | |
| | Number | Percent | Number | Percent | Number | Percent |
| **Total anglers** | **1,076** | **100** | **871** | **81** | **206** | **19** |
| **Total trips** | **11,916** | **100** | **11,300** | **95** | **616** | **5** |
| **Total days of fishing** | **16,569** | **100** | **15,263** | **92** | **1,306** | **8** |
| Average days of fishing | 15 | (X) | 18 | (X) | 6 | (X) |
| **ANGLERS** | | | | | | |
| **Total, all types of water** | **1,076** | **100** | **871** | **81** | **206** | **19** |
| Ponds, lakes, or reservoirs | 896 | 100 | 733 | 82 | 163 | 18 |
| Rivers or streams | 423 | 100 | 366 | 86 | 57 | 14 |
| **DAYS** | | | | | | |
| **Total, all types of water** | **16,569** | **100** | **15,263** | **92** | **1,306** | **8** |
| Ponds, lakes, or reservoirs | 12,828 | 100 | 11,817 | 92 | 1,010 | 8 |
| Rivers or streams | 3,575 | 100 | 3,367 | 94 | 207 | 6 |

(X) Not applicable.

Note: Detail does not add to total because of multiple responses.

## Table 7. **Freshwater Anglers and Days of Fishing in Missouri by Type of Fish: 2006**

(Population 16 years old and older. Numbers in thousands)

| Anglers and days of fishing | Activity in Missouri | | | | | | |
|---|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | | State residents | | Nonresidents | |
| | Number | Percent of total types | Percent of anglers/ days | Number | Percent of anglers/ days | Number | Percent of anglers/ days |
| **ANGLERS** | | | | | | | |
| **Total, all types of fish** | **1,076** | **100** | **100** | **871** | **81** | **206** | **19** |
| Crappie | 431 | 40 | 100 | 380 | 88 | *51 | *12 |
| Panfish | 350 | 33 | 100 | 306 | 87 | *44 | *13 |
| White bass, striped bass, striped bass hybrids | 208 | 19 | 100 | 181 | 87 | *28 | *13 |
| Black bass | 376 | 35 | 100 | 296 | 79 | 80 | 21 |
| Catfish, bullheads | 448 | 42 | 100 | 373 | 83 | 75 | 17 |
| Walleye, sauger | *29 | *3 | *100 | ... | ... | ... | ... |
| Northern pike, pickerel, muskie, muskie hybrids | ... | ... | ... | ... | ... | ... | ... |
| Steelhead | ... | ... | ... | ... | ... | ... | ... |
| Trout | 156 | 15 | 100 | 121 | 77 | *36 | *23 |
| Salmon | ... | ... | ... | ... | ... | ... | ... |
| Anything[1] | 160 | 15 | 100 | 145 | 91 | *15 | *9 |
| Other freshwater fish | ... | ... | ... | ... | ... | ... | ... |
| **DAYS** | | | | | | | |
| **Total, all types of fish** | **16,569** | **100** | **100** | **15,263** | **92** | **1,306** | **8** |
| Crappie | 6,184 | 37 | 100 | 5,867 | 95 | *317 | *5 |
| Panfish | 4,736 | 29 | 100 | 4,500 | 95 | *236 | *5 |
| White bass, striped bass, striped bass hybrids | 3,061 | 18 | 100 | 2,910 | 95 | *151 | *5 |
| Black bass | 5,317 | 32 | 100 | 4,611 | 87 | 706 | 13 |
| Catfish, bullheads | 6,825 | 41 | 100 | 6,459 | 95 | 366 | 5 |
| Walleye, sauger | *466 | *3 | *100 | ... | ... | ... | ... |
| Northern pike, pickerel, muskie, muskie hybrids | ... | ... | ... | ... | ... | ... | ... |
| Steelhead | ... | ... | ... | ... | ... | ... | ... |
| Trout | 1,177 | 7 | 100 | 1,048 | 89 | *129 | *11 |
| Salmon | ... | ... | ... | ... | ... | ... | ... |
| Anything[1] | 1,631 | 10 | 100 | 1,584 | 97 | *48 | *3 |
| Other freshwater fish | ... | ... | ... | ... | ... | ... | ... |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Respondent fished for no specific species and identified "Anything" from a list of categories of fish.

Note: Detail does not add to total because of multiple responses.

## Table 8. **Great Lakes Anglers, Trips, and Days of Fishing in Missouri: 2006**

This table does not apply to this state.

## Table 9. **Great Lakes Anglers and Days of Fishing in Missouri by Type of Fish: 2006**

This table does not apply to this state.

## Table 10. **Saltwater Anglers, Trips, and Days of Fishing in Missouri: 2006**

This table does not apply to this state.

## Table 11. **Saltwater Anglers and Days of Fishing in Missouri by Type of Fish: 2006**

This table does not apply to this state.

## Table 12. **Hunters, Trips, and Days of Hunting in Missouri by Type of Hunting: 2006**

(Population 16 years old and older. Numbers in thousands)

| Hunters, trips, and days of hunting | Activity in Missouri | | | | | |
|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | State residents | | Nonresidents | |
| | Number | Percent | Number | Percent | Number | Percent |
| **HUNTERS** | | | | | | |
| **Total, all hunting** | **608** | **100** | **540** | **89** | **69** | **11** |
| Big game | 502 | 100 | 457 | 91 | *45 | *9 |
| Small game | 237 | 100 | 215 | 91 | *21 | *9 |
| Migratory bird | 87 | 100 | *68 | *78 | ... | ... |
| Other animals | *39 | *100 | *38 | *97 | ... | ... |
| **TRIPS** | | | | | | |
| **Total, all hunting** | **9,000** | **100** | **8,762** | **97** | **239** | **3** |
| Big game | 5,549 | 100 | 5,429 | 98 | *120 | *2 |
| Small game | 1,921 | 100 | 1,894 | 99 | *28 | *1 |
| Migratory bird | 739 | 100 | *650 | *88 | ... | ... |
| Other animals | *791 | *100 | *789 | *100 | ... | ... |
| **DAYS** | | | | | | |
| **Total, all hunting** | **9,714** | **100** | **9,171** | **94** | **544** | **6** |
| Big game | 6,973 | 100 | 6,700 | 96 | *273 | *4 |
| Small game | 2,078 | 100 | 2,032 | 98 | *46 | *2 |
| Migratory bird | 892 | 100 | *660 | *74 | ... | ... |
| Other animals | *844 | *100 | *842 | *100 | ... | ... |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

## Table 13. **Hunters and Days of Hunting in Missouri by Type of Game: 2006**

(Population 16 years old and older. Numbers in thousands)

| Type of game | Hunters, state residents and nonresidents | | Days of hunting | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| **Total, all types of game** | **608** | **100** | **9,714** | **100** |
| **Big game, total** | **502** | **83** | **6,973** | **72** |
| Deer | 492 | 81 | 5,759 | 59 |
| Elk | ... | ... | ... | ... |
| Bear | ... | ... | ... | ... |
| Wild turkey | 155 | 25 | 2,022 | 21 |
| Other big game | ... | ... | ... | ... |
| **Small game, total** | **237** | **39** | **2,078** | **21** |
| Rabbit, hare | 101 | 17 | 782 | 8 |
| Quail | *60 | *10 | *399 | *4 |
| Grouse/prairie chicken | ... | ... | ... | ... |
| Squirrel | 152 | 25 | 1,122 | 12 |
| Pheasant | *40 | *7 | *279 | *3 |
| Other small game | ... | ... | ... | ... |
| **Migratory birds, total** | **87** | **14** | **892** | **9** |
| Waterfowl | *42 | *7 | *701 | *7 |
| Geese | ... | ... | ... | ... |
| Duck | *36 | *6 | *629 | *6 |
| Dove | *54 | *9 | *170 | *2 |
| Other migratory bird | ... | ... | ... | ... |
| **Other animals, total [1]** | ***39** | ***6** | ***844** | ***9** |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Includes groundhog, raccoon, fox, coyote, crow, prairie dog, etc.

Note: Detail does not add to total because of multiple responses.

## Table 14. **Hunters and Days of Hunting in Missouri by Type of Land: 2006**

(Population 16 years old and older. Numbers in thousands)

| Hunters and days of hunting | Total, state residents and nonresidents | | State residents | | Nonresidents | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **HUNTERS** | | | | | | |
| **Total, all types of land** | **608** | **100** | **540** | **100** | **69** | **100** |
| **Public land, total** | **190** | **31** | **175** | **32** | **...** | **...** |
| Public land only | *56 | *9 | *47 | *9 | ... | ... |
| Public and private land | 133 | 22 | 128 | 24 | ... | ... |
| **Private land, total** | **543** | **89** | **485** | **90** | ***58** | ***85** |
| Private land only | 410 | 67 | 357 | 66 | *53 | *77 |
| Private and public land | 133 | 22 | 128 | 24 | ... | ... |
| **DAYS** | | | | | | |
| **Total, all types of land** | **9,714** | **100** | **9,171** | **100** | **544** | **100** |
| Public land[1] | 2,329 | 24 | 2,256 | 25 | ... | ... |
| Private land[2] | 8,150 | 84 | 7,749 | 84 | *401 | *74 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Days of hunting on public land includes both days spent solely on public land and those spent on public and private land.
[2] Days of hunting on private land includes both days spent solely on private land and those spent on private and public land.

Note: Detail does not add to total because of multiple responses and nonresponse.

## Table 15. **Selected Characteristics of Missouri Resident Anglers and Hunters: 2006**

(State population 16 years old and older. Numbers in thousands)

| Characteristic | Population | | Sportspersons (fished or hunted) | | | Anglers | | | Hunters | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent who partici-pated | Percent of sports-persons | Number | Percent who partici-pated | Percent of anglers | Number | Percent who partici-pated | Percent of hunters |
| **Total persons** | **4,521** | **100** | **1,096** | **24** | **100** | **931** | **21** | **100** | **560** | **12** | **100** |
| **Population Density of Residence** | | | | | | | | | | | |
| Urban | 3,043 | 67 | 543 | 18 | 50 | 462 | 15 | 50 | 211 | 7 | 38 |
| Rural | 1,479 | 33 | 553 | 37 | 50 | 469 | 32 | 50 | 349 | 24 | 62 |
| **Population Size of Residence** | | | | | | | | | | | |
| Metropolitan statistical area (MSA) | 3,256 | 72 | 639 | 20 | 58 | 545 | 17 | 59 | 278 | 9 | 50 |
| 1,000,000 or more | 2,386 | 53 | 436 | 18 | 40 | 371 | 16 | 40 | 173 | 7 | 31 |
| 250,000 to 999,999 | 271 | 6 | *54 | *20 | *5 | *39 | *15 | *4 | ... | ... | ... |
| Less than 250,000 | 599 | 13 | 150 | 25 | 14 | 135 | 23 | 14 | *75 | *13 | *13 |
| Outside MSA | 1,265 | 28 | 457 | 36 | 42 | 386 | 30 | 41 | 282 | 22 | 50 |
| **Sex** | | | | | | | | | | | |
| Male | 2,126 | 47 | 774 | 36 | 71 | 637 | 30 | 68 | 475 | 22 | 85 |
| Female | 2,395 | 53 | 322 | 13 | 29 | 294 | 12 | 32 | *85 | *4 | *15 |
| **Age** | | | | | | | | | | | |
| 16 to 17 years | 223 | 5 | *52 | *23 | *5 | *49 | *22 | *5 | *41 | *18 | *7 |
| 18 to 24 years | 341 | 8 | *99 | *29 | *9 | *82 | *24 | *9 | *40 | *12 | *7 |
| 25 to 34 years | 774 | 17 | 167 | 22 | 15 | 147 | 19 | 16 | *86 | *11 | *15 |
| 35 to 44 years | 926 | 20 | 261 | 28 | 24 | 207 | 22 | 22 | 149 | 16 | 27 |
| 45 to 54 years | 860 | 19 | 271 | 32 | 25 | 228 | 26 | 24 | 144 | 17 | 26 |
| 55 to 64 years | 662 | 15 | 137 | 21 | 12 | 128 | 19 | 14 | *43 | *7 | *8 |
| 65 years and older | 735 | 16 | 109 | 15 | 10 | *90 | *12 | *10 | *57 | *8 | *10 |
| **Ethnicity** | | | | | | | | | | | |
| Hispanic | 116 | 3 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Non-Hispanic | 4,405 | 97 | 1,078 | 24 | 98 | 920 | 21 | 99 | 550 | 12 | 98 |
| **Race** | | | | | | | | | | | |
| White | 3,959 | 88 | 1,062 | 27 | 97 | 896 | 23 | 96 | 558 | 14 | 100 |
| Black | 464 | 10 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| All others | 99 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **Annual Household Income** | | | | | | | | | | | |
| Under $10,000 | 269 | 6 | *44 | *16 | *4 | *37 | *14 | *4 | ... | ... | ... |
| $10,000 to $19,999 | 363 | 8 | *67 | *18 | *6 | *56 | *15 | *6 | *39 | *11 | *7 |
| $20,000 to $29,999 | 484 | 11 | 112 | 23 | 10 | *95 | *20 | *10 | *49 | *10 | *9 |
| $30,000 to $39,999 | 454 | 10 | 93 | 20 | 8 | *76 | *17 | *8 | *40 | *9 | *7 |
| $40,000 to $49,999 | 366 | 8 | *83 | *23 | *8 | *67 | *18 | *7 | *32 | *9 | *6 |
| $50,000 to $74,999 | 718 | 16 | 231 | 32 | 21 | 192 | 27 | 21 | 138 | 19 | 25 |
| $75,000 to $99,999 | 429 | 9 | 156 | 36 | 14 | 145 | 34 | 16 | *81 | *19 | *14 |
| $100,000 or more | 479 | 11 | 150 | 31 | 14 | 128 | 27 | 14 | *86 | *18 | *15 |
| Not reported | 960 | 21 | 161 | 17 | 15 | 135 | 14 | 14 | *73 | *8 | *13 |
| **Education** | | | | | | | | | | | |
| 11 years or less | 787 | 17 | 161 | 20 | 15 | 146 | 18 | 16 | 91 | 12 | 16 |
| 12 years | 1,573 | 35 | 405 | 26 | 37 | 322 | 20 | 35 | 217 | 14 | 39 |
| 1 to 3 years college | 1,077 | 24 | 299 | 28 | 27 | 255 | 24 | 27 | 142 | 13 | 25 |
| 4 years college or more | 1,084 | 24 | 232 | 21 | 21 | 209 | 19 | 22 | 109 | 10 | 19 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses. Percent who participated shows the percent of each row's population who participated in the activity named by the column (the percent of those living in urban areas who fished, etc.). Remaining percent columns show the percent of each column's participants who are described by the row heading (the percent of anglers who lived in urban areas, etc.).

## Table 16. **Summary of Expenditures in Missouri by State Residents and Nonresidents Combined for Fishing and Hunting: 2006**

(Population 16 years old and older)

| Expenditure item | Amount (thousands of dollars) | Spenders (thousands) | Average per spender (dollars) | Average per sportsperson (dollars) |
|---|---|---|---|---|
| **FISHING AND HUNTING** | | | | |
| **Total** | **2,507,785** | **1,402** | **1,789** | **1,896** |
| Food and lodging | 277,354 | 974 | 285 | 213 |
| Transportation | 243,978 | 1,001 | 244 | 188 |
| Other trip costs[1] | 171,098 | 837 | 204 | 132 |
| Equipment (fishing, hunting) | 426,847 | 935 | 457 | 310 |
| Auxiliary equipment[2] | 130,681 | 424 | 308 | 96 |
| Special equipment[3] | 717,503 | 103 | 6,979 | 542 |
| Magazines and books | 9,549 | 203 | 47 | 7 |
| Membership dues and contributions | 15,775 | 118 | 134 | 12 |
| Other[4] | 514,999 | 953 | 540 | 395 |
| **FISHING** | | | | |
| **Total** | **1,093,206** | **1,110** | **985** | **1,003** |
| Food and lodging | 187,138 | 778 | 241 | 174 |
| Transportation | 135,593 | 786 | 173 | 126 |
| Other trip costs[1] | 135,232 | 784 | 173 | 126 |
| Fishing equipment | 134,910 | 706 | 191 | 118 |
| Auxiliary equipment[2] | 18,514 | 100 | 186 | 16 |
| Special equipment[3] | *363,815 | *61 | *5,984 | *335 |
| Magazines and books | *997 | *49 | *20 | *1 |
| Membership dues and contributions | *2,383 | *24 | *99 | *2 |
| Other[4] | 114,624 | 631 | 182 | 105 |
| **HUNTING** | | | | |
| **Total** | **1,146,240** | **656** | **1,748** | **1,848** |
| Food and lodging | 90,216 | 442 | 204 | 148 |
| Transportation | 108,385 | 476 | 228 | 178 |
| Other trip costs[1] | 35,866 | 120 | 298 | 59 |
| Hunting equipment | 283,748 | 451 | 629 | 436 |
| Auxiliary equipment[2] | 57,023 | 239 | 239 | 89 |
| Special equipment[3] | ... | ... | ... | ... |
| Magazines and books | *4,091 | *66 | *62 | *7 |
| Membership dues and contributions | *8,175 | *62 | *131 | *13 |
| Other[4] | 400,376 | 470 | 851 | 658 |
| **UNSPECIFIED[5]** | | | | |
| **Total** | **260,150** | **227** | **1,145** | **191** |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Includes boating costs, equipment rental, guide fees, access fees, heating and cooking fuel, and ice and bait (for fishing only).
[2] Includes tents, special clothing, etc.
[3] Includes boats, campers, 4x4 vehicles, cabins, etc.
[4] Includes land leasing and ownership, licenses, stamps, tags, and permits.
[5] Respondent could not specify whether expenditure was primarily for either fishing or hunting.

Note: Detail does not add to total because of multiple responses and nonresponse. See Tables 19–20 for a detailed listing of expenditure items.

## Table 17. **Summary of Fishing Trip and Equipment Expenditures in Missouri by State Residents and Nonresidents Combined by Type of Fishing: 2006**

(Population 16 years old and older)

| Expenditure item | Amount (thousands of dollars) | Spenders (thousands) | Average per spender (dollars) | Average per angler (dollars) |
|---|---|---|---|---|
| **ALL FISHING** | | | | |
| **Total** | **975,202** | **1,055** | **924** | **895** |
| Food and lodging | 187,138 | 778 | 241 | 174 |
| Transportation | 135,593 | 786 | 173 | 126 |
| Other trip costs | 135,232 | 784 | 173 | 126 |
| Equipment | 517,239 | 719 | 720 | 469 |
| **ALL FRESHWATER** | | | | |
| **Total** | **954,981** | **1,045** | **913** | **878** |
| Food and lodging | 187,138 | 778 | 241 | 174 |
| Transportation | 135,593 | 786 | 173 | 126 |
| Other trip costs | 135,232 | 784 | 173 | 126 |
| Equipment | 497,018 | 705 | 705 | 452 |
| **FRESHWATER, EXCEPT GREAT LAKES** | | | | |
| **Total** | **954,981** | **1,045** | **913** | **878** |
| Food and lodging | 187,138 | 778 | 241 | 174 |
| Transportation | 135,593 | 786 | 173 | 126 |
| Other trip costs | 135,232 | 784 | 173 | 126 |
| Equipment | 497,018 | 705 | 705 | 452 |
| **GREAT LAKES** | | | | |
| **Total** | **...** | **...** | **...** | **...** |
| Food and lodging | ... | ... | ... | ... |
| Transportation | ... | ... | ... | ... |
| Other trip costs | ... | ... | ... | ... |
| Equipment | ... | ... | ... | ... |
| **SALTWATER** | | | | |
| **Total** | **...** | **...** | **...** | **...** |
| Food and lodging | ... | ... | ... | ... |
| Transportation | ... | ... | ... | ... |
| Other trip costs | ... | ... | ... | ... |
| Equipment | ... | ... | ... | ... |

... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses and nonresponse. See Table 19 for detailed listing of expenditure items.

## Table 18. **Summary of Hunting Trip and Equipment Expenditures in Missouri by State Residents and Nonresidents Combined by Type of Hunting: 2006**

(Population 16 years old and older)

| Expenditure item | Amount (thousands of dollars) | Spenders (thousands) | Average per spender (dollars) | Average per hunter (dollars) |
|---|---|---|---|---|
| **ALL HUNTING** | | | | |
| **Total** | **733,600** | **624** | **1,176** | **1,171** |
| Food and lodging | 90,216 | 442 | 204 | 148 |
| Transportation | 108,385 | 476 | 228 | 178 |
| Other trip costs | 35,866 | 120 | 298 | 59 |
| Equipment | 499,132 | 492 | 1,015 | 785 |
| **BIG GAME** | | | | |
| **Total** | **493,934** | **498** | **992** | **961** |
| Food and lodging | 62,174 | 355 | 175 | 124 |
| Transportation | 79,990 | 392 | 204 | 159 |
| Other trip costs | 11,447 | 97 | 119 | 23 |
| Equipment | 340,324 | 357 | 952 | 655 |
| **SMALL GAME** | | | | |
| **Total** | **99,547** | **249** | **400** | **335** |
| Food and lodging | 13,663 | 151 | 91 | 58 |
| Transportation | 16,642 | 162 | 102 | 70 |
| Other trip costs | ... | ... | ... | ... |
| Equipment | 66,649 | 161 | 413 | 196 |
| **MIGRATORY BIRD** | | | | |
| **Total** | **85,566** | **126** | **681** | **649** |
| Food and lodging | *12,134 | *65 | *186 | *139 |
| Transportation | *9,332 | *68 | *138 | *107 |
| Other trip costs | ... | ... | ... | ... |
| Equipment | *42,614 | *88 | *485 | *158 |
| **OTHER ANIMALS** | | | | |
| **Total** | ***22,059** | ***55** | ***401** | ***407** |
| Food and lodging | ... | ... | ... | ... |
| Transportation | *2,421 | *36 | *67 | *61 |
| Other trip costs | ... | ... | ... | ... |
| Equipment | *17,053 | *31 | *545 | *280 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses and nonresponse. See Table 20 for detailed listing of expenditure items.

## Table 19. **Expenditures in Missouri by State Residents and Nonresidents Combined for Fishing: 2006**

(Population 16 years old and older)

| Expenditure item | Expenditures | | Spenders | | |
|---|---|---|---|---|---|
| | Amount (thousands of dollars) | Average per angler (dollars) | Number (thousands) | Percent of anglers | Average per spender (dollars) |
| **Total, all items** | **1,093,206** | **1,003** | **1,110** | **103** | **985** |
| **TRIP-RELATED EXPENDITURES** | | | | | |
| **Total trip-related** | **457,963** | **425** | **949** | **88** | **483** |
| **Food and lodging, total** | **187,138** | **174** | **880** | **82** | **213** |
| Food | 122,986 | 114 | 772 | 72 | 159 |
| Lodging | 64,152 | 60 | 211 | 20 | 304 |
| Transportation | 135,593 | 126 | 786 | 73 | 173 |
| **Other trip costs, total** | **135,232** | **126** | **784** | **73** | **173** |
| Privilege and other fees[1] | 12,378 | 12 | 194 | 18 | 64 |
| Boating costs[2] | 82,558 | 77 | 251 | 23 | 329 |
| Bait | 28,656 | 27 | 611 | 57 | 47 |
| Ice | 9,424 | 9 | 401 | 37 | 24 |
| Heating and cooking fuel | 2,216 | 2 | 98 | 9 | 23 |
| **EQUIPMENT AND OTHER EXPENDITURES PRIMARILY FOR FISHING** | | | | | |
| **Fishing equipment, total** | **134,910** | **118** | **706** | **66** | **191** |
| Reels, rods, and rod-making components | 68,910 | 62 | 384 | 36 | 180 |
| Lines, hooks, sinkers, etc. | 26,074 | 23 | 591 | 55 | 44 |
| Artificial lures and flies | 25,377 | 21 | 459 | 43 | 55 |
| Creels, stringers, fish bags, landing nets, and gaff hooks | 2,314 | 2 | 98 | 9 | 24 |
| Minnow seines, traps, and bait containers | 1,512 | 1 | 110 | 10 | 14 |
| Other fishing equipment[3] | 10,724 | 8 | 185 | 17 | 58 |
| Auxiliary equipment[4] | 18,514 | 16 | 100 | 9 | 186 |
| Special equipment[5] | *363,815 | *335 | *61 | *6 | *5,984 |
| Other fishing costs[6] | 118,003 | 108 | 659 | 61 | 179 |

* Estimate based on a sample size of 10–29.

[1] Includes boat or equipment rental and fees for guides, pack trip (party and charter boats, etc.), public land use, and private land use.
[2] Boat launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.
[3] Includes electronic fishing devices (depth finders, fish finders, etc.), tackle boxes, ice fishing equipment, and other fishing equipment.
[4] Includes tents, special fishing clothing, etc.
[5] Includes boats, campers, 4x4 vehicles, cabins, etc.
[6] Includes magazines and books, membership dues and contributions, land leasing and ownership, and licenses, stamps, tags, and permits.

Note: Detail does not add to total because of multiple responses and nonresponse. Percent of anglers may be greater than 100 because spenders who did not fish in this state are included.

