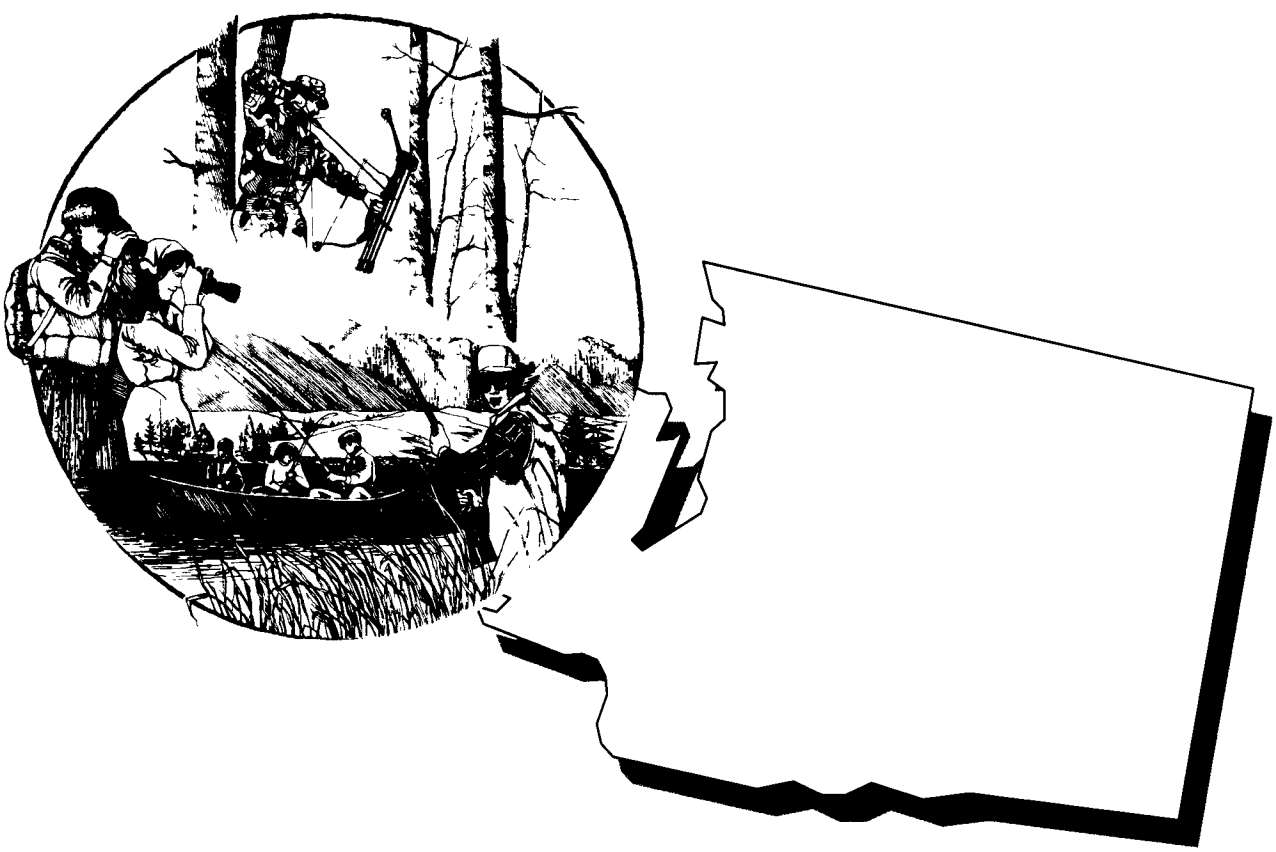
# 1991

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

# Washington



U.S. Department of the Interior
U S FISH AND WILDLIFE SERVICE

U.S. Department of Commerce
Economics and Statistics Administration
BUREAU OF THE CENSUS

# 1991

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

# Washington

Issued October 1993

**U.S. Department of the Interior**
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**FISH AND WILDLIFE SERVICE**
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As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure their development in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The mission of the Department's Fish and Wildlife Service is to conserve, protect, and enhance fish and 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 Federal Aid in Sport Fish Restoration and the Federal Aid of Wildlife Restoration Programs. These two grant 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. Funds from the administrative portion of these programs are used to pay for the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

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**The data reported herein should not be directly compared with that in previous years' survey reports because of changes in survey methodology. An explanation of the changes is presented in the Survey Background and Method section.**

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# Foreword

In 1991, more than half of the people in the United States 16 years old and older enjoyed some type of wildlife-related recreation. Whether they were fishing, hunting, or engaging in some other outdoor activity, millions of Americans enjoyed our country's fish and wildlife. In order to continue providing such opportunities, careful planning based on detailed information on resource use is necessary. The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation is a unique source of such information. The Survey is an important tool not only for natural resource managers who use it to track trends in fish and wildlife-related recreation for future planning, but for everyone who cares about outdoor recreation.

The 1991 Survey was requested by the States through the International Association of Fish and Wildlife Agencies. It is the eighth in a series of surveys conducted for the U.S. Fish and Wildlife Service since 1955. The Survey is financed by hunters, anglers, and boaters through excise taxes on sporting arms, ammunition, fishing equipment, and motorboat fuels as authorized under the Federal Aid in Sport Fish and Wildlife Restoration Acts.

The Survey reports resource use by anglers, hunters, and those who enjoyed nonconsumptive activities such as observing, feeding, and photographing wildlife. It also shows wildlife-related recreation to be a boom to our economy. The $59 billion Americans spent to enjoy wildlife supported hundreds of thousands of jobs.

Our American heritage is enriched by visions of bald eagles soaring gracefully, a flock of geese gliding into a placid lake and a 10-point buck bounding across a golden meadow in the fall. These and other beautiful wild creatures have the power to captivate us, to transcend the mundane in life, and fill us with awe. The value we place on such things is well documented in this Survey. Let us use this information wisely in the stewardship of our land and its wildlife.

**John F. Turner,** Director
**Fish and Wildlife Service**
**U.S. Department of the Interior**

# Survey Background and Method

The National Survey of Fishing, Hunting, and Wildlife Associated Recreation has been conducted since 1955 and is one of the oldest and most comprehensive continuing recreation surveys. The purpose of the Survey is to gather information on the number of anglers, hunters, and nonconsumptive participants in our country, as well as how often they participate and how much they spend on these activities.

The planning process for the 1991 Survey began in 1988 when the International Association of Fish and Wildlife Agencies (IAFWA) passed a resolution asking the Fish and Wildlife Service to conduct the eighth National Survey of wildlife-associated recreation. Funding for the Survey came from the administrative portion of the Federal Aid in Sport Fish and Wildlife Restoration Programs.

Consultations with State and Federal agencies and nongovernmental organizations such as the Wildlife Management Institute, Sport Fishing Institute, American Fishing Tackle Manufacturers Association, B.A.S.S., Inc., Wild Bird Feeding Institute, The Wildlife Society, National Wildlife Federation, and American Fisheries Society started in early 1989 to ascertain survey content. Other sportsmen's organizations and conservation groups, industry representatives, and researchers also provided valuable advice on questionnaire development, and data collection and reporting.

Four regional technical committees were set up under the auspices of the IAFWA 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.

The Survey was conducted in two phases by the U.S. Bureau of the Census for the Fish and Wildlife Service. The first phase interviewed a sample of 129,500 households nationwide, primarily by telephone, to determine who in the household had fished, hunted, or engaged in a nonconsumptive wildlife-related activity in 1990, and who planned to engage in those activities in 1991. In most cases, one adult household member provided information for all household members.

The first phase was conducted in January and February 1991 and achieved a 95 percent response rate from those households that were eligible. It is important to note that the first phase covered 1990 activities while the next, more in-depth phase covered 1991 activities. For more detailed information on the 1990 data refer to appendix B.

The second phase of the Survey consisted of three detailed interviews conducted every 4 months with samples of likely anglers, hunters, and nonconsumptive participants who were identified in the initial screening phase. These interviews were conducted primarily by telephone, with in-person interviews for those respondents who could not be reached by telephone. Respondents in the second interviewing phase were limited to those at least 16 years old. Each respondent provided information pertaining only to his/her activities and expenditures. Sample sizes were designed to provide statistically reliable results at the State

level for fishing, hunting, and nonconsumptive activities. Altogether, interviews were completed for 23,179 anglers and hunters and 22,723 nonconsumptive participants. More detailed information on sampling procedures and response rates is found in appendix D.

## Comparability With 1980 and 1985 Surveys

The 1991 Survey questionnaires were similar to those used in the 1980 and 1985 Surveys, and the sample sizes for the three Surveys were roughly the same. Ways in which the 1991 Survey differed from the 1980 and 1985 Surveys are:

1) The interviews were conducted primarily by telephone rather than by in-person interviews. The previous two Surveys required in-person interviews because data were collected for sub-state activity which required the use of visual aids.

2) The first phase interview was done at the beginning of the Survey year, rather than at the end. This meant people had to be screened into the second phase based on anticipated activity, rather than past activity as in the previous National Surveys.

3) In 1985 the Bureau of the Census made a weighting adjustment to account for persons incorrectly screened out of the sample.. It caused a positive bias in estimates of totals, but had little effect on summary estimates such as percentages and means. In 1991, this adjustment was not appropriate because of the change in the screening procedures. The Bureau of the Census did make an adjustment to account for persons who were screened out in 1991 but did participate in fishing or hunting that year. This adjustment was smaller than the 1985 and 1980 adjustments.

4) Three 4-month recall periods for each respondent were used rather than the one 12-month recall period used in previous Surveys. The recall period was changed as a result of research on recall bias, which found that the amount of activity and expenditures reported in 12-month recall surveys was over-estimated in comparison with that of shorter recall periods.

The 1991 Survey estimates are more accurate as a result of changes in methodologies. However, because of these changes, the 1991 estimates are not directly comparable with similar estimates of previous Surveys. The differences in data between the 1991 Survey and that of previous Surveys will be due at least in part to changes in the recall length and weighting adjustment and not due to actual declines in participation in those activities.

## National and Regional Trends

Wildlife-related recreation continues to be popular among millions of Americans. National trends information from the screening phases of the 1991 and 1985 Surveys indicate an increase of 11 percent in the number of anglers 6 years old and older who fished in the United States from 1985 to 1990. The number of hunters remained constant.

The number of nonconsumptive recreationists 6 years old and older who took trips away from home for the primary purpose of observing, feeding, or photographing wildlife in the United States increased by 10 percent from 1985 to 1990. Those who enjoyed these activities around their homes decreased 6 percent.

National and regional trends information is presented in appendix C of this state report. The trends information is based on estimates from the screening phases of the surveys and not on estimates from the detailed phases of the surveys.

# Introduction

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation reports results from interviews with U.S. residents about their fishing, hunting, and other fish and wildlife-related recreation. This report focuses on 1991 participation and expenditures of State residents 16 years of age and older.

The numbers reported should not be directly compared with those in previous survey reports because of changes in survey methodology in 1991. These changes were made to improve accuracy in the information provided.

The report also provides information on participation in wildlife-related recreation by persons 6 to 15 years of age, in 1990. The 1990 information is provided in appendix B. Additional information about the scope and coverage of the Survey can be found in the Survey Background and Method section of this report. The remainder of this section defines important terms used in the Survey.

## Wildlife-Associated Recreation

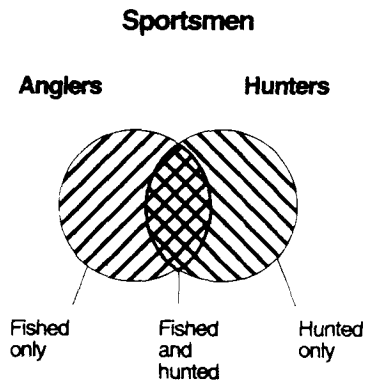
Wildlife-associated recreation includes fishing, hunting, and primary nonconsumptive wildlife activities. These categories are not mutually exclusive because many individuals enjoyed fish and wildlife in several ways in 1991. Wildlife-associated recreation is reported in two major categories: (1) fishing and hunting, and (2) primary nonconsumptive uses of wildlife resources such as observing, feeding, and photographing wildlife.

## Fishing and Hunting

This Survey reports information about residents of the United States who fished or hunted in 1991, regardless of whether they were licensed. The fishing and hunting sections of this report are organized to report three groups: (1) sportsmen, (2) anglers, and (3) hunters.

## Sportsmen

Sportsmen are persons who fish or hunt. Individuals who fished or hunted commercially in 1991 are reported as sportsmen only if they fished or hunted for recreation. The sportsmen group is composed of the three subgroups in the diagram below: (1) those who fish and hunt, (2) those who only fish, and (3) those who only hunt. The total number of sportsmen is not equal to the sum of anglers and hunters because those people who both fish and hunt are not counted twice.



## Anglers

Anglers are sportsmen who only fish plus those who fish and hunt. The angler group includes not only licensed hook and line anglers, but also those who have no license and those who use special methods such as spears for fishing. Three types of fishing are reported: (1) freshwater, excluding the Great Lakes, (2) Great Lakes, and (3) saltwater. Since many anglers enjoy 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 sportsmen who only hunt plus those who hunt and fish. The hunter group includes not only licensed hunters using common hunting practices, but also those who have no license and those who engage in hunting with a bow and arrow, muzzleloader, other primitive firearm, or a 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 enjoy 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.

## Primary Nonconsumptive Wildlife Activities

Since 1980, the National Survey of Fishing, Hunting and Wildlife-Associated Recreation has included information on nonconsumptive activities in addition to fishing and hunting. However, the 1991 Survey, unlike the 1980 and 1985 Surveys, reports data only for primary nonconsumptive activities.

Secondary nonconsumptive activities, such as incidentally observing wildlife while pleasure driving, are not included.

Many people, including sportsmen, enjoy wildlife-associated recreation other than fishing or hunting. These nonharvesting activities, such as observing, feeding, or photographing fish and other wildlife, are called nonconsumptive wildlife activities. Two types of nonconsumptive activity are reported: (1) nonresidential and (2) residential. Because some people participate in more than one type of nonconsumptive wildlife activity, the sum of participants in each type will be greater than the total number of nonconsumptive participants. Only those engaged in activities whose primary purpose was nonconsumptive are included in the Survey. The two types of nonconsumptive wildlife activities are defined below.

## Primary Nonresidential

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

## Primary Residential

This group includes those whose activities are within 1 mile of home and involve 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 on a regular basis, (4) maintaining natural areas of at least one-quarter acre for which benefit to wildlife is the primary purpose, (5) maintaining plantings (shrubs, agricultural crops, etc.) for which 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.