## Table 20. **Expenditures in Missouri by State Residents and Nonresidents Combined for Hunting: 2006**

(Population 16 years old and older)

| Expenditure item | Expenditures | | Spenders | | |
|---|---|---|---|---|---|
| | Amount (thousands of dollars) | Average per hunter (dollars) | Number (thousands) | Percent of hunters | Average per spender (dollars) |
| **Total, all items** | **1,146,240** | **1,848** | **656** | **108** | **1,748** |
| **TRIP-RELATED EXPENDITURES** | | | | | |
| **Total trip-related** | **234,468** | **386** | **510** | **84** | **460** |
| **Food and lodging, total** | **90,216** | **148** | **510** | **84** | **177** |
| Food | 77,401 | 127 | 439 | 72 | 176 |
| Lodging | *12,815 | *21 | *60 | *10 | *215 |
| Transportation | 108,385 | 178 | 476 | 78 | 228 |
| **Other trip costs, total** | ***35,866** | ***59** | ***120** | ***20** | ***298** |
| Privilege and other fees[1] | *31,773 | *52 | *39 | *6 | *806 |
| Boating costs | ... | ... | ... | ... | ... |
| Heating and cooking fuel | ... | ... | ... | ... | ... |
| **EQUIPMENT AND OTHER EXPENDITURES PRIMARILY FOR HUNTING** | | | | | |
| **Hunting equipment, total** | **283,748** | **436** | **451** | **74** | **629** |
| Firearms | 141,641 | 229 | 156 | 26 | 911 |
| Ammunition | 31,084 | 50 | 361 | 59 | 86 |
| Other hunting equipment[2] | 111,023 | 157 | 275 | 45 | 403 |
| Auxiliary equipment[3] | 57,023 | 89 | 239 | 39 | 239 |
| Special equipment[4] | ... | ... | ... | ... | ... |
| Other hunting costs[5] | 412,641 | 677 | 491 | 81 | 841 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Includes guide fees, pack trip or package fees, public and private land use access fees, and rental of equipment such as boats and hunting or camping equipment.
[2] Includes bows, arrows, archery equipment, telescopic sights, decoys and game calls, handloading equipment and components, hunting dogs and associated costs, hunting knives, and other hunting equipment.
[3] Includes tents, special hunting clothing, etc.
[4] Includes boats, campers, 4x4 vehicles, cabins, etc.
[5] Includes magazines and books, membership dues and contributions, land leasing and ownership, and licenses, stamps, and permits.

Note: Detail does not add to total because of multiple responses and nonresponse. Percent of hunters may be greater than 100 percent because spenders who did not hunt in this state are included.

## Table 21. **Trip and Equipment Expenditures in Missouri for Fishing and Hunting by Missouri Residents and Nonresidents: 2006**

(Population 16 years old and older)

| Expenditure item | Amount (thousands of dollars) | Spenders (thousands) | Average per spender (dollars) | Average per sportsperson (dollars) |
|---|---|---|---|---|
| **STATE RESIDENTS AND NONRESIDENTS** | | | | |
| **Trip and equipment expenditures for fishing and hunting, total** | **1,854,978** | **1,324** | **1,401** | **1,427** |
| **Trip and equipment expenditures for fishing, total** | **975,202** | **1,055** | **924** | **906** |
| Food and lodging | 187,138 | 778 | 241 | 174 |
| Transportation | 135,593 | 786 | 173 | 126 |
| Boating costs[1] | 82,558 | 251 | 329 | 77 |
| Other trip costs[2] | 52,675 | 748 | 70 | 49 |
| Equipment | 517,239 | 719 | 720 | 481 |
| **Trip and equipment expenditures for hunting, total** | **733,600** | **624** | **1,176** | **1,206** |
| Food and lodging | 90,216 | 442 | 204 | 148 |
| Transportation | 108,385 | 476 | 228 | 178 |
| Boating costs[1] | ... | ... | ... | ... |
| Other trip costs[2] | 34,893 | 117 | 299 | 57 |
| Equipment | 499,132 | 492 | 1,015 | 821 |
| **Unspecified equipment[3]** | **146,176** | **86** | **1,709** | **112** |
| **STATE RESIDENTS** | | | | |
| **Trip and equipment expenditures for fishing and hunting, total** | **1,643,020** | **981** | **1,675** | **1,584** |
| **Trip and equipment expenditures for fishing, total** | **843,618** | **819** | **1,030** | **969** |
| Food and lodging | 136,103 | 616 | 221 | 156 |
| Transportation | 108,504 | 615 | 176 | 125 |
| Boating costs[1] | 77,287 | 212 | 364 | 89 |
| Other trip costs[2] | 43,483 | 610 | 71 | 50 |
| Equipment | 478,240 | 619 | 773 | 549 |
| **Trip and equipment expenditures for hunting, total** | **654,679** | **504** | **1,299** | **1,213** |
| Food and lodging | 71,148 | 385 | 185 | 132 |
| Transportation | 97,465 | 415 | 235 | 181 |
| Boating costs[1] | ... | ... | ... | ... |
| Other trip costs[2] | 9,749 | 98 | 99 | 18 |
| Equipment | 475,344 | 414 | 1,149 | 881 |
| **Unspecified equipment[3]** | **144,723** | **80** | **1,802** | **139** |
| **NONRESIDENTS** | | | | |
| **Trip and equipment expenditures for fishing and hunting, total** | **211,958** | **343** | **617** | **809** |
| **Trip and equipment expenditures for fishing, total** | **131,584** | **236** | **558** | **640** |
| Food and lodging | 51,036 | 162 | 316 | 248 |
| Transportation | 27,089 | 170 | 159 | 132 |
| Boating costs[1] | *5,270 | *39 | *135 | *26 |
| Other trip costs[2] | 9,191 | 137 | 67 | 45 |
| Equipment | 38,998 | 100 | 390 | 190 |
| **Trip and equipment expenditures for hunting, total** | **78,920** | **120** | **656** | **1,151** |
| Food and lodging | 19,069 | 58 | 330 | 278 |
| Transportation | 10,919 | 61 | 178 | 159 |
| Boating costs[1] | ... | ... | ... | ... |
| Other trip costs[2] | ... | ... | ... | ... |
| Equipment | 23,788 | 78 | 304 | 347 |
| **Unspecified equipment[3]** | **...** | **...** | **...** | **...** |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Includes boat launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.
[2] Includes equipment rental, guide and access fees, ice and bait for fishing, and heating and cooking oil.
[3] Respondent could not specify whether item was for hunting or fishing.

Note: Detail does not add to total because of multiple responses and nonresponse.

## Table 22. **Summary of Missouri Residents' Fishing and Hunting Expenditures Both Inside and Outside Missouri: 2006**

(State population 16 years old and older)

| Expenditure item | Amount (thousands of dollars) | Spenders (thousands) | Average per spender (dollars) | Average per sportsperson (dollars) |
|---|---|---|---|---|
| **FISHING AND HUNTING** | | | | |
| **Total** | **2,319,801** | **1,046** | **2,218** | **2,116** |
| Food and lodging | 260,530 | 819 | 318 | 238 |
| Transportation | 249,076 | 837 | 298 | 227 |
| Other trip costs[1] | 171,849 | 725 | 237 | 157 |
| Equipment (fishing, hunting) | 417,604 | 798 | 523 | 381 |
| Auxiliary equipment[2] | 141,201 | 388 | 364 | 129 |
| Special equipment[3] | 704,934 | 97 | 7,299 | 643 |
| Magazines and books | 9,725 | 195 | 50 | 9 |
| Membership dues and contributions | 17,095 | 125 | 137 | 16 |
| Other[4] | 347,787 | 817 | 426 | 317 |
| **FISHING** | | | | |
| **Total** | **1,032,407** | **881** | **1,172** | **1,109** |
| Food and lodging | 160,182 | 664 | 241 | 172 |
| Transportation | 128,924 | 666 | 194 | 139 |
| Other trip costs[1] | 142,751 | 685 | 209 | 153 |
| Fishing equipment | 113,243 | 624 | 182 | 122 |
| Auxiliary equipment[2] | *17,182 | *82 | *209 | *18 |
| Special equipment[3] | *352,869 | *55 | *6,379 | *379 |
| Magazines and books | *824 | *40 | *21 | *1 |
| Membership dues and contributions | *3,214 | *26 | *124 | *3 |
| Other[4] | 113,217 | 554 | 204 | 122 |
| **HUNTING** | | | | |
| **Total** | **1,027,698** | **529** | **1,944** | **1,836** |
| Food and lodging | 100,347 | 406 | 247 | 179 |
| Transportation | 120,151 | 439 | 274 | 215 |
| Other trip costs[1] | 29,097 | 120 | 242 | 52 |
| Hunting equipment | 294,846 | 388 | 760 | 527 |
| Auxiliary equipment[2] | 70,153 | 239 | 293 | 125 |
| Special equipment[3] | ... | ... | ... | ... |
| Magazines and books | *4,346 | *70 | *62 | *8 |
| Membership dues and contributions | *8,179 | *61 | *133 | *15 |
| Other[4] | 234,570 | 427 | 549 | 419 |
| **UNSPECIFIED[5]** | | | | |
| **Total** | **250,180** | **223** | **1,124** | **228** |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Includes boating costs, equipment rental, guide fees, access fees, heating and cooking fuel, and ice and bait (for fishing only).
[2] Includes tents, special clothing, etc.
[3] Includes boats, campers, 4x4 vehicles, cabins, etc.
[4] Includes land leasing and ownership, licenses, stamps, tags, and permits.
[5] Respondent could not specify whether expenditure was primarily for either fishing or hunting.

Note: Detail does not add to total because of multiple responses and nonresponse. See Tables 19–20 for a detailed listing of expenditure items.

## Table 23. **In-State and Out-of-State Expenditures by Missouri Residents for Fishing and Hunting: 2006**

(State population 16 years old and older)

| Expenditure item | Amount (thousands of dollars) | Spenders (thousands) | Average per spender (dollars) | Average per sportsperson (dollars) |
|---|---|---|---|---|
| **IN MISSOURI** | | | | |
| **Expenditures for fishing and hunting, total** | **2,104,729** | **1,032** | **2,039** | **2,029** |
| Trip-related expenditures | 544,713 | 907 | 601 | 525 |
| Equipment (fishing and hunting) | 379,984 | 791 | 481 | 366 |
| Auxiliary equipment[1] | 123,033 | 377 | 327 | 119 |
| Special equipment[2] | 697,287 | 97 | 7,220 | 672 |
| Other[3] | 359,712 | 830 | 433 | 347 |
| **Expenditures for fishing, total** | **955,926** | **862** | **1,109** | **1,098** |
| Trip-related expenditures | 365,378 | 761 | 480 | 420 |
| Fishing equipment | 108,416 | 616 | 176 | 125 |
| Auxiliary equipment[1] | *16,956 | *82 | *206 | *19 |
| Special equipment[2] | *352,869 | *55 | *6,379 | *405 |
| Other[3] | 112,308 | 537 | 209 | 129 |
| **Expenditures for hunting, total** | **892,450** | **529** | **1,688** | **1,654** |
| Trip-related expenditures | 179,336 | 445 | 403 | 332 |
| Hunting equipment | 263,508 | 388 | 679 | 488 |
| Auxiliary equipment[1] | 53,475 | 222 | 241 | 99 |
| Special equipment[2] | ... | ... | ... | ... |
| Other[3] | 237,771 | 440 | 541 | 441 |
| **Unspecified expenditures for fishing and hunting, total[4]** | **193,257** | **194** | **997** | **186** |
| **OUT OF STATE** | | | | |
| **Expenditures for fishing and hunting, total** | **209,762** | **267** | **786** | **914** |
| Trip-related expenditures | 136,830 | 206 | 664 | 596 |
| Equipment (fishing and hunting) | *37,119 | *71 | *522 | *162 |
| Auxiliary equipment[1] | *14,306 | *49 | *289 | *62 |
| Special equipment[2] | ... | ... | ... | ... |
| Other[3] | 13,859 | 170 | 82 | 60 |
| **Expenditures for fishing, total** | **74,725** | **190** | **392** | **416** |
| Trip-related expenditures | 65,856 | 156 | 422 | 367 |
| Fishing equipment | *4,812 | *41 | *117 | *27 |
| Auxiliary equipment[1] | ... | ... | ... | ... |
| Special equipment[2] | ... | ... | ... | ... |
| Other[3] | 4,058 | 126 | 32 | 23 |
| **Expenditures for hunting, total** | **131,901** | **109** | **1,210** | **1,667** |
| Trip-related expenditures | *70,975 | *69 | *1,027 | *897 |
| Hunting equipment | ... | ... | ... | ... |
| Auxiliary equipment[1] | *13,251 | *42 | *317 | *167 |
| Special equipment[2] | ... | ... | ... | ... |
| Other[3] | *9,175 | *54 | *169 | *116 |
| **Unspecified expenditures for fishing and hunting, total[4]** | **...** | **...** | **...** | **...** |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Includes tents, special hunting or fishing clothing, etc.
[2] Includes boats, campers, 4x4 vehicles, cabins, etc.
[3] Includes magazines, books, membership dues, contributions, land leasing and ownership, stamps, tags, and licenses.
[4] Respondent could not specify whether expenditure was primarily for either fishing or hunting.

Note: Detail does not add to total because of multiple responses and nonresponse.

## Table 24. **Wildlife Watching in Missouri by State Residents and Nonresidents Combined: 2006**

(Population 16 years old and older. Numbers in thousands)

| Participants | Number | Percent |
|---|---|---|
| **Total participants** | **2,248** | **100** |
| Away from home | 842 | 37 |
| Observe wildlife | 814 | 36 |
| Photograph wildlife | 413 | 18 |
| Feed wildlife | *303 | *13 |
| Around the home | 1,966 | 87 |
| Observe wildlife | 1,300 | 58 |
| Photograph wildlife | 541 | 24 |
| Feed wildlife | 1,684 | 75 |
| Visit public parks[1] | 275 | 12 |
| Maintain plantings or natural areas | 548 | 24 |

* Estimate based on a sample size of 10–29.

[1] Includes visits only to parks or publicly owned areas within 1 mile of home.

Note: Detail does not add to total because of multiple responses.

## Table 25. **Participants, Trips, and Days of Participation in Away-From-Home Wildlife Watching in Missouri: 2006**

(Population 16 years old and older. Numbers in thousands)

| Participants, trips, and days of participation | Activity in Missouri | | | | | |
|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | State residents | | Nonresidents | |
| | Number | Percent | Number | Percent | Number | Percent |
| **PARTICIPANTS** | | | | | | |
| **Total participants** | **842** | **100** | **611** | **100** | ***231** | ***100** |
| Observe wildlife | 814 | 97 | 597 | 98 | *217 | *94 |
| Photograph wildlife | 413 | 49 | *285 | *47 | *129 | *56 |
| Feed wildlife | *303 | *36 | *202 | *33 | ... | ... |
| **TRIPS** | | | | | | |
| Total trips | 6,694 | 100 | 5,800 | 100 | *894 | *100 |
| Average days per trip | 2 | (X) | 2 | (X) | *1 | (X) |
| **DAYS** | | | | | | |
| **Total days** | **14,757** | **100** | **13,445** | **100** | ***1,312** | ***100** |
| Observing wildlife | 10,790 | 73 | 9,715 | 72 | *1,075 | *82 |
| Photographing wildlife | 3,359 | 23 | *2,833 | *21 | ... | ... |
| Feeding wildlife | *1,625 | *11 | *1,492 | *11 | ... | ... |
| Average days per participant | 18 | (X) | 22 | (X) | *6 | (X) |
| Observing wildlife | 13 | (X) | 16 | (X) | *5 | (X) |
| Photographing wildlife | 8 | (X) | *10 | (X) | ... | (X) |
| Feeding wildlife | *5 | (X) | *7 | (X) | ... | (X) |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably. (X) Not applicable.

Note: Detail does not add to total because of multiple responses and nonresponse.

## Table 26. **Away-From-Home Wildlife-Watching Participants by Wildlife Observed, Photographed, or Fed in Missouri: 2006**

(Population 16 years old and older. Numbers in thousands)

| Wildlife observed, photographed, or fed | Total, state residents and nonresidents | | State residents | | Nonresidents | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Total all wildlife** | **842** | **100** | **611** | **73** | ***231** | ***27** |
| **Total birds** | **750** | **100** | **538** | **72** | ***212** | ***28** |
| Songbirds (cardinals, robins, warblers, etc.) | 653 | 100 | 471 | 72 | *182 | *28 |
| Birds of prey (hawks, owls, eagles, etc.) | 565 | 100 | 375 | 66 | *190 | *34 |
| Waterfowl (ducks, geese, swan, etc.) | 568 | 100 | 378 | 66 | *190 | *34 |
| Other water birds (shorebirds, herons, cranes, etc.) | 359 | 100 | *228 | *64 | *130 | *36 |
| Other birds (pheasants, turkeys, road runners, etc.) | 367 | 100 | *221 | *60 | *146 | *40 |
| **Total land mammals** | **581** | **100** | **483** | **83** | ***98** | ***17** |
| Large land mammals (bears, bison, etc.) | 423 | 100 | 357 | 84 | *66 | *16 |
| Small land mammals (prairie dogs, squirrels, etc.) | 520 | 100 | 437 | 84 | *83 | *16 |
| Fish (salmon, shark, etc.) | *246 | *100 | *193 | *78 | ... | ... |
| Marine mammals (whales, dolphins, etc.) | ... | ... | ... | ... | ... | ... |
| Other wildlife (butterflies, turtles, etc.) | 427 | 100 | 362 | 85 | *65 | *15 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

## Table 27. **Participation in Wildlife-Watching Activities Around the Home in Missouri: 2006**

(State population 16 years old and older. Numbers in thousands)

| Around the home | Participants | | Around the home | Participants | |
|---|---|---|---|---|---|
| | Number | Percent | | Number | Percent |
| **Total around-the-home participants...** | **1,966** | **100** | 11 to 50 days | *238 | *18 |
| Observe wildlife | 1,300 | 66 | 51 to 200 days | 336 | 26 |
| Visit public parks[1] | 275 | 14 | 201 days or more | 446 | 34 |
| Photograph wildlife | 541 | 28 | | | |
| Feed wildlife | 1,684 | 86 | **Participants Visiting Public Parks [1]** | | |
| Maintain natural areas | 439 | 22 | **Total, 1 day or more** | **275** | **100** |
| Maintain plantings | 340 | 17 | 1 to 5 days | *167 | *61 |
| | | | 6 to 10 days | ... | ... |
| **Participants Observing Wildlife** | | | 11 days or more | *72 | *26 |
| **Total, all wildlife** | **1,300** | **100** | | | |
| Birds | 1,217 | 94 | **Participants Photographing Wildlife** | | |
| Land mammals | 1,174 | 90 | **Total, 1 day or more** | **541** | **100** |
| Large mammals | 705 | 54 | 1 to 3 days | *231 | *43 |
| Small mammals | 1,065 | 82 | 4 to 10 days | *127 | *23 |
| Amphibians or reptiles | 379 | 29 | 11 or more days | *176 | *33 |
| Insects or spiders | 401 | 31 | | | |
| Fish and other wildlife | 287 | 22 | **Participants Feeding Wildlife** | | |
| | | | **Total, all wildlife** | **1,684** | **100** |
| **Total, 1 day or more** | **1,300** | **100** | Wild birds | 1,617 | 96 |
| 1 to 10 days | *262 | *20 | Other wildlife | 729 | 43 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Includes visits only to parks or publicly owned areas within 1 mile of home.

Note: Detail does not add to total because of multiple responses and nonresponse.

## Table 28. **Missouri Residents Participating in Wildlife Watching in the United States: 2006**

(State population 16 years old and older. Numbers in thousands)

| Participants | Number | Percent of participants | Percent of population |
|---|---|---|---|
| **Total participants** | **2,059** | **100** | **46** |
| Away from home | 709 | 34 | 16 |
| Around the home | 1,966 | 95 | 43 |
| Observe wildlife | 1,300 | 63 | 29 |
| Photograph wildlife | 541 | 26 | 12 |
| Feed wild birds or other wildlife | 1,684 | 82 | 37 |
| Maintain plantings or natural areas | 548 | 27 | 12 |
| Visit public parks | 275 | 13 | 6 |

Note: Detail does not add to total because of multiple responses. The column showing percent of participants is based on total participants. The column showing percent of population is based on the state population 16 years old and older, including those who did not participate in wildlife watching.

## Table 29. **Wild Bird Observers and Days of Observation in Missouri by State Residents and Nonresidents: 2006**

(Population 16 years old and older. Numbers in thousands)

| Observers and days of observation | Total, state residents and nonresidents | | State residents | | Nonresidents | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **OBSERVERS** | | | | | | |
| **Total bird observers** | **1,576** | **100** | **1,364** | **100** | ***212** | ***100** |
| Around-the-home observers | 1,217 | 77 | 1,217 | 89 | ... | ... |
| Away-from-home observers | 750 | 48 | 538 | 39 | *212 | *100 |
| **DAYS** | | | | | | |
| **Total days observing birds** | **181,182** | **100** | **180,548** | **100** | ***634** | ***100** |
| Around the home | 171,322 | 95 | 171,322 | 95 | ... | ... |
| Away from home | 9,859 | 5 | 9,226 | 5 | *634 | *100 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses.

## Table 30. **Selected Characteristics of Missouri Residents Participating in Wildlife Watching: 2006**

(State population 16 years old and older. Numbers in thousands)

| Characteristic | Population | | Participants | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total | | | Away from home | | | Around the home | | |
| | Number | Percent | Number | Percent who participated | Percent | Number | Percent who participated | Percent | Number | Percent who participated | Percent |
| **Total persons** | **4,521** | **100** | **2,059** | **46** | **100** | **709** | **16** | **100** | **1,966** | **43** | **100** |
| **Population Density of Residence** | | | | | | | | | | | |
| Urban | 3,043 | 67 | 1,231 | 40 | 60 | 405 | 13 | 57 | 1,165 | 38 | 59 |
| Rural | 1,479 | 33 | 828 | 56 | 40 | 304 | 21 | 43 | 801 | 54 | 41 |
| **Population Size of Residence** | | | | | | | | | | | |
| Metropolitan statistical area (MSA) | 3,256 | 72 | 1,514 | 47 | 74 | 523 | 16 | 74 | 1,448 | 44 | 74 |
| 1,000,000 or more | 2,386 | 53 | 1,121 | 47 | 54 | 360 | 15 | 51 | 1,055 | 44 | 54 |
| 250,000 to 999,999 | 271 | 6 | *128 | *47 | *6 | ... | ... | ... | *128 | *47 | *7 |
| Less than 250,000 | 599 | 13 | *265 | *44 | *13 | *117 | *20 | *17 | *265 | *44 | *13 |
| Outside MSA | 1,265 | 28 | 545 | 43 | 26 | *186 | *15 | *26 | 517 | 41 | 26 |
| **Sex** | | | | | | | | | | | |
| Male | 2,126 | 47 | 875 | 41 | 43 | 356 | 17 | 50 | 823 | 39 | 42 |
| Female | 2,395 | 53 | 1,184 | 49 | 57 | 353 | 15 | 50 | 1,143 | 48 | 58 |
| **Age** | | | | | | | | | | | |
| 16 to 17 years | 223 | 5 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 18 to 24 years | 341 | 8 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 25 to 34 years | 774 | 17 | *253 | *33 | *12 | *125 | *16 | *18 | *230 | *30 | *12 |
| 35 to 44 years | 926 | 20 | 395 | 43 | 19 | *174 | *19 | *24 | *343 | *37 | *17 |
| 45 to 54 years | 860 | 19 | 533 | 62 | 26 | *218 | *25 | *31 | 524 | 61 | 27 |
| 55 to 64 years | 662 | 15 | 350 | 53 | 17 | *85 | *13 | *12 | 342 | 52 | 17 |
| 65 years and older | 735 | 16 | 385 | 52 | 19 | ... | ... | ... | 385 | 52 | 20 |
| **Ethnicity** | | | | | | | | | | | |
| Hispanic | 116 | 3 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Non-Hispanic | 4,405 | 97 | 1,956 | 44 | 95 | 657 | 15 | 93 | 1,875 | 43 | 95 |
| **Race** | | | | | | | | | | | |
| White | 3,959 | 88 | 1,957 | 49 | 95 | 709 | 18 | 100 | 1,863 | 47 | 95 |
| Black | 464 | 10 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| All others | 99 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **Annual Household Income** | | | | | | | | | | | |
| Under $10,000 | 269 | 6 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| $10,000 to $19,999 | 363 | 8 | *133 | *37 | *6 | ... | ... | ... | *133 | *37 | *7 |
| $20,000 to $29,999 | 484 | 11 | *156 | *32 | *8 | ... | ... | ... | *156 | *32 | *8 |
| $30,000 to $39,999 | 454 | 10 | *244 | *54 | *12 | ... | ... | ... | *244 | *54 | *12 |
| $40,000 to $49,999 | 366 | 8 | *211 | *58 | *10 | ... | ... | ... | *185 | *50 | *9 |
| $50,000 to $74,999 | 718 | 16 | 439 | 61 | 21 | *182 | *25 | *26 | 420 | 59 | 21 |
| $75,000 to $99,999 | 429 | 9 | *262 | *61 | *13 | *140 | *33 | *20 | *222 | *52 | *11 |
| $100,000 or more | 479 | 11 | *254 | *53 | *12 | *95 | *20 | *13 | *254 | *53 | *13 |
| Not reported | 960 | 21 | *235 | *24 | *11 | ... | ... | ... | *227 | *24 | *12 |
| **Education** | | | | | | | | | | | |
| 11 years or less | 787 | 17 | *299 | *38 | *15 | ... | ... | ... | *290 | *37 | *15 |
| 12 years | 1,573 | 35 | 586 | 37 | 28 | *197 | *13 | *28 | 559 | 36 | 28 |
| 1 to 3 years college | 1,077 | 24 | 631 | 59 | 31 | *245 | *23 | *35 | 585 | 54 | 30 |
| 4 years college or more | 1,084 | 24 | 542 | 50 | 26 | *211 | *19 | *30 | 532 | 49 | 27 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses and nonresponse. Percent who participated shows the percent of each row's population who participated in the activity named by the column (the percent of those living in urban areas who participated, etc.). Percent columns show the percent of each column's participants who are described by the row heading (the percent of those who participated who live in urban areas, etc.).

## Table 31. **Expenditures in Missouri by State Residents and Nonresidents Combined for Wildlife Watching: 2006**

(Population 16 years old and older)

| Expenditure item | Expenditures (thousands of dollars) | Average per participant (dollars) | Spenders | | |
|---|---|---|---|---|---|
| | | | Number (thousands) | Percent of wildlife-watching participants[1] | Average per spender (dollars) |
| **Total, all items** | **869,075** | **351** | **1,887** | **84** | **460** |
| **TRIP EXPENDITURES** | | | | | |
| **Total trip-related** | **219,932** | **232** | **723** | **86** | **304** |
| Food and lodging | 86,027 | 102 | 505 | 60 | 170 |
| Food | 57,044 | 68 | 505 | 60 | 113 |
| Lodging | *28,983 | *34 | *149 | *18 | *195 |
| Transportation | 121,019 | 115 | 712 | 85 | 170 |
| Other trip costs[2] | *12,886 | *15 | *120 | *14 | *107 |
| **EQUIPMENT AND OTHER EXPENDITURES** | | | | | |
| **Total** | **649,143** | **264** | **1,672** | **74** | **388** |
| **Wildlife-watching equipment, total** | **316,242** | **134** | **1,554** | **69** | **203** |
| Binoculars, spotting scopes | ... | ... | ... | ... | ... |
| Film and developing | 23,793 | 10 | 390 | 17 | 61 |
| Cameras, special lenses, video cameras, and other photographic equipment | *81,482 | *32 | *250 | *11 | *326 |
| Day packs, carrying cases, and special clothing | *15,861 | *7 | *85 | *4 | *186 |
| Bird food | 109,982 | 48 | 1,269 | 56 | 87 |
| Food for other wildlife | 23,328 | 10 | 390 | 17 | 60 |
| Nest boxes, bird houses, bird feeders, and bird baths | 33,180 | 15 | 685 | 30 | 48 |
| Other equipment (including field guides) | *3,105 | *1 | *104 | *5 | *30 |
| Auxiliary equipment[3] | *21,580 | *9 | *138 | *6 | *156 |
| Special equipment[4] | ... | ... | ... | ... | ... |
| Magazines and books | 14,686 | 6 | 360 | 16 | 41 |
| Membership dues and contributions | *17,619 | *7 | *299 | *13 | *59 |
| Land leasing and ownership | ... | ... | ... | ... | ... |
| Plantings | 44,392 | 20 | 320 | 14 | 139 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Percent of wildlife-watching participants column for trip-related expenditures is based on away-from-home participants. For equipment and other expenditures, the percent of wildlife-watching participants column is based on total wildlife-watching participants.
[2] Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.
[3] Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.
[4] Includes travel or tent trailers, off-the-road vehicles, pickups, campers or vans, motor homes, boats, and other special equipment.

Note: Detail does not add to total because of multiple responses and nonresponse.

## Table 32. **Trip and Equipment Expenditures in Missouri for Wildlife Watching by Missouri Residents and Nonresidents: 2006**

(Population 16 years old and older)

| Expenditure item | Amount (thousands of dollars) | Spenders (thousands) | Average per spender (dollars) | Average per participant (dollars) |
|---|---|---|---|---|
| **STATE RESIDENTS AND NONRESIDENTS** | | | | |
| **Total** | **630,743** | **1,813** | **348** | **245** |
| Food and lodging | 86,027 | 505 | 170 | 102 |
| Transportation | 121,019 | 712 | 170 | 115 |
| Other trip costs[1] | *12,886 | *120 | *107 | *15 |
| Equipment[2] | 410,810 | 1,577 | 261 | 159 |
| **STATE RESIDENTS** | | | | |
| **Total** | **503,312** | **1,601** | **314** | **231** |
| Food and lodging | 42,764 | 384 | 111 | 70 |
| Transportation | 88,721 | 587 | 151 | 105 |
| Other trip costs[1] | ... | ... | ... | ... |
| Equipment[2] | 359,711 | 1,472 | 244 | 172 |
| **NONRESIDENTS** | | | | |
| **Total** | **127,431** | **212** | **602** | **371** |
| Food and lodging | *43,264 | *121 | *358 | *187 |
| Transportation | *32,299 | *125 | *259 | *140 |
| Other trip costs[1] | ... | ... | ... | ... |
| Equipment[2] | *51,100 | *104 | *489 | *40 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Includes equipment rental and fees for guides, pack trips, public land use, private land use, boat fuel, other boating costs, and heating and cooking fuel.
[2] Includes wildlife watching, auxiliary, and special equipment.

Note: Detail does not add to total because of multiple responses and nonresponse. See Table 33 for a detailed listing of expenditure items.

## Table 33. **Wildlife-Watching Expenditures Both Inside and Outside Missouri by Missouri Residents: 2006**

(State population 16 years old and older)

| Expenditure item | Expenditures (thousands of dollars) | Average per participant (dollars) | Spenders | | |
|---|---|---|---|---|---|
| | | | Number (thousands) | Percent of wildlife-watching participants[1] | Average per spender (dollars) |
| **Total, all items** | **976,593** | **474** | **1,661** | **81** | **588** |
| **TRIP EXPENDITURES** | | | | | |
| **Total trip-related** | **365,259** | **515** | **638** | **90** | **572** |
| Food and lodging | 209,249 | 295 | 465 | 66 | 450 |
| Food | 75,736 | 107 | 465 | 66 | 163 |
| Lodging | *133,513 | *188 | *185 | *26 | *720 |
| Transportation | 139,150 | 196 | 638 | 90 | 218 |
| Other trip costs[2] | *16,859 | *24 | *122 | *17 | *138 |
| **EQUIPMENT AND OTHER EXPENDITURES** | | | | | |
| **Total** | **611,334** | **297** | **1,553** | **75** | **394** |
| **Wildlife-watching equipment, total** | **314,001** | **153** | **1,479** | **72** | **212** |
| Binoculars, spotting scopes | *28,372 | *14 | *148 | *7 | *192 |
| Film and developing | 24,069 | 12 | 404 | 20 | 60 |
| Cameras, special lenses, videocameras, and other photographic equipment | *74,782 | *36 | *242 | *12 | *309 |
| Day packs, carrying cases, and special clothing | ... | ... | ... | ... | ... |
| Bird food | 111,620 | 54 | 1,237 | 60 | 90 |
| Food for other wildlife | 24,281 | 12 | 396 | 19 | 61 |
| Nest boxes, bird houses, bird feeders, and bird baths | 32,915 | 16 | 664 | 32 | 50 |
| Other equipment | *3,019 | *1 | *111 | *5 | *27 |
| Auxiliary equipment[3] | *25,634 | *12 | *145 | *7 | *177 |
| Special equipment[4] | ... | ... | ... | ... | ... |
| Magazines and books | *14,067 | *7 | *317 | *15 | *44 |
| Membership dues and contributions | *16,788 | *8 | *283 | *14 | *59 |
| Land leasing and ownership | ... | ... | ... | ... | ... |
| Plantings | 44,392 | 22 | 320 | 16 | 139 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

[1] Percent of wildlife-watching participants column for trip-related expenditures is based on away-from-home participants. For equipment and other expenditures, the percent of wildlife-watching participants column is based on total wildlife-watching participants.
[2] Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.
[3] Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.
[4] Includes travel or tent trailers, off-the-road vehicles, pickups, campers or vans, motor homes, boats, and other special equipment.

Note: Detail does not add to total because of multiple responses and nonresponse.

## Table 34. **In-State and Out-of-State Expenditures by Missouri Residents for Wildlife Watching: 2006**

(State population 16 years old and older)

| Expenditure item | Amount (thousands of dollars) | Spenders (thousands) | Average per spender (dollars) | Average per participant (dollars) |
|---|---|---|---|---|
| **IN MISSOURI** | | | | |
| **Expenditures for wildlife watching, total** | **739,765** | **1,649** | **449** | **367** |
| Trip-related expenditures | 143,601 | 587 | 245 | 235 |
| Wildlife-watching equipment | 304,312 | 1,466 | 208 | 151 |
| Auxiliary equipment | *20,582 | *125 | *165 | *10 |
| Special equipment | ... | ... | ... | ... |
| Other | 236,453 | 668 | 354 | 117 |
| **OUT OF STATE** | | | | |
| **Expenditures for wildlife watching, total** | ***236,828** | ***309** | ***767** | ***968** |
| Trip-related expenditures | *221,658 | *218 | *1,015 | *948 |
| Wildlife-watching equipment | ... | ... | ... | ... |
| Auxiliary equipment | ... | ... | ... | ... |
| Special equipment | ... | ... | ... | ... |
| Other | ... | ... | ... | ... |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: See Table 33 for detailed listing of expenditure items.

## Table 35. **Participation of Missouri Resident Wildlife-Watching Participants in Fishing and Hunting: 2006**

(State population 16 years old and older. Numbers in thousands)

| Participants | Total wildlife watchers | | Wildlife-watching activity | | | |
|---|---|---|---|---|---|---|
| | | | Away from home | | Around the home | |
| | Number | Percent | Number | Percent | Number | Percent |
| **Total participants** | **2,059** | **100** | **709** | **100** | **1,966** | **100** |
| Wildlife-watching participants who: | | | | | | |
| Did not fish or hunt | 1,355 | 66 | 347 | 49 | 1,337 | 68 |
| Fished or hunted | 703 | 34 | 362 | 51 | 629 | 32 |
| Fished | 601 | 29 | 312 | 44 | 539 | 27 |
| Hunted | 376 | 18 | 212 | 30 | 327 | 17 |

Note: Detail does not add to total because of multiple responses and nonresponse.

## Table 36. **Participation of Missouri Resident Sportspersons in Wildlife-Watching Activities: 2006**

(State population 16 years old and older. Numbers in thousands)

| Sportspersons | Sportspersons | | Anglers | | Hunters | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **Total sportspersons** | **1,096** | **100** | **931** | **100** | **560** | **100** |
| Sportspersons who: | | | | | | |
| Did not engage in wildlife-watching activities | 393 | 36 | 329 | 35 | 184 | 33 |
| Engaged in wildlife-watching activities | 703 | 64 | 601 | 65 | 376 | 67 |
| Away from home | 362 | 33 | 312 | 34 | 212 | 38 |
| Around the home | 629 | 57 | 539 | 58 | 327 | 58 |

Note: Detail does not add to total because of multiple responses and nonresponse.

## Table 37. **Participation in Wildlife-Associated Recreation by State Residents Both Inside and Outside Their Resident State: 2006**

(Population 16 years old and older. Numbers in thousands)

| Participant's state of residence | Population | Total participants | | Sportspersons | | Wildlife-watching participants | |
|---|---|---|---|---|---|---|---|
| | | Number | Percent of population | Number | Percent of population | Number | Percent of population |
| **United States, total** | **229,245** | **86,273** | **38** | **33,916** | **15** | **71,132** | **31** |
| Alabama | 3,550 | 1,407 | 40 | 707 | 20 | 1,006 | 28 |
| Alaska | 499 | 283 | 57 | 149 | 30 | 207 | 42 |
| Arizona | 4,585 | 1,224 | 27 | 418 | 9 | 988 | 22 |
| Arkansas | 2,156 | 1,070 | 50 | 551 | 26 | 859 | 40 |
| California | 27,299 | 6,778 | 25 | 1,783 | 7 | 5,799 | 21 |
| Colorado | 3,605 | 1,727 | 48 | 593 | 16 | 1,459 | 40 |
| Connecticut | 2,735 | 1,207 | 44 | 297 | 11 | 1,102 | 40 |
| Delaware | 669 | 254 | 38 | 85 | 13 | 212 | 32 |
| Florida | 14,233 | 4,592 | 32 | 2,004 | 14 | 3,520 | 25 |
| Georgia | 6,910 | 2,368 | 34 | 1,161 | 17 | 1,819 | 26 |
| Hawaii | 1,014 | 225 | 22 | 100 | 10 | 160 | 16 |
| Idaho | 1,102 | 555 | 50 | 259 | 24 | 432 | 39 |
| Illinois | 9,767 | 2,831 | 29 | 1,109 | 11 | 2,355 | 24 |
| Indiana | 4,799 | 2,246 | 47 | 822 | 17 | 1,825 | 38 |
| Iowa | 2,339 | 1,284 | 55 | 518 | 22 | 1,111 | 48 |
| Kansas | 2,110 | 964 | 46 | 425 | 20 | 787 | 37 |
| Kentucky | 3,260 | 1,652 | 51 | 670 | 21 | 1,341 | 41 |
| Louisiana | 3,433 | 1,096 | 32 | 678 | 20 | 712 | 21 |
| Maine | 1,074 | 709 | 66 | 266 | 25 | 600 | 56 |
| Maryland | 4,333 | 1,533 | 35 | 521 | 12 | 1,334 | 31 |
| Massachusetts | 5,032 | 1,910 | 38 | 472 | 9 | 1,725 | 34 |
| Michigan | 7,804 | 3,564 | 46 | 1,371 | 18 | 2,947 | 38 |
| Minnesota | 4,021 | 2,413 | 60 | 1,280 | 32 | 1,946 | 48 |
| Mississippi | 2,214 | 893 | 40 | 537 | 24 | 618 | 28 |
| Missouri | 4,521 | 2,451 | 54 | 1,096 | 24 | 2,059 | 46 |
| Montana | 753 | 500 | 66 | 232 | 31 | 412 | 55 |
| Nebraska | 1,359 | 542 | 40 | 234 | 17 | 438 | 32 |
| Nevada | 1,895 | 525 | 28 | 182 | 10 | 420 | 22 |
| New Hampshire | 1,044 | 519 | 50 | 141 | 14 | 471 | 45 |
| New Jersey | 6,734 | 1,794 | 27 | 562 | 8 | 1,537 | 23 |
| New Mexico | 1,500 | 592 | 39 | 224 | 15 | 490 | 33 |
| New York | 14,990 | 4,060 | 27 | 1,236 | 8 | 3,548 | 24 |
| North Carolina | 6,719 | 2,781 | 41 | 1,038 | 15 | 2,267 | 34 |
| North Dakota | 507 | 226 | 45 | 145 | 29 | 134 | 26 |
| Ohio | 8,889 | 3,951 | 44 | 1,488 | 17 | 3,379 | 38 |
| Oklahoma | 2,743 | 1,348 | 49 | 602 | 22 | 1,082 | 39 |
| Oregon | 2,889 | 1,510 | 52 | 550 | 19 | 1,266 | 44 |
| Pennsylvania | 9,793 | 4,124 | 42 | 1,415 | 14 | 3,638 | 37 |
| Rhode Island | 842 | 350 | 42 | 86 | 10 | 312 | 37 |
| South Carolina | 3,315 | 1,264 | 38 | 595 | 18 | 943 | 28 |
| South Dakota | 601 | 319 | 53 | 136 | 23 | 266 | 44 |
| Tennessee | 4,699 | 2,262 | 48 | 775 | 16 | 1,966 | 42 |
| Texas | 17,076 | 5,418 | 32 | 2,668 | 16 | 4,111 | 24 |
| Utah | 1,808 | 753 | 42 | 351 | 19 | 574 | 32 |
| Vermont | 506 | 307 | 61 | 91 | 18 | 279 | 55 |
| Virginia | 5,893 | 2,478 | 42 | 857 | 15 | 2,126 | 36 |
| Washington | 4,980 | 2,274 | 46 | 764 | 15 | 2,007 | 40 |
| West Virginia | 1,458 | 718 | 49 | 364 | 25 | 585 | 40 |
| Wisconsin | 4,350 | 2,128 | 49 | 1,185 | 27 | 1,710 | 39 |
| Wyoming | 405 | 225 | 56 | 113 | 28 | 194 | 48 |

Note: Detail does not add to total because of multiple responses. U.S. totals include responses from participants residing in the District of Columbia, as described in Appendix D.

## Table 38. **Anglers and Hunters by Sportsperson's State of Residence: 2006**

(Population 16 years old and older. Numbers in thousands)

| Sportsperson's state of residence | Population | Fished or hunted | | Fished only | | Hunted only | | Fished and hunted | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent of population | Number | Percent of population | Number | Percent of population | Number | Percent of population |
| **United States, total** | **229,245** | **33,916** | **15** | **21,406** | **9** | **3,964** | **2** | **8,546** | **4** |
| Alabama | 3,550 | 707 | 20 | 395 | 11 | 79 | 2 | 233 | 7 |
| Alaska | 499 | 149 | 30 | 94 | 19 | *11 | *2 | 44 | 9 |
| Arizona | 4,585 | 418 | 9 | 290 | 6 | 48 | 1 | 81 | 2 |
| Arkansas | 2,156 | 551 | 26 | 244 | 11 | 88 | 4 | 220 | 10 |
| California | 27,299 | 1,783 | 7 | 1,465 | 5 | *94 | *(Z) | 223 | 1 |
| Colorado | 3,605 | 593 | 16 | 460 | 13 | *39 | *1 | 94 | 3 |
| Connecticut | 2,735 | 297 | 11 | 257 | 9 | ... | ... | 34 | 1 |
| Delaware | 669 | 85 | 13 | 64 | 10 | *9 | *1 | 12 | 2 |
| Florida | 14,233 | 2,004 | 14 | 1,678 | 12 | *54 | *(Z) | 271 | 2 |
| Georgia | 6,910 | 1,161 | 17 | 805 | 12 | *101 | *1 | 255 | 4 |
| Hawaii | 1,014 | 100 | 10 | 81 | 8 | ... | ... | *14 | *1 |
| Idaho | 1,102 | 259 | 24 | 136 | 12 | *36 | *3 | 88 | 8 |
| Illinois | 9,767 | 1,109 | 11 | 837 | 9 | *74 | *1 | 198 | 2 |
| Indiana | 4,799 | 822 | 17 | 569 | 12 | 83 | 2 | 171 | 4 |
| Iowa | 2,339 | 518 | 22 | 308 | 13 | 70 | 3 | 141 | 6 |
| Kansas | 2,110 | 425 | 20 | 233 | 11 | 56 | 3 | 136 | 6 |
| Kentucky | 3,260 | 670 | 21 | 410 | 13 | *49 | *1 | 212 | 7 |
| Louisiana | 3,433 | 678 | 20 | 403 | 12 | *81 | *2 | 195 | 6 |
| Maine | 1,074 | 266 | 25 | 120 | 11 | 40 | 4 | 106 | 10 |
| Maryland | 4,333 | 521 | 12 | 370 | 9 | 46 | 1 | 105 | 2 |
| Massachusetts | 5,032 | 472 | 9 | 406 | 8 | *20 | *(Z) | 46 | 1 |
| Michigan | 7,804 | 1,371 | 18 | 650 | 8 | 272 | 3 | 449 | 6 |
| Minnesota | 4,021 | 1,280 | 32 | 745 | 19 | *138 | *3 | 398 | 10 |
| Mississippi | 2,214 | 537 | 24 | 293 | 13 | *58 | *3 | 186 | 8 |
| Missouri | 4,521 | 1,096 | 24 | 536 | 12 | 165 | 4 | 394 | 9 |
| Montana | 753 | 232 | 31 | 86 | 11 | 53 | 7 | 92 | 12 |
| Nebraska | 1,359 | 234 | 17 | 129 | 10 | 42 | 3 | 63 | 5 |
| Nevada | 1,895 | 182 | 10 | 122 | 6 | 26 | 1 | 34 | 2 |
| New Hampshire | 1,044 | 141 | 14 | 89 | 9 | *17 | *2 | 35 | 3 |
| New Jersey | 6,734 | 562 | 8 | 478 | 7 | *32 | *(Z) | 53 | 1 |
| New Mexico | 1,500 | 224 | 15 | 152 | 10 | 34 | 2 | 38 | 3 |
| New York | 14,990 | 1,236 | 8 | 734 | 5 | 207 | 1 | 295 | 2 |
| North Carolina | 6,719 | 1,038 | 15 | 734 | 11 | *74 | *1 | 230 | 3 |
| North Dakota | 507 | 145 | 29 | 59 | 12 | 40 | 8 | 47 | 9 |
| Ohio | 8,889 | 1,488 | 17 | 1,011 | 11 | 195 | 2 | 282 | 3 |
| Oklahoma | 2,743 | 602 | 22 | 370 | 13 | *55 | *2 | 177 | 6 |
| Oregon | 2,889 | 550 | 19 | 331 | 11 | 67 | 2 | 152 | 5 |
| Pennsylvania | 9,793 | 1,415 | 14 | 482 | 5 | 425 | 4 | 508 | 5 |
| Rhode Island | 842 | 86 | 10 | 73 | 9 | ... | ... | *10 | *1 |
| South Carolina | 3,315 | 595 | 18 | 429 | 13 | *48 | *1 | 119 | 4 |
| South Dakota | 601 | 136 | 23 | 46 | 8 | 41 | 7 | 50 | 8 |
| Tennessee | 4,699 | 775 | 16 | 491 | 10 | *67 | *1 | 217 | 5 |
| Texas | 17,076 | 2,668 | 16 | 1,672 | 10 | 324 | 2 | 672 | 4 |
| Utah | 1,808 | 351 | 19 | 197 | 11 | 38 | 2 | 116 | 6 |
| Vermont | 506 | 91 | 18 | 34 | 7 | 20 | 4 | 37 | 7 |
| Virginia | 5,893 | 857 | 15 | 497 | 8 | 127 | 2 | 233 | 4 |
| Washington | 4,980 | 764 | 15 | 577 | 12 | 74 | 1 | 113 | 2 |
| West Virginia | 1,458 | 364 | 25 | 165 | 11 | 58 | 4 | 141 | 10 |
| Wisconsin | 4,350 | 1,185 | 27 | 534 | 12 | 160 | 4 | 492 | 11 |
| Wyoming | 405 | 113 | 28 | 61 | 15 | *15 | *4 | 37 | 9 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably. (Z) Less than 0.5 percent.

Notes: U.S. totals include responses from participants residing in the District of Columbia, as described in Appendix D.
Table includes state residents' participation both inside and outside their resident state.

## Table 39. **Participation in Wildlife-Associated Recreation in Each State by Both Residents and Nonresidents of the State: 2006**

(Population 16 years old and older. Numbers in thousands)

| State where activity took place | Total participants | | Sportspersons | | Wildlife-watching participants | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| **United States, total** | **86,273** | **100** | **33,916** | **39** | **71,132** | **82** |
| Alabama | 1,698 | 100 | 962 | 57 | 1,161 | 68 |
| Alaska | 670 | 100 | 315 | 47 | 496 | 74 |
| Arizona | 1,534 | 100 | 493 | 32 | 1,277 | 83 |
| Arkansas | 1,393 | 100 | 790 | 57 | 1,011 | 73 |
| California | 7,347 | 100 | 1,814 | 25 | 6,270 | 85 |
| Colorado | 2,201 | 100 | 813 | 37 | 1,819 | 83 |
| Connecticut | 1,313 | 100 | 309 | 24 | 1,170 | 89 |
| Delaware | 376 | 100 | 176 | 47 | 285 | 76 |
| Florida | 5,767 | 100 | 2,815 | 49 | 4,240 | 74 |
| Georgia | 2,694 | 100 | 1,308 | 49 | 1,987 | 74 |
| Hawaii | 365 | 100 | 162 | 44 | 262 | 72 |
| Idaho | 992 | 100 | 440 | 44 | 754 | 76 |
| Illinois | 3,057 | 100 | 1,004 | 33 | 2,566 | 84 |
| Indiana | 2,560 | 100 | 886 | 35 | 2,042 | 80 |
| Iowa | 1,421 | 100 | 552 | 39 | 1,205 | 85 |
| Kansas | 1,081 | 100 | 544 | 50 | 816 | 75 |
| Kentucky | 1,876 | 100 | 820 | 44 | 1,475 | 79 |
| Louisiana | 1,195 | 100 | 769 | 64 | 738 | 62 |
| Maine | 986 | 100 | 411 | 42 | 801 | 81 |
| Maryland | 1,812 | 100 | 707 | 39 | 1,491 | 82 |
| Massachusetts | 2,165 | 100 | 532 | 25 | 1,919 | 89 |
| Michigan | 4,068 | 100 | 1,685 | 41 | 3,227 | 79 |
| Minnesota | 2,883 | 100 | 1,571 | 54 | 2,093 | 73 |
| Mississippi | 1,118 | 100 | 656 | 59 | 731 | 65 |
| Missouri | 2,800 | 100 | 1,300 | 46 | 2,248 | 80 |
| Montana | 929 | 100 | 378 | 41 | 755 | 81 |
| Nebraska | 632 | 100 | 259 | 41 | 490 | 77 |
| Nevada | 778 | 100 | 177 | 23 | 686 | 88 |
| New Hampshire | 825 | 100 | 258 | 31 | 710 | 86 |
| New Jersey | 2,057 | 100 | 696 | 34 | 1,713 | 83 |
| New Mexico | 937 | 100 | 316 | 34 | 787 | 84 |
| New York | 4,530 | 100 | 1,428 | 32 | 3,852 | 85 |
| North Carolina | 3,344 | 100 | 1,361 | 41 | 2,641 | 79 |
| North Dakota | 265 | 100 | 190 | 72 | 148 | 56 |
| Ohio | 4,155 | 100 | 1,488 | 36 | 3,489 | 84 |
| Oklahoma | 1,437 | 100 | 684 | 48 | 1,110 | 77 |
| Oregon | 1,804 | 100 | 661 | 37 | 1,484 | 82 |
| Pennsylvania | 4,581 | 100 | 1,520 | 33 | 3,947 | 86 |
| Rhode Island | 515 | 100 | 163 | 32 | 436 | 85 |
| South Carolina | 1,617 | 100 | 893 | 55 | 1,115 | 69 |
| South Dakota | 557 | 100 | 251 | 45 | 432 | 78 |
| Tennessee | 2,777 | 100 | 969 | 35 | 2,362 | 85 |
| Texas | 5,915 | 100 | 2,940 | 50 | 4,225 | 71 |
| Utah | 1,122 | 100 | 437 | 39 | 877 | 78 |
| Vermont | 532 | 100 | 150 | 28 | 468 | 88 |
| Virginia | 2,837 | 100 | 1,045 | 37 | 2,312 | 81 |
| Washington | 2,681 | 100 | 818 | 31 | 2,331 | 87 |
| West Virginia | 967 | 100 | 488 | 51 | 743 | 77 |
| Wisconsin | 2,767 | 100 | 1,582 | 57 | 2,039 | 74 |
| Wyoming | 746 | 100 | 264 | 35 | 643 | 86 |

Note: Detail does not add to total because of multiple responses. U.S. totals include responses from participants residing in the District of Columbia, as described in Appendix D.