# Detail of Tables
# **Summary**

**Activities by Washington Residents 16 Years Old and Older**

| | |
|---|---|
| **Fishing** | |
| Anglers | 966,000 |
| Days of fishing | 12,789,000 |
| Average days per angler | 13 |
| Total expenditures | $1,009,310,000 |
| Trip-related | $304,621,000 |
| Equipment and other | $704,688,000 |
| Average per angler | $1,044 |
| Average per day | $79 |
| **Hunting** | |
| Hunters | 251,000 |
| Days of hunting | 3,546,000 |
| Average days per hunter | 14 |
| Total expenditures | $191,609,000 |
| Trip-related | $78,202,000 |
| Equipment and other | $113,407,000 |
| Average per hunter | $764 |
| Average per day | $54 |
| **Primary Nonconsumptive** | |
| Total nonconsumptive participants | 2,076,000 |
| Nonresidential | 875,000 |
| Residential | 2,033,000 |
| Total expenditures | $511,218,000 |
| Trip-related | $298,941,000 |
| Equipment and other | $212,276,000 |

**Activities by Participants 16 Years Old and Older in Washington**

| | |
|---|---|
| **Fishing** | |
| Anglers | 995,000 |
| Days of fishing | 11,967,000 |
| Average days per angler | 12 |
| Trip-related expenditures | $284,635,000 |
| Food and lodging | $115,778,000 |
| Transportation | $74,539,000 |
| Other | $94,319,000 |
| **Hunting** | |
| Hunters | 248,000 |
| Days of hunting | 3,386,000 |
| Average days per hunter | 14 |
| Trip-related expenditures | $66,504,000 |
| Food and lodging | $32,637,000 |
| Transportation | $31,755,000 |
| Other | $2,112,000 |
| **Primary Nonconsumptive** | |
| Primary nonresidential participants | 1,058,000 |
| Days of participation | 11,470,000 |
| Average days per participant | 11 |
| Trip-related expenditures | $266,923,000 |

The 1991 Survey data reported herein should not be directly compared with that of previous National Surveys because of changes in survey methodology. An explanation of the changes is presented in the Survey Background and Method Section.

# Wildlife-Associated Recreation

The 1991 Survey revealed that 2.9 million Washington residents 16 years old and older engaged in fishing, hunting, or nonconsumptive activities. Of the total number of participants, 966 thousand fished, 251 thousand hunted, and 2.1 million participated in nonconsumptive activities where the enjoyment of wildlife was the primary purpose of the activity. Nonconsumptive activities included observing, feeding, and photographing wildlife.

The sum of anglers, hunters, and nonconsumptive participants exceeds the total number of participants in wildlife-associated recreation because many individuals engaged in more than one wildlife-related activity.

In 1991, state residents spent $1.9 billion on wildlife-associated recreation. Of that total, trip-related expenditures were $682 million and equipment purchases totaled $1.1 billion.

The remaining $81 million was spent on licenses, contributions, land ownership and leasing, and other items and services.

**Participants in Wildlife-Associated Recreation**

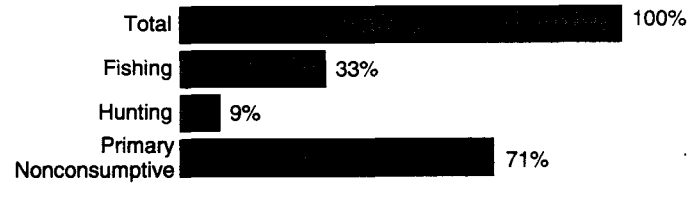
(State residents 16 years old and older)

| | |
|---|---|
| **Total** | **2.9 million** |
| **Sportsmen** | |
| **Total** | **1.0 million** |
| Anglers | 966 thousand |
| Hunters | 251 thousand |
| **Primary Nonconsumptive** | |
| **Total** | **2.1 million** |
| Residential | 2.0 million |
| Nonresidential | 875 thousand |

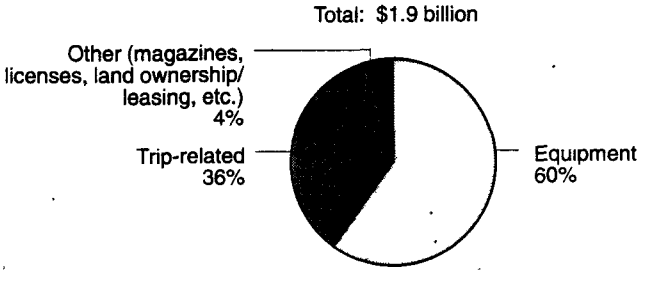
Source: Tables 3 and 22

Detail does not add to total because of multiple responses.

**Percent of State Residents Participating, by Activity**




**Resident Wildlife-Associated Recreation Expenditures**



# Sportsmen

In 1991, there were 1 1 million state resident and nonresident sportsmen 16 years old and older who fished or hunted in Washington. This group included 995 thousand anglers (93 percent of all sportsmen) and 248 thousand hunters (23 percent of all sportsmen). Of the 1.1 million sportsmen who fished or hunted in the state, 826 thousand (77 percent) fished but did not hunt in Washington. Another 78 thousand (7 percent) hunted but did not fish there The remaining 169 thousand (16 percent) fished and hunted in Washington in 1991.

**Sportsmen Participation in State**

(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Sportsmen** (Fished or hunted) | **1.1 million** |
| **Anglers** | **995 thousand** |
| Fished only | 826 thousand |
| Fished and hunted | 169 thousand |
| **Hunters** | **248 thousand** |
| Hunted only | 78 thousand |
| Hunted and fished | 169 thousand |

Source: Table 1

Detail does not add to total because of multiple responses.

# Anglers

## Participants and Days of Fishing

In 1991, there were 995 thousand state residents and nonresidents 16 years old and older who fished in Washington. Of this total, 872 thousand anglers (88 percent) were state residents and 122 thousand anglers (12 percent) were nonresidents. Anglers fished a total of 12 million days in Washington, an average of 12 days per angler. State residents fished 11.4 million days, 96 percent of all fishing days within Washington, while nonresidents fished 519 thousand days, 4 percent of all fishing days in the state.

There were 966 thousand Washington residents 16 years old and older who fished in the United States in 1991. These anglers fished a total of 12.8 million days. Eight hundred seventy-two thousand resident anglers (90 percent) fished in Washington. They spent 11.4 million days, 90 percent of their total fishing days, fishing in their resident state.

Some state residents fished only in other states or fished in other states as well as Washington. In 1991, 199 thousand Washington anglers fished in other states, 21 percent of the resident angler total. They fished 1.3 million days as nonresidents representing 10 percent of all days fished by Washington residents. For further details about fishing in Washington, see table 3.

**Anglers in State**

(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Anglers** | **995 thousand** |
| Resident | 872 thousand |
| Nonresident | 122 thousand |
| **Days of fishing** | **12.0 million** |
| Resident | 11.4 million |
| Nonresident | 519 thousand |

Source: Table 3

**In-State/Out-of-State**

(State residents 16 years old and older)

| | |
|---|---|
| **Washington anglers** | **966 thousand** |
| In Washington | 872 thousand |
| In other states | 199 thousand |
| **Days of fishing** | |
| **Total** | **12.8 million** |
| In Washington | 11.4 million |
| In other states | 1.3 million |

Source: Table 3

Detail does not add to total because of multiple responses.

## Resident Fishing Expenditures

Washington residents 16 years old and older spent $1 billion on fishing expenses in the United States in 1991. Trip-related expenditures including food and lodging, transportation, and other expenses such as equipment rental or boat fuel, totaled $305 million, 30 percent of all their fishing expenditures. Each resident angler spent an average of $315 on trip-related costs during 1991

Washington anglers spent $682 million on equipment in 1991, 68 percent of all fishing expenditures. Fishing equipment (rods, reels, line, etc.) totaled $116 million, 17 percent of the equipment total. Auxiliary equipment expenditures (tents, special fishing clothes, etc.) and special equipment expenditures (boats, trail bikes, etc ) amounted to $566 million, 83 percent of the equipment total. Special and auxiliary equipment are items that were purchased primarily 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 $23 million, 2 percent of all fishing expenditures For more details about fishing expenditures by state residents, see tables 17 and 19.

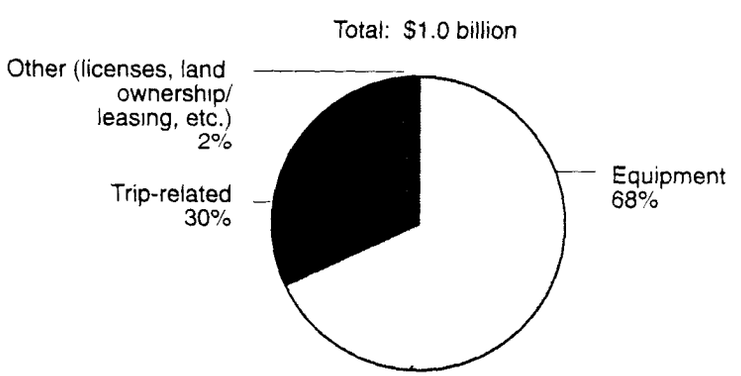
**Fishing Expenditures**

**(State residents 16 years old and older)**

| | |
|---|---|
| **Total** | **$1.0 billion** |
| Trip-related | 305 million |
| Equipment | 682 million |
| Fishing | 116 million |
| Auxiliary and Special | 566 million |
| Other | 23 million |

**Source: Table 17**

**Resident Fishing Expenditures**




## In-State Trip-Related Expenditures

Resident and nonresident anglers spent a total of $285 million on trip-related expenditures in Washington, an average of $286 per person in 1991. They spent $116 million on food and lodging and $75 million on transportation. Other trip-related expenses such as equipment rental, bait, and fuel totaled $94 million. For more information on trip-related expenditures by resident and nonresident anglers, see table 20.

# Hunters

## Participants and Days of Hunting

In 1991, there were 248 thousand residents and nonresidents 16 years old and older who hunted in Washington. Resident hunters numbered 236 thousand accounting for 95 percent of the hunters in Washington. There were 11 thousand nonresidents who hunted in Washington, 5 percent of the state's hunters. Residents and nonresidents hunted 3.4 million days in 1991, an average of 14 days per hunter. Residents hunted on almost 3.4 million days in Washington or 99 percent of all hunting days, while nonresidents spent 34 thousand days hunting in Washington, 1 percent of all hunting days.

There were 251 thousand Washington residents 16 years old and older who hunted in the United States in 1991 Of the total 3 5 million days of hunting by state residents, almost 3.4 million days (95 percent of the total) were spent pursuing game within Washington.

Some state residents hunted only in another state or in another state as well as in Washington. Altogether, 34 thousand Washington hunters, 13 percent of the total, hunted as nonresidents in other states. Their 194 thousand days of hunting in other states represented 5 percent of all the days Washington residents spent hunting in 1991 For more information on hunting activities by Washington residents, see table 3

**Hunters in State**

(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Hunters** | **248 thousand** |
| Resident | 236 thousand |
| Nonresident | 11 thousand |
| **Days of hunting** | **3.4 million** |
| Resident | 3.4 million |
| Nonresident | 34 thousand |

Source: Table 3

**In-State/Out-of-State**

(State residents 16 years old and older)

| | |
|---|---|
| **Washington hunters** | **251 thousand** |
| In Washington | 236 thousand |
| In other states | 34 thousand |
| **Days of hunting** | **3.5 million** |
| In Washington | 3.4 million |
| In other states | 194 thousand |

Source: Table 3

Detail does not add to total because of multiple responses.

## Resident Hunting Expenditures

Resident hunters 16 years old and older spent $192 million in the United States in 1991. Trip-related expenses such as food and lodging, transportation, and other trip costs, including equipment rental fees, cost hunters $78 million, 41 percent of their total expenditures The average trip-related expenditure for resident hunters was $312.

Hunters spent $93 million on equipment, 48 percent of all hunting expenditures. Hunting equipment (guns, ammunition, etc.) garnered 75 percent of all equipment costs, $70 million for state residents. Hunters spent $23 million on auxiliary equipment (tents, special hunting clothes, etc.) and special equipment (boats, trail bikes, etc.), accounting for 25 percent of total equipment expenditures for hunting. Special and auxiliary equipment are items that were purchased primarily 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 $21 million, 11 percent of all hunting expenditures. For more details on hunting expenditures by Washington residents, see tables 18 and 19

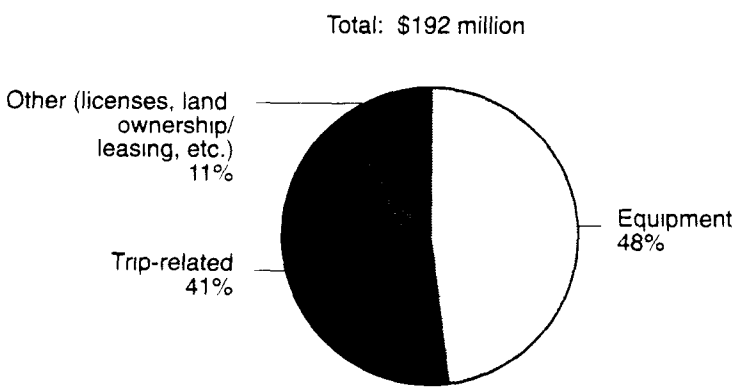
### Hunting Expenditures

**(State residents 16 years old and older)**

| | |
|---|---|
| **Total** | **$192 million** |
| Trip-related | 78 million |
| Equipment | 93 million |
| Hunting | 70 million |
| Auxiliary and Special | 23 million |
| Other | 21 million |

**Source: Table 18**

### Resident Hunting Expenditures




## In-State Trip-Related Expenditures

In 1991, resident and nonresident hunters spent $67 million on trip-related expenditures in Washington, an average of $268 per person. They spent $33 million on food and lodging and $32 million on transportation. Other expenses such as equipment rental totaled $2 million for the year. For more information on trip-related expenditures by resident and nonresident hunters, see table 20.

# Primary Noncon-sumptive Activities

## Participants and Days of Activity

In 1991, 2.1 million state residents 16 years old and older participated in nonconsumptive activities such as observing, feeding, or photographing wildlife. Some state residents enjoyed their activities close to home and are called "residential" participants. Those whose primary purpose was to enjoy wildlife at least 1 mile from home are called "nonresidential" participants. There were 2 million residential participants accounting for 98 percent of the nonconsumptive participants in Washington.

People participating in nonresidential activities in Washington numbered 1.1 million, of which 800 thousand were state residents and 258 thousand were nonresidents.