## Table 40. **Anglers and Hunters by State Where Fishing or Hunting Took Place: 2006**

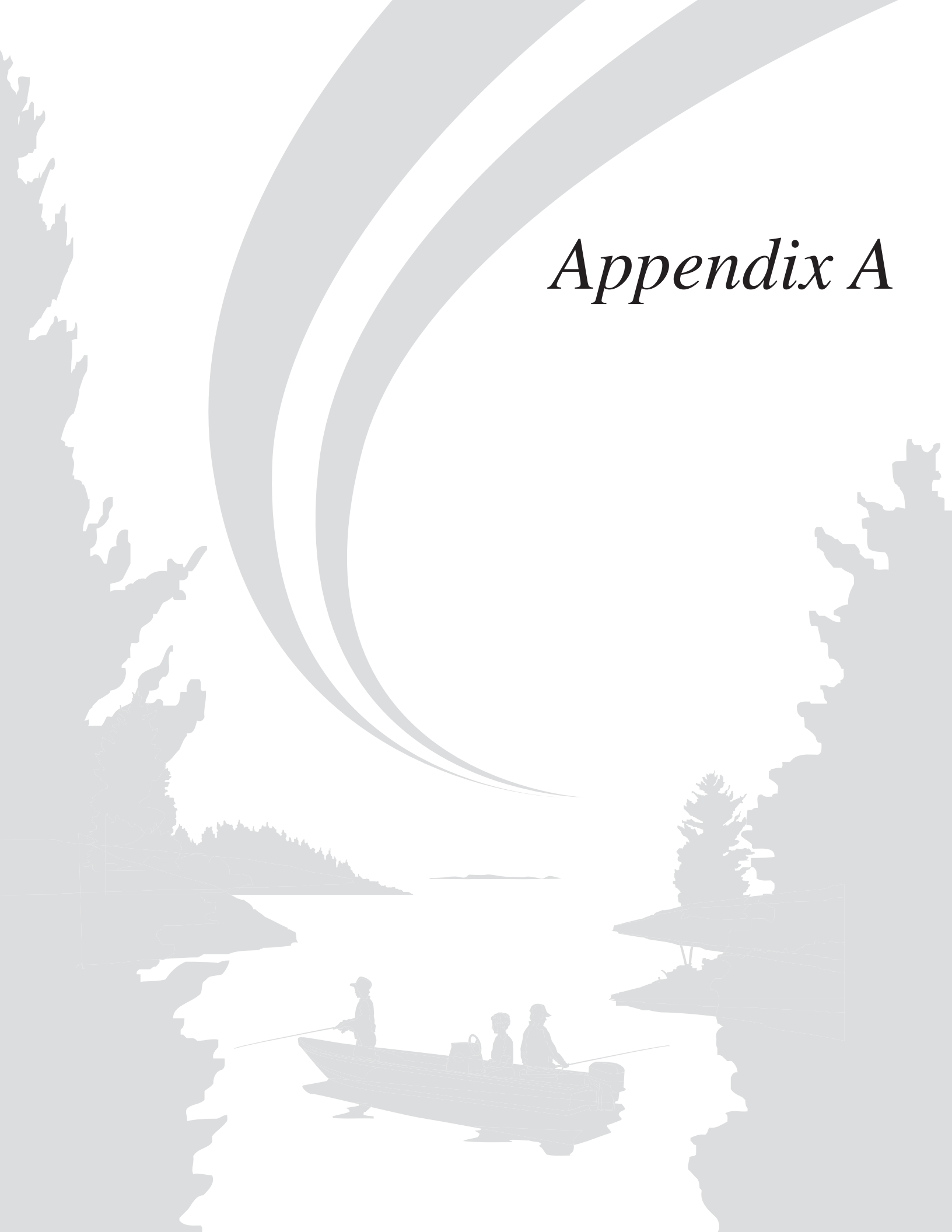
(Population 16 years old and older. Numbers in thousands)

| State where fishing or hunting took place | Anglers | | | | | | Hunters | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total anglers, residents and nonresidents | | Residents | | Nonresidents | | Total hunters, residents and nonresidents | | Residents | | Nonresidents | |
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| **United States, total** | **29,952** | **100** | **27,641** | **92** | **6,494** | **22** | **12,510** | **100** | **11,971** | **96** | **1,826** | **15** |
| Alabama | 806 | 100 | 600 | 74 | 206 | 26 | 391 | 100 | 310 | 79 | 81 | 21 |
| Alaska | 293 | 100 | 137 | 47 | 156 | 53 | 71 | 100 | 53 | 75 | ... | ... |
| Arizona | 422 | 100 | 330 | 78 | 92 | 22 | 159 | 100 | 126 | 79 | *33 | *21 |
| Arkansas | 655 | 100 | 430 | 66 | 225 | 34 | 354 | 100 | 301 | 85 | *53 | *15 |
| California | 1,730 | 100 | 1,578 | 91 | 152 | 9 | 281 | 100 | 274 | 97 | ... | ... |
| Colorado | 660 | 100 | 490 | 74 | 171 | 26 | 259 | 100 | 126 | 49 | 134 | 51 |
| Connecticut | 302 | 100 | 251 | 83 | 51 | 17 | 38 | 100 | 36 | 96 | ... | ... |
| Delaware | 159 | 100 | 66 | 41 | *94 | *59 | 42 | 100 | 19 | 46 | ... | ... |
| Florida | 2,767 | 100 | 1,881 | 68 | 885 | 32 | 236 | 100 | 214 | 91 | *22 | *9 |
| Georgia | 1,107 | 100 | 971 | 88 | 136 | 12 | 481 | 100 | 344 | 72 | 136 | 28 |
| Hawaii | 157 | 100 | 92 | 58 | *65 | *42 | 18 | 100 | 18 | 98 | ... | ... |
| Idaho | 350 | 100 | 206 | 59 | 144 | 41 | 187 | 100 | 122 | 65 | 65 | 35 |
| Illinois | 873 | 100 | 795 | 91 | 78 | 9 | 316 | 100 | 258 | 82 | *58 | *18 |
| Indiana | 768 | 100 | 663 | 86 | 106 | 14 | 272 | 100 | 237 | 87 | *35 | *13 |
| Iowa | 438 | 100 | 397 | 91 | *40 | *9 | 251 | 100 | 208 | 83 | *44 | *17 |
| Kansas | 404 | 100 | 319 | 79 | 85 | 21 | 271 | 100 | 183 | 68 | 88 | 32 |
| Kentucky | 721 | 100 | 580 | 80 | 141 | 20 | 291 | 100 | 241 | 83 | *50 | *17 |
| Louisiana | 702 | 100 | 590 | 84 | 112 | 16 | 270 | 100 | 241 | 89 | ... | ... |
| Maine | 351 | 100 | 220 | 63 | 131 | 37 | 175 | 100 | 146 | 83 | *29 | *17 |
| Maryland | 645 | 100 | 403 | 62 | 242 | 38 | 161 | 100 | 133 | 83 | *28 | *17 |
| Massachusetts | 497 | 100 | 398 | 80 | 99 | 20 | 73 | 100 | 57 | 79 | *16 | *21 |
| Michigan | 1,394 | 100 | 1,077 | 77 | 318 | 23 | 753 | 100 | 721 | 96 | *32 | *4 |
| Minnesota | 1,427 | 100 | 1,108 | 78 | 319 | 22 | 535 | 100 | 509 | 95 | *26 | *5 |
| Mississippi | 546 | 100 | 465 | 85 | 80 | 15 | 304 | 100 | 238 | 78 | *66 | *22 |
| Missouri | 1,076 | 100 | 871 | 81 | 206 | 19 | 608 | 100 | 540 | 89 | 69 | 11 |
| Montana | 291 | 100 | 172 | 59 | 119 | 41 | 197 | 100 | 145 | 74 | *52 | *26 |
| Nebraska | 198 | 100 | 169 | 85 | *29 | *15 | 118 | 100 | 102 | 86 | ... | ... |
| Nevada | 142 | 100 | 114 | 81 | *27 | *19 | 63 | 100 | 54 | 85 | ... | ... |
| New Hampshire | 230 | 100 | 108 | 47 | 122 | 53 | 61 | 100 | 51 | 85 | *9 | *15 |
| New Jersey | 654 | 100 | 458 | 70 | 197 | 30 | 89 | 100 | 72 | 81 | ... | ... |
| New Mexico | 248 | 100 | 164 | 66 | *84 | *34 | 99 | 100 | 66 | 67 | *32 | *33 |
| New York | 1,153 | 100 | 932 | 81 | 221 | 19 | 566 | 100 | 491 | 87 | 75 | 13 |
| North Carolina | 1,263 | 100 | 868 | 69 | 395 | 31 | 304 | 100 | 277 | 91 | *27 | *9 |
| North Dakota | 106 | 100 | 88 | 84 | ... | ... | 128 | 100 | 86 | 67 | *42 | *33 |
| Ohio | 1,256 | 100 | 1,145 | 91 | 112 | 9 | 500 | 100 | 467 | 93 | ... | ... |
| Oklahoma | 611 | 100 | 525 | 86 | 86 | 14 | 251 | 100 | 224 | 89 | *27 | *11 |
| Oregon | 576 | 100 | 455 | 79 | 122 | 21 | 237 | 100 | 218 | 92 | ... | ... |
| Pennsylvania | 994 | 100 | 830 | 83 | 164 | 17 | 1,044 | 100 | 933 | 89 | 111 | 11 |
| Rhode Island | 158 | 100 | 76 | 48 | 82 | 52 | 14 | 100 | 12 | 84 | ... | ... |
| South Carolina | 810 | 100 | 527 | 65 | 283 | 35 | 208 | 100 | 159 | 77 | *49 | *23 |
| South Dakota | 135 | 100 | 89 | 66 | 45 | 34 | 171 | 100 | 89 | 52 | 81 | 48 |
| Tennessee | 871 | 100 | 658 | 75 | 214 | 25 | 329 | 100 | 265 | 81 | *64 | *19 |
| Texas | 2,527 | 100 | 2,308 | 91 | 218 | 9 | 1,101 | 100 | 979 | 89 | 123 | 11 |
| Utah | 375 | 100 | 288 | 77 | 87 | 23 | 166 | 100 | 144 | 86 | *23 | *14 |
| Vermont | 114 | 100 | 64 | 56 | 50 | 44 | 73 | 100 | 56 | 76 | *17 | *24 |
| Virginia | 858 | 100 | 640 | 75 | 218 | 25 | 413 | 100 | 353 | 86 | *60 | *14 |
| Washington | 736 | 100 | 641 | 87 | 95 | 13 | 182 | 100 | 179 | 98 | ... | ... |
| West Virginia | 376 | 100 | 291 | 77 | 86 | 23 | 269 | 100 | 194 | 72 | *75 | *28 |
| Wisconsin | 1,394 | 100 | 1,014 | 73 | 381 | 27 | 697 | 100 | 649 | 93 | *48 | *7 |
| Wyoming | 203 | 100 | 96 | 47 | 107 | 53 | 102 | 100 | 50 | 49 | 52 | 51 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses. U.S. totals include responses from participants residing in the District of Columbia, as described in Appendix D.

# *Appendix A*



# *Appendix A. Definitions*

**Annual household income**—Total 2006 income of household members before taxes and other deductions.

**Around-the-home wildlife watching**—Activity within 1 mile of home with one of six primary purposes: (1) taking special interest in or trying to identify birds or other wildlife; (2) photographing wildlife; (3) feeding birds or other wildlife; (4) maintaining natural areas of at least 1/4 acre for the benefit of wildlife; (5) maintaining plantings (such as shrubs and agricultural crops) for the benefit of wildlife; and (6) visiting public land to observe, photograph, or feed wildlife.

**Auxiliary equipment**—Equipment owned primarily for wildlife-associated recreation. For the sportspersons section, these include sleeping bags, packs, duffel bags, tents, binoculars and field glasses, special fishing and hunting clothing, foul weather gear, boots and waders, maintenance and repair of equipment, and processing and taxidermy costs. For the wildlife-watching section, these include tents, tarps, frame packs, backpacking and other camping equipment, and blinds.

**Away-from-home wildlife watching**—Trips or outings at least 1 mile from home for the primary purpose of observing, photographing, or feeding wildlife. Trips to zoos, circuses, aquariums, and museums are not included.

**Big game**—Bear, deer, elk, moose, wild turkey, and similar large animals that are hunted.

## Census Divisions

**East North Central**
Illinois
Indiana
Michigan
Ohio
Wisconsin

**East South Central**
Alabama
Kentucky
Mississippi
Tennessee

**Middle Atlantic**
New Jersey
New York
Pennsylvania

**Mountain**
Arizona
Colorado
Idaho
Montana
Nevada
New Mexico
Utah
Wyoming

**New England**
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

**Pacific**
Alaska
California
Hawaii
Oregon
Washington

**South Atlantic**
Delaware
District of Columbia
Florida
Georgia
Maryland
North Carolina
South Carolina
Virginia
West Virginia

**West North Central**
Kansas
Iowa
Minnesota
Missouri
Nebraska
North Dakota
South Dakota

**West South Central**
Arkansas
Louisiana
Oklahoma
Texas

**Day**—Any part of a day spent participating in a given activity. For example, if someone hunted two hours one day and three hours another day, it would be reported as two days of hunting. If someone hunted two hours in the morning and three hours in the afternoon of the same day, it would be considered one day of hunting.

**Education**—The highest completed grade of school or year of college.

**Expenditures**—Money spent in 2006 for wildlife-related recreation trips in the United States, wildlife-related recreational equipment purchased in the United States, and other items. The "other items" were books and magazines, membership dues and contributions, land leasing or owning, hunting and fishing licenses, and plantings, all for the purpose of wildlife-related recreation. Expenditures included both money spent by participants for themselves and the value of gifts they received.

**Fishing**—The sport of catching or attempting to catch fish with a hook and line, bow and arrow, or spear; it also includes catching or gathering shellfish (clams, crabs, etc.); and the noncommercial seining or netting of fish, unless the fish are for use as bait. For example, seining for smelt is fishing, but seining for bait minnows is not included as fishing.

**Fishing equipment**—Items owned primarily for fishing:

- Rods, reels, poles, and rod-making components
- Lines and leaders
- Artificial lures, flies, baits, and dressing for flies or lines
- Hooks, sinkers, swivels, and other items attached to a line, except lures and baits
- Tackle boxes
- Creels, stringers, fish bags, landing nets, and gaff hooks
- Minnow traps, seines, and bait containers
- Depth finders, fish finders, and other electronic fishing devices
- Ice fishing equipment
- Other fishing equipment

**Freshwater**—Reservoirs, lakes, ponds, and the nontidal portions of rivers and streams.

**Great Lakes fishing**—Fishing in Lakes Superior, Michigan, Huron, St. Clair, Erie, and Ontario, their connecting waters such as the St. Mary's River system, Detroit River, St. Clair River, and the Niagara River, and the St. Lawrence River south of the bridge at Cornwall, New York. Great Lakes fishing includes fishing in tributaries of the Great Lakes for smelt, steelhead, and salmon.

**Home**—The starting point of a wildlife-related recreational trip. It may be a permanent residence or a temporary or seasonal residence such as a cabin.

**Hunting**—The sport of shooting or attempting to shoot wildlife with firearms or archery equipment.

**Hunting equipment**—Items owned primarily for hunting:

- Rifles, shotguns, muzzleloaders, and handguns
- Archery equipment
- Telescopic sights
- Decoys and game calls
- Ammunition
- Hand-loading equipment
- Hunting dogs and associated costs
- Other hunting equipment

**Land leasing and owning**—Leasing or owning land either singly or in cooperation with others for the primary purpose of fishing, hunting, or wildlife watching on it.

**Maintain natural areas**—To set aside 1/4 acre or more of natural environment, such as wood lots or open fields, for the primary purpose of benefiting wildlife. This is categorized as a wildlife-watching activity, not fishing or hunting.

**Maintain plantings**—To introduce or encourage the growth of food and cover plants for the primary purpose of benefiting wildlife. Examples of plantings are butterfly bushes and various sumacs. This is categorized as a wildlife-watching activity, not fishing or hunting.

**Metropolitan statistical area (MSA)**—Except in the New England States, an MSA is a county or group of contiguous counties containing at least one city of 50,000 or more inhabitants or twin cities (i.e., cities with contiguous boundaries and constituting, for general social and economic purposes, a single community) with a combined population of at least 50,000. Also included in an MSA are contiguous counties that are socially and economically integrated with the central city. In the New England States, an MSA consists of towns and cities instead of counties. Each MSA must include at least one central city. See U.S. Census Bureau publication *State and Metropolitan Area Data Book; 2006* for more detailed information on MSAs. It can be found at <http://www.census.gov /prod/2006pubs/smadb/smadb-06.pdf>.

**Migratory birds**—Birds that regularly migrate from one region or climate to another such as ducks, geese, and doves and other birds that may be hunted.

**Multiple responses**—The term used to reflect the fact that individuals or their characteristics fall into more than one reporting category. An example of a big game hunter who hunted for deer and elk demonstrates the effect of multiple responses. In this case, adding the number of deer hunters (one) and elk hunters (one) would overstate the number of big game hunters (one) because deer and elk hunters are not mutually exclusive categories. In contrast, total participants is the sum of male and female participants, because "male" and "female" are mutually exclusive categories.

**Nonresidents**—Individuals who do not live in the State being reported. For example, a person living in Texas who watches whales in California is a nonresidential wildlife-watcher in California.

**Nonresponse**—A term used to reflect the fact that some Survey respondents provide incomplete sets of information. For example, a Survey respondent may have been unable to identify the primary type of hunting for which a gun was bought. Total hunting expenditure estimates will include the gun purchase, but it will not appear as spending for big game or any other type of hunting. Nonresponses result in reported totals that are greater than the sum of their parts.

**Observe**—To take special interest in or try to identify birds, fish, or other wildlife.

**Other animals**—Coyotes, crows, foxes, groundhogs, prairie dogs, raccoons, and similar animals that can be legally hunted and are not classified as big game, small game, or migratory birds. They may be classified as unprotected or predatory animals by the State in which they are hunted. Feral pigs are classified as "other animals" in all States except Hawaii, where they are considered big game.

**Participants**—Individuals who engage in fishing, hunting, or a wildlife-watching activity. Unless otherwise stated, a person has to have hunted, fished, or wildlife watched in 2006 to be considered a participant.

**Plantings**—See "Maintain plantings."

**Primary purpose**—The principal motivation for an activity, trip, or expenditure.

**Private land**—Land that is owned by a private individual, group of individuals, or nongovernmental organization.

**Public land**—Land that is owned by local governments (such as county parks and municipal watersheds), State

governments (such as State parks and wildlife management areas), or federal governments (such as National Forests and Wildlife Refuges).

**Public parks or areas**—See "Public land."

**Residents**—Individuals who lived in the State being reported. For example, a person who lives in California and watches whales in California is a residential wildlife watcher in California.

**Rural**—All territory, population, and housing units located outside of urbanized areas and urban clusters, as determined by the Census Bureau.

**Saltwater**—Oceans, tidal bays and sounds, and the tidal portions of rivers and streams.

**Screening interviews**—The first Survey contact with a sample household. Screening interviews are conducted with a household representative to identify respondents who are eligible for in-depth interviews. Screening interviews gather data such as age and sex about individuals in the households. Further information on screening interviews is available on page vii in the "Survey Background and Method" section of this report.

**Small game**—Grouse, pheasants, quail, rabbits, squirrels, and similar small animals for which States have small game seasons and bag limits.

**Special equipment**—Big-ticket equipment items that are owned primarily for wildlife-related recreation:

- Bass boats
- Other types of motorboats
- Canoes and other types of non-motorboats
- Boat motors, boat trailer/hitches, and other boat accessories
- Pickups, campers, vans, travel or tent trailers, motor homes, house trailers, recreational vehicles (RVs)
- Cabins
- Off-the-road vehicles such as trail bikes, all terrain vehicles (ATVs), dune buggies, four-wheelers, 4x4 vehicles, and snowmobiles
- Other special equipment

**Spenders**—People who spent money on fishing, hunting, or wildlife-watching activities or equipment.

**Sportspersons**—Individuals who engage in fishing, hunting, or both.

**Trip**—An outing involving fishing, hunting, or wildlife watching. A trip may begin from an individual's principal residence or from another place, such as a vacation home or the home of a relative. A trip may last an hour, a day, or many days.

**Type of fishing**—There are three types of fishing: (1) freshwater except Great Lakes, (2) Great Lakes, and (3) saltwater.

**Type of hunting**—There are four types of hunting: (1) big game, (2) small game, (3) migratory bird, and (4) other animal.

**Unspecified expenditure**—An item that was purchased for use in both fishing and hunting, rather than primarily one or the other. Auxiliary equipment, special equipment, magazines and books, and membership dues and contributions are the items for which a purchase could be categorized as "unspecified."

**Urban**—All territory, population, and housing units located within boundaries that encompass densely settled territory, consisting of core census block groups or blocks that have a population density of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile. Under certain conditions, less densely settled territory may be included, as determined by the Census Bureau.

**Wildlife**—Animals, such as birds, fish, insects, mammals, amphibians, and reptiles that are living in natural or wild environments. Wildlife does not include animals living in aquariums, zoos, and other artificial surroundings or domestic animals such as farm animals or pets.

**Wildlife-associated recreation**—Recreational fishing, hunting, and wildlife watching.

**Wildlife watching**—There are six types of wildlife watching: (1) closely observing, (2) photographing, (3) feeding, (4) visiting public parks or areas, (5) maintaining plantings, and (6) maintaining natural areas. These activities must be the primary purpose of the trip or the around-the-home undertaking.

**Wildlife observed, photographed, or fed**—Examples of species that wildlife watchers observe, photograph, and/or feed are (1) Wild birds—songbirds such as cardinals, robins, warblers, jays, buntings, and sparrows; birds of prey such as hawks, owls, eagles, and falcons; waterfowl such as ducks, geese, and swans; other water birds such as shorebirds, herons, pelicans, and cranes; and other birds such as pheasants, turkeys, road runners, and woodpeckers; (2) Land mammals—large land mammals such as bears, bison, deer, moose, and elk; and small land mammals such as squirrels, foxes, prairie dogs, and rabbits; (3) Fish such as salmon, sharks, and groupers; (4) Marine mammals such as whales, dolphins, and manatees; and (5) Other wildlife such as butterflies, turtles, spiders, and snakes.

**Wildlife-watching equipment**—Items owned primarily for observing, photographing, or feeding wildlife:

- Binoculars and spotting scopes
- Cameras, video cameras, special lenses, and other photographic equipment
- Film and developing
- Commercially prepared and packaged wild bird food
- Other bulk food used to feed wild birds
- Food for other wildlife
- Nest boxes, bird houses, feeders, and baths
- Day packs, carrying cases, and special clothing
- Other items such as field guides and maps

# *Appendix B*

# *Appendix B.*
# *2005 Participation of 6- to 15-Year-Olds: Data From Screening Interviews*

The *2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* was carried out in two phases. The first (or screening) phase began in April 2006. The main purpose of this phase was to collect information about all persons 16 years old and older in order to develop a sample of potential sportspersons and wildlife watchers for the second (or detailed) phase. Also, information was collected on the number of persons 6 to 15 years old who participated in wildlife-related recreation activities in 2005.

It is important to emphasize that the information reported from the 2006 screen relates to activity only up to and including 2005. Also, these data are reported in most cases by one household respondent speaking for all household members rather than the actual participant. In addition, these data are based on long-term recall (at least a 12-month recall), which has been found in Survey research (Investigation of Possible Recall/Reference Period Bias in National Surveys of Fishing, Hunting, and Wildlife-Associated Recreation, December 1989, Westat, Inc.) to add bias to the resulting estimates. In many cases, longer recall periods result in overestimating participation and expenditures for wildlife-related recreation.

Tables B-1 through B-4 report data on 6-to-15-year-old participants in 2005. Detailed expenditure and recreational activity data were not gathered for the 6-to-15-year-old participants.

Because of differences in methodologies of the screening and the detailed phases of the 2006 Survey, resulting estimates are not comparable. Only participants 16 years old and older were eligible for the detailed phase. The detailed phase was a series of three interviews conducted at four-month intervals. The screening interviews were one year or more recall. The shorter recall period of the detailed phase had better data accuracy.

## Table B-1. **Missouri Residents 6 to 15 Years Old Participating in Fishing and Hunting Both Inside and Outside Missouri: 2005**

(State population 6 to 15 years old. Numbers in thousands)

| Sportspersons | Sportspersons 6 to 15 years old | | |
|---|---|---|---|
| | Number | Percent of sportspersons | Percent of population |
| **Total sportspersons** | **353** | **100** | **47** |
| **Total anglers** | **346** | **98** | **46** |
| Fished only | 289 | 82 | 38 |
| Fished and hunted | *57 | *16 | *8 |
| **Total hunters** | ***65** | ***18** | ***9** |
| Hunted only | ... | ... | ... |
| Hunted and fished | *57 | *16 | *8 |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Detail does not add to total because of multiple responses. Column showing percent of sportspersons is based on the ''Total sportspersons'' row. Column showing percent of population is based on the state population 6 to 15 years old, including those who did not fish or hunt. Data reported on this table are from screening interviews in which one adult household member responded for household members 6 to 15 years old. The screening interview required the respondent to recall 12 months' worth of activity. Includes state residents who fished or hunted only in other countries.

## Table B-2. **Selected Characteristics of Missouri Resident Anglers and Hunters 6 to 15 Years Old: 2005**

(State population 6 to 15 years old. Numbers in thousands)

| Characteristic | Population | | Sportspersons (fished or hunted) | | | Anglers | | | Hunters | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent who participated | Percent | Number | Percent who participated | Percent | Number | Percent who participated | Percent |
| **Total persons** | **756** | **100** | **353** | **47** | **100** | **346** | **46** | **100** | ***65** | ***9** | ***100** |
| **Population Density of Residence** | | | | | | | | | | | |
| Urban | 528 | 70 | 193 | 37 | 55 | 189 | 36 | 55 | *21 | *4 | *32 |
| Rural | 227 | 30 | 160 | 71 | 45 | 157 | 69 | 45 | *44 | *19 | *68 |
| **Population Size of Residence** | | | | | | | | | | | |
| Metropolitan statistical areas (MSA) | 555 | 73 | 239 | 43 | 68 | 232 | 42 | 67 | *41 | *7 | *63 |
| 1,000,000 or more | 432 | 57 | 187 | 43 | 53 | 185 | 43 | 54 | *29 | *7 | *45 |
| 250,000 to 999,999 | *67 | *9 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Less than 250,000 | *56 | *7 | *23 | *41 | *6 | ... | ... | ... | ... | ... | ... |
| Outside MSA | 201 | 27 | 114 | 57 | 32 | 114 | 57 | 33 | ... | ... | ... |
| **Sex** | | | | | | | | | | | |
| Male | 401 | 53 | 211 | 53 | 60 | 205 | 51 | 59 | *52 | *13 | *81 |
| Female | 355 | 47 | 142 | 40 | 40 | 141 | 40 | 41 | ... | ... | ... |
| **Age** | | | | | | | | | | | |
| 6 to 8 years | 262 | 35 | 127 | 48 | 36 | 127 | 48 | 37 | ... | ... | ... |
| 9 to 11 years | 202 | 27 | 102 | 51 | 29 | 102 | 51 | 30 | ... | ... | ... |
| 12 to 15 years | 292 | 39 | 124 | 43 | 35 | 117 | 40 | 34 | *40 | *14 | *61 |
| **Ethnicity** | | | | | | | | | | | |
| Hispanic | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Non-Hispanic | 727 | 96 | 341 | 47 | 97 | 334 | 46 | 97 | *61 | *8 | *95 |
| **Race** | | | | | | | | | | | |
| White | 641 | 85 | 325 | 51 | 92 | 318 | 50 | 92 | *61 | *10 | *95 |
| Black | 93 | 12 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| All others | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **Annual Household Income** | | | | | | | | | | | |
| Less than $10,000 | *68 | *9 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| $10,000 to $19,999 | *45 | *6 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| $20,000 to $29,999 | *67 | *9 | *37 | *55 | *10 | *37 | *55 | *11 | ... | ... | ... |
| $30,000 to $39,999 | 71 | 9 | *34 | *49 | *10 | *34 | *49 | *10 | ... | ... | ... |
| $40,000 to $49,999 | *77 | *10 | *39 | *51 | *11 | *37 | *49 | *11 | ... | ... | ... |
| $50,000 to $74,999 | 162 | 21 | 85 | 52 | 24 | 82 | 50 | 24 | ... | ... | ... |
| $75,000 or more | 167 | 22 | 112 | 67 | 32 | 112 | 67 | 32 | *21 | *13 | *33 |
| Not reported | 99 | 13 | ... | ... | ... | ... | ... | ... | ... | ... | ... |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Percent who participated shows the percent of each row's population who participated in the activity named by the column (the percent of those living in urban areas who fished, etc.). Remaining percent columns show the percent of each column's participants who are described by the row heading (the percent of anglers who lived in urban areas, etc.). Data reported on this table are from screening interviews in which one adult household member responded for household members 6 to 15 years old. The screening interview required the respondent to recall 12 months' worth of activity. Includes state residents who fished or hunted only in other countries.

## Table B-3. **Missouri Residents 6 to 15 Years Old Participating in Wildlife Watching Both Inside and Outside Missouri: 2005**

(State population 6 to 15 years old. Numbers in thousands)

| Participants | Number | Percent of participants | Percent of population |
|---|---|---|---|
| **Total participants** | **343** | **100** | **45** |
| Away from home | 130 | 38 | 17 |
| Around the home | 295 | 86 | 39 |
| Observe wildlife | 234 | 68 | 31 |
| Photograph wildlife | *41 | *12 | *5 |
| Feed wild birds or other wildlife | 196 | 57 | 26 |
| Maintain plantings or natural areas | *44 | *13 | *6 |

* Estimate based on a sample size of 10–29.

Note: Detail does not add to total because of multiple responses. The column showing percent of participants is based on total participants. The column showing percent of population is based on the state population 6 to 15 years old, including those who did not participate in wildlife watching. Data reported on this table are from screening interviews in which one adult household member responded for household members 6 to 15 years old. The screening interview required the respondent to recall 12 months' worth of activity. Includes state residents who wildlife watched only in other countries.

## Table B-4. **Selected Characteristics of Missouri Resident Wildlife Watchers 6 to 15 Years Old: 2005**

(State population 6 to 15 years old. Numbers in thousands)

| Characteristic | Population | | Total wildlife watchers | | | Away from home | | | Around the home | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent who participated | Percent | Number | Percent who participated | Percent | Number | Percent who participated | Percent |
| **Total persons** | **756** | **100** | **343** | **45** | **100** | **130** | **17** | **100** | **295** | **39** | **100** |
| **Population Density of Residence** | | | | | | | | | | | |
| Urban | 528 | 70 | 210 | 40 | 61 | *70 | *13 | *54 | 171 | 32 | 58 |
| Rural | 227 | 30 | 133 | 59 | 39 | *60 | *26 | *46 | 124 | 55 | 42 |
| **Population Size of Residence** | | | | | | | | | | | |
| Metropolitan statistical areas (MSA) | 555 | 73 | 241 | 43 | 70 | 80 | 14 | 62 | 217 | 39 | 74 |
| 1,000,000 or more | 432 | 57 | 192 | 44 | 56 | *55 | *13 | *42 | 174 | 40 | 59 |
| 250,000 to 999,999 | *67 | *9 | *33 | *49 | *9 | ... | ... | ... | ... | ... | ... |
| Less than 250,000 | *56 | *7 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Outside MSA | 201 | 27 | 102 | 51 | 30 | *50 | *25 | *38 | *78 | *39 | *26 |
| **Sex** | | | | | | | | | | | |
| Male | 401 | 53 | 192 | 48 | 56 | *73 | *18 | *56 | 162 | 40 | 55 |
| Female | 355 | 47 | 151 | 43 | 44 | *57 | *16 | *44 | 133 | 38 | 45 |
| **Age** | | | | | | | | | | | |
| 6 to 8 years | 262 | 35 | 120 | 46 | 35 | *40 | *15 | *31 | 110 | 42 | 37 |
| 9 to 11 years | 202 | 27 | 101 | 50 | 29 | *41 | *20 | *32 | 86 | 42 | 29 |
| 12 to 15 years | 292 | 39 | 122 | 42 | 36 | *49 | *17 | *37 | 99 | 34 | 34 |
| **Ethnicity** | | | | | | | | | | | |
| Hispanic | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Non-Hispanic | 727 | 96 | 334 | 46 | 97 | 120 | 17 | 93 | 286 | 39 | 97 |
| **Race** | | | | | | | | | | | |
| White | 641 | 85 | 301 | 47 | 88 | 118 | 18 | 91 | 253 | 39 | 86 |
| Black | 93 | 12 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| All others | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| **Annual Household Income** | | | | | | | | | | | |
| Less than $10,000 | *68 | *9 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| $10,000 to $19,999 | *45 | *6 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| $20,000 to $29,999 | *67 | *9 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| $30,000 to $39,999 | 71 | 9 | *31 | *43 | *9 | ... | ... | ... | *31 | *43 | *10 |
| $40,000 to $49,999 | *77 | *10 | *45 | *59 | *13 | ... | ... | ... | *42 | *54 | *14 |
| $50,000 to $74,999 | 162 | 21 | 84 | 52 | 24 | ... | ... | ... | 78 | 49 | 27 |
| $75,000 or more | 167 | 22 | 96 | 57 | 28 | *37 | *22 | *29 | 87 | 52 | 29 |
| Not reported | 99 | 13 | ... | ... | ... | ... | ... | ... | ... | ... | ... |

* Estimate based on a sample size of 10–29. ... Sample size too small to report data reliably.

Note: Percent who participated shows the percent of each row's population who participated in the activity named by the column (the percent of those living in urban areas who wildlife watched, etc.). Remaining percent columns show the percent of each column's participants who are described by the row heading (the percent of wildlife watchers who lived in urban areas, etc.). Data reported on this table are from screening interviews in which one adult household member responded for household members 6 to 15 years old. The screening interview required the respondent to recall 12 months' worth of activity. Includes state residents who wildlife watched only in other countries.

# *Appendix C*

# Appendix C.
# Significant Methodological Changes From Previous Surveys and Regional Trends

This appendix provides a description of data collection changes and national and regional trend information based on the 1991, 1996, 2001, and 2006 Surveys. Since these four surveys used similar methodologies, their published information is directly comparable.

## Significant Methodological Differences

The most significant design differences in the four surveys are as follows:

1. The 1991 Survey data were collected by interviewers filling out paper questionnaires. The data entries were keyed in a separate operation after the interview. The 1996, 2001, and 2006 Survey data were collected by the use of computer-assisted interviews. The questionnaires were programmed into computers, and the interviewer keyed in the responses at the time of the interview.

2. The 1991 Survey screening phase was conducted in January and February 1991, when the sample households were contacted and a household respondent was interviewed on behalf of the entire household. The screening interviews for the 1996, 2001, and 2006 Surveys were conducted April through June of their survey years in conjunction with the first wave of the detailed interviews. The screening interviews for all four surveys consisted primarily of demographic questions and wildlife-related recreation questions concerning activity in the previous year (1990, 1995, etc.) and intentions for recreating in the survey year.

In the 1991 Survey, an attempt was made to contact every sample person in all three detailed interview waves. In 1996, 2001, and 2006, respondents who were interviewed in the first detailed interview wave were not contacted again until the third wave. Also, all interviews in the second wave were conducted by telephone. In-person interviews were only conducted in the first and third waves.

**Section I. Important Instrument Changes in the 1996 Survey**

1. The 1991 Survey collected information on all wildlife-related recreation purchases made by participants without reference to where the purchase was made. The 1996 Survey asked in which state the purchase was made.

2. In 1991, respondents were asked what kind of fishing they did, i.e., Great Lakes, other freshwater, or saltwater, and then were asked in what states they fished. In 1996, respondents were asked in which states they fished and then were asked what kind of fishing they did. This method had the advantage of not asking about, for example, saltwater fishing when they only fished in a noncoastal state.

3. In 1991, respondents were asked how many days they "actually" hunted or fished for a particular type of game or fish and then how many days they "chiefly" hunted or fished for the same type of game or fish rather than another type of game or fish. To get total days of hunting or fishing for a particular type of game or fish, the "actually" day response was used, while to get the sum of all days of hunting or fishing, the "chiefly" days were summed. In 1996, respondents were asked their total days of hunting or fishing in the country and each state, then how many days they hunted or fished for a particular type of game or fish.

4. Trip-related and equipment expenditure categories were not the same for all Surveys. "Guide fee" and "Pack trip or package fee" were two separate trip-related expenditure items in 1991, while they were combined into one category in the 1996 Survey. "Boating costs" was added to the 1996 hunting and wildlife-watching trip-related expenditure sections. "Heating and cooking fuel" was added to all of the trip-related expenditure sections. "Spearfishing equipment" was moved from a separate category to the "other" list. "Rods" and "Reels" were two separate categories in 1991 but were combined in 1996. "Lines, hooks, sinkers, etc." was one category in 1991 but split into "Lines" and "Hooks, sinkers, etc." in 1996. "Food used to feed other wildlife" was added to the wildlife-watching equipment section; "Boats" and "Cabins" were added to the wildlife-watching special equipment section; and "Land leasing and ownership" was added to the wildlife-watching expenditures section.

5. Questions asking sportspersons if they participated as much as they wanted were added in 1996. If the sportspersons said no, they were asked why not.

6. The 1991 Survey included questions about participation in organized fishing competitions; anglers using bows and arrows, nets or seines, or spearfishing; hunters using pistols or handguns and target shooting in preparation for hunting. These questions were not asked in 1996.

7. The 1996 Survey included questions about catch and release fishing and persons with disabilities participating in wildlife-related recreation. These questions were not part of the 1991 Survey.

8. The 1991 Survey included questions about average distance traveled to recreation sites. These questions were not included in the 1996 Survey.

9. The 1996 Survey included questions about the last trip the respondent took. Included were questions about the type of trip, where the activity took place, and the distance and direction to the site visited. These questions were not asked in 1991.

10. The 1991 Survey collected data on hunting, fishing, and wildlife watching by U.S. residents in Canada. The 1996 Survey collected data on fishing and wildlife watching by U.S. residents in Canada.

**Section II. Important Instrument Changes in the 2001 Survey**

1. The 1991 and 1996 single-race category "Asian or Pacific Islander" was changed to two categories—"Asian" and "Native Hawaiian or Other Pacific Islander." In 1991 and 1996, the respondent was required to pick only one category, while in 2001 the respondent could pick any combination of categories. The next question stipulated that the respondent could only be identified with one category and then asked what that category was.

2. The 1991 and 1996 land leasing and ownership sections asked the respondent to combine the two types of land use into one and give total acreage and expenditures. In 2001, the two types of land use were explored separately.

3. The 1991 and 1996 wildlife-watching sections included questions on birdwatching for residential users only. The 2001 Survey added a question on birdwatching for nonresidential users. Also, questions on the use of birding life lists and how many species the respondent can identify were added.

4. "Recreational vehicles" was added to the sportspersons and wildlife-watchers special equipment section. "House trailer" was added to the sportspersons special equipment section.

5. Total personal income was asked in the detailed phase of the 1996 Survey. This was changed to total household income in the 2001 Survey.

6. A question was added to the trip-related expenditures section to ascertain how much of the total was spent in the respondent's state of residence when the respondent participated in hunting, fishing, or wildlife watching out of state.

7. Boating questions were added to the fishing section. The respondent was asked about the extent of boat usage for the three types of fishing.

8. The 1996 Survey included questions about the months residential wildlife watchers fed birds. These questions were not repeated in the 2001 Survey.

9. The contingent valuation sections of the three types of wildlife-related recreation were altered, using an open-ended question format instead of the dichotomous choice format used in 1996.

**Section III. Important Instrument Changes in the 2006 Survey**

1. A series of boating questions was added. The new questions dealt with anglers using motorboats and/or non-motorboats, length of boat used most often, distance to boat launch used most often, needed improvements to facilities at the launch, whether or not the respondent completed a boating safety course, who the boater fished with most often, and the source and type of information the boater used for his or her fishing.

2. Questions regarding catch and release fishing were added. Whether or not the respondent caught and released fish and, if so, the percent of fish released.

3. The proportion of hunting done with a rifle or shotgun, as contrasted with muzzleloader or archery equipment, was asked.

4. In the contingent valuation section, where the value of wildlife-related recreation was determined, two quality-variable questions were added: the average length of certain fish caught and whether a deer, elk, or moose was killed. Plus, the economic evaluation bid questions were rephrased, from "What is the most your [species] hunting in [State name] could have cost you per trip last year before you would NOT have gone [species] hunting at all in 2001, not even one trip, because it would have been too expensive?," for the hunters, for example, to "What is the cost that would have prevented you from taking even one such trip in 2006? In other words, if the trip cost was below this amount, you would have gone [species] hunting in [State name], but if the trip cost was above this amount, you would not have gone."

5. Questions concerning hunting, fishing, or wildlife watching in other countries were taken out of the Survey.

6. Questions about the reasons for not going hunting or fishing, or not going as much as expected, were deleted.

7. Disability of participants questions were taken out.

8. Determination of the types of sites for wildlife watching was discontinued.

9. The birding questions regarding the use of birding life lists and the ability to identify birds based on their sight or sounds were deleted.

10. Public transportation costs were divided into two sections, "public transportation by airplane" and "other public transportation, including trains, buses, and car rentals, etc."

## National and Regional Trends

### Fishing and Hunting

Comparing national hunting and fishing estimates for 1991 to 2006 finds participation declining over the entire time period. In 1991 and 1996, the number of people who hunted and fished remained essentially unchanged. In 2001, the number of sportspersons fell compared to the two previous survey estimates. In 2006, the number of anglers continued to decline and the number of hunters was stable.

The amount of time people spent fishing and hunting fluctuated between 1991 and 2006. The number of days spent fishing rose 22 percent between 1991 and 1996, fell 11 percent between 1996 and 2001, and fell 7 percent further between 2001 and 2006. Days of hunting followed a similar pattern. Between 1991 and 1996, hunting days increased 9 percent (although this increase was not statistically significant) but then fell 11 percent between 1996 and 2001 and a further 4 percent (this was not statistically significant either) between 2001 and 2006.

The amount of money spent for fishing and hunting trips and equipment rose from 1991 to 1996, fell from 1996 to 2001, and stayed level from 2001 to 2006. The comparisons are in constant dollars.

### Wildlife Watching

There were differing trend lines from 1991 to 2006 for the two major types of wildlife watching. The number of overall wildlife watchers decreased 17 percent from 1991 to 1996, increased 5 percent from 1996 to 2001, and increased 8 percent from 2001 to 2006. Around-the-home wildlife watching, the most popular type of wildlife watching, led this trend with an 18 percent drop from 1991 to 1996, a 4 percent increase from 1996 to 2001, and an 8 percent increase from 2001 to 2006. Away-from-home wildlife watching, on the other hand, dropped from 1991 to 2001 (21 percent from 1991 to 1996 and 8 percent from 1996 to 2001) and stayed level with a statistically insignificant 5 percent increase from 2001 to 2006. Days afield by away-from-home wildlife watchers were significantly up from 1996 to 2001 and statistically stable the other time periods. Overall expenditures for wildlife watching increased 21 percent from 1991 to 1996 and 16 percent from 1996 to 2001 and decreased a statistically insignificant 7 percent from 2001 to 2006.

## Table C-1a. **Comparison of Wildlife-Related Recreation in the United States: 1991–1996**

(U.S. population 16 years old and older. Numbers in thousands. All expenditures in 2006 dollars. 1996 expenditure categories made comparable to 1991)

| Participants, days, and expenditures | 1991 (Number) | 1996 (Number) | 1991–1996 percent change |
|---|---|---|---|
| **Hunting** | | | |
| Hunters, total | 14,063 | 13,975 | –1* |
| Hunting days, total | 235,806 | 256,676 | 9* |
| Hunting expenditures, total | $18,282,597 | $26,224,069 | 43 |
| **Fishing** | | | |
| Anglers, total | 35,578 | 35,246 | –1* |
| Fishing days, total | 511,329 | 625,893 | 22 |
| Fishing expenditures, total | $35,553,365 | $48,598,400 | 37 |
| **Wildlife Watching** | | | |
| Wildlife watchers, total | 76,111 | 62,868 | –17 |
| Around the home | 73,904 | 60,751 | –18 |
| Away from home | 29,999 | 23,652 | –21 |
| Wildlife-watching days, away from home | 342,406 | 313,790 | –8* |
| Wildlife-watching expenditures, total | $27,402,180 | $33,093,660 | 21 |

* Not different from zero at the 5 percent level of significance.

## Table C-1b. **Comparison of Wildlife-Related Recreation in the United States: 1996–2001**

(U.S. population 16 years old and older. Numbers in thousands. All expenditures in 2006 dollars. 1996 and 2001 expenditure categories made comparable to 1991)

| Participants, days, and expenditures | 1996 (Number) | 2001 (Number) | 1996–2001 percent change |
|---|---|---|---|
| **Hunting** | | | |
| Hunters, total | 13,975 | 13,034 | –7 |
| Hunting days, total | 256,676 | 228,368 | –11 |
| Hunting expenditures, total | $26,224,069 | $23,296,904 | –11* |
| **Fishing** | | | |
| Anglers, total | 35,246 | 34,071 | –3 |
| Fishing days, total | 625,893 | 557,394 | –11 |
| Fishing expenditures, total | $48,598,400 | $40,399,711 | –17 |
| **Wildlife Watching** | | | |
| Wildlife watchers, total | 62,868 | 66,105 | 5 |
| Around the home | 60,751 | 62,928 | 4 |
| Away from home | 23,652 | 21,823 | –8 |
| Wildlife-watching days, away from home | 313,790 | 372,006 | 19 |
| Wildlife-watching expenditures, total | $33,093,660 | $38,453,190 | 16 |

* Not different from zero at the 5 percent level of significance.

## Table C-1c. **Comparison of Wildlife-Related Recreation in the United States: 2001–2006**

(U.S. population 16 years old and older. Numbers in thousands. All expenditures in 2006 dollars. 2001 and 2006 expenditure categories made comparable to 1991)

| Participants, days, and expenditures | 2001 (Number) | 2006 (Number) | 2001–2006 percent change |
|---|---|---|---|
| **Hunting** | | | |
| Hunters, total | 13,034 | 12,510 | –4* |
| Hunting days, total | 228,368 | 219,925 | –4* |
| Hunting expenditures, total | $23,296,904 | $22,644,048 | –3* |
| **Fishing** | | | |
| Anglers, total | 34,071 | 29,952 | –12 |
| Fishing days, total | 557,394 | 516,781 | –7 |
| Fishing expenditures, total | $40,399,711 | $42,042,188 | 4* |
| **Wildlife Watching** | | | |
| Wildlife watchers, total | 66,105 | 71,132 | 8 |
| Around the home | 62,928 | 67,756 | 8 |
| Away from home | 21,823 | 22,977 | 5* |
| Wildlife-watching days, away from home | 372,006 | 352,070 | –5* |
| Wildlife-watching expenditures, total | $38,453,190 | $35,870,403 | –7* |

* Not different from zero at the 5 percent level of significance.

## Table C-1d. **Comparison of Wildlife-Related Recreation in the United States: 1991–2006**

(U.S. population 16 years old and older. Numbers in thousands. All expenditures in 2006 dollars. 2006 expenditure categories made comparable to 1991)

| Participants, days, and expenditures | 1991 (Number) | 2006 (Number) | 1991–2006 percent change |
|---|---|---|---|
| **Hunting** | | | |
| Hunters, total | 14,063 | 12,510 | –11 |
| Hunting days, total | 235,806 | 219,925 | –7* |
| Hunting expenditures, total | $18,282,597 | $22,644,048 | 24 |
| **Fishing** | | | |
| Anglers, total | 35,578 | 29,952 | –16 |
| Fishing days, total | 511,329 | 516,781 | 1* |
| Fishing expenditures, total | $35,553,365 | $42,042,188 | 18 |
| **Wildlife Watching** | | | |
| Wildlife watchers, total | 76,111 | 71,132 | –7 |
| Around the home | 73,904 | 67,756 | –8 |
| Away from home | 29,999 | 22,977 | –23 |
| Wildlife-watching days, away from home | 342,406 | 352,070 | 3* |
| Wildlife-watching expenditures, total | $27,402,180 | $35,870,403 | 31 |

* Not different from zero at the 5 percent level of significance.

## Table C-2. **Anglers and Hunters by Census Division: 1991, 1996, 2001, and 2006**

(U.S. population 16 years old and older. Numbers in thousands)

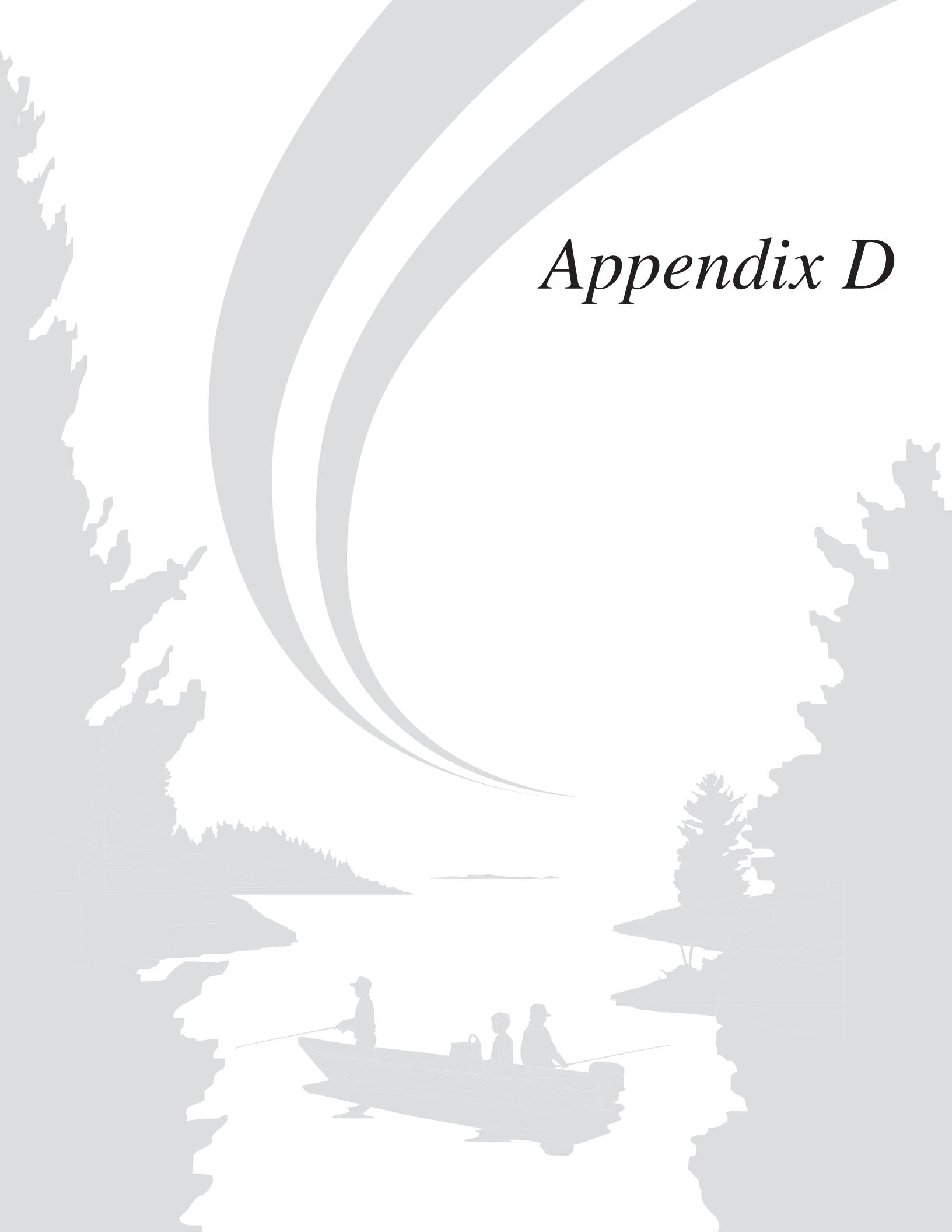
| Area and sportsperson | 1991 | | 1996 | | 2001 | | 2006 | |
|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| **UNITED STATES** | | | | | | | | |
| Total population | 189,964 | 100 | 201,472 | 100 | 212,298 | 100 | 229,245 | 100 |
| Sportspersons | 39,979 | 21 | 39,694 | 20 | 37,805 | 18 | 33,916 | 15 |
| Anglers | 35,578 | 19 | 35,246 | 17 | 34,067 | 16 | 29,952 | 13 |
| Hunters | 14,063 | 7 | 13,975 | 7 | 13,034 | 6 | 12,510 | 5 |
| **New England** | | | | | | | | |
| Total population | 10,180 | 100 | 10,306 | 100 | 10,575 | 100 | 11,233 | 100 |
| Sportspersons | 1,658 | 16 | 1,673 | 16 | 1,504 | 14 | 1,353 | 12 |
| Anglers | 1,545 | 15 | 1,520 | 15 | 1,402 | 13 | 1,246 | 11 |
| Hunters | 444 | 4 | 465 | 5 | 386 | 4 | 374 | 3 |
| **Middle Atlantic** | | | | | | | | |
| Total population | 29,216 | 100 | 29,371 | 100 | 29,806 | 100 | 31,518 | 100 |
| Sportspersons | 4,508 | 15 | 4,192 | 14 | 3,810 | 13 | 3,214 | 10 |
| Anglers | 3,871 | 13 | 3,627 | 12 | 3,250 | 11 | 2,550 | 8 |
| Hunters | 1,746 | 6 | 1,453 | 5 | 1,633 | 5 | 1,520 | 5 |
| **East North Central** | | | | | | | | |
| Total population | 32,188 | 100 | 33,121 | 100 | 34,082 | 100 | 35,609 | 100 |
| Sportspersons | 7,202 | 22 | 6,912 | 21 | 6,400 | 19 | 5,975 | 17 |
| Anglers | 6,264 | 19 | 6,006 | 18 | 5,655 | 17 | 5,190 | 15 |
| Hunters | 2,789 | 9 | 2,712 | 8 | 2,421 | 7 | 2,376 | 7 |
| **West North Central** | | | | | | | | |
| Total population | 13,504 | 100 | 13,875 | 100 | 14,430 | 100 | 15,458 | 100 |
| Sportspersons | 4,143 | 31 | 3,977 | 29 | 4,239 | 29 | 3,836 | 25 |
| Anglers | 3,647 | 27 | 3,416 | 25 | 3,836 | 27 | 3,284 | 21 |
| Hunters | 1,709 | 13 | 1,917 | 14 | 1,710 | 12 | 1,779 | 12 |
| **South Atlantic** | | | | | | | | |
| Total population | 33,682 | 100 | 36,776 | 100 | 39,286 | 100 | 43,965 | 100 |
| Sportspersons | 6,996 | 21 | 7,282 | 20 | 6,957 | 18 | 6,633 | 15 |
| Anglers | 6,441 | 19 | 6,636 | 18 | 6,451 | 16 | 6,116 | 14 |
| Hunters | 2,083 | 6 | 2,050 | 6 | 1,875 | 5 | 1,884 | 4 |
| **East South Central** | | | | | | | | |
| Total population | 11,667 | 100 | 12,459 | 100 | 12,976 | 100 | 13,722 | 100 |
| Sportspersons | 2,984 | 26 | 2,907 | 23 | 2,865 | 22 | 2,689 | 20 |
| Anglers | 2,635 | 23 | 2,514 | 20 | 2,543 | 20 | 2,436 | 18 |
| Hunters | 1,279 | 11 | 1,301 | 10 | 1,164 | 9 | 1,101 | 8 |
| **West South Central** | | | | | | | | |
| Total population | 19,926 | 100 | 21,811 | 100 | 23,337 | 100 | 25,407 | 100 |
| Sportspersons | 5,125 | 26 | 5,093 | 23 | 4,924 | 21 | 4,499 | 18 |
| Anglers | 4,592 | 23 | 4,616 | 21 | 4,375 | 19 | 3,952 | 16 |
| Hunters | 1,843 | 9 | 1,812 | 8 | 1,988 | 9 | 1,810 | 7 |
| **Mountain** | | | | | | | | |
| Total population | 10,092 | 100 | 11,966 | 100 | 13,308 | 100 | 15,651 | 100 |
| Sportspersons | 2,488 | 25 | 2,761 | 23 | 2,757 | 21 | 2,372 | 15 |
| Anglers | 2,079 | 21 | 2,411 | 20 | 2,443 | 18 | 2,084 | 13 |
| Hunters | 1,069 | 11 | 1,061 | 9 | 1,020 | 8 | 868 | 6 |
| **Pacific** | | | | | | | | |
| Total population | 29,508 | 100 | 31,787 | 100 | 34,498 | 100 | 36,681 | 100 |
| Sportspersons | 4,875 | 17 | 4,897 | 15 | 4,349 | 13 | 3,345 | 9 |
| Anglers | 4,505 | 15 | 4,501 | 14 | 4,111 | 12 | 3,094 | 8 |
| Hunters | 1,101 | 4 | 1,203 | 4 | 837 | 2 | 798 | 2 |