In 1991, 800 thousand Washington residents 16 years old and older enjoyed primary nonresidential nonconsumptive recreation activities within their state of residence. Of this group, 798 thousand participants observed wildlife, 261 thousand fed wildlife, and 444 thousand photographed wildlife. Since some individuals engaged in more than one of the three primary nonresidential activities during the year, the sum of wildlife observers, feeders, and photographers exceeds the total number of primary nonresidential participants.

**Primary Nonresidential In-State**

(State residents and nonresidents 16 years old and older)

| | |
|---|---|
| **Participants** | |
| **Total** | **1.1 million** |
| Observe wildlife | 1.0 million |
| Feed wildlife | 306 thousand |
| Photograph wildlife | 550 thousand |
| **Days** | |
| **Total** | **11.5 million** |
| Observe wildlife | 10.1 million |
| Feed wildlife | 2.4 million |
| Photograph wildlife | 2.9 million |

Source: Table 23

Detail does not add to total because of multiple responses.

Washington residents spent 10.2 million days engaged in primary nonresidential activities in their state. During 1991, they spent 9.1 million days observing wildlife, 2.2 million days feeding wildlife, and 2.5 million days photographing wildlife. The sum of days of observing, feeding, and photographing wildlife may exceed the total days of primary nonresidential activity because individuals may have engaged in more than one activity on some days. For further details about nonresidential activities, see table 23.

Washington residents also took an active interest in wildlife around their homes. In 1991, 2 million state residents enjoyed observing, feeding, and photographing wildlife within one mile of their homes. Of this primary residential group, 1.6 million observed wildlife, 1.8 million fed wildlife, and 577 thousand photographed wildlife around their homes. Another 496 thousand residential participants visited public parks and natural areas within a mile of home; 197 thousand participants maintained natural areas of 1/4 acre or more for the primary benefit of wildlife; and 214 thousand participants maintained plantings for the benefit of wildlife. Adding the participants in these six activities results in a sum that exceeds the total number of residential participants because many people participated in more than one type of residential activity. For further details about Washington residents participating in residential nonconsumptive activities, see table 25.

**Primary Residential Participants**

(State residents 16 years old and older)

| | |
|---|---|
| Total | 2.0 million |
| Observe wildlife | 1.6 million |
| Feed wildlife | 1.8 million |
| Photograph wildlife | 577 thousand |
| Visit public areas | 496 thousand |
| Maintain natural areas | 197 thousand |
| Maintain plantings | 214 thousand |

Source: Table 25

Detail does not add to total because of multiple responses.

## Primary Nonconsumptive Expenditures

Washington residents 16 years old and older spent $511 million on primary nonconsumptive activities in the United States in 1991. Trip-related expenditures for primary nonconsumptive participants, including food and lodging ($192 million), transportation ($98 million), and other expenses such as equipment rental ($9 million), amounted to $299 million, 58 percent of all nonconsumptive expenditures by state residents. The average trip-related expenditure for nonresidential participants was $342 per person in 1991.

Nonconsumptive participants spent a total of $178 million on equipment, 35 percent of all their expenditures. Specifically, nonconsumptive equipment (binoculars, special clothing, etc.) totaled $144 million, 81 percent of the equipment total. Auxiliary equipment expenditures (tents, backpacking equipment, etc.) and special equipment expenditures (campers, trucks, etc.) amounted to $35 million, 19 percent of all equipment costs. Special and auxiliary equipment are items that were purchased primarily for nonconsumptive wildlife-related recreation but can be used in activities other than nonconsumptive wildlife-related activities.

Other items purchased by primary nonconsumptive participants such as magazines, membership dues, and contributions totaled $34 million, 7 percent of all nonconsumptive expenditures. For more details about nonconsumptive expenditures by state residents see table 27.

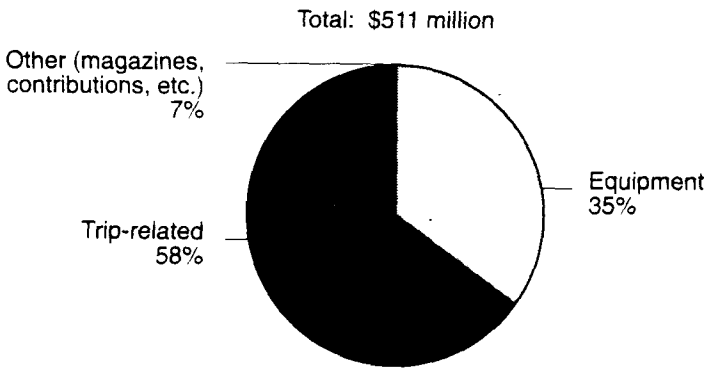
**Primary Nonconsumptive Expenditures**

(State residents 16 years old and older)

| | |
|---|---|
| **Total** | **$511 million** |
| Trip-related | 299 million |
| Equipment | 178 million |
| Nonconsumptive | 144 million |
| Auxiliary and Special | 35 million |
| Other | 34 million |

Source: Table 27

**Resident Nonconsumptive Expenditures**



# Guide to Statistical Tables

## Purpose and Coverage of Tables

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

The tables are based on responses to the 1991 Survey which was designed to collect data about participation in wildlife-associated recreation. To take part in the Survey a respondent must have been a U.S. resident (a resident of one of the fifty 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 residing outside the United States.

## Comparability With Previous Surveys

The methodology for the 1991 Survey was changed to improve accuracy. As a result, the data estimates presented in the following tables for participation and expenditures should not be compared with similar estimates from previous National Surveys. An explanation of the differences between the 1991 Survey and the 1980 and 1985 Surveys is presented in the Survey Background and Method section.

## 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 1 shows that individuals, including both residents of the state and nonresidents, who fished or hunted in the state are being reported. In contrast, the title of table 2 shows that data about anglers and hunters, their days of participation, and number of trips are being reported for state residents only.

## 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 10 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 sportsmen hunting other animals. These form 100 percent because they are exclusive categories.

Percents should not add to 100 when non-exclusive groups are being reported. Using table 10 as an example again, note that adding the percentages associated with 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 (100 percent) because types of game are not exclusive categories.

When the base of the percentage may not be apparent in

context, it is identified in a footnote. For example, table 13 reports 2 percentages with different bases: one for the number of sportsmen who participated in the activity and one for the percent of state residents who participated. 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 small sample size.

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

W Less than .5 dollars.

Z. Less than .5 percent.

X Not applicable.

Estimates based upon fewer than ten responses are regarded as being based on a sample size that is too small for reliable reporting. An estimate based upon at least ten but fewer than thirty 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 nonresponses.

"Multiple responses" is a term used to reflect the fact that individuals or their characteristics fall into more than one category. Using table 2 as an example, those who hunted in big game and small game appear in both of these totals. Yet each hunter is represented only once in the "Total, all hunting" row. Similarly, those who fish in freshwater and salt water are counted only once as an angler. Therefore, totals may be smaller than the sum of subcategories when multiple responses exist.

"Nonresponse" exists because the Survey questions were answered voluntarily. Some respondents did not answer all of the questions. The effect of nonresponses may be illustrated by table 14, where the reported total for fishing and hunting expenditures is greater than the sum of reported fishing expenditures plus reported hunting expenditures. This occurs because some respondents did not respond to the questions about the primary purpose of their expenditures. As a result, it is known that the expenditures were for fishing or hunting, but it is not known whether they were for fishing or whether they were for hunting. Totals are greater than the sum of subcategories when nonresponses have occurred.

## Table 1. Fishing and Hunting in State, by Resident and Nonresident Sportsmen: 1991

### WASHINGTON

[Population 16 years old and older. Numbers in thousands]

| Sportsmen | Total, residents and nonresidents | | Residents | | Nonresidents | |
|---|---|---|---|---|---|---|
| | Number | Percent of sportsmen | Number | Percent of resident sportsmen | Number | Percent of nonresident sportsmen |
| **Total sportsmen** | 1,073.5 | 100 | 942.3 | 100 | 131.2 | 100 |
| **Total anglers** | 995.0 | 93 | 872.5 | 93 | 122.5 | 93 |
| Fished only | 825.7 | 77 | 705.9 | 75 | 119.8 | 91 |
| Fished and hunted | 169.2 | 16 | 166.6 | 18 | ... | ... |
| **Total hunters** | 247.8 | 23 | 236.4 | 25 | *11.4 | *9 |
| Hunted only | 78.5 | 7 | 69.8 | 7 | ... | ... |
| Hunted and fished | 169.2 | 16 | 166.6 | 18 | ... | ... |

Note: Detail does not add to total because of multiple responses.
* Estimate based on a small sample size.
... Sample size too small to report data reliably.

## Table 2. Resident Anglers and Hunters, Days of Participation, and Trips, by Type of Fishing and Hunting: 1991

### WASHINGTON

[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 | 966.5 | 100 | 12,789.0 | 100 | 10,626.4 | 100 |
| Freshwater, except Great Lakes | 706.5 | 73 | 9,695.5 | 76 | 7,692.7 | 72 |
| Great Lakes | ... | ... | ... | ... | ... | ... |
| Saltwater | 474.2 | 49 | 3,592.6 | 28 | 2,931.5 | 28 |
| **Hunting** | | | | | | |
| Total, all hunting | 250.8 | 100 | 3,545.6 | 100 | 3,110.4 | 100 |
| Big game | 205.6 | 82 | 1,941.2 | 55 | 1,350.2 | 43 |
| Small game | 114.9 | 46 | 1,030.0 | 29 | 905.1 | 29 |
| Migratory bird | 51.0 | 20 | 518.4 | 15 | 528.0 | 17 |
| Other animals | *24.2 | *10 | *335.3 | *9 | *327.2 | *11 |

Note: Detail does not add to total because of multiple responses.
* Estimate based on a small sample size.
... Sample size too small to report data reliably.

## Table 3. Anglers and Hunters, Trips, and Days of Participation: 1991

### WASHINGTON

[Population 16 years old and older. Numbers in thousands]

| Anglers and hunters, trips, and days of participation | Activity in state | | | | | | Activity by state residents | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 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 | 995.0 | 100 | 872.5 | 88 | 122.5 | 12 | 966.5 | 100 | 872.5 | 90 | 198.7 | 21 |
| Total trips | 10,148.8 | 100 | 9,786.7 | 96 | 362.1 | 4 | 10,626.4 | 100 | 9,786.7 | 92 | 839.7 | 8 |
| Total days of fishing | 11,967.0 | 100 | 11,447.0 | 96 | 519.0 | 4 | 12,789.0 | 100 | 11,447.0 | 90 | 1,342.0 | 10 |
| Average days of fishing | 12.0 | (X) | 13.1 | (X) | 4.2 | (X) | 13.2 | (X) | 13.1 | (X) | 6.8 | (X) |
| Average one-way distance traveled per trip (miles) | 37.4 | (X) | 32.6 | (X) | 165.8 | (X) | 42.6 | (X) | 32.6 | (X) | 159.1 | (X) |
| **Hunting** | | | | | | | | | | | | |
| Total hunters | 247.8 | 100 | 236.4 | 95 | *11.4 | *5 | 250.8 | 100 | 236.4 | 94 | *33.5 | *13 |
| Total trips | 3,067.9 | 100 | 3,041.2 | 99 | *26.6 | *1 | 3,110.4 | 100 | 3,041.2 | 98 | *69.2 | *2 |
| Total days of hunting | 3,386.1 | 100 | 3,351.7 | 99 | *34.4 | *1 | 3,545.6 | 100 | 3,351.7 | 95 | *193.9 | *5 |
| Average days of hunting | 13.7 | (X) | 14.2 | (X) | *3.0 | (X) | 14.1 | (X) | 14.2 | (X) | *5.8 | (X) |
| Average one-way distance traveled per trip (miles) | 41.9 | (X) | 40.3 | (X) | *224.8 | (X) | 50.3 | (X) | 40.3 | (X) | *489.7 | (X) |

Note: Detail does not add to total because of multiple responses.
(X) Not applicable.
* Estimate based on a small sample size.

## Table 4. Freshwater Anglers, Trips, and Days of Fishing, and Type of Water: 1991

### WASHINGTON

[Population 16 years old and older. Numbers in thousands]

| Anglers, trips, and days of fishing | Activity in state | | | | | |
|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | State residents | | Nonresidents | |
| | Number | Percent | Number | Percent | Number | Percent |
| Total anglers | 681.3 | 100 | 625.7 | 92 | 55.5 | 8 |
| Total trips | 7,256.5 | 100 | 7,033.0 | 97 | 223.4 | 3 |
| Total days of fishing | 8,582.6 | 100 | 8,284.7 | 97 | 297.9 | 3 |
| Average days of fishing | 12.6 | (X) | 13.2 | (X) | 5.4 | (X) |
| Average one-way distance traveled per trip (miles) | 36.3 | (X) | 33.7 | (X) | 125.6 | (X) |
| **Anglers** | | | | | | |
| Total, all types of water | 681.3 | 100 | 625.7 | 92 | 55.5 | 8 |
| Lakes or reservoirs, 10 acres or more | 505.6 | 100 | 490.9 | 97 | *14.7 | *3 |
| Ponds, less than 10 acres | 134.4 | 100 | 132.0 | 98 | ... | ... |
| Rivers or streams | 365.7 | 100 | 319.3 | 87 | 46.3 | 13 |
| **Days of fishing** | | | | | | |
| Total, all types of water | 8,582.6 | 100 | 8,284.7 | 97 | 297.9 | 3 |
| Lakes or reservoirs, 10 acres or more | 4,715.9 | 100 | 4,660.7 | 99 | *55.2 | *1 |
| Ponds, less than 10 acres | 546.9 | 100 | 534.3 | 98 | ... | ... |
| Rivers or streams | 3,151.0 | 100 | 2,940.8 | 93 | 210.2 | 7 |

Note: Detail does not add to total because of multiple responses.
(X) Not applicable.
* Estimate based on a small sample size.
... Sample size too small to report data reliably.