## Table C-3. **Wildlife-Watching Participants by Census Division: 1991, 1996, 2001, and 2006**

(Numbers in thousands. Population 16 years old and older)

| Area and wildlife watcher | 1991 | | 1996 | | 2001 | | 2006 | |
|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| **UNITED STATES** | | | | | | | | |
| Total population | 189,964 | 100 | 201,472 | 100 | 212,298 | 100 | 229,245 | 100 |
| Total wildlife watchers | 76,111 | 40 | 62,868 | 31 | 66,105 | 31 | 71,132 | 31 |
| Away from home | 29,999 | 16 | 23,652 | 12 | 21,823 | 10 | 22,977 | 10 |
| Around the home | 73,904 | 39 | 60,751 | 30 | 62,928 | 30 | 67,756 | 30 |
| **New England** | | | | | | | | |
| Total population | 10,180 | 100 | 10,306 | 100 | 10,575 | 100 | 11,233 | 100 |
| Total wildlife watchers | 4,598 | 45 | 3,710 | 36 | 3,875 | 37 | 4,489 | 40 |
| Away from home | 1,856 | 18 | 1,443 | 14 | 1,155 | 11 | 1,340 | 12 |
| Around the home | 4,544 | 45 | 3,586 | 35 | 3,765 | 36 | 4,310 | 38 |
| **Middle Atlantic** | | | | | | | | |
| Total population | 29,216 | 100 | 29,371 | 100 | 29,806 | 100 | 31,518 | 100 |
| Total wildlife watchers | 10,556 | 36 | 8,185 | 28 | 8,740 | 29 | 8,723 | 28 |
| Away from home | 4,166 | 14 | 2,960 | 10 | 2,849 | 10 | 2,729 | 9 |
| Around the home | 10,282 | 35 | 8,023 | 27 | 8,452 | 28 | 8,451 | 27 |
| **East North Central** | | | | | | | | |
| Total population | 32,188 | 100 | 33,121 | 100 | 34,082 | 100 | 35,609 | 100 |
| Total wildlife watchers | 14,511 | 45 | 11,731 | 35 | 11,631 | 34 | 12,215 | 34 |
| Away from home | 5,572 | 17 | 4,501 | 14 | 3,571 | 10 | 3,792 | 11 |
| Around the home | 14,175 | 44 | 11,297 | 34 | 11,196 | 33 | 11,845 | 33 |
| **West North Central** | | | | | | | | |
| Total population | 13,504 | 100 | 13,875 | 100 | 14,430 | 100 | 15,458 | 100 |
| Total wildlife watchers | 6,924 | 51 | 5,089 | 37 | 6,206 | 43 | 6,741 | 44 |
| Away from home | 2,654 | 20 | 1,927 | 14 | 2,059 | 14 | 2,163 | 14 |
| Around the home | 6,722 | 50 | 4,900 | 35 | 5,938 | 41 | 6,447 | 42 |
| **South Atlantic** | | | | | | | | |
| Total population | 33,682 | 100 | 36,776 | 100 | 39,286 | 100 | 43,965 | 100 |
| Total wildlife watchers | 13,047 | 39 | 11,252 | 31 | 11,395 | 29 | 12,862 | 29 |
| Away from home | 4,450 | 13 | 3,992 | 11 | 3,469 | 9 | 3,208 | 7 |
| Around the home | 12,813 | 38 | 10,964 | 30 | 10,911 | 28 | 12,432 | 28 |
| **East South Central** | | | | | | | | |
| Total population | 11,667 | 100 | 12,459 | 100 | 12,976 | 100 | 13,722 | 100 |
| Total wildlife watchers | 4,864 | 42 | 3,904 | 31 | 4,514 | 35 | 4,931 | 36 |
| Away from home | 1,592 | 14 | 1,118 | 9 | 1,086 | 8 | 1,758 | 13 |
| Around the home | 4,765 | 41 | 3,795 | 30 | 4,390 | 34 | 4,683 | 34 |
| **West South Central** | | | | | | | | |
| Total population | 19,926 | 100 | 21,811 | 100 | 23,337 | 100 | 25,407 | 100 |
| Total wildlife watchers | 7,035 | 35 | 5,933 | 27 | 5,747 | 25 | 6,764 | 27 |
| Away from home | 2,459 | 12 | 2,096 | 10 | 1,822 | 8 | 2,127 | 8 |
| Around the home | 6,817 | 34 | 5,773 | 26 | 5,490 | 24 | 6,319 | 25 |
| **Mountain** | | | | | | | | |
| Total population | 10,092 | 100 | 11,966 | 100 | 13,308 | 100 | 15,651 | 100 |
| Total wildlife watchers | 4,437 | 44 | 4,099 | 34 | 4,619 | 35 | 4,968 | 32 |
| Away from home | 2,215 | 22 | 1,967 | 16 | 2,019 | 15 | 2,004 | 13 |
| Around the home | 4,145 | 41 | 3,855 | 32 | 4,282 | 32 | 4,605 | 29 |
| **Pacific** | | | | | | | | |
| Total population | 29,508 | 100 | 31,787 | 100 | 34,498 | 100 | 36,681 | 100 |
| Total wildlife watchers | 10,139 | 34 | 8,966 | 28 | 9,377 | 27 | 9,439 | 26 |
| Away from home | 5,035 | 17 | 3,648 | 11 | 3,793 | 11 | 3,856 | 11 |
| Around the home | 9,641 | 33 | 8,558 | 27 | 8,504 | 25 | 8,664 | 24 |

# *Appendix D*



# *Appendix D. Sample Design and Statistical Accuracy*

This appendix is presented in two parts. The first part is the U.S. Census Bureau Source and Accuracy Statement. This statement describes the sampling design for the 2006 Survey and highlights the steps taken to produce estimates from the completed questionnaires. The statement explains the use of standard errors and confidence intervals. It also provides comprehensive information about errors characteristic of surveys and formulas and parameters to calculate an approximate standard error or confidence interval for each number published in this report. The second part reports approximate standard errors for selected measures of participation and expenditures for wildlife-related recreation. Tables D-1 to D-3 show common estimates by state with their estimated standard errors. Tables D-4 to D-9 provide parameters for computing standard errors.

**Source and Accuracy Statement for the Missouri State Report of the *2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation***

## SOURCE OF DATA

The estimates in this report are based on data collected in the *2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* (FHWAR) conducted by the Census Bureau and sponsored by the U.S. Fish and Wildlife Service.

The eligible universe for the FHWAR is the civilian noninstitutionalized and nonbarrack military population living in the United States. The institutionalized population, which is excluded from the population universe, is composed primarily of the population in correctional institutions and nursing homes (91 percent of the 4.1 million institutionalized people in Census 2000).

The 2006 Survey was designed to provide state-level estimates of the number of participants in recreational hunting and fishing and in wildlife-watching activities (e.g., wildlife observation). Information was collected on the number of participants, where and how often they participated, the type of wildlife encountered, and the amounts of money spent on wildlife-related recreation.

The Survey was conducted in two stages: an initial screening of households to identify likely sportspersons and wildlife-watching participants and a series of follow-up interviews of selected persons to collect detailed data about their wildlife-related recreation during 2006.

## SAMPLE DESIGN

The 2006 FHWAR sample was selected from the Census Bureau's master address file (MAF) and unused sample of the Current Population Survey (CPS). The CPS sample was used to improve coverage in rural areas of some states.

The FHWAR is a multistage probability sample, with coverage in all 50 states and the District of Columbia. In the first stage of the sampling process, primary sampling units (PSUs) are selected for sample. The PSUs are defined to correspond to the Office of Management and Budget definitions of Core Based Statistical Area definitions and to improve efficiency in field operations. The United States is divided into 2,025 PSUs. These PSUs are grouped into 824 strata. Within each stratum, a single PSU is chosen for the sample, with its probability of selection proportional to its population as of the most recent decennial census. This PSU represents the entire stratum from which it was selected. In the case of strata consisting of only one PSU, the PSU is chosen with certainty.

Within the selected PSUs, the FHWAR sample was selected from the MAF where sufficient coverage of addresses existed. In some rural areas, the sample was selected from unused cases from the CPS to improve coverage.

**FHWAR Screening Sample**

The total screening sample in Missouri consisted of **1,300** households. Interviewing for the screen was conducted during April, May, and June 2006. Of all housing units in sample, about **1,094** were determined to be eligible for interview. Interviewers obtained interviews at **985** of these units for a state response rate of **90** percent. Local field representatives conducted interviews by telephone when possible, otherwise through a personal visit. The field representatives asked screening questions for all household members 6 years old and older. Noninterviews occur when the occupants are not found at home after repeated calls or are unavailable for some other reason.

Data for the FHWAR sportspersons sample and wildlife-watchers sample were collected in three waves. The first wave started in April 2006, the second in September 2006, and the third in January 2007. In the sportspersons sample, all persons who hunted or fished in 2006 by the time of the screening interview were interviewed in the first wave. The remaining sportspersons in sample were interviewed in the second wave. A subsampling operation was conducted before the third wave of sampling to reduce cost of the Survey, and everyone remaining in sample was interviewed in the third wave.

The reference period was the preceding 4 months for waves 1 and 2. In wave 3, the reference period was either 4, 8, or 12 months depending on when the sample person was first interviewed.

**Detailed Samples**

Two independent detailed samples were chosen from the FHWAR screening sample. One consisted of sportspersons (people who hunt or fish) and the other of wildlife watchers (people who observe, photograph, or feed wildlife).

**A. Sportspersons**

The Census Bureau selected the detailed samples based on information reported during the screening phase. Based on information collected from the household respondent, every person 16 years old and older in the FHWAR screening sample was assigned to a sportspersons stratum. The criteria for the strata included time devoted to hunting or fishing in previous years, participation in hunting or fishing in 2006 by the time of the screening interview, and intentions to participate in hunting and fishing activities during the remainder of 2006. The four sportspersons categories were:

1. *Active*—a person who had already participated in hunting or fishing in 2006 at the time of the screener interview.

2. *Likely*—a person who had not participated in 2006 at the time of the screener, but had participated in 2005 OR was likely to participate in 2006.

3. *Inactive*—a person who had not participated in 2005 or 2006 AND was somewhat unlikely to participate in 2006.

4. *Nonparticipant*—a person who had not participated in 2005 or 2006 AND was very unlikely to participate in 2006.

Persons were selected for the detailed phase based on these groupings.

Active sportspersons were given the detailed interview twice—at the time of the screening interview (in April, May, or June 2006) and again in January or February 2007. Likely sportspersons and a subsample of the inactive sportspersons were also interviewed twice—first in September or October 2006, then in January or February 2007. If Census Bureau field representatives were not able to obtain the first interview, they attempted to interview the person in the final interviewing period with the reference period being the entire year. Persons in the nonparticipant group were not eligible for a detailed interview.

About **609** persons were designated for interviews in Missouri. The detailed sportspersons sample sizes varied by state to get reliable state-level estimates. During each interview period, about **16** percent of the designated persons were not found at home or were unavailable for some other reason. Overall, about **510** detailed sportspersons interviews were completed at a response rate of **84** percent.

**B. Wildlife Watchers**

The wildlife-watching detailed sample was also selected based on information reported during the screening phase. Based on information collected from the household respondent, every person 16 years old and older was assigned to a stratum. The criteria for the strata included time devoted to wildlife-watching activities in previous years, participation in wildlife-watching activities in 2006 by the time of the screening interview, and intentions to participate in wildlife-watching activities during the remainder of 2006. The five wildlife-watching categories were:

1. *Active*—a person who had already participated in 2006 at the time of the screening interview.

2. *Avid*—a person who had not yet participated in 2006, but in 2005 had taken trips to participate in wildlife-watching activities for 21 or more days or had spent $300 or more.

3. *Average*—a person who had not yet participated in 2006, but in 2005 had taken trips to wildlife watch for less than 21 days and had spent less than $300 OR had not participated in wildlife-watching activities but was very likely to in the remainder of 2006.

4. *Infrequent*—a person who had not participated in 2005 or 2006, but was somewhat likely or somewhat unlikely to participate in the remainder of 2006.

5. *Nonparticipant*—a person who had not participated in 2005 or 2006 AND was very unlikely to participate during the remainder of 2006.

Persons were selected for the detailed sample based on these groupings, but persons in the nonparticipant group were not eligible for a detailed interview. A subsample of each of the other groups was selected to receive a detailed interview with the chance of selection diminishing as the likelihood of participation diminished.

Wildlife-watching participants were given the detailed interview twice. Some received their first detailed interview at the same time as the screening interview (in April, May, or June 2006). The rest received their first detailed interview in September or October 2006. All wildlife-watching participants received their second interview in January or February 2007. If Census Bureau field representatives were not able to obtain the first interview, they attempted to interview the person in the final interviewing period with the reference period being the entire year.

About **258** persons were designated for interviews in Missouri. The detailed wildlife-watching sample sizes varied by state to get reliable state-level estimates. During each interview period, about **14** percent of the designated persons were not found at home or were unavailable for some other reason. Overall, about **223** detailed wildlife-watcher interviews were completed at a response rate of **86** percent.

## ESTIMATION PROCEDURE

Several stages of adjustments were used to derive the final 2006 FHWAR person weights. A brief description of the major components of the weights is given next.

All statistics for the population 6 to 15 years of age were derived from the screening interview. Statistics for the population 16 years old and older come from both the screening and detailed interviews. Estimates that come from the screening sample are presented in Appendix B.

**A. Screening Sample**

Every interviewed person in the screening sample received a screening weight that was the product of the following factors:

1. *Base Weight.* The base weight is the inverse of the household's probability of selection.

2. *Household Noninterview Adjustment.* The noninterview adjustment inflates the weight assigned to interviewed households to account for households eligible for interview but for which no interview was obtained.

3. *First-Stage Adjustment.* The 824 areas designated for our samples were selected from 2,025 such areas of the United States. Some sample areas represent only themselves and are referred to as self-representing. The remaining areas represent other areas similar in selected characteristics and are thus designated non-self-representing. The first-stage factor reduces the component of variation arising from sampling the non-self-representing areas.

4. *Second-Stage Adjustment.* This adjustment brings the estimates of the total population into agreement with census-based estimates of the civilian noninstitutionalized and nonbarrack military populations for each state.

**B. Sportspersons Sample**

Every interviewed person in the sportspersons detailed sample received a weight that was the product of the following factors:

1. *Screening Weight.* This is the person's final weight from the screening sample.

2. *Sportspersons Stratum Adjustment.* This factor inflates the weights of persons selected for the detailed sample to account for the subsampling done within each sportsperson stratum.

3. *Sportspersons Noninterview Adjustment.* This factor adjusts the weights of the interviewed sportspersons to account for sportspersons selected for the detailed sample for whom no interview was obtained. A person was considered a noninterview if he or she was not interviewed in the third wave of interviewing.

4. *Sportspersons Ratio Adjustment Factor.* This is a ratio adjustment of the detailed sample to the screening sample within the sportspersons sampling stratum. This adjustment brings the population estimates of persons aged 16 years old and older from the detailed sample into agreement with the same estimates from the screening sample, which was a much larger sample.

**C. Wildlife-Watchers Sample**

Every interviewed person in the wildlife-watchers detailed sample received a weight that was the product of the following factors:

1. *Screening Weight.* This is the person's final weight from the screening sample.

2. *Wildlife-Watchers Stratum Adjustment.* This factor inflates the weights of persons selected for the detailed sample to account for the subsampling done within each wildlife-watcher stratum.

3. *Wildlife-Watchers Noninterview Adjustment.* This factor adjusts the weights of the interviewed wildlife-watching participants to account for wildlife watchers selected for the detailed sample for which no interview was obtained. A person was considered a noninterview if he or she was not interviewed in the third wave of interviewing.

4. *Wildlife-Watchers Ratio Adjustment Factor.* This is a ratio adjustment of the detailed sample to the screening sample within wildlife-watchers sampling strata. This adjustment brings the population estimates of persons aged 16 years old and older from the detailed sample into agreement with the same estimates from the screening sample, which was a much larger sample.

## ACCURACY OF THE ESTIMATES

A sample survey estimate has two types of error: sampling and nonsampling. The accuracy of an estimate depends on both types of error. The nature of the sampling error is known given the survey design; the full extent of the nonsampling error is unknown.

## NONSAMPLING ERROR

For a given estimator, the difference between the estimate that would result if the sample were to include the entire population and the true population value being estimated is known as nonsampling error. There are several sources of nonsampling error that may occur during the development or execution of the survey. It can occur because of circumstances created by the interviewer, the respondent, the survey instrument, or the way the data are collected and processed. For example, errors could occur because:

- The interviewer records the wrong answer, the respondent provides incorrect information, the respondent estimates the requested information, or an unclear survey question is misunderstood by the respondent (measurement error).

- Some individuals who should have been included in the survey frame were missed (coverage error).

- Responses are not collected from all those in the sample or the respondent is unwilling to provide information (nonresponse error).

- Values are estimated imprecisely for missing data (imputation error).

- Forms may be lost, data may be incorrectly keyed, coded, or recoded, etc. (processing error).

The Census Bureau employs quality control procedures throughout the production process, including the overall design of surveys, the wording of questions, the review of the work of interviewers and coders, and the statistical review of reports to minimize these errors.

Two types of nonsampling error that can be examined to a limited extent are nonresponse and undercoverage.

*Nonresponse.* The effect of nonresponse cannot be measured directly, but one indication of its potential effect is the nonresponse rate. For the FHWAR screener interview in Missouri, the household-level nonresponse rate was 10 percent. The person-level nonresponse rate for the detailed sportsperson interview in Missouri was an additional 16 percent and for the wildlife watchers it was 14 percent. Since the screener nonresponse rate is a household-level rate and the detailed interview nonresponse rate is a person-level rate, we cannot combine these rates to derive an overall nonresponse rate. Since it is unlikely the nonresponding households to the FHWAR have the same number of persons as the households successfully interviewed, combining these rates would result in an overestimate of the "true" person-level overall nonresponse rate for the detailed interviews.

*Coverage.* Overall screener undercoverage is estimated to be about 13 percent. Ratio estimation to independent population controls, as described previously, partially corrects for the bias due to survey undercoverage. However, biases exist in the estimates to the extent that missed persons in missed households or missed persons in interviewed households have different characteristics from those of interviewed persons in the same age group.

*Comparability of Data.* Data obtained from the 2006 FHWAR and other sources are not entirely comparable. This results from differences in interviewer training and experience and in differing survey processes. This is an example of nonsampling variability not reflected in the standard errors. Therefore, caution should be used when comparing results from different sources. (See Appendix C.)

*A Nonsampling Error Warning.* Since the full extent of the nonsampling error is unknown, one should be particularly careful when interpreting results based on small differences between estimates. The Census Bureau recommends that data users incorporate information about nonsampling errors into their analyses, as nonsampling error could impact the conclusions drawn from the results. Caution should also be used when interpreting results based on a relatively small number of cases. Summary measures (such as medians and percentage distributions) probably do not reveal useful information when computed on a subpopulation smaller than 50,000 for screener data, 65,000 for the detailed sportsperson data, and 230,000 for the wildlife-watchers data.

## SAMPLING ERROR

Since the FHWAR estimates come from a sample, they may differ from figures from an enumeration of the entire population using the same questionnaires, instructions, and enumerators. For a given estimator, the difference between an estimate based on a sample and the estimate that would result if the sample were to include the entire population is known as sampling error. Standard errors, as calculated by methods described in "Standard Errors and Their Use," are primarily measures of the magnitude of sampling error. However, they may include some nonsampling error.

*Standard Errors and Their Use.* The sample estimate and its standard error enable one to construct a confidence interval. A confidence interval is a range that has a known probability of including the average result of all possible samples. For example, if all possible samples were surveyed under essentially the same general conditions and using the same sample design, and if an estimate and its standard error were calculated from each sample, then approximately 90 percent of the intervals from 1.645 standard errors below the estimate to 1.645 standard errors above the estimate would include the average result of all possible samples.

A particular confidence interval may or may not contain the average estimate derived from all possible samples. However, one can say with specified confidence that the interval includes the average estimate calculated from all possible samples.

Standard errors may also be used to perform hypothesis testing, a procedure for distinguishing between population parameters using sample estimates. The most common type of hypothesis is that the population parameters are different. An example would be comparing the proportion of anglers to the proportion of hunters.

Tests may be performed at various levels of significance. A significance level is the probability of concluding that the characteristics are different when, in fact, they are the same. For example, to conclude that two characteristics are different at the 0.1 level of significance, the absolute value of the estimated difference between characteristics must be greater than or equal to 1.645 times the standard error of the difference.

This report uses 90-percent confidence intervals and 0.1 level of significance to determine statistical validity. Consult standard statistical textbooks for alternative criteria.

*Estimating Standard Errors.* The Census Bureau uses replication methods to estimate the standard errors of FHWAR estimates. These methods primarily measure the magnitude of sampling error. However, they do measure some effects of nonsampling error as well. They do not measure systematic biases in the data associated with nonsampling error. Bias is the average over all possible samples of the differences between the sample estimates and the true value.

*Generalized Variance Parameters.* While it is possible to compute and present an estimate of the standard error based on the survey data for each estimate in a report, there are a number of reasons why this is not done. A presentation of the individual standard errors would be of limited use, since one could not possibly predict all of the combinations of results that may be of interest to data users. Additionally, data users have access to FHWAR microdata files, and it is impossible to compute in advance the standard error for every estimate one might obtain from those data sets. Moreover, variance estimates are based on sample data and have variances of their own. Therefore, some methods of stabilizing these estimates of variance, for example, by generalizing or averaging over time, may be used to improve their reliability.

Experience has shown that certain groups of estimates have similar relationships between their variances and expected values. Modeling or generalizing may provide more stable variance estimates by taking advantage of these similarities. The generalized variance function is a simple model that expresses the variance as a function of the expected value of the survey estimate. The parameters of the generalized variance function are estimated using direct replicate variances. These generalized variance parameters provide a relatively easy method to obtain approximate standard errors for numerous characteristics. Tables D-4 to D-9 provide the generalized variance parameters for FHWAR data. Methods for using the parameters to calculate standard errors of various estimates are given in the next sections.

*Standard Errors of Estimated Numbers.* The approximate standard error, $s_x$, of an estimated number shown in this report can be obtained using the following formulas. Formula (1) is used to calculate the standard errors of levels of sportspersons, anglers, and wildlife watchers.

$$s_x = \sqrt{ax^2 + bx} \tag{1}$$

Here, x is the size of the estimate and a and b are the parameters in the tables associated with the particular characteristic.