## Table 5. Freshwater Anglers and Days of Fishing, by Type of Fish: 1991

### WASHINGTON

[Population 16 years old and older. Numbers in thousands]

| Anglers and days of fishing | Activity in state | | | | | |
|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | State residents | | Nonresidents | |
| | Number | Percent | Number | Percent | Number | Percent |
| **Anglers** | | | | | | |
| Total, all types of fish | 681.3 | 100 | 625.7 | 92 | 55.5 | 8 |
| Crappie | *35.2 | *100 | *34.4 | *98 | ... | ... |
| Panfish | 71.2 | 100 | 69.5 | 98 | ... | ... |
| White bass, striped bass, striped bass hybrids | *30.6 | *100 | *29.5 | *96 | ... | ... |
| Black bass | 121.8 | 100 | 112.5 | 92 | *9.3 | *8 |
| Catfish, bullheads | *42.0 | *100 | *40.7 | *97 | ... | ... |
| Walleye, sauger | 55.6 | 100 | 55.6 | 100 | ... | ... |
| Trout | 532.7 | 100 | 500.9 | 94 | *31.9 | *6 |
| Salmon | 104.2 | 100 | 93.2 | 89 | *11.0 | *11 |
| Steelhead | 123.2 | 100 | 113.1 | 92 | *10.1 | *8 |
| Anything[1] | *58.7 | *100 | *56.9 | *97 | ... | ... |
| Other freshwater fish | 56.3 | 100 | *51.7 | *92 | ... | ... |
| **Days of fishing** | | | | | | |
| Total, all types of fish | 8,582.6 | 100 | 8,284.7 | 97 | 297.9 | 3 |
| Crappie | *197.1 | *100 | *196.4 | *100 | ... | ... |
| Panfish | 576.3 | 100 | 570.3 | 99 | ... | ... |
| White bass, striped bass, striped bass hybrids | *113.4 | *100 | *111.2 | *98 | ... | ... |
| Black bass | 1,076.6 | 100 | 1,047.0 | 97 | *29.6 | *3 |
| Catfish, bullheads | *198.7 | *100 | *195.2 | *98 | ... | ... |
| Walleye, sauger | 504.1 | 100 | 504.1 | 100 | ... | ... |
| Trout | 5,089.2 | 100 | 4,991.2 | 98 | *98.0 | *2 |
| Salmon | 717.6 | 100 | 651.5 | 91 | *66.1 | *9 |
| Steelhead | 1,382.4 | 100 | 1,347.9 | 98 | *34.6 | *2 |
| Anything[1] | *187.3 | *100 | *184.4 | *98 | ... | ... |
| Other freshwater fish | 388.8 | 100 | *338.5 | *87 | ... | ... |

Note: Detail does not add to total because of multiple responses. Excludes species where the estimate of the total was based on a sample size that was too small to report data reliably.

[1] Respondent identified "Anything" from a list of categories of fish.

* Estimate based on a small sample size.

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

## Table 6. Great Lakes Anglers, Trips, and Days of Fishing: 1991

**WASHINGTON**

[Not applicable to this state]

## Table 7. Great Lakes Anglers and Days of Fishing, by Type of Fish: 1991

**WASHINGTON**

[Not applicable to this state]

## Table 8. Saltwater Anglers, Trips, and Days of Fishing: 1991

### WASHINGTON

[Population 16 years old and older. Numbers in thousands]

| Anglers, trips, and days of fishing | Activity in state | | | | | |
|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | State residents | | Nonresidents | |
| | Number | Percent | Number | Percent | Number | Percent |
| Total anglers | 503.6 | 100 | 430.4 | 85 | 73.2 | 15 |
| Total trips | 2,892.3 | 100 | 2,753.7 | 95 | 138.6 | 5 |
| Total days of fishing | 3,557.4 | 100 | 3,303.1 | 93 | 254.3 | 7 |
| Average days of fishing | 7.1 | (X) | 7.7 | (X) | 3.5 | (X) |
| Average one-way distance traveled per trip (miles) | 41.8 | (X) | 31.1 | (X) | 260.8 | (X) |

Note: Detail does not add to total because of multiple responses.
(X) Not applicable.

## Table 9. Saltwater Anglers and Days of Fishing, by Type of Fish: 1991

### WASHINGTON

[Population 16 years old and older. Numbers in thousands]

| Anglers and days of fishing | Activity in state | | | | | |
|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | State residents | | Nonresidents | |
| | Number | Percent | Number | Percent | Number | Percent |
| **Anglers** | | | | | | |
| Total, all types of fish | 503.6 | 100 | 430.4 | 85 | 73.2 | 15 |
| Salmon | 309.5 | 100 | 258.8 | 84 | 50.6 | 16 |
| Flatfish, flounder, halibut | 59.7 | 100 | 55.4 | 93 | ... | ... |
| Lingcod, rockcod | 102.3 | 100 | 92.3 | 90 | *10.0 | *10 |
| Anything[1] | 53.3 | 100 | *48.6 | *91 | ... | ... |
| **Days of fishing** | | | | | | |
| Total, all types of fish | 3,557.5 | 100 | 3,303.1 | 93 | 254.3 | 7 |
| Salmon | 2,081.9 | 100 | 1,943.7 | 93 | 138.2 | 7 |
| Flatfish, flounder, halibut | 363.5 | 100 | 354.6 | 98 | ... | ... |
| Lingcod, rockcod | 483.0 | 100 | 438.1 | 91 | *45.0 | *9 |
| Anything[1] | 182.7 | 100 | *163.9 | *90 | ... | ... |

Note: Detail does not add to total because of multiple responses. Excludes species where the estimate of the total was based on a sample size that was too small to report data reliably.

[1] Respondent identified "Anything" from a list of categories of fish.

* Estimate based on a small sample size.

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

## Table 10. Hunters, Trips, and Days of Hunting, by Type of Hunting: 1991

### WASHINGTON

[Population 16 years old and older. Numbers in thousands]

| Hunters, trips, and days of hunting | Activity in state | | | | | |
|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | State residents | | Nonresidents | |
| | Number | Percent | Number | Percent | Number | Percent |
| **Hunters** | | | | | | |
| Total, all hunting | 247.8 | 100 | 236.4 | 95 | *11.4 | *5 |
| Big game | 197.5 | 100 | 191.5 | 97 | ... | ... |
| Small game | 105.4 | 100 | 102.2 | 97 | ... | ... |
| Migratory bird | 51.3 | 100 | 48.8 | 95 | ... | ... |
| Other animals | *24.2 | *100 | *24.2 | *100 | ... | ... |
| **Trips** | | | | | | |
| Total, all hunting | 3,067.9 | 100 | 3,041.2 | 99 | *26.6 | *1 |
| Big game | 1,321.5 | 100 | 1,312.5 | 99 | ... | ... |
| Small game | 893.1 | 100 | 878.0 | 98 | ... | ... |
| Migratory bird | 526.0 | 100 | 523.6 | 100 | ... | ... |
| Other animals | *327.1 | *100 | *327.1 | *100 | ... | ... |
| **Trips for the primary purpose of hunting** | | | | | | |
| Total, all hunting | 2,889.4 | 100 | 2,865.2 | 99 | *24.2 | *1 |
| Big game | 1,231.6 | 100 | 1,222.5 | 99 | ... | ... |
| Small game | 830.1 | 100 | 814.9 | 98 | ... | ... |
| Migratory bird | 521.4 | 100 | 521.4 | 100 | ... | ... |
| Other animals | *306.4 | *100 | *306.4 | *100 | ... | ... |
| **Days of hunting** | | | | | | |
| Total, all hunting | 3,386.1 | 100 | 3,351.7 | 99 | *34.4 | *1 |
| Big game | 1,779.8 | 100 | 1,763.1 | 99 | ... | ... |
| Small game | 995.8 | 100 | 980.7 | 98 | ... | ... |
| Migratory bird | 516.5 | 100 | 514.0 | 100 | ... | ... |
| Other animals | *335.2 | *100 | *335.2 | *100 | ... | ... |
| **Average one-way distance traveled per trip (miles)** | | | | | | |
| Total, all hunting | 41.9 | (X) | 40.3 | (X) | *224.8 | (X) |
| Big game | 49.1 | (X) | 47.8 | (X) | ... | (X) |
| Small game | 32.8 | (X) | 33.3 | (X) | ... | (X) |
| Migratory bird | 50.7 | (X) | 43.9 | (X) | ... | (X) |
| Other animals | *22.9 | (X) | *22.9 | (X) | ... | (X) |

Note: Detail does not add to total because of multiple responses.
(X) Not applicable.
* Estimate based on a small sample size.
... Sample size too small to report data reliably.

## Table 11. Hunters and Days of Hunting in State, by Type of Game: 1991

### WASHINGTON

[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** | 247.8 | 100 | 3,386.1 | 100 |
| Big game, total | 197.5 | 80 | 1,779.8 | 53 |
| Deer | 176.8 | 71 | 1,326.0 | 39 |
| Elk | 68.0 | 27 | 413.9 | 12 |
| Bear | *12.6 | *5 | *106.0 | *3 |
| Small game, total | 105.4 | 43 | 995.8 | 29 |
| Rabbit, hare | *16.0 | *6 | *228.3 | *7 |
| Quail | *36.7 | *15 | *354.7 | *10 |
| Grouse/prairie chicken | 61.8 | 25 | 468.0 | 14 |
| Pheasant | 56.4 | 23 | 454.0 | 13 |
| Migratory birds, total | 51.3 | 21 | 516.5 | 15 |
| Geese | *28.8 | *12 | *304.6 | *9 |
| Duck | *35.1 | *14 | *399.9 | *12 |
| Other animals, total | *24.2 | *10 | *335.2 | *10 |
| Coyote | *19.4 | *8 | *289.5 | *9 |

Note: Detail does not add to total because of multiple responses. Excludes species where the estimate of the total was based on a sample size that was too small to report data reliably.

* Estimate based on a small sample size.

## Table 12. Hunters and Days of Hunting in State, by Type of Land: 1991

### WASHINGTON

[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 | 247.8 | 100 | 236.4 | 100 | *11.4 | *100 |
| Public land, total | 194.5 | 79 | 187.5 | 79 | ... | ... |
| Public land only | 93.0 | 38 | 87.8 | 37 | ... | ... |
| Public and private land | 101.5 | 41 | 99.6 | 42 | ... | ... |
| Private land, total | 152.4 | 61 | 148.6 | 63 | ... | ... |
| Private land only | 50.8 | 21 | *49.0 | *21 | ... | ... |
| Private and public land | 101.5 | 41 | 99.6 | 42 | ... | ... |
| **Days of hunting** | | | | | | |
| Total, all types of land | 3,386.1 | 100 | 3,351.7 | 100 | *34.4 | *100 |
| Public land[1] | 2,220.0 | 66 | *2,202.3 | 66 | ... | ... |
| Private land[2] | 1,459.2 | 43 | 1,443.0 | 43 | ... | ... |

Note: Detail does not add to total because of multiple responses and nonresponse.
[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.
* Estimate based on a small sample size.
... Sample size too small to report data reliably.

## Table 13. Selected Characteristics of Resident Anglers and Hunters: 1991

### WASHINGTON

[State population 16 years old and older. Numbers in thousands]

| Characteristic | Population | | Sportsmen (fished or hunted) | | | Anglers | | | Hunters | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent who participated | Percent of sportsmen | Number | Percent who participated | Percent of anglers | Number | Percent who participated | Percent of hunters |
| **Total persons** | 3,709.8 | 100 | 1,030.1 | 28 | 100 | 966.5 | 26 | 100 | 250.8 | 7 | 100 |
| **Population density of residence** | | | | | | | | | | | |
| Urban | 2,480.0 | 67 | 607.7 | 25 | 59 | 587.6 | 24 | 61 | 102.9 | 4 | 41 |
| Rural | 1,229.7 | 33 | 422.4 | 34 | 41 | 378.9 | 31 | 39 | 147.9 | 12 | 59 |
| **Sex** | | | | | | | | | | | |
| Male | 1,806.0 | 49 | 773.1 | 43 | 75 | 713.9 | 40 | 74 | 230.3 | 13 | 92 |
| Female | 1,903.8 | 51 | 257.0 | 13 | 25 | 252.6 | 13 | 26 | *20.5 | *1 | *8 |
| **Age** | | | | | | | | | | | |
| 16 to 17 years | 109.8 | 3 | *45.6 | *42 | *4 | *41.3 | *38 | *4 | ... | ... | ... |
| 18 to 24 years | 381.2 | 10 | 106.8 | 28 | 10 | 98.3 | 26 | 10 | *29.8 | *8 | *12 |
| 25 to 34 years | 805.8 | 22 | 250.9 | 31 | 24 | 239.3 | 30 | 25 | 74.0 | 9 | 30 |
| 35 to 44 years | 867.1 | 23 | 260.8 | 30 | 25 | 246.2 | 28 | 25 | 61.9 | 7 | 25 |
| 45 to 54 years | 588.8 | 16 | 146.0 | 25 | 14 | 133.0 | 23 | 14 | *33.6 | *6 | *13 |
| 55 to 64 years | 387.5 | 10 | 120.8 | 31 | 12 | 115.0 | 30 | 12 | *19.9 | *5 | *8 |
| 65 years and older | 569.6 | 15 | 99.1 | 17 | 10 | 93.6 | 16 | 10 | *21.4 | *4 | *9 |
| **Race** | | | | | | | | | | | |
| White | 3,441.8 | 93 | 991.1 | 29 | 96 | 933.0 | 27 | 97 | 240.2 | 7 | 96 |
| Black | 64.1 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| All others | 203.9 | 5 | *29.2 | *14 | *3 | *23.9 | *12 | *2 | ... | ... | ... |
| **Annual household income** | | | | | | | | | | | |
| Under $10,000 | 220.0 | 6 | *28.0 | *13 | *3 | *28.0 | *13 | *3 | ... | ... | ... |
| $10,000 to $19,999 | 498.2 | 13 | 94.5 | 19 | 9 | 91.2 | 18 | 9 | *23.0 | *5 | *9 |
| $20,000 to $24,999 | 306.8 | 8 | 88.7 | 29 | 9 | 77.8 | 25 | 8 | *28.9 | *9 | *12 |
| $25,000 to $29,999 | 387.4 | 10 | 105.6 | 27 | 10 | 97.3 | 25 | 10 | *29.2 | *8 | *12 |
| $30,000 to $49,999 | 983.7 | 27 | 325.5 | 33 | 32 | 295.6 | 30 | 31 | 83.9 | 9 | 33 |
| $50,000 or more | 784.7 | 21 | 276.8 | 35 | 27 | 265.5 | 34 | 27 | 57.8 | 7 | 23 |
| Not reported | 528.8 | 14 | 111.1 | 21 | 11 | 111.1 | 21 | 11 | *22.5 | *4 | *9 |
| **Education** | | | | | | | | | | | |
| 8 years or less | 104.3 | 3 | *24.7 | *24 | *2 | *23.5 | *23 | *2 | ... | ... | ... |
| 9 - 11 years | 299.8 | 8 | 102.1 | 34 | 10 | 100.1 | 33 | 10 | *16.6 | *6 | *7 |
| 12 years | 1,355.6 | 37 | 401.8 | 30 | 39 | 368.3 | 27 | 38 | 120.3 | 9 | 48 |
| 1 - 3 years college | 1,026.1 | 28 | 269.8 | 26 | 26 | 255.1 | 25 | 26 | 60.2 | 6 | 24 |
| 4 years college or more | 920.9 | 25 | 231.7 | 25 | 22 | 219.5 | 24 | 23 | *46.8 | *5 | *19 |

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.).

* Estimate based on a small sample size.

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

## Table 14. Summary of Expenditures in the U.S. by State Residents for Fishing and Hunting: 1991

## WASHINGTON

[State population 16 years old and older]

| Expenditure item | Fishing and hunting | | | Fishing | | | Hunting | | |
|---|---|---|---|---|---|---|---|---|---|
| | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) |
| **Total** | 1,016.3 | 1,392,900.5 | 1,371 | 950.8 | 1,009,309.5 | 1,062 | 247.7 | 191,609.0 | 774 |
| Food and lodging | 890.2 | 162,422.3 | 182 | 827.3 | 125,728.9 | 152 | 216.5 | 36,693.4 | 169 |
| Transportation | 939.1 | 118,474.1 | 126 | 870.8 | 81,148.9 | 93 | 242.2 | 37,325.2 | 154 |
| Other trip costs | 820.0 | 101,926.6 | 124 | 816.4 | 97,743.5 | 120 | *19.6 | *4,183.1 | *214 |
| Equipment (fishing, hunting) | 730.7 | 217,843.9 | 298 | 664.8 | 115,554.8 | 174 | 176.3 | 69,664.7 | 395 |
| Licenses, stamps, tags, and permits | 777.1 | 30,798.3 | 40 | 709.0 | 17,419.3 | 25 | 232.3 | 16,236.9 | 70 |
| Auxiliary equipment | 393.2 | 69,255.7 | 176 | 253.8 | 33,715.6 | 133 | 109.9 | 17,813.2 | 162 |
| Special equipment | 162.4 | 676,223.6 | 4,164 | 132.1 | 532,594.7 | 4,031 | ... | ... | ... |
| Magazines | 242.9 | 7,008.9 | 29 | 127.9 | 2,559.2 | 20 | *22.4 | *508.9 | *23 |
| Membership dues and contributions | 137.2 | 6,133.3 | 45 | *49.0 | *1,968.4 | *40 | *28.5 | *2,013.2 | *71 |
| Land leasing and ownership | ... | ... | ... | ... | ... | ... | ... | ... | ... |

Note: Detail does not add to total because of multiple responses and nonresponse. See tables 17-19 for a detailed listing of expenditure items. Expenditures reported according to primary use of item. Includes expenditures by state residents in other states.

* Estimate based on a small sample size.

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

## Table 15. Summary of Trip and Equipment Expenditures in the U.S. by State Residents for Fishing, by Type of Fishing: 1991

### WASHINGTON

[State population 16 years old and older]

| Expenditure item | Total, all fishing | | | Total, all freshwater | | | Freshwater, except Great Lakes | | |
|---|---|---|---|---|---|---|---|---|---|
| | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) |
| **Total** | 944.3 | 986,486.5 | 1,045 | 724.1 | 509,480.9 | 704 | 724.1 | 509,378.1 | 703 |
| Food and lodging | 827.3 | 125,728.9 | 152 | 608.2 | 83,466.4 | 137 | 608.2 | 83,466.4 | 137 |
| Transportation | 870.8 | 81,148.9 | 93 | 633.0 | 53,792.7 | 85 | 633.0 | 53,792.7 | 85 |
| Other trip costs | 816.4 | 97,743.5 | 120 | 603.8 | 31,393.0 | 52 | 603.8 | 31,381.7 | 52 |
| Equipment | 723.4 | 681,865.1 | 943 | 560.4 | 340,828.7 | 608 | 557.2 | 340,737.2 | 612 |

| Expenditure item | Great Lakes | | | Saltwater | | |
|---|---|---|---|---|---|---|
| | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) |
| **Total** | ... | ... | ... | 461.4 | 304,461.9 | 660 |
| Food and lodging | ... | ... | ... | 385.4 | 42,262.5 | 110 |
| Transportation | ... | ... | ... | 411.0 | 27,356.2 | 67 |
| Other trip costs | ... | ... | ... | 384.8 | 66,350.5 | 172 |
| Equipment | ... | ... | ... | 229.1 | 168,492.8 | 735 |

Note: Detail does not add to total because of multiple responses and nonresponse. Includes expenditures by state residents in other states.
... Sample size too small to report data reliably.

## Table 16. Summary of Trip and Equipment Expenditures in the U.S. by State Residents for Hunting, by Type of Hunting: 1991

### WASHINGTON

[State population 16 years old and older]

| Expenditure item | Total, all hunting | | | Big game | | | Small game | | |
|---|---|---|---|---|---|---|---|---|---|
| | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) |
| **Total** | 247.7 | 170,912.2 | 690 | 208.1 | 99,310.0 | 477 | 108.1 | 20,866.9 | 193 |
| Food and lodging | 216.5 | 36,693.4 | 169 | 172.5 | 23,483.8 | 136 | 85.4 | 7,963.6 | 93 |
| Transportation | 242.2 | 37,325.2 | 154 | 199.1 | 22,417.7 | 113 | 96.7 | 8,252.1 | 85 |
| Other trip costs | *19.6 | *4,183.1 | *214 | ... | ... | ... | ... | ... | ... |
| Equipment | 196.9 | 92,710.5 | 471 | 155.4 | 49,583.8 | 319 | 44.8 | 4,356.0 | 97 |

| Expenditure item | Migratory bird | | | Other animals | | |
|---|---|---|---|---|---|---|
| | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) |
| **Total** | 61.4 | 22,677.1 | 370 | *21.4 | *7,189.3 | *336 |
| Food and lodging | *39.8 | *4,273.1 | *107 | *14.7 | *973.0 | *66 |
| Transportation | 40.0 | 5,034.5 | 126 | *15.9 | *1,620.9 | *102 |
| Other trip costs | ... | ... | ... | ... | ... | ... |
| Equipment | 51.3 | 13,312.2 | 259 | ... | ... | ... |

Note: Detail does not add to total because of multiple responses and nonresponse. Includes expenditures by state residents in other states.
* Estimate based on a small sample size.
... Sample size too small to report data reliably.

## Table 17. Expenditures in the U.S. by State Residents for Fishing: 1991

## WASHINGTON

[State population 16 years old and older. Includes Great Lakes and saltwater fishing expenditures]

| Expenditure item | Expenditures | | Spenders | | |
|---|---|---|---|---|---|
| | Amount (thousands of dollars) | Average per angler (dollars) | Number (thousands) | Percent of anglers | Average per spender (dollars) |
| **Total, all items** | 1,009,309.5 | 1,044 | 950.8 | 98 | 1,062 |
| **Trip-related expenditures** | | | | | |
| Total trip-related | 304,621.4 | 315 | 933.9 | 97 | 326 |
| Food and lodging, total | 125,728.9 | 130 | 827.3 | 86 | 152 |
| Food | 102,448.4 | 106 | 827.3 | 86 | 124 |
| Lodging | 23,280.6 | 24 | 248.5 | 26 | 94 |
| Transportation | 81,148.9 | 84 | 870.8 | 90 | 93 |
| Other trip costs, total | 97,743.5 | 101 | 816.4 | 84 | 120 |
| Privilege and other fees[1] | 18,928.2 | 20 | 189.0 | 20 | 100 |
| Boat launching, mooring, storage, maintenance, insurance, and fuel | 59,967.6 | 62 | 443.9 | 46 | 135 |
| Bait | 14,263.8 | 15 | 633.8 | 66 | 23 |
| Ice | 4,583.9 | 5 | 417.4 | 43 | 11 |
| **Equipment and other expenditures primarily for fishing** | | | | | |
| Fishing equipment, total | 115,554.8 | 120 | 664.8 | 69 | 174 |
| Reels, rods, and rod making components | 41,103.9 | 43 | 348.2 | 36 | 118 |
| Lines, hooks, sinkers, etc | 18,067.0 | 19 | 531.9 | 55 | 34 |
| Artificial lures and flies | 17,858.7 | 18 | 496.8 | 51 | 36 |
| Creels, stringers, fish bags, landing nets, and gaff hooks | 1,137.5 | 1 | 93.3 | 10 | 12 |
| Minnow seines, traps, and bait containers | *183.7 | *(W) | *24.5 | *3 | *7 |
| Other fishing equipment[2] | 37,204.0 | 38 | 221.7 | 23 | 168 |
| Licenses, stamps, tags, and permits, total | 17,419.3 | 18 | 709.0 | 73 | 25 |
| Licenses | 13,830.9 | 14 | 675.7 | 70 | 20 |
| Stamps, tags, and permits | 3,588.5 | 4 | 294.5 | 30 | 12 |
| Auxiliary equipment | 33,715.6 | 35 | 253.8 | 26 | 133 |
| Special equipment | 532,594.7 | 551 | 132.1 | 14 | 4,031 |
| Other fishing costs[3] | 5,403.6 | 6 | 150.5 | 16 | 36 |

Note: Detail does not add to total because of multiple responses and nonresponse. Includes expenditures by state residents in other states.

[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] Includes electronic fishing devices (depth finders, fish finders, etc.), tackle boxes, spearfishing equipment, ice fishing equipment, and other fishing equipment.

[3] Includes magazine subscriptions, membership dues and contributions, and land leasing and ownership.

(W) Less than 0.5 dollars.

* Estimate based on a small sample size.

## Table 18. Expenditures in the U.S. by State Residents for Hunting: 1991

### WASHINGTON

[State 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** | 191,609.0 | 764 | 247.7 | 99 | 774 |
| **Trip-related expenditures** | | | | | |
| Total trip-related | 78,201.6 | 312 | 246.5 | 98 | 317 |
| Food and lodging, total | 36,693.4 | 146 | 216.5 | 86 | 169 |
| Food | 34,389.2 | 137 | 216.5 | 86 | 159 |
| Lodging | *2,304.2 | *9 | *34.4 | *14 | *67 |
| Transportation | 37,325.2 | 149 | 242.2 | 97 | 154 |
| Other trip costs[1] | *4,183.1 | *17 | *19.6 | *8 | *214 |
| **Equipment and other expenditures primarily for hunting** | | | | | |
| Hunting equipment, total | 69,664.7 | 278 | 176.3 | 70 | 395 |
| Guns and rifles | 41,267.8 | 165 | 58.0 | 23 | 711 |
| Ammunition | 10,505.0 | 42 | 148.0 | 59 | 71 |
| Other hunting equipment[2] | 17,891.9 | 71 | 108.1 | 43 | 165 |
| Licenses, stamps, tags, and permits, total | 16,236.9 | 65 | 232.3 | 93 | 70 |
| Licenses | 9,157.7 | 37 | 224.4 | 89 | 41 |
| Federal duck stamps | *613.6 | *2 | *40.9 | *16 | *15 |
| Other stamps, tags, and permits | 6,465.7 | 26 | 182.7 | 73 | 35 |
| Auxiliary equipment | 17,813.2 | 71 | 109.9 | 44 | 162 |
| Special equipment | ... | ... | ... | ... | ... |
| Other hunting costs[3] | *4,459.9 | *18 | *41.9 | *17 | *107 |

Note: Detail does not add to total because of multiple responses and nonresponse. Includes expenditures by state residents in other states.

[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 magazine subscriptions, membership dues and contributions, and land leasing and ownership.

* Estimate based on a small sample size.

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

## Table 19. Expenditures by State Residents for Special and Auxiliary Equipment Purchased Primarily for Fishing or Hunting: 1991

### WASHINGTON

[State population 16 years old and older]

| Equipment item | Expenditures | | Spenders | | |
|---|---|---|---|---|---|
| | Amount (thousands of dollars) | Average per sportsman (dollars) | Number (thousands) | Percent of sportsmen | Average per spender (dollars) |
| **Special equipment, total** | 676,223.6 | 656 | 162.4 | 16 | 4,164 |
| Boats and canoes | *197,274.0 | *192 | *46.1 | *4 | *4,280 |
| Boat motors, boat trailer/hitch, and other boat accessories | 49,878.5 | 48 | 52.5 | 5 | 950 |
| Travel or tent trailer, pickup, camper, van, motor home, cabin | *270,038.5 | *262 | *35.4 | *3 | *7,623 |
| Trail bike, dune buggy, 4x4 vehicle, 3-wheeler, snowmobile | *154,510.5 | *150 | *16.6 | *2 | *9,284 |
| Other special equipment | 4,522.1 | 4 | 79.8 | 8 | 57 |
| **Auxiliary equipment, total** | 69,255.7 | 67 | 393.2 | 38 | 176 |
| Camping equipment | 31,024.8 | 30 | 187.6 | 18 | 165 |
| Special fishing or hunting clothing[1] | 21,991.4 | 21 | 241.4 | 23 | 91 |
| Other auxiliary equipment[2] | 16,239.4 | 16 | 128.5 | 12 | 126 |

Note: Detail does not add to total because of multiple responses and nonresponse. Includes expenditures by state residents in other states.

[1] Also includes foul weather gear, rubber boots, and waders.

[2] Includes binoculars, field glasses, telescopes, snow shoes and skis, maintenance and repair of equipment, processing and taxidermy costs, and other equipment.

* Estimate based on a small sample size.