Formula (2) is used for standard errors of aggregates, i.e., trips, days, and expenditures.

$$s_x = \sqrt{ax^2 + bx + \frac{cx^2}{y}} \tag{2}$$

Here, x is again the size of the estimate; y is the base of the estimate; and a, b, and c are the parameters in the tables associated with the particular characteristic.

**Illustration of the Computation of the Standard Error of an Estimated Number**

Suppose there were an estimated 33,916,000 persons age 16 years old and older who either fished or hunted in the United States in 2006. Using formula (1) with the parameters a = –0.000027 and b = 6,125 from table D-5, the approximate standard error of the estimated number of 33,916,000 sportspersons age 16 years old and older is

$$s_x = \sqrt{-0.000027 \times 33{,}916{,}000^2 + 6{,}125 \times 33{,}916{,}000} = 420{,}330$$

The 90-percent confidence interval for the estimated number of sportspersons 16 years old and older is from 33,225,000 to 34,607,000, i.e., 33,916,000 ± 1.645 x 420,330. Therefore, a conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 90 percent of all possible samples.

Suppose there were an estimated 12,510,000 hunters aged 16 years old and older who engaged in 219,925,000 days of participation in 2006. Using formula (2) with the parameters a = –0.000235, b = –85,241, and c = 22,698 from table D-7, the approximate standard error on 219,925,000 estimated days on an estimated base of 12,510,000 hunters is

$$s_x = \sqrt{-0.000235 \times 219{,}925{,}000^2 - 85{,}241 \times 219{,}925{,}000 + \frac{22{,}698 \times 219{,}925{,}000^2}{12{,}510{,}000}} = 7{,}592{,}000$$

The 90-percent confidence interval on the estimate of 219,925,000 days is from 207,436,000 to 232,414,000, i.e., 219,925,000 ± 1.645 x 7,592,000. Again, a conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 90 percent of all possible samples.

*Standard Errors of Estimated Percentages.* The reliability of an estimated percentage, computed using sample data for both numerator and denominator, depends on the size of the percentage and its base. Estimated percentages are relatively more reliable than the corresponding estimates of the numerators of the percentages, particularly if the percentages are 50 percent or more. When the numerator and the denominator of the percentage are in different categories, use the parameter in the tables indicated by the numerator.

The approximate standard error, $s_{x,p}$, can be obtained by use of the formula

$$s_{x,p} = \sqrt{\frac{bp(100 - p)}{x}} \tag{3}$$

Here, x is the total number of sportspersons, hunters, etc., which is the base of the percentage; p is the percentage ($0 \leq p \leq 100$); and b is the parameter in the tables associated with the characteristic in the numerator of the percentage.

**Illustration of the Computation of the Standard Error of an Estimated Percentage**

Suppose there were an estimated 12,510,000 hunters aged 16 years old and older of whom 18.3 percent hunted migratory birds. From table D-5, the appropriate b parameter is 5,756. Using formula (3), the approximate standard error on the estimate of 18.3 percent is

$$s_{x,p} = \sqrt{\frac{5{,}756 \times 18.3 \times (100 - 18.3)}{12{,}510{,}000}} = 0.83$$

Consequently, the 90-percent confidence interval for the estimate percentage of migratory bird hunters 16 years old and older is from 16.9 percent to 19.7 percent, i.e., 18.3 ± 1.645 x 0.83.

*Standard Error of a Difference.* The standard error of the difference between two sample estimates is approximately equal to

$$s_{x-y} = \sqrt{s_x^2 + s_y^2} \tag{4}$$

where $s_x$ and $s_y$ are the standard errors of the estimates x and y. The estimates can be numbers, percentages, ratios, etc. This will represent the actual standard error quite accurately for the difference between estimates of the same characteristic in two different areas, or for the difference between separate and uncorrelated characteristics in the same area. However, if there is a high positive (negative) correlation between the two characteristics, the formula will overestimate (underestimate) the true standard error.

**Illustration of the Computation of the Standard Error of a Difference**

Suppose there were an estimated 11,655,000 females in the age range of 18 to 24 of whom 726,000 or 6.2 percent were sportspersons. Similarly, suppose there were an estimated 11,638,000 males in the same age range of whom 1,929,000 or 16.6 percent were sportspersons. The apparent difference between the percentage of female and male sportspersons is 10.4 percent. Using formula (3) and the appropriate b parameter from table D-5, the approximate standard errors of 6.2 percent and 16.6 percent are 0.55 and 0.85, respectively. Using formula (4), the approximate standard error of the estimated difference of 10.4 percent is

$$s_{x-y} = \sqrt{0.55^2 + 0.85^2} = 1.02$$

The 90-percent confidence interval on the difference between 18-to-24-year-old female and male sportspersons is from 8.7 to 12.1, i.e., 10.4 ± 1.645 x 1.02. Since the interval does not contain zero, we can conclude with 90-percent confidence that the percentage of 18-to-24-year-old female sportspersons is less than the percentage of 18-to-24-year-old male sportspersons.

*Standard Errors of Estimated Averages.* Certain mean values for sportspersons, anglers, etc., shown in the report were calculated as the ratio of two numbers. For example, average days per angler is calculated as:

$$\frac{x}{y} = \frac{total\ \ days}{total\ \ anglers}$$

Standard errors for these averages may be approximated by the use of formula (5) below.

$$s_{x/y} = \frac{x}{y}\sqrt{\left[\frac{s_x}{x}\right]^2 + \left[\frac{s_y}{y}\right]^2 - 2r\frac{s_x s_y}{xy}} \tag{5}$$

In formula (5), r represents the correlation coefficient between the numerator and the denominator of the estimate. In the above formula, use 0.7 as an estimate of r.

**Illustration of the Computation of the Standard Error of an Estimated Average**

Suppose that the estimated number of the average days per angler aged 16 years old and older for all fishing was 17.3 days. Using formulas (1) and (2) above, we compute the standard error on total days, 516,781,000, and total anglers, 29,952,000, to be 15,828,079 and 399,342, respectively. The approximate standard error on the estimated average of 17.3 days is

$$s_{x/y} = \frac{516{,}781{,}000}{29{,}952{,}000}\sqrt{\left[\frac{158{,}280{,}079}{516{,}781{,}000}\right]^2 + \left[\frac{399{,}342}{29{,}952{,}000}\right]^2 - 2 \times 0.7\frac{15{,}828{,}079 \times 399{,}342}{516{,}781{,}000 \times 29{,}952{,}000}} = 0.40$$

Therefore, the 90-percent confidence interval on the estimated average of 17.3 days is from 16.6 to 18.0, i.e., 17.3 ± 1.645 x 0.40.

Table D-1. **Approximate Standard Errors of Resident Anglers, Days of Fishing by State Residents, and Expenditures for Fishing by State Residents**

(Numbers in thousands)

| State | Participation | | Days | | Expenditures in dollars | |
|---|---|---|---|---|---|---|
| | Estimate | Standard error | Estimate | Standard error | Estimate | Standard error |
| Alabama | 628 | 41 | 13,164 | 2,463 | 791,187 | 136,335 |
| Alaska | 138 | 10 | 1,965 | 329 | 221,328 | 43,350 |
| Arizona | 370 | 32 | 4,378 | 1,163 | 293,510 | 62,037 |
| Arkansas | 463 | 38 | 10,078 | 1,788 | 364,528 | 71,945 |
| California | 1,689 | 102 | 19,649 | 2,646 | 2,707,995 | 428,592 |
| Colorado | 554 | 40 | 6,737 | 1,081 | 1,093,571 | 147,080 |
| Connecticut | 291 | 20 | 6,239 | 1,239 | 442,724 | 95,897 |
| Delaware | 76 | 6 | 1,521 | 397 | 138,601 | 28,408 |
| Florida | 1,950 | 100 | 43,026 | 5,370 | 3,618,499 | 514,463 |
| Georgia | 1,060 | 77 | 18,449 | 3,935 | 1,050,608 | 183,960 |
| Hawaii | 94 | 8 | 1,345 | 300 | 82,728 | 22,551 |
| Idaho | 223 | 22 | 4,126 | 1,222 | 234,363 | 52,127 |
| Illinois | 1,034 | 62 | 21,351 | 2,579 | 1,315,192 | 197,171 |
| Indiana | 739 | 50 | 10,583 | 1,315 | 696,389 | 128,034 |
| Iowa | 449 | 34 | 7,017 | 1,319 | 398,654 | 78,100 |
| Kansas | 369 | 27 | 5,643 | 916 | 299,896 | 63,027 |
| Kentucky | 622 | 45 | 9,874 | 1,600 | 963,254 | 239,107 |
| Louisiana | 598 | 47 | 11,075 | 1,337 | 807,063 | 153,792 |
| Maine | 225 | 17 | 3,854 | 800 | 147,473 | 26,410 |
| Maryland | 475 | 32 | 6,571 | 1,028 | 661,078 | 99,475 |
| Massachusetts | 452 | 29 | 9,309 | 1,784 | 954,647 | 229,603 |
| Michigan | 1,098 | 89 | 23,239 | 4,004 | 1,662,875 | 364,329 |
| Minnesota | 1,143 | 75 | 23,025 | 4,850 | 2,467,491 | 483,774 |
| Mississippi | 479 | 34 | 7,515 | 1,198 | 280,529 | 55,307 |
| Missouri | 931 | 59 | 16,227 | 2,889 | 1,032,407 | 160,090 |
| Montana | 179 | 16 | 2,455 | 424 | 140,895 | 27,916 |
| Nebraska | 192 | 15 | 3,208 | 532 | 217,437 | 36,020 |
| Nevada | 156 | 16 | 1,958 | 447 | 304,133 | 73,096 |
| New Hampshire | 124 | 10 | 2,488 | 442 | 141,041 | 27,264 |
| New Jersey | 530 | 33 | 9,237 | 1,601 | 1,167,944 | 196,789 |
| New Mexico | 190 | 18 | 2,451 | 838 | 254,023 | 76,563 |
| New York | 1,029 | 81 | 16,157 | 3,315 | 844,153 | 194,665 |
| North Carolina | 964 | 63 | 16,106 | 2,626 | 1,039,286 | 198,626 |
| North Dakota | 106 | 8 | 1,150 | 205 | 96,908 | 19,580 |
| Ohio | 1,293 | 91 | 17,583 | 3,199 | 1,118,439 | 226,342 |
| Oklahoma | 547 | 39 | 10,363 | 1,487 | 486,013 | 88,047 |
| Oregon | 483 | 39 | 8,104 | 2,308 | 507,625 | 101,717 |
| Pennsylvania | 990 | 87 | 20,592 | 4,258 | 1,625,022 | 272,116 |
| Rhode Island | 83 | 6 | 1,480 | 207 | 125,121 | 25,668 |
| South Carolina | 548 | 39 | 11,174 | 1,814 | 1,101,128 | 340,271 |
| South Dakota | 95 | 9 | 1,456 | 254 | 137,159 | 28,262 |
| Tennessee | 708 | 54 | 13,966 | 2,025 | 576,667 | 110,670 |
| Texas | 2,344 | 172 | 40,101 | 5,924 | 3,883,589 | 796,872 |
| Utah | 313 | 26 | 3,841 | 851 | 408,986 | 84,433 |
| Vermont | 71 | 7 | 1,506 | 279 | 59,132 | 12,200 |
| Virginia | 731 | 58 | 9,932 | 1,331 | 669,565 | 140,722 |
| Washington | 690 | 43 | 9,111 | 1,394 | 967,520 | 180,668 |
| West Virginia | 306 | 25 | 6,967 | 1,000 | 335,880 | 104,458 |
| Wisconsin | 1,025 | 66 | 17,771 | 2,431 | 1,193,390 | 201,965 |
| Wyoming | 98 | 10 | 1,360 | 282 | 450,339 | 133,641 |

Table D-2. **Approximate Standard Errors of Resident Hunters, Days of Hunting by State Residents, and Expenditures for Hunting by State Residents**

(Numbers in thousands)

| State | Participation | | Days | | Expenditures in dollars | |
|---|---|---|---|---|---|---|
| | Estimate | Standard error | Estimate | Standard error | Estimate | Standard error |
| Alabama | 312 | 30 | 8,032 | 1,831 | 596,485 | 114,760 |
| Alaska | 55 | 7 | 859 | 205 | 111,535 | 25,306 |
| Arizona | 129 | 15 | 1,535 | 405 | 360,537 | 108,628 |
| Arkansas | 307 | 31 | 7,630 | 1,629 | 765,599 | 146,698 |
| California | 317 | 43 | 4,192 | 1,041 | 960,932 | 230,698 |
| Colorado | 132 | 18 | 1,421 | 303 | 219,545 | 57,088 |
| Connecticut | 40 | 7 | 693 | 181 | 96,638 | 38,704 |
| Delaware | 21 | 3 | 512 | 148 | 33,836 | 7,761 |
| Florida | 325 | 40 | 5,723 | 1,200 | 870,391 | 205,731 |
| Georgia | 356 | 42 | 7,180 | 1,643 | 502,017 | 135,282 |
| Hawaii | 19 | 4 | 421 | 214 | 24,992 | 9,869 |
| Idaho | 123 | 15 | 1,187 | 256 | 142,708 | 33,385 |
| Illinois | 272 | 32 | 4,609 | 938 | 416,950 | 80,383 |
| Indiana | 254 | 30 | 4,617 | 930 | 243,058 | 60,232 |
| Iowa | 210 | 26 | 3,734 | 869 | 260,147 | 60,083 |
| Kansas | 192 | 23 | 2,717 | 723 | 231,228 | 58,822 |
| Kentucky | 261 | 29 | 5,108 | 637 | 507,473 | 116,274 |
| Louisiana | 275 | 33 | 7,155 | 1,443 | 618,264 | 142,285 |
| Maine | 146 | 14 | 2,042 | 319 | 211,434 | 40,017 |
| Maryland | 151 | 17 | 2,213 | 399 | 230,214 | 44,830 |
| Massachusetts | 66 | 11 | 1,629 | 562 | 238,670 | 98,246 |
| Michigan | 721 | 79 | 11,756 | 2,256 | 846,455 | 202,158 |
| Minnesota | 536 | 53 | 6,947 | 1,571 | 752,098 | 171,270 |
| Mississippi | 244 | 24 | 6,227 | 820 | 446,639 | 89,602 |
| Missouri | 560 | 49 | 9,685 | 1,876 | 1,027,698 | 167,223 |
| Montana | 145 | 14 | 1,817 | 315 | 219,465 | 46,679 |
| Nebraska | 105 | 13 | 1,647 | 349 | 176,456 | 33,615 |
| Nevada | 60 | 10 | 687 | 249 | 149,750 | 51,854 |
| New Hampshire | 52 | 6 | 1,037 | 206 | 77,932 | 19,911 |
| New Jersey | 84 | 12 | 1,621 | 342 | 160,737 | 44,444 |
| New Mexico | 72 | 11 | 734 | 240 | 109,297 | 35,712 |
| New York | 502 | 52 | 9,734 | 1,927 | 835,147 | 258,055 |
| North Carolina | 304 | 34 | 5,428 | 1,059 | 688,691 | 160,961 |
| North Dakota | 86 | 8 | 1,125 | 207 | 92,576 | 18,993 |
| Ohio | 477 | 53 | 10,728 | 2,771 | 863,874 | 214,994 |
| Oklahoma | 232 | 28 | 5,556 | 1,209 | 463,726 | 95,364 |
| Oregon | 219 | 24 | 2,768 | 718 | 336,278 | 69,062 |
| Pennsylvania | 933 | 92 | 17,401 | 2,585 | 1,581,058 | 276,321 |
| Rhode Island | 13 | 2 | 184 | 45 | 13,766 | 4,278 |
| South Carolina | 166 | 23 | 4,025 | 1,294 | 253,796 | 115,579 |
| South Dakota | 90 | 8 | 1,208 | 233 | 87,120 | 15,955 |
| Tennessee | 284 | 34 | 6,318 | 1,224 | 481,767 | 114,181 |
| Texas | 996 | 108 | 13,896 | 1,937 | 2,048,671 | 462,353 |
| Utah | 154 | 18 | 1,884 | 530 | 332,629 | 76,446 |
| Vermont | 57 | 6 | 1,068 | 157 | 69,059 | 15,885 |
| Virginia | 360 | 47 | 6,649 | 1,156 | 493,125 | 110,305 |
| Washington | 187 | 25 | 2,385 | 563 | 389,792 | 117,244 |
| West Virginia | 200 | 21 | 3,602 | 578 | 325,688 | 116,172 |
| Wisconsin | 652 | 53 | 9,998 | 1,316 | 1,329,161 | 272,105 |
| Wyoming | 52 | 6 | 604 | 149 | 89,832 | 29,427 |

Table D-3. **Approximate Standard Errors of Resident Away-From-Home Participants, Days of Away-From-Home Participants by State Residents, and Trip-Related Expenditures for Away-From-Home Activities by State Residents**

(Numbers in thousands)

| State | Participation | | Days | | Expenditures in dollars | |
|---|---|---|---|---|---|---|
| | Estimate | Standard error | Estimate | Standard error | Estimate | Standard error |
| Alabama | 348 | 50 | 7,301 | 3,047 | 198,132 | 61,485 |
| Alaska | 68 | 13 | 1,492 | 520 | 65,576 | 27,602 |
| Arizona | 381 | 42 | 4,554 | 886 | 301,997 | 75,465 |
| Arkansas | 304 | 46 | 4,253 | 1,372 | 70,098 | 25,680 |
| California | 2,565 | 200 | 46,538 | 8,681 | 2,226,634 | 504,935 |
| Colorado | 531 | 67 | 7,548 | 1,984 | 303,943 | 83,737 |
| Connecticut | 290 | 33 | 4,987 | 1,043 | 240,708 | 61,745 |
| Delaware | 49 | 8 | 811 | 276 | 12,490 | 3,833 |
| Florida | 988 | 119 | 13,180 | 3,390 | 455,521 | 105,349 |
| Georgia | 371 | 71 | 4,934 | 1,761 | 289,920 | 122,816 |
| Hawaii | 55 | 10 | 485 | 124 | 30,005 | 10,851 |
| Idaho | 183 | 32 | 2,876 | 805 | 87,351 | 28,403 |
| Illinois | 756 | 92 | 7,366 | 1,477 | 431,477 | 115,300 |
| Indiana | 611 | 72 | 7,894 | 1,650 | 234,756 | 61,310 |
| Iowa | 344 | 51 | 4,233 | 867 | 104,542 | 33,072 |
| Kansas | 234 | 31 | 3,427 | 1,156 | 91,838 | 28,745 |
| Kentucky | 540 | 68 | 3,978 | 835 | 163,835 | 45,402 |
| Louisiana | 234 | 42 | 3,536 | 1,038 | 118,317 | 49,801 |
| Maine | 213 | 30 | 3,938 | 1,066 | 105,340 | 28,268 |
| Maryland | 305 | 43 | 4,841 | 1,310 | 103,265 | 25,729 |
| Massachusetts | 531 | 50 | 8,959 | 1,720 | 249,979 | 56,447 |
| Michigan | 827 | 127 | 10,455 | 3,288 | 522,877 | 153,343 |
| Minnesota | 579 | 92 | 9,010 | 2,413 | 458,934 | 162,740 |
| Mississippi | 145 | 35 | 1,391 | 421 | 77,767 | 27,913 |
| Missouri | 709 | 86 | 14,619 | 3,543 | 365,259 | 103,690 |
| Montana | 184 | 23 | 1,777 | 498 | 57,461 | 20,990 |
| Nebraska | 151 | 18 | 1,201 | 176 | 55,793 | 15,941 |
| Nevada | 168 | 26 | 1,912 | 479 | 108,053 | 42,601 |
| New Hampshire | 127 | 16 | 2,246 | 561 | 61,263 | 14,140 |
| New Jersey | 513 | 54 | 8,408 | 2,189 | 195,252 | 44,467 |
| New Mexico | 220 | 24 | 3,803 | 844 | 81,860 | 20,074 |
| New York | 1,178 | 147 | 13,927 | 2,835 | 887,039 | 240,941 |
| North Carolina | 402 | 59 | 3,544 | 1,035 | 324,968 | 105,504 |
| North Dakota | 30 | 8 | 278 | 120 | 8,290 | 3,921 |
| Ohio | 1,174 | 125 | 9,232 | 1,427 | 365,635 | 95,003 |
| Oklahoma | 414 | 60 | 7,930 | 3,634 | 291,664 | 81,739 |
| Oregon | 481 | 66 | 7,455 | 3,205 | 177,364 | 51,932 |
| Pennsylvania | 1,038 | 127 | 13,013 | 2,727 | 587,806 | 168,911 |
| Rhode Island | 96 | 10 | 1,207 | 293 | 44,400 | 11,412 |
| South Carolina | 332 | 46 | 2,222 | 471 | 167,464 | 44,431 |
| South Dakota | 116 | 17 | 709 | 143 | 46,769 | 14,583 |
| Tennessee | 725 | 82 | 14,819 | 4,776 | 242,507 | 73,041 |
| Texas | 1,176 | 206 | 31,689 | 12,769 | 922,669 | 360,407 |
| Utah | 255 | 36 | 3,063 | 817 | 116,401 | 32,391 |
| Vermont | 82 | 11 | 1,803 | 504 | 25,689 | 6,661 |
| Virginia | 603 | 81 | 6,888 | 1,850 | 154,992 | 39,913 |
| Washington | 686 | 56 | 8,918 | 1,333 | 314,680 | 69,667 |
| West Virginia | 129 | 31 | 3,205 | 1,345 | 83,475 | 37,348 |
| Wisconsin | 424 | 73 | 4,367 | 1,129 | 188,626 | 54,452 |
| Wyoming | 82 | 13 | 894 | 223 | 54,472 | 19,022 |

## Table D-4. **Parameters a and b for Calculating Approximate Standard Errors of Sportspersons, Anglers, Hunters, and Wildlife-Watching Participants**

(These parameters are to be used only to calculate estimates of standard errors for characteristics developed from the screening sample)

| State | 6 years old and older | | 6- to 15-year-olds only | |
|---|---|---|---|---|
| | a | b | a | b |
| **United States** | **–0.000015** | **4,173** | **–0.000365** | **14,798** |
| Alabama | –0.000523 | 2,173 | –0.014402 | 8,642 |
| Alaska | –0.001157 | 697 | –0.024644 | 2,566 |
| Arizona | –0.000399 | 2,178 | –0.008468 | 7,441 |
| Arkansas | –0.001116 | 2,820 | –0.026111 | 9,698 |
| California | –0.000126 | 4,134 | –0.003139 | 16,914 |
| Colorado | –0.000573 | 2,435 | –0.019382 | 12,522 |
| Connecticut | –0.000313 | 1,005 | –0.008787 | 4,151 |
| Delaware | –0.000510 | 396 | –0.014882 | 1,597 |
| Florida | –0.000266 | 4,389 | –0.006122 | 13,852 |
| Georgia | –0.000568 | 4,653 | –0.012587 | 16,121 |
| Hawaii | –0.000437 | 517 | –0.009528 | 1,602 |
| Idaho | –0.001346 | 1,759 | –0.042091 | 8,654 |
| Illinois | –0.000296 | 3,416 | –0.007029 | 12,542 |
| Indiana | –0.000488 | 2,782 | –0.012165 | 10,911 |
| Iowa | –0.000762 | 2,062 | –0.020347 | 7,491 |
| Kansas | –0.000537 | 1,329 | –0.016690 | 6,138 |
| Kentucky | –0.000772 | 2,935 | –0.018308 | 9,902 |
| Louisiana | –0.000775 | 3,143 | –0.017795 | 11,036 |
| Maine | –0.000924 | 1,135 | –0.030300 | 4,683 |
| Maryland | –0.000357 | 1,821 | –0.008162 | 6,298 |
| Massachusetts | –0.000261 | 1,521 | –0.007130 | 5,692 |
| Michigan | –0.000685 | 6,318 | –0.018937 | 26,784 |
| Minnesota | –0.001009 | 4,733 | –0.029835 | 20,037 |
| Mississippi | –0.000757 | 1,982 | –0.016992 | 6,865 |
| Missouri | –0.000670 | 3,534 | –0.018329 | 13,847 |
| Montana | –0.001418 | 1,227 | –0.033110 | 3,719 |
| Nebraska | –0.000567 | 902 | –0.014086 | 3,277 |
| Nevada | –0.000515 | 1,159 | –0.011577 | 4,097 |
| New Hampshire | –0.000535 | 650 | –0.015945 | 2,744 |
| New Jersey | –0.000209 | 1,655 | –0.005070 | 6,099 |
| New Mexico | –0.000620 | 1,097 | –0.016872 | 4,557 |
| New York | –0.000320 | 5,582 | –0.009275 | 22,967 |
| North Carolina | –0.000416 | 3,286 | –0.011916 | 14,068 |
| North Dakota | –0.001096 | 637 | –0.036240 | 2,677 |
| Ohio | –0.000484 | 5,045 | –0.011219 | 17,172 |
| Oklahoma | –0.000744 | 2,389 | –0.020948 | 9,767 |
| Oregon | –0.000752 | 2,533 | –0.024824 | 11,839 |
| Pennsylvania | –0.000544 | 6,176 | –0.014615 | 22,903 |
| Rhode Island | –0.000315 | 308 | –0.008710 | 1,182 |
| South Carolina | –0.000560 | 2,174 | –0.016004 | 9,034 |
| South Dakota | –0.001061 | 745 | –0.025331 | 2,568 |
| Tennessee | –0.000565 | 3,084 | –0.015267 | 11,667 |
| Texas | –0.000466 | 9,557 | –0.011141 | 38,300 |
| Utah | –0.000700 | 1,541 | –0.018090 | 7,116 |
| Vermont | –0.001053 | 611 | –0.032724 | 2,420 |
| Virginia | –0.000450 | 3,102 | –0.014313 | 14,311 |
| Washington | –0.000349 | 2,031 | –0.010251 | 8,539 |
| West Virginia | –0.001092 | 1,823 | –0.042234 | 8,929 |
| Wisconsin | –0.000820 | 4,156 | –0.021060 | 15,086 |
| Wyoming | –0.001268 | 592 | –0.028116 | 1,742 |