## Table 20. In-State Trip-Related Expenditures for Fishing and Hunting: 1991

### WASHINGTON

[Population 16 years old and older.]

| Expenditure item | Total, state residents and nonresidents | | | State residents | | | Nonresidents | | |
|---|---|---|---|---|---|---|---|---|---|
| | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) | Spenders (thousands) | Amount (thousands of dollars) | Average per spender (dollars) |
| **Trip-related expenditures for fishing and hunting, total** | 1,041.1 | 351,139.5 | 337 | 913.6 | 316,117.8 | 346 | 127.5 | 35,021.7 | 275 |
| **Trip-related expenditures for fishing** | | | | | | | | | |
| Total | 963.6 | 284,635.2 | 295 | 844.9 | 251,389.1 | 298 | 118.7 | 33,246.1 | 280 |
| Food and lodging | 857.4 | 115,777.8 | 135 | 749.1 | 101,776.7 | 136 | 108.3 | 14,001.1 | 129 |
| Transportation | 889.3 | 74,538.7 | 84 | 790.2 | 63,940.6 | 81 | 99.0 | 10,598.1 | 107 |
| Privilege and other fees[1] | 215.0 | 19,598.6 | 91 | 181.8 | 15,228.6 | 84 | 33.2 | 4,370.0 | 132 |
| Boat launching, mooring, storage, maintenance, insurance, and fuel | 412.6 | 56,655.4 | 137 | 361.8 | 53,542.7 | 148 | 50.8 | 3,112.7 | 61 |
| Bait | 608.8 | 13,648.0 | 22 | 555.6 | 12,781.7 | 23 | 53.1 | 866.3 | 16 |
| Ice | 413.8 | 4,416.7 | 11 | 372.9 | 4,118.7 | 11 | 40.9 | 298.0 | 7 |
| **Trip-related expenditures for hunting** | | | | | | | | | |
| Total | 243.5 | 66,504.3 | 273 | 232.1 | 64,728.7 | 279 | *11.4 | *1,775.6 | *156 |
| Food and lodging | 212.6 | 32,637.2 | 154 | 202.1 | 31,704.7 | 157 | *10.5 | *932.5 | *89 |
| Transportation | 236.1 | 31,754.9 | 135 | 227.7 | 31,218.9 | 137 | *8.3 | *536.1 | *64 |
| Privilege and other fees[1] | *18.7 | *2,112.2 | *113 | *16.2 | *1,805.2 | *111 | ... | ... | ... |

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

[1] Includes boat and equipment rental and fees for guides, pack trips, public land use, and private land use.

* Estimate based on a small sample size.

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

## Table 21. Resident Anglers and Hunters by Place Fished or Hunted and One-Way Distance Traveled on In-State Trips: 1991

## WASHINGTON

[State population 16 years old and older. Numbers in thousands]

| Place and distance traveled | Anglers | | Hunters | |
|---|---|---|---|---|
| | Number | Percent | Number | Percent |
| **Place fished or hunted** | | | | |
| Total, all places | 966.5 | 100 | 250.8 | 100 |
| In-state only | 767.8 | 79 | 217.3 | 87 |
| In-state and other states | 104.7 | 11 | *19.1 | *8 |
| In other states only | 94.0 | 10 | ... | ... |
| **One-way distance traveled on in-state trips[1]** | | | | |
| Total | 872.5 | 100 | 236.4 | 100 |
| 5 miles or less | 181.1 | 21 | *29.8 | *13 |
| 6-24 miles | 284.6 | 33 | 80.9 | 34 |
| 25-49 miles | 151.6 | 17 | 48.2 | 20 |
| 50-99 miles | 171.4 | 20 | 57.5 | 24 |
| 100-249 miles | 177.9 | 20 | 55.3 | 23 |
| 250 miles or more | *37.6 | *4 | *20.5 | *9 |

Note: Detail may not add to total because of multiple responses and nonresponse.
[1] Every angler or hunter is classified according to the one-way distance traveled to the place used most often.
* Estimate based on a small sample size.
... Sample size too small to report data reliably.

## Table 22. State Residents Participating in Primary Nonconsumptive Activities: 1991

### WASHINGTON

[Population 16 years old and older. Numbers in thousands]

| Participants | Number | Percent of participants | Percent of population |
|---|---|---|---|
| Total primary participants | 2,075.6 | 100 | 56 |
| Nonresidential | 875.3 | 42 | 24 |
| Residential | 2,033.0 | 98 | 55 |
| Observe wildlife | 1,584.8 | 76 | 43 |
| Photograph wildlife | 577.2 | 28 | 16 |
| Feed wild birds or other wildlife | 1,756.9 | 85 | 47 |
| Maintain plantings or natural areas | 324.5 | 16 | 9 |
| Visit public parks | 496.0 | 24 | 13 |

Note: Detail does not add to total because of multiple responses. The column showing percent of participants is based on total primary 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 nonconsumptive activities.

## Table 23. Participants, Trips, and Days of Participation in Primary Nonresidential Activities: 1991

### WASHINGTON

[Population 16 years old and older. Numbers in thousands]

| Participants, trips, and days of participation | Activity in state | | | | | |
|---|---|---|---|---|---|---|
| | Total, state residents and nonresidents | | State residents | | Nonresidents | |
| | Number | Percent | Number | Percent | Number | Percent |
| **Participants** | | | | | | |
| Total participants | 1,058.2 | 100 | 800.1 | 100 | 258.1 | 100 |
| Observe wildlife | 1,036.3 | 98 | 798.3 | 100 | 238.0 | 92 |
| Photograph wildlife | 550.4 | 52 | 444.2 | 56 | 106.3 | 41 |
| Feed wildlife | 305.6 | 29 | 261.0 | 33 | *44.6 | *17 |
| **Trips** | | | | | | |
| Total trips | 8,805.6 | 100 | 8,085.2 | 100 | 720.4 | 100 |
| 1 day trips | 7,030.2 | 80 | 6,562.9 | 81 | 467.3 | 65 |
| 2 or more day trips | 1,775.4 | 20 | *1,522.3 | *19 | 253.1 | 35 |
| Average days per trip | 1.3 | (X) | 1.3 | (X) | 1.8 | (X) |
| Average one-way distance traveled per trip (miles) | 40.2 | (X) | 30.3 | (X) | 151 6 | (X) |
| **Days of participation** | | | | | | |
| Total days | 11,470.1 | 100 | 10,170.7 | 100 | 1,299.4 | 100 |
| Observing wildlife | 10,128.3 | 88 | 9,058.7 | 89 | 1,069.6 | 82 |
| Photographing wildlife | 2,896.6 | 25 | 2,464.0 | 24 | 432.5 | 33 |
| Feeding wildlife | 2,387.8 | 21 | 2,169.7 | 21 | *218.2 | *17 |
| Average days per participant | 10.8 | (X) | 12 7 | (X) | 5.0 | (X) |
| Observing wildlife | 9.8 | (X) | 11.3 | (X) | 4.5 | (X) |
| Photographing wildlife | 5.3 | (X) | 5.5 | (X) | 4.1 | (X) |
| Feeding wildlife | 7.8 | (X) | 8.3 | (X) | *4.9 | (X) |

Note: Detail does not add to total because of multiple responses and nonresponse.
(X) Not applicable.
* Estimate based on a small sample size.

## Table 24. Primary Nonresidential Participants Visiting Public Areas In-State: 1991

### WASHINGTON

[Population 16 years old and older. Numbers in thousands]

| Participants | Total, state residents and nonresidents | | State residents | | Nonresidents | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| Total participants | 1,058.2 | 100 | 800.1 | 100 | 258.1 | 100 |
| Visited public areas | 979.2 | 93 | 731.3 | 91 | 247.9 | 96 |
| Did not visit public areas | *79.0 | *7 | *68.7 | *9 | *10.3 | *4 |

* Estimate based on a small sample size.

## Table 25. State Residents Participating in Primary Residential Activities: 1991

## WASHINGTON

[State population 16 years old and older. Numbers in thousands]

| Primary residential activity | Participants | | Primary residential activity | Participants | |
|---|---|---|---|---|---|
| | Number | Percent | | Number | Percent |
| Total primary residential participants | 2,033.0 | 100 | **Visit public parks[1]** | | |
| Observe wildlife | 1,584.8 | 78 | Participants visiting: | | |
| Visit public parks[1] | 496.0 | 24 | Total, 1 day or more | 496.0 | 100 |
| Photograph wildlife | 577.2 | 28 | 1-5 days | 258 8 | 52 |
| Feed wildlife | 1,756.9 | 86 | 6-11 days | *82 2 | *17 |
| Maintain natural areas | 197.0 | 10 | 12 days or more | 144 7 | 29 |
| Maintain plantings | 214.1 | 11 | **Photograph wildlife** | | |
| **Observe wildlife** | | | Participants photographing: | | |
| Participants observing: | | | Total, 1 day or more | 577.2 | 100 |
| Total, all wildlife | 1,584.8 | 100 | 1-3 days | 273.5 | 47 |
| Birds | 1,477.8 | 93 | 4-10 days | 169.9 | 29 |
| Mammals | 1,233.4 | 78 | 11 or more days | 130.4 | 23 |
| Amphibians or reptiles | 361.2 | 23 | **Feed wildlife** | | |
| Insects or spiders | 627.3 | 40 | Participants feeding: | | |
| Fish and other wildlife | 413.4 | 26 | Total, all wildlife | 1,756.9 | 100 |
| Participants observing: | | | Wild birds | 1,673.8 | 95 |
| Total, 1 day or more | 1,584.8 | 100 | Other wildlife | 695 9 | 40 |
| 1-10 days | 268.5 | 17 | | | |
| 11-50 days | 340.7 | 21 | | | |
| 51-200 days | 673.2 | 42 | Average months feeding wild birds[2] | 6.5 | (X) |
| 201 days or more | 257.9 | 16 | Average months feeding other wildlife[3] | 5 1 | (X) |

Note: Detail does not add to total because of multiple responses and nonresponse.
[1] Includes visits only to parks or publicly owned areas within 1 mile of home.
[2] Based on the number of months where participant fed wild birds at least once a week.
[3] Based on the number of months where participant fed other wildlife at least once.
(X) Not applicable.
* Estimated based on a small sample size.

## Table 26. Selected Characteristics of State Residents Participating in Primary Nonconsumptive Activities: 1991

### WASHINGTON

[State population 16 years old and older. Numbers in thousands]

| Characteristic | Population | | Primary participants | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Total | | | Nonresidential | | | Residential | | |
| | Number | Percent | Number | Percent who participated | Percent | Number | Percent who participated | Percent | Number | Percent who participated | Percent |
| **Total persons** | 3,709.8 | 100 | 2,075.6 | 56 | 100 | 875.3 | 24 | 100 | 2,033.0 | 55 | 100 |
| **Population density of residence** | | | | | | | | | | | |
| Urban | 2,480.0 | 67 | 1,268.9 | 51 | 61 | 541.5 | 22 | 62 | 1,226.3 | 49 | 60 |
| Rural | 1,229.7 | 33 | 806.7 | 66 | 39 | 333.8 | 27 | 38 | 806.7 | 66 | 40 |
| **Sex** | | | | | | | | | | | |
| Male | 1,806.0 | 49 | 1,098.2 | 61 | 53 | 496.6 | 27 | 57 | 1,079.4 | 60 | 53 |
| Female | 1,903.8 | 51 | 977.3 | 51 | 47 | 378.7 | 20 | 43 | 953.6 | 50 | 47 |
| **Age** | | | | | | | | | | | |
| 16 to 17 years | 109.8 | 3 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 18 to 24 years | 381.2 | 10 | 129.8 | 34 | 6 | *51.1 | *13 | *6 | 129.8 | 34 | 6 |
| 25 to 34 years | 805.8 | 22 | 451.7 | 56 | 22 | 241.0 | 30 | 28 | 437.9 | 54 | 22 |
| 35 to 44 years | 867.1 | 23 | 545.0 | 63 | 26 | 289.9 | 33 | 33 | 517.7 | 60 | 25 |
| 45 to 54 years | 588.8 | 16 | 272.9 | 46 | 13 | 121.3 | 21 | 14 | 271.3 | 46 | 13 |
| 55 to 64 years | 387.5 | 10 | 271.4 | 70 | 13 | *73.8 | *19 | *8 | 271.4 | 70 | 13 |
| 65 years and older | 569.6 | 15 | 359.7 | 63 | 17 | *77.3 | *14 | *9 | 359.7 | 63 | 18 |
| **Race** | | | | | | | | | | | |
| White | 3,441.8 | 93 | 1,982.2 | 58 | 96 | 849.5 | 25 | 97 | 1,939.6 | 56 | 95 |
| Black | 64.1 | 2 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| All others | 203.9 | 5 | *74.6 | *37 | *4 | ... | ... | ... | *74.6 | *37 | *4 |
| **Annual household income** | | | | | | | | | | | |
| Under $10,000 | 220.0 | 6 | *89.2 | *41 | *4 | *37.7 | *17 | *4 | *89.2 | *41 | *4 |
| $10,000 to $19,999 | 498.2 | 13 | 264.3 | 53 | 13 | *61.0 | *12 | *7 | 264.3 | 53 | 13 |
| $20,000 to $24,999 | 306.8 | 8 | 164.7 | 54 | 8 | *61.5 | *20 | *7 | 164.7 | 54 | 8 |
| $25,000 to $29,999 | 387.4 | 10 | 303.5 | 78 | 15 | 119.2 | 31 | 14 | 301.8 | 78 | 15 |
| $30,000 to $49,999 | 983.7 | 27 | 504.0 | 51 | 24 | 248.4 | 25 | 28 | 492.1 | 50 | 24 |
| $50,000 or more | 784.7 | 21 | 478.3 | 61 | 23 | 224.1 | 29 | 26 | 462.6 | 59 | 23 |
| Not reported | 528.8 | 14 | 271.5 | 51 | 13 | *123.4 | *23 | *14 | 258.3 | 49 | 13 |
| **Education** | | | | | | | | | | | |
| 8 years or less | 104.3 | 3 | *50.1 | *48 | *2 | ... | ... | ... | *50.1 | *48 | *2 |
| 9 - 11 years | 299.8 | 8 | 163.3 | 54 | 8 | *55.1 | *18 | *6 | 163.3 | 54 | 8 |
| 12 years | 1,355.6 | 37 | 683.7 | 50 | 33 | 243.3 | 18 | 28 | 675.0 | 50 | 33 |
| 1 - 3 years college | 1,026.1 | 28 | 601.9 | 59 | 29 | 302.3 | 29 | 35 | 585.3 | 57 | 29 |
| 4 years college or more | 920.9 | 25 | 576.5 | 63 | 28 | 269.4 | 29 | 31 | 559.3 | 61 | 28 |

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.).

* Estimate based on a small sample size.

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

## Table 27. Expenditures in the U.S. by State Residents for Primary Nonconsumptive Wildlife-Related Recreation: 1991

## WASHINGTON

[State population 16 years old and older]

| Expenditure item | Expenditures (thousands of dollars) | Spenders | | |
|---|---|---|---|---|
| | | Number (thousands) | Percent of nonconsumptive participants[1] | Average per spender (dollars) |
| **Total, all items** | 511,217.6 | 1,330.0 | 64 | 384 |
| **Trip expenditures** | | | | |
| Total trip-related | 298,941.2 | 862.4 | 99 | 347 |
| Food and lodging | 191,750.9 | 752.5 | 86 | 255 |
| Food | 129,778.3 | 749.0 | 86 | 173 |
| Lodging | 61,972.5 | 288.1 | 33 | 215 |
| Transportation | 98,123.7 | 850.4 | 97 | 115 |
| Other trip costs[2] | 9,066.6 | 263.5 | 30 | 34 |
| **Equipment and other expenditures** | | | | |
| Total | 212,276 5 | 1,196.8 | 58 | 177 |
| Nonconsumptive equipment, total | 143,543.3 | 1,071.8 | 52 | 134 |
| Binoculars, spotting scopes | 15,652.3 | 132.2 | 6 | 118 |
| Film and developing | 32,426.9 | 681.3 | 33 | 48 |
| Cameras, special lenses, and other photographic equipment | 20,240.0 | 103.1 | 5 | 196 |
| Day packs, carrying cases, and special clothing | 18,261.0 | 177.7 | 9 | 103 |
| Bird food | 42,867.2 | 1,014.2 | 49 | 42 |
| Nest boxes, bird houses, bird feeders, and bird baths | 7,761.4 | 305.3 | 15 | 25 |
| Other nonconsumptive equipment | 6,334.4 | 233.5 | 11 | 27 |
| Auxiliary equipment[3] | 18,016.3 | 118.7 | 6 | 152 |
| Special equipment[4] | ... | .. | ... | |
| Magazines | 8,399.2 | 297.3 | 14 | 28 |
| Membership dues and contributions | 25,833.3 | 361.2 | 17 | 72 |

Note: Detail does not add to total because of multiple responses and nonresponse. Includes expenditures by state residents in other states.

[1] Percent of nonconsumptive participants column for trip-related expenditures is based on nonresidential participants. For equipment and other expenditures, the percent of nonconsumptive participants column is based on total nonconsumptive participants.

[2] Includes equipment rental and fees for guides, pack trips, public land use and private land use

[3] Includes tents, tarps, frame packs and other backpacking equipment, and other camping equipment.

[4] Includes travel or tent trailers, off-the-road vehicles, pickups, campers or vans, motor homes, and other special equipment.

.. Sample size too small to report data reliably.

## Table 28. Participation of State Resident Primary Nonconsumptive Participants in Fishing and Hunting: 1991

### WASHINGTON

[State population 16 years old and older. Numbers in thousands]

| | Total, nonresidential and residential | | Primary nonconsumptive activity | | | |
|---|---|---|---|---|---|---|
| | | | Nonresidential | | Residential | |
| | Number | Percent | Number | Percent | Number | Percent |
| Total participants | 2,075.6 | 100 | 883.9 | 100 | 2,033.0 | 100 |
| Nonconsumptive participants who: | | | | | | |
| Did not fish or hunt | 1,886.2 | 91 | 768.0 | 87 | 1,851.3 | 91 |
| Fished or hunted | 189.3 | 9 | 116.0 | 13 | 181.7 | 9 |
| Fished | 181.2 | 9 | 111.5 | 13 | 175.9 | 9 |
| Hunted | 64.5 | 3 | 43.2 | 5 | 61.1 | 3 |

Note: Detail does not add to total because of multiple responses and nonresponse. Includes persons who participated only in Canada.

## Table 29. Participation of State Resident Sportsmen in Primary Nonconsumptive Activities: 1991

### WASHINGTON

[State population 16 years old and older. Numbers in thousands]

| Sportsmen | Sportsmen | | Anglers | | Hunters | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent | Number | Percent |
| Total sportsmen | 1,051.7 | 100 | 989.3 | 100 | 250.8 | 100 |
| Sportsmen who: | | | | | | |
| Did not engage in primary nonconsumptive activities | 451.0 | 43 | 415.4 | 42 | 94.0 | 37 |
| Engaged in primary nonconsumptive activities | 600.7 | 57 | 573.9 | 58 | 156.8 | 63 |
| Primary nonresidential | 374.3 | 36 | 357.7 | 36 | 108.1 | 43 |
| Primary residential | 514.9 | 49 | 490.4 | 50 | 143.1 | 57 |

Note: Detail does not add to total because of multiple responses and nonresponse. Includes persons who participated only in Canada.

## Table 30. Participants in Wildlife-Associated Recreation, by Participant's State of Residence: 1991

[Population 16 years old and older. Numbers in thousands]

| Participant's state of residence | Population | Total participants | | Sportsmen | | Primary nonconsumptive participants | |
|---|---|---|---|---|---|---|---|
| | | Number | Percent of population | Number | Percent of population | Number | Percent of population |
| U.S., total | 189,966 | 108,745 | 57 | 39,979 | 21 | 76,111 | 40 |
| Alabama | 3,110 | 1,755 | 56 | 756 | 24 | 1,229 | 40 |
| Alaska | 369 | 343 | 93 | 152 | 41 | 229 | 62 |
| Arizona | 2,707 | 1,451 | 54 | 467 | 17 | 1,083 | 40 |
| Arkansas | 1,807 | 1,209 | 67 | 575 | 32 | 812 | 45 |
| California | 22,366 | 9,167 | 41 | 2,913 | 13 | 6,480 | 29 |
| Colorado | 2,514 | 1,690 | 67 | 639 | 25 | 1,161 | 46 |
| Connecticut | 2,500 | 1,371 | 55 | 351 | 14 | 1,075 | 43 |
| Delaware | 528 | 282 | 53 | 93 | 18 | 211 | 40 |
| Florida | 10,320 | 5,578 | 54 | 2,038 | 20 | 3,866 | 37 |
| Georgia | 4,840 | 2,628 | 54 | 1,071 | 22 | 1,756 | 36 |
| Hawaii | 842 | 334 | 40 | 154 | 18 | 230 | 27 |
| Idaho | 746 | 578 | 77 | 295 | 40 | 385 | 52 |
| Illinois | 8,899 | 4,833 | 54 | 1,670 | 19 | 3,452 | 39 |
| Indiana | 4,267 | 2,810 | 66 | 968 | 23 | 2,033 | 48 |
| Iowa | 2,164 | 1,597 | 74 | 628 | 29 | 1,060 | 49 |
| Kansas | 1,882 | 1,275 | 68 | 510 | 27 | 876 | 47 |
| Kentucky | 2,826 | 1,816 | 64 | 737 | 26 | 1,191 | 42 |
| Louisiana | 3,161 | 1,765 | 56 | 882 | 28 | 1,060 | 34 |
| Maine | 953 | 746 | 78 | 274 | 29 | 548 | 57 |
| Maryland | 3,659 | 1,938 | 53 | 598 | 16 | 1,456 | 40 |
| Massachusetts | 4,639 | 2,401 | 52 | 612 | 13 | 1,882 | 41 |
| Michigan | 7,014 | 4,640 | 66 | 1,691 | 24 | 3,273 | 47 |
| Minnesota | 3,308 | 2,914 | 88 | 1,205 | 36 | 1,953 | 59 |
| Mississippi | 1,914 | 1,105 | 58 | 591 | 31 | 742 | 39 |
| Missouri | 3,940 | 2,965 | 75 | 1,156 | 29 | 2,006 | 51 |
| Montana | 601 | 469 | 78 | 227 | 38 | 312 | 52 |
| Nebraska | 1,210 | 834 | 69 | 316 | 26 | 602 | 50 |
| Nevada | 914 | 486 | 53 | 180 | 20 | 337 | 37 |
| New Hampshire | 864 | 588 | 68 | 189 | 22 | 449 | 52 |
| New Jersey | 6,007 | 2,853 | 47 | 828 | 14 | 2,152 | 36 |
| New Mexico | 1,126 | 636 | 56 | 225 | 20 | 466 | 41 |
| New York | 13,803 | 6,011 | 44 | 1,917 | 14 | 4,301 | 31 |
| North Carolina | 5,104 | 2,999 | 59 | 1,153 | 23 | 2,152 | 42 |
| North Dakota | 477 | 326 | 68 | 162 | 34 | 200 | 42 |
| Ohio | 8,306 | 5,196 | 63 | 1,692 | 20 | 3,696 | 44 |
| Oklahoma | 2,411 | 1,692 | 70 | 704 | 29 | 1,146 | 48 |
| Oregon | 2,223 | 1,615 | 73 | 626 | 28 | 1,124 | 51 |
| Pennsylvania | 9,405 | 5,526 | 59 | 1,763 | 19 | 4,103 | 44 |
| Rhode Island | 777 | 454 | 58 | 101 | 13 | 368 | 47 |
| South Carolina | 2,645 | 1,367 | 52 | 630 | 24 | 863 | 33 |
| South Dakota | 525 | 347 | 66 | 166 | 32 | 228 | 43 |
| Tennessee | 3,818 | 2,410 | 63 | 900 | 24 | 1,701 | 45 |
| Texas | 12,548 | 6,548 | 52 | 2,964 | 24 | 4,016 | 32 |
| Utah | 1,139 | 736 | 65 | 313 | 28 | 504 | 44 |
| Vermont | 446 | 367 | 82 | 131 | 29 | 276 | 62 |
| Virginia | 4,721 | 2,962 | 63 | 1,022 | 22 | 2,070 | 44 |
| Washington | 3,709 | 2,919 | 79 | 1,030 | 28 | 2,076 | 56 |
| West Virginia | 1,420 | 846 | 60 | 372 | 26 | 584 | 41 |
| Wisconsin | 3,700 | 3,005 | 81 | 1,180 | 32 | 2,058 | 56 |
| Wyoming | 345 | 262 | 76 | 141 | 41 | 190 | 55 |

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 the statistical reliability appendix.

# Appendix A. **Definitions**

**Annual household income -** Total 1990 income of household members before taxes and other deductions.

**Auxiliary equipment -** Items of equipment such as camping gear that are owned primarily for wildlife-associated recreation Items of auxiliary equipment are listed in table 19 (fishing and hunting) and table 27 (nonconsumptive)

**Big game -** Antelope, bear, deer, elk, moose, wild turkey, and similar large animals which are hunted

***Day* -** Any part of a day spent in a given activity For example, if someone hunted 2 hours one day and 3 hours another day, it would be recorded as 2 days of hunting If someone hunted 2 hours in the morning and 3 hours in the evening of the same day, it would be considered 1 day of hunting.

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

***Expenditures* -** Money spent in 1991 for wildlife-related recreation trips in the U S or wildlife-related recreational equipment purchased in the U S Expenditures include both money spent by participants for themselves and the value of gifts they received.

***Federal land* -** Public land owned by the Federal government such as National Forests and National Wildlife Refuges

***Fishing* -** The sport of catching or attempting to catch fish with a hook, line, net, bow and arrow, or spearfishing equipment, also catching or gathering shellfish (clams, crabs, etc.) 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 These items are listed in table 17

***Freshwater* -** Reservoirs, lakes, ponds, and the non-tidal 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 These items are listed in table 18.

***Local land* -** Public land owned by local governments such as county parks or municipal watersheds

***Maintain natural areas* -** To set aside one-quarter acre or more of natural environment such as wood lots or open fields for the primary purpose of benefiting wildlife.

***Maintain plantings*** - To introduce or encourage the growth of food and cover plants for the primary purpose of benefiting wildlife.

***Migratory birds*** - Birds that regularly migrate from one region or climate to another. The Survey focuses on migratory birds which may be hunted, including band-tailed pigeons, coots, ducks, doves, gallinules, geese, rails, and woodcock.

***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 (1) and elk hunters (1) would overstate the number of big game hunters (1) 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.

***Nonconsumptive activity*** - Feeding, photographing, or observing fish or other wildlife. (See also primary residential and primary nonresidential activities.)

***Nonconsumptive equipment*** - Items owned primarily for observing, photographing, or feeding wildlife. These items are listed in table 27.

***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 nonresident participant in California.

***Nonresponse*** - Nonresponse is 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. Hunting expenditures will reflect the gun purchase, but it will not appear as spending for big game or any other type of hunting In general, nonresponses result in reported totals that are greater than the sum of their apparent parts

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

***One-day trips*** - Trips on which the individual went and returned on the same day without an overnight stay.

***Other animals*** - Coyotes, crows, foxes, groundhogs, prairie dogs, raccoons, and similar animals that are often regarded as varmints or pests. Other animals may be classified as unprotected or nongame animals by the state in which they are hunted.

***Participants*** - Individuals who engage in fishing, hunting, or a nonconsumptive activity.

***Primary nonresidential activity*** - Trips or outings at least one mile from home for the primary purpose of observing, photographing, or feeding wildlife Trips to zoos, circuses, aquariums, and museums are not included

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

***Primary residential activity*** - Activity within 1 mile of home with a primary purpose that is wildlife-related: (1) closely observing or trying to identify birds or other wildlife, (2) photographing wildlife, (3) feeding birds or other wildlife on a regular basis, (4) maintaining natural areas of at least one-quarter acre for which benefit to wildlife is the primary purpose, (5) maintaining plantings (shrubs, agricultural crops, etc.) for which benefit to wildlife is the primary purpose, or (6) visiting public parks within 1 mile of home for the purpose of observing, photographing, or feeding wildlife.

***Public areas*** - Public lands owned by local, state, or Federal governments.

***Public land*** - Land that is owned by the local, state, or Federal government

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

***Residents*** - Individuals who live in the state being reported For example, persons who live in California and watch whales there are resident participants in California.

***Rural*** - The non-urban population is classified as rural (see urban)

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

***Screening interviews*** - The first survey contact with a household. Screening interviews use brief conversations with either the respondent or a household representative in each household to identify participants who are eligible for in-depth interviews. In addition, screening interviews are used

to gather some data about the individuals in the households, such as their age and sex Screening interviews are discussed in the Survey Background and Method section of this report

***Small game*** - Grouse, partridge, pheasants, quail, rabbits, squirrels, and similar small animals and birds for which many states have small game seasons and bag limits

***Special equipment*** - Items of equipment including boats or pickup trucks that are owned primarily for wildlife-related recreation Items of special equipment are listed in table 26 (fishing and hunting) and table 50 (nonconsumptive)

***Spenders*** - Individuals who reported an expenditure value for fishing, hunting, or nonconsumptive activities or equipment

***Sportsmen*** - Individuals who engage in fishing, hunting, or both

***State Land*** - Public land owned by a state such as state parks or state wildlife management areas

***Trip*** - An outing involving fishing, hunting, or nonconsumptive activities In the context of this survey, 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, and a trip may last an hour, a day, or many days

***Type of fishing*** - Three types of fishing are reported· Fishing in (1) freshwater, except Great Lakes, (2) Great Lakes, and (3) saltwater

***Type of hunting*** - Four types of hunting are reported Hunting for (1) big game, (2) small game, (3) migratory bird, and (4) other animals.