Table D-5. **Parameters a and b for Calculating Approximate Standard Errors of Levels for the Detailed Sportspersons Sample**

| State | Sportspersons and anglers 16 years old and older | | Hunters 16 years old and older | |
|---|---|---|---|---|
| | a | b | a | b |
| **United States** | **–0.000027** | **6,125** | **–0.000025** | **5,756** |
| Alabama | –0.000936 | 3,324 | –0.000921 | 3,268 |
| Alaska | –0.002197 | 1,096 | –0.002013 | 1,004 |
| Arizona | –0.000641 | 2,941 | –0.000403 | 1,849 |
| Arkansas | –0.001833 | 3,951 | –0.001705 | 3,674 |
| California | –0.000239 | 6,523 | –0.000213 | 5,801 |
| Colorado | –0.000960 | 3,459 | –0.000735 | 2,650 |
| Connecticut | –0.000545 | 1,490 | –0.000514 | 1,407 |
| Delaware | –0.000758 | 507 | –0.000720 | 482 |
| Florida | –0.000415 | 5,911 | –0.000347 | 4,943 |
| Georgia | –0.000965 | 6,668 | –0.000752 | 5,199 |
| Hawaii | –0.000763 | 774 | –0.000751 | 761 |
| Idaho | –0.002486 | 2,738 | –0.001888 | 2,080 |
| Illinois | –0.000430 | 4,201 | –0.000388 | 3,789 |
| Indiana | –0.000821 | 3,939 | –0.000777 | 3,729 |
| Iowa | –0.001383 | 3,234 | –0.001535 | 3,589 |
| Kansas | –0.001097 | 2,315 | –0.001433 | 3,024 |
| Kentucky | –0.001222 | 3,983 | –0.001048 | 3,415 |
| Louisiana | –0.001300 | 4,464 | –0.001271 | 4,365 |
| Maine | –0.001560 | 1,675 | –0.001469 | 1,578 |
| Maryland | –0.000552 | 2,392 | –0.000456 | 1,975 |
| Massachusetts | –0.000412 | 2,072 | –0.000383 | 1,929 |
| Michigan | –0.001085 | 8,470 | –0.001214 | 9,474 |
| Minnesota | –0.001694 | 6,812 | –0.001504 | 6,049 |
| Mississippi | –0.001355 | 3,000 | –0.001169 | 2,588 |
| Missouri | –0.001031 | 4,662 | –0.001067 | 4,825 |
| Montana | –0.002523 | 1,899 | –0.002383 | 1,793 |
| Nebraska | –0.001066 | 1,449 | –0.001236 | 1,680 |
| Nevada | –0.000898 | 1,703 | –0.000823 | 1,561 |
| New Hampshire | –0.000801 | 836 | –0.000774 | 808 |
| New Jersey | –0.000327 | 2,200 | –0.000251 | 1,690 |
| New Mexico | –0.001323 | 1,984 | –0.001264 | 1,895 |
| New York | –0.000456 | 6,842 | –0.000378 | 5,671 |
| North Carolina | –0.000713 | 4,794 | –0.000588 | 3,951 |
| North Dakota | –0.001558 | 791 | –0.001754 | 890 |
| Ohio | –0.000851 | 7,569 | –0.000697 | 6,194 |
| Oklahoma | –0.001278 | 3,504 | –0.001303 | 3,574 |
| Oregon | –0.001291 | 3,730 | –0.001024 | 2,957 |
| Pennsylvania | –0.000867 | 8,490 | –0.001030 | 10,089 |
| Rhode Island | –0.000487 | 410 | –0.000425 | 358 |
| South Carolina | –0.000983 | 3,259 | –0.000981 | 3,251 |
| South Dakota | –0.001728 | 1,038 | –0.001532 | 920 |
| Tennessee | –0.001019 | 4,790 | –0.000929 | 4,367 |
| Texas | –0.000859 | 14,660 | –0.000725 | 12,388 |
| Utah | –0.001453 | 2,627 | –0.001268 | 2,292 |
| Vermont | –0.001514 | 766 | –0.001403 | 710 |
| Virginia | –0.000885 | 5,215 | –0.001105 | 6,510 |
| Washington | –0.000626 | 3,116 | –0.000676 | 3,368 |
| West Virginia | –0.001844 | 2,688 | –0.001712 | 2,496 |
| Wisconsin | –0.001281 | 5,572 | –0.001144 | 4,978 |
| Wyoming | –0.003226 | 1,306 | –0.002251 | 911 |

Table D-6. **Parameters a, b, and c for Calculating Approximate Standard Errors for Expenditures for the Detailed Sportspersons Sample**

| State | Sportspersons and anglers 16 years old and older | | | Hunters 16 years old and older | | |
|---|---|---|---|---|---|---|
| | a | b | c | a | b | c |
| **United States** | **0.000118** | **–150,479** | **22,234** | **0.000918** | **–401,912** | **17,005** |
| Alabama | 0.019700 | –12,417 | 5,855 | 0.016799 | –96,800 | 6,317 |
| Alaska | 0.030420 | –2,004 | 1,057 | 0.031018 | –14,867 | 1,091 |
| Arizona | 0.036222 | –2,002 | 2,994 | 0.069395 | –74,101 | 2,742 |
| Arkansas | 0.024408 | –27,794 | 6,433 | 0.010107 | –101,205 | 7,942 |
| California | 0.018462 | –35,800 | 10,686 | 0.027550 | –58,262 | 9,255 |
| Colorado | 0.008867 | 676 | 5,062 | 0.034102 | –27,935 | 4,373 |
| Connecticut | 0.036498 | –11,421 | 2,841 | 0.096937 | –60,991 | 2,564 |
| Delaware | 0.031385 | –1,643 | 734 | 0.018489 | –3,855 | 719 |
| Florida | 0.014951 | –23,048 | 9,553 | 0.021932 | –407,268 | 10,425 |
| Georgia | 0.022339 | –47,820 | 8,031 | 0.051440 | –143,590 | 7,061 |
| Hawaii | 0.065152 | –5,771 | 830 | 0.123487 | –5,097 | 588 |
| Idaho | 0.034640 | 9,981 | 3,224 | 0.023728 | –69,369 | 3,841 |
| Illinois | 0.017187 | 6,704 | 5,219 | 0.024778 | 74,958 | 3,321 |
| Indiana | 0.027022 | –16,160 | 4,558 | 0.042674 | –61,618 | 4,557 |
| Iowa | 0.033205 | 22,341 | 2,171 | 0.045665 | –41,343 | 1,583 |
| Kansas | 0.034206 | –23,245 | 3,454 | 0.042600 | –116,049 | 4,343 |
| Kentucky | 0.051496 | –17,125 | 5,942 | 0.025277 | –89,098 | 6,822 |
| Louisiana | 0.023308 | –66,118 | 7,237 | 0.027891 | 135,631 | 6,412 |
| Maine | 0.022050 | –7,457 | 2,175 | 0.021630 | –12,360 | 2,038 |
| Maryland | 0.015599 | –14,663 | 3,208 | 0.018873 | –30,982 | 2,820 |
| Massachusetts | 0.049013 | –25,362 | 3,792 | 0.138120 | –47,649 | 2,049 |
| Michigan | 0.035078 | –148,672 | 13,535 | 0.039658 | –147,585 | 12,587 |
| Minnesota | 0.028185 | –92,976 | 11,279 | 0.027553 | –263,285 | 12,919 |
| Mississippi | 0.026713 | –53,218 | 5,433 | 0.014058 | –97,282 | 6,390 |
| Missouri | 0.011821 | –40,950 | 10,804 | –0.005607 | –190,726 | 17,070 |
| Montana | 0.024760 | –9,845 | 2,520 | 0.020119 | –99,543 | 3,580 |
| Nebraska | 0.018618 | 1,031 | 1,640 | 0.022265 | –22,187 | 1,472 |
| Nevada | 0.048609 | –9,688 | 1,387 | 0.102222 | –32,513 | 1,074 |
| New Hampshire | 0.025253 | –6,176 | 1,434 | 0.037780 | –26,900 | 1,448 |
| New Jersey | 0.019672 | –39,093 | 4,262 | 0.029909 | –90,209 | 3,910 |
| New Mexico | 0.084483 | 2,232 | 1,181 | 0.096226 | 20,132 | 683 |
| New York | 0.039569 | –84,193 | 13,133 | 0.069695 | –128,553 | 12,761 |
| North Carolina | 0.029775 | –35,783 | 6,154 | 0.035333 | –15,128 | 5,717 |
| North Dakota | 0.033611 | –586 | 751 | 0.032562 | 6,176 | 804 |
| Ohio | 0.031480 | –41,813 | 11,082 | 0.040646 | –140,259 | 8,710 |
| Oklahoma | 0.023920 | –27,206 | 4,719 | 0.020041 | –31,920 | 5,066 |
| Oregon | 0.029208 | –11,360 | 5,033 | 0.019440 | –76,401 | 4,937 |
| Pennsylvania | 0.011981 | –92,207 | 15,295 | 0.014951 | –17,951 | 14,434 |
| Rhode Island | 0.033545 | –2,922 | 634 | 0.053976 | –12,463 | 565 |
| South Carolina | 0.082716 | –96,641 | 6,922 | 0.191600 | –23,834 | 2,573 |
| South Dakota | 0.030933 | 682 | 1,071 | 0.018421 | –25,518 | 1,356 |
| Tennessee | 0.027200 | 67,423 | 6,450 | 0.029272 | –98,688 | 7,535 |
| Texas | 0.032817 | –69,604 | 20,795 | 0.027826 | –146,956 | 22,831 |
| Utah | 0.033896 | –13,369 | 2,671 | 0.024396 | –195,230 | 4,439 |
| Vermont | 0.022379 | –4,177 | 1,337 | 0.026395 | –21,534 | 1,476 |
| Virginia | 0.035897 | –28,532 | 5,705 | 0.032298 | –68,680 | 6,293 |
| Washington | 0.026464 | –45,106 | 5,612 | 0.081551 | 81,860 | 1,611 |
| West Virginia | 0.086611 | –39,384 | 2,945 | 0.103915 | –184,675 | 4,610 |
| Wisconsin | 0.017762 | –81,329 | 10,849 | 0.029543 | –54,069 | 8,015 |
| Wyoming | 0.075474 | –5,404 | 1,197 | 0.090886 | 12,235 | 847 |

Table D-7. **Parameters a, b, and c for Calculating Approximate Standard Errors for Days or Trips for the Detailed Sportspersons Sample**

| State | Sportspersons and anglers 16 years old and older | | | Hunters 16 years old and older | | |
|---|---|---|---|---|---|---|
| | a | b | c | a | b | c |
| **United States** | **0.000211** | **–23,610** | **23,157** | **–0.000235** | **–85,241** | **22,698** |
| Alabama | 0.027360 | –4,011 | 4,995 | 0.035544 | –6,621 | 5,383 |
| Alaska | 0.016117 | –432 | 1,681 | 0.027498 | 8 | 1,622 |
| Arizona | 0.065842 | –511 | 1,775 | 0.053516 | –8,367 | 2,773 |
| Arkansas | 0.013952 | –12,325 | 8,675 | 0.024038 | –5,931 | 6,861 |
| California | 0.010707 | –16,022 | 13,917 | 0.028439 | –23,877 | 12,350 |
| Colorado | 0.019267 | 4,638 | 3,198 | 0.017940 | 128 | 3,608 |
| Connecticut | 0.034363 | –781 | 1,504 | 0.024306 | –1,047 | 1,829 |
| Delaware | 0.061308 | –234 | 527 | 0.058226 | –184 | 529 |
| Florida | 0.010264 | –17,862 | 11,170 | 0.022310 | 21,695 | 5,794 |
| Georgia | 0.040208 | –10,805 | 6,234 | 0.044845 | 16,702 | 1,853 |
| Hawaii | 0.034563 | –1,603 | 1,552 | 0.212584 | –1,169 | 945 |
| Idaho | 0.069064 | –15,482 | 4,996 | 0.024568 | –5,756 | 3,301 |
| Illinois | 0.005932 | –8,487 | 9,365 | 0.001562 | –38,372 | 13,100 |
| Indiana | 0.006553 | –5,775 | 6,973 | 0.018011 | –6,028 | 6,053 |
| Iowa | 0.026962 | –7,704 | 4,252 | 0.037766 | –10,398 | 4,032 |
| Kansas | 0.015744 | –2,510 | 4,078 | 0.046706 | –21,946 | 6,195 |
| Kentucky | 0.015099 | –6,026 | 7,313 | –0.014871 | –7,130 | 8,307 |
| Louisiana | 0.004012 | –4,767 | 6,568 | 0.022152 | –3,240 | 5,213 |
| Maine | 0.030520 | –7,661 | 3,270 | 0.003096 | –10,278 | 3,842 |
| Maryland | 0.017639 | –6,240 | 3,697 | 0.011515 | –6,512 | 3,608 |
| Massachusetts | 0.027491 | –3,619 | 4,355 | 0.044116 | –8,700 | 5,301 |
| Michigan | 0.011920 | –23,905 | 20,643 | 0.025076 | 23,642 | 7,030 |
| Minnesota | 0.035500 | –7,447 | 10,504 | 0.027723 | –23,061 | 14,333 |
| Mississippi | 0.015625 | –10,362 | 5,357 | –0.000218 | –2,695 | 4,394 |
| Missouri | 0.019454 | –11,342 | 12,042 | 0.010034 | –70,146 | 19,451 |
| Montana | 0.018290 | –1,849 | 2,202 | 0.013948 | –3,887 | 2,640 |
| Nebraska | 0.009103 | –2,063 | 3,655 | –0.005553 | –28,329 | 7,091 |
| Nevada | 0.043203 | –1,733 | 1,536 | 0.123560 | 535 | 425 |
| New Hampshire | 0.019444 | –2,643 | 1,627 | 0.013722 | 400 | 1,313 |
| New Jersey | 0.026108 | 1,903 | 1,969 | 0.013215 | –1,967 | 2,735 |
| New Mexico | 0.112638 | –431 | 817 | 0.096905 | 807 | 610 |
| New York | 0.029022 | –22,367 | 14,881 | 0.008095 | –27,096 | 17,017 |
| North Carolina | 0.021276 | –6,354 | 5,499 | 0.012831 | –28,563 | 9,265 |
| North Dakota | 0.019007 | –3,002 | 1,621 | 0.008541 | –5,760 | 2,617 |
| Ohio | 0.022273 | –21,768 | 15,604 | 0.044683 | –9,949 | 10,955 |
| Oklahoma | 0.006405 | –10,237 | 8,296 | 0.013165 | –12,426 | 8,445 |
| Oregon | 0.073495 | –1,650 | 3,786 | 0.042692 | –10,309 | 6,182 |
| Pennsylvania | 0.027085 | –24,417 | 16,685 | –0.014656 | –134,270 | 41,466 |
| Rhode Island | 0.011732 | –506 | 680 | 0.021282 | –344 | 525 |
| South Carolina | 0.014487 | –6,537 | 6,823 | 0.086503 | 1,677 | 2,737 |
| South Dakota | 0.012863 | –1,152 | 1,751 | 0.019075 | –2,901 | 1,859 |
| Tennessee | 0.005611 | –9,561 | 11,404 | –0.011681 | –60,797 | 16,711 |
| Texas | 0.014288 | –13,795 | 18,462 | –0.003611 | –31,876 | 25,228 |
| Utah | 0.041500 | –1,853 | 2,544 | 0.071790 | 3,964 | 792 |
| Vermont | 0.016042 | –1,485 | 1,360 | –0.006963 | –2,952 | 1,792 |
| Virginia | 0.008112 | –5,920 | 7,627 | 0.011922 | 165 | 6,590 |
| Washington | 0.017168 | –6,558 | 4,800 | 0.045009 | 3,663 | 1,723 |
| West Virginia | 0.006512 | –2,872 | 4,433 | 0.001964 | –2,897 | 4,911 |
| Wisconsin | 0.009197 | –14,330 | 10,587 | –0.002285 | –35,565 | 15,098 |
| Wyoming | 0.025766 | –1,835 | 1,823 | 0.034258 | –3,738 | 1,705 |

Table D-8. **Parameters a and b for Calculating Approximate Standard Errors of Levels of Wildlife-Watching Participants for the Detailed Wildlife-Watching Sample**

| State | Away-from-home participants | | Wildlife-watching participants[1] | |
|---|---|---|---|---|
| | a | b | a | b |
| **United States** | **–0.000064** | **14,628** | **–0.000058** | **13,319** |
| Alabama | –0.002522 | 8,955 | –0.002252 | 7,994 |
| Alaska | –0.005091 | 2,539 | –0.005744 | 2,864 |
| Arizona | –0.001212 | 5,555 | –0.001128 | 5,170 |
| Arkansas | –0.003685 | 7,943 | –0.003787 | 8,163 |
| California | –0.000633 | 17,272 | –0.000632 | 17,247 |
| Colorado | –0.002818 | 10,157 | –0.002773 | 9,995 |
| Connecticut | –0.001942 | 5,313 | –0.001578 | 4,317 |
| Delaware | –0.002431 | 1,625 | –0.002061 | 1,378 |
| Florida | –0.001067 | 15,191 | –0.001082 | 15,396 |
| Georgia | –0.002273 | 15,705 | –0.002082 | 14,383 |
| Hawaii | –0.002169 | 2,200 | –0.002077 | 2,106 |
| Idaho | –0.005872 | 6,469 | –0.006027 | 6,640 |
| Illinois | –0.001350 | 13,189 | –0.001237 | 12,083 |
| Indiana | –0.002090 | 10,031 | –0.002026 | 9,722 |
| Iowa | –0.003442 | 8,051 | –0.003725 | 8,712 |
| Kansas | –0.002087 | 4,403 | –0.002245 | 4,737 |
| Kentucky | –0.003921 | 12,780 | –0.003130 | 10,201 |
| Louisiana | –0.002878 | 9,878 | –0.002325 | 7,980 |
| Maine | –0.005383 | 5,779 | –0.005003 | 5,372 |
| Maryland | –0.001401 | 6,072 | –0.001512 | 6,552 |
| Massachusetts | –0.001153 | 5,803 | –0.001045 | 5,260 |
| Michigan | –0.003188 | 24,879 | –0.002805 | 21,892 |
| Minnesota | –0.004869 | 19,579 | –0.004257 | 17,116 |
| Mississippi | –0.004033 | 8,929 | –0.004149 | 9,184 |
| Missouri | –0.003241 | 14,653 | –0.002731 | 12,349 |
| Montana | –0.006536 | 4,919 | –0.005006 | 3,768 |
| Nebraska | –0.001913 | 2,600 | –0.001770 | 2,406 |
| Nevada | –0.003763 | 7,131 | –0.002387 | 4,524 |
| New Hampshire | –0.002265 | 2,364 | –0.002070 | 2,160 |
| New Jersey | –0.000942 | 6,346 | –0.000899 | 6,057 |
| New Mexico | –0.002139 | 3,207 | –0.002023 | 3,034 |
| New York | –0.001498 | 22,454 | –0.001320 | 19,791 |
| North Carolina | –0.001307 | 8,785 | –0.001368 | 9,194 |
| North Dakota | –0.004745 | 2,408 | –0.004900 | 2,486 |
| Ohio | –0.001834 | 16,302 | –0.001729 | 15,365 |
| Oklahoma | –0.004720 | 12,946 | –0.003724 | 10,214 |
| Oregon | –0.004482 | 12,948 | –0.003771 | 10,895 |
| Pennsylvania | –0.001862 | 18,235 | –0.001779 | 17,426 |
| Rhode Island | –0.001588 | 1,338 | –0.001451 | 1,222 |
| South Carolina | –0.002527 | 8,378 | –0.002147 | 7,118 |
| South Dakota | –0.005879 | 3,532 | –0.005273 | 3,168 |
| Tennessee | –0.002040 | 9,583 | –0.002340 | 10,996 |
| Texas | –0.002981 | 50,906 | –0.002276 | 38,865 |
| Utah | –0.002948 | 5,329 | –0.003322 | 6,007 |
| Vermont | –0.003834 | 1,940 | –0.003687 | 1,866 |
| Virginia | –0.002142 | 12,625 | –0.002049 | 12,078 |
| Washington | –0.001012 | 5,037 | –0.001076 | 5,361 |
| West Virginia | –0.005125 | 7,470 | –0.005457 | 7,954 |
| Wisconsin | –0.002461 | 10,707 | –0.003232 | 14,058 |
| Wyoming | –0.006998 | 2,833 | –0.006562 | 2,657 |

[1] Use these parameters for total wildlife-watching participants and around-the-home participants.

Table D-9. **Parameters a, b, and c for Calculating Approximate Standard Errors for Expenditures and Days or Trips for Wildlife-Watching Participants**

| State | Expenditures | | | Days or trips | | |
|---|---|---|---|---|---|---|
| | a | b | c | a | b | c |
| **United States** | **0.000184** | **–1,140,662** | **67,137** | **0.000574** | **1,457,630** | **–8,497** |
| Alabama | 0.045588 | –11,994 | 16,603 | 0.188740 | –119,343 | 614 |
| Alaska | 0.120206 | –27,366 | 3,041 | –0.124071 | –135,739 | 22,893 |
| Arizona | 0.030207 | –53,304 | 10,729 | –0.012992 | 48,146 | 15,350 |
| Arkansas | 0.099812 | 14,720 | 8,751 | –0.017705 | 122,002 | 28,315 |
| California | 0.033850 | –512,106 | 41,075 | –0.045068 | 409,984 | 182,262 |
| Colorado | 0.027999 | –274,128 | 22,499 | –0.048837 | –38,813 | 65,367 |
| Connecticut | 0.021634 | –65,691 | 10,399 | –0.024457 | –95,765 | 25,345 |
| Delaware | 0.065106 | –1,447 | 1,138 | –0.008505 | 9,777 | 5,498 |
| Florida | 0.023886 | 346,119 | 21,198 | 0.008852 | 367,813 | 29,038 |
| Georgia | 0.074762 | –1,010,585 | 34,617 | –0.043108 | –269,579 | 83,544 |
| Hawaii | 0.083826 | –21,578 | 2,574 | –0.072050 | –22,450 | 10,110 |
| Idaho | 0.062974 | –42,113 | 7,740 | –0.034736 | –28,632 | 22,517 |
| Illinois | 0.036256 | –247,805 | 22,614 | –0.015710 | –127,759 | 55,397 |
| Indiana | 0.036663 | –31,127 | 16,250 | –0.011371 | –60,979 | 38,357 |
| Iowa | 0.079272 | 54,459 | 5,841 | –0.010582 | –64,612 | 23,312 |
| Kansas | 0.065343 | 2,002 | 6,423 | –0.009647 | 290,376 | 9,046 |
| Kentucky | 0.054215 | 7,733 | 10,118 | –0.027046 | –203,563 | 66,052 |
| Louisiana | 0.122208 | –20,968 | 9,262 | –0.027645 | 11,297 | 25,905 |
| Maine | 0.023874 | –51,089 | 9,384 | –0.124695 | –361,658 | 61,734 |
| Maryland | 0.014472 | –4,594 | 10,674 | 0.003905 | 125,364 | 13,230 |
| Massachusetts | 0.028723 | –178,823 | 9,836 | –0.028071 | –151,233 | 43,446 |
| Michigan | 0.034044 | –350,268 | 38,895 | –0.189982 | –1,478,372 | 355,858 |
| Minnesota | 0.074185 | –156,337 | 26,053 | –0.037135 | –287,075 | 81,476 |
| Mississippi | 0.069734 | –5,671 | 8,343 | 0.007734 | –4,828 | 12,669 |
| Missouri | 0.050350 | –370,879 | 19,939 | –0.072363 | –297,324 | 107,372 |
| Montana | 0.096467 | –101,441 | 7,127 | 0.021739 | 75,970 | 2,590 |
| Nebraska | 0.057553 | –29,126 | 3,150 | –0.037603 | –53,492 | 15,634 |
| Nevada | 0.114708 | –32,736 | 5,704 | 0.007035 | 8,360 | 8,647 |
| New Hampshire | 0.014724 | –17,918 | 4,039 | –0.004938 | 74,043 | 4,376 |
| New Jersey | 0.022949 | –169,333 | 13,969 | –0.040442 | 238,149 | 40,992 |
| New Mexico | 0.036652 | 16,768 | 4,306 | –0.023441 | 72,449 | 11,803 |
| New York | 0.042036 | –450,788 | 32,575 | –0.019285 | –366,511 | 102,534 |
| North Carolina | 0.061423 | –16,794 | 13,694 | –0.012815 | 19,657 | 37,216 |
| North Dakota | 0.155007 | –2,199 | 1,794 | 0.150664 | 6,024 | 376 |
| Ohio | 0.035458 | –205,570 | 28,049 | –0.018753 | –103,758 | 63,267 |
| Oklahoma | 0.036357 | –21,977 | 15,171 | –0.000564 | 1,344,926 | 16,961 |
| Oregon | 0.062814 | –65,011 | 9,965 | –0.004734 | 831,881 | 37,513 |
| Pennsylvania | 0.054585 | –176,791 | 24,331 | –0.024636 | –296,844 | 94,825 |
| Rhode Island | 0.037242 | –31 | 2,537 | –0.019391 | 234 | 7,490 |
| South Carolina | 0.017341 | –52,304 | 14,141 | –0.021836 | –45,588 | 28,960 |
| South Dakota | 0.058011 | –16,346 | 3,878 | –0.063876 | –12,873 | 14,245 |
| Tennessee | 0.058962 | –19,581 | 19,197 | –0.067979 | 539,487 | 98,190 |
| Texas | 0.107126 | 268,978 | 41,639 | –0.115263 | –2,660,430 | 425,213 |
| Utah | 0.056246 | –5,750 | 4,842 | –0.002938 | –77,345 | 25,347 |
| Vermont | 0.005556 | –22,018 | 4,065 | –0.014449 | 33,588 | 6,073 |
| Virginia | 0.043764 | –51,970 | 12,817 | –0.046070 | –227,508 | 91,189 |
| Washington | 0.030615 | –16,210 | 11,199 | –0.000250 | 36,174 | 12,719 |
| West Virginia | 0.118586 | –4,653 | 8,819 | –0.073404 | 38,459 | 30,640 |
| Wisconsin | 0.009997 | –400,732 | 26,411 | –0.015178 | –125,383 | 46,927 |
| Wyoming | 0.083907 | –31,350 | 3,012 | –0.062286 | –29,913 | 12,976 |

# *Notes*

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