***Urban*** - All persons living in urbanized areas and in places of 2,500 or more inhabitants outside urbanized areas An urbanized area is a central 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, and surrounding closely settled territory of 2,500 or more inhabitants

***Wildlife*** - Animals such as birds, fish, insects, mammals, 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, or nonconsumptive wildlife use

# Appendix B. **Selected Data From Screening Interviews**

The 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was carried out in two phases The first (or screening) phase was conducted in January and February 1991 The main purpose of this phase was to collect information about persons 16 years old and older in order to develop a sample of potential sportsmen and nonconsumptive participants for the second (or detailed) phase. Information was also collected on the number of persons 6 to 15 years old who participated in wildlife-related recreation activities in 1990 These data are reported here in order to include the recreation activity of 6 to 15 year olds in this report. It is important to emphasize that the information presented in the tables in this appendix relate to activity in 1990. Also, these data were based on long-term recall (at least 12-month recall was required for these tables) and were reported, in most cases, by one household respondent speaking for all household members rather than the short-term recall of the actual participant, as in the case of the 1991 detailed phase.

Tables B-1 to B-4 report data on participants 6 to 15 years old in 1990. Detailed expenditures and recreational activity data were not gathered for the 6 to 15 year-old participants

Because of the difference in methodologies between the screening phase and the detailed phase of the 1991 Survey, the data collected 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 4-month intervals while the screening interviews were all 1-year recall The shorter recall period of the detailed phase improved data accuracy. It has been found in Survey studies that in many cases longer recall periods result in over-estimating participation in and expenditures on wildlife-related recreation activities.

## Table B-1. State Residents 6 to 15 Years Old Participating in Fishing and Hunting: 1990

### WASHINGTON

[State population 6 to 15 years old. Numbers in thousands]

| Sportsmen | Sportsmen 6 to 15 years old | | |
|---|---|---|---|
| | Number | Percent of sportsmen | Percent of population |
| **Total sportsmen** | 337.0 | 100 | 48 |
| **Total anglers** | 333.0 | 99 | 47 |
| Fished only | 301.6 | 89 | 43 |
| Fished and hunted | 31.4 | 9 | 4 |
| **Total hunters** | 35.3 | 10 | 5 |
| Hunted only | ... | ... | ... |
| Hunted and fished | 31.4 | 9 | 4 |

Note: Detail does not add to total because of multiple responses. Column showing percent of sportsmen is based on the "Total sportsmen" 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.

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

## Table B-2. Fishing in State by Residents and Nonresidents 6 to 15 Years Old: 1990

### WASHINGTON

[Population 6 to 15 years old Numbers in thousands]

| Anglers | Activity in state | |
|---|---|---|
| | Number | Percent |
| Total anglers | 365.3 | 100 |
| State residents | 304.6 | 83 |
| Nonresidents | 60.7 | 17 |

Note: Data are from screening interviews in which one adult household member responded for all household members 6 to 15 years old. The screening interview required the respondent to recall 12 months worth of activity.

## Table B-3. Selected Characteristics of Resident Anglers and Hunters 6 to 15 Years Old: 1990

### WASHINGTON

[State population 6 to 15 years old. Numbers in thousands]

| Characteristic | Population | | Sportsmen (fished or hunted) | | | Anglers | | | Hunters | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent who participated | Percent of sportsmen | Number | Percent who participated | Percent of anglers | Number | Percent who participated | Percent of hunters |
| **Total persons** | 704.0 | 100 | 337.0 | 48 | 100 | 333.0 | 47 | 100 | 35.3 | 5 | 100 |
| **Population density of residence** | | | | | | | | | | | |
| Urban | 452.9 | 64 | 194.5 | 43 | 58 | 194.5 | 43 | 58 | *11.5 | *3 | *33 |
| Rural | 251.1 | 36 | 142.4 | 57 | 42 | 138.4 | 55 | 42 | *23.8 | *9 | *67 |
| **Sex** | | | | | | | | | | | |
| Male | 373.8 | 53 | 219.0 | 59 | 65 | 217.0 | 58 | 65 | 30.4 | 8 | 86 |
| Female | 330.2 | 47 | 118.0 | 36 | 35 | 116.0 | 35 | 35 | ... | ... | . . |
| **Age** | | | | | | | | | | | |
| 6 to 8 years | 224.1 | 32 | 96.8 | 43 | 29 | 96.8 | 43 | 29 | .. | . . | |
| 9 to 11 years | 226.1 | 32 | 99.0 | 44 | 29 | 99.0 | 44 | 30 | . | ... | |
| 12 to 15 years | 253.8 | 36 | 141.2 | 56 | 42 | 137.2 | 54 | 41 | *26.5 | *10 | *75 |
| **Race** | | | | | | | | | | | |
| White | 643.1 | 91 | 317.3 | 49 | 94 | 314.3 | 49 | 94 | 33.4 | 5 | 94 |
| Black | *11.8 | *2 | ... | ... | ... | ... | ... | ... | ... | .. | ... |
| All others | 49.1 | 7 | *16.7 | *34 | *5 | *15.7 | *32 | *5 | . | ... | ... |
| **Annual household income** | | | | | | | | | | | |
| Under $10,000 | 50.9 | 7 | *17.6 | *35 | *5 | *17.6 | *35 | *5 | . | ... | |
| $10,000 to $19,999 | 83.4 | 12 | 35.8 | 43 | 11 | 34.8 | 42 | 10 | | ... | . |
| $20,000 to $24,999 | 49.0 | 7 | *30.4 | *62 | *9 | *29.4 | *60 | *9 | .. | .. | |
| $25,000 to $29,999 | 74.5 | 11 | 38.2 | 51 | 11 | 37.2 | 50 | 11 | ... | ... | .. |
| $30,000 to $49,999 | 232.3 | 33 | 116.0 | 50 | 34 | 115.0 | 49 | 35 | *11.8 | *5 | *33 |
| $50,000 or more | 142.2 | 20 | 78.5 | 55 | 23 | 78.5 | 55 | 24 | . | ... | |
| Not reported | 71.5 | 10 | *20.5 | *29 | *6 | *20.5 | *29 | *6 | . . | ... | ... |

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 6 to 15 year olds. The screening interview required the respondent to recall 12 months worth of activity. Includes state residents who fished or hunted only in other countries.

* Estimate based on a small sample size.

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

## Table B-4. State Residents 6 to 15 Years Old Participating in Primary Nonconsumptive Activities: 1990

## WASHINGTON

[State population 6 to 15 years old. Numbers in thousands]

| Participants | Number | Percent of participants | Percent of population |
|---|---|---|---|
| Total primary participants | 444.0 | 100 | 63 |
| Nonresidential | 189.3 | 43 | 27 |
| Residential | 400.8 | 90 | 57 |
| Observe wildlife | 317.4 | 71 | 45 |
| Photograph wildlife | 60.8 | 14 | 9 |
| Feed wild birds or other wildlife | 295.2 | 66 | 42 |
| Maintain plantings or natural areas | 104.2 | 23 | 15 |

Note: Detail does not add to total because of multiple responses. The column showing percent of participants is based on total primary 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 nonconsumptive activities. 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.

# Appendix C. National and Regional Trends

Changes in the methodology of the 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation make the data incomparable with past surveys. As such, trends cannot be established through direct comparisons of the detailed data of the past surveys with those of this survey. However, the screening surveys done for the 1980, 1985, and 1991 Surveys were consistent in their methodologies Therefore, the trend information presented in this report is from the screening surveys which cover the calendar years 1980, 1985, and 1990 While the estimates derived from the screening interviews are not as accurate as those derived from the detailed interviews, they do provide a valid basis for trend analysis

## National Trends

Between 1980 and 1990, the U S. population 6 years old and older increased 10 percent Meanwhile, the number of sportsmen in the United States increased 17 percent They spent 55 percent more in 1990 on expenditures than in 1980, and there was a 10 percent increase in days spent fishing and hunting.

From 1980 to 1990, the number of anglers in the United States increased 20 percent. Anglers increased their expenditures 56 percent and spent I5 percent more days fishing.

Hunting participation held steady from 1980 to 1990. Between 1980 and 1990 there was a 4 percent decrease in the number of days spent hunting and a 7 percent decrease in expenditures.

Nonconsumptive activities have been monitored since 1980 The surveys include information on primary nonconsumptive activities such as observing, feeding, and photographing wildlife Primary activities are those activities whose main purpose is to enjoy wildlife This group is divided into those participants who enjoyed wildlife away from home (nonresidential) and those who observed, fed, or photographed wildlife within a mile of home (residential). The screening interview did not include expenditures and days of participation for nonconsumptive participants

Between 1980 and 1990 there was a 63 percent increase in primary nonresidential participation for nonconsumptive activity and a decrease of 13 percent in primary residential participants Overall, there has been a decrease in nonconsumptive participation. Between 1980 and 1990 there was a 10 percent decline in all primary nonconsumptive participation

Over the past decade, the national survey has undergone a number of changes in order to improve its accuracy and to better meet the needs of its constituents. An understanding of the changes in methodology will clarify how the trend analysis was done

## Methodology

Each National Survey of Fishing, Hunting and Wildlife-Associated Recreation is conducted in two phases First, an initial screening of households is conducted to identify wildlife-related recreation participants 6 years old and older, and second, a detailed interview is conducted to collect detailed information on participation and expenditures for persons 16 years old and older

The 1980 to 1990 trend information is based on data from the screening phases rather than

the detailed phases of the 1980, 1985, and 1991 National Surveys because of significant changes in the methodology used in the detailed phase of the 1991 Survey. As a result, the 1991 estimates are not directly comparable with estimates from previous surveys However, the methodology used for the 1991 Survey's screening phase, which collected information on 1990 participation, was similar to that used for the other surveys' screening phases, making those data comparable. All screening phases used a 12-month recall period and collected information for household members 6 years of age and older.

In 1991, changes were made in the survey's detailed phase to improve the accuracy of the data collected. The detailed phase of the 1991 Survey used a 4-month period for respondents to recall their recreation activities and expenditures. Previous surveys used a 12-month recall period. Research in 1988 on recall bias found that 12-month recall periods involving detailed information on participation and expenditures resulted in over-estimations.

Another difference between the 1991 Survey and previous surveys was that the 1980 and 1985 screening surveys covered the years 1980 and 1985, while the 1991 screening survey covered the year 1990. The annual recall period used for the 1980 and 1985 Surveys allowed respondents to be screened into the detailed phases of the surveys after the 1980 and 1985 survey years were over, while the 1991 trimester interviews required respondents to be screened into the detailed phase during the first part of 1991 before their activity took place. The respondents selected for the detailed phase of the survey were then asked about their activities and expenditures every 4 months between January and December 1991.

The data from the screening interviews were subject to similar biases such as:

- The data came from household respondents rather than the self-response of participants, and
- A 12-month recall period was used in each screening interview.

These biases resulted in estimates that were not as accurate as the estimates from the second (detailed) phase of each survey, in which the hunters, anglers, and nonconsumptive participants themselves were interviewed about their activities over the surveyed year (with 4-month recall in the case of the 1991 Survey). These biases were allowed because the screening survey was not intended for use as a measure of a particular year's recreation, but only to select a sample for the more in-depth and reliable second (detailed) survey. The screening survey estimates are not comparable with the estimates from the detailed phases of the surveys because of the differences in methodologies. The information from the detailed phase of each year's survey is more accurate.

The following is an explanation of how estimates were derived for the trend tables:

- *Participation Estimates.* The hunting, fishing, nonresidential, and residential nonconsumptive total and regional participation estimates came directly from the 1980, 1985, and 1991 screening data files. Estimates of participation by type of hunting and fishing (eg. big game, freshwater) were calculated by using their proportions of total hunting and fishing observed in the detailed phases of the 1980, 1985, and 1991 Surveys. Indexes were calculated using 1980 as the base year

- *Expenditure and Day Estimates.* The expenditure and day information from the screening files was not used in the expenditure and day sections of table 1 because this information was not collected the same way in each screening survey. Each survey used different ranges to categorize the respondent's answer, and the last range was open-ended, making the calculation of a single expenditure or day estimate difficult. Therefore, these estimates were calculated by multiplying the participation estimates by the average expenditure and day estimates from the 1980 and 1985 detailed phases and from a 1991 annual recall survey conducted as part of the 1991 Survey to provide further information on recall bias The 1991 expenditure averages were used to approximate the 1990 expenditure averages by adjusting for the inflation from 1990 to 1991. The expenditure averages for the 3 survey years do not include land leasing and ownership. The fishing expenditure averages for 1980 lumped together Great Lakes and other freshwater fishing; the average of total freshwater fishing expenditures was used for both the 1980 Great Lakes and other freshwater fishing expenditure calculations.

**Table C-1. Trends in Wildlife-Related Recreation in the U.S.: 1980 to 1990**

| Item | 1980 | 1985 | 1990 |
|---|---|---|---|
| Total sportsmen | 100 | 107 | 117 |
| Anglers | 100 | 109 | 120 |
| Hunters | 100 | 97 | 100 |
| Total sportsmen expenditures | 100 | 119 | 155 |
| Total days by sportsmen | 100 | 112 | 110 |
| Nonconsumptive participants | 100 | 95 | 90 |
| Residential | 100 | 92 | 87 |
| Nonresidential | 100 | 149 | 163 |

Index of participation, 1980 = 100

The base year for this analysis is 1980. Participation estimates for 1985 and 1990 are relative to 1980. To calculate the percent change between two survey years, divide the later year's index number by the earlier year's index number, subtract 1 from the quotient, and multiply the result by 100. For example, to get the percent change in sportsmen from 1985 to 1990, dividing 117 by 107 yields 1.09, subtracting 1 yields 0.09, and multiplying by 100 we arrive at a 9 percent increase in sportsmen from 1985 to 1990. Small percentage changes, those up to 3 percent, are not statistically significant.

## Table C-2. Index of Change in the Number of Anglers and Hunters by Census Division: 1980 to 1990

[6 years old and older.]

| Division | Total population | Sportsmen | Anglers | Hunters |
|---|---|---|---|---|
| Total, U.S. | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 105 | 107 | 109 | 97 |
| 1990 | 110 | 117 | 120 | 100 |
| New England | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 103 | 104 | 107 | 92 |
| 1990 | 105 | 116 | 121 | 92 |
| Middle Atlantic | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 102 | 108 | 112 | 96 |
| 1990 | 102 | 117 | 123 | 97 |
| East North Central | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 100 | 102 | 103 | 95 |
| 1990 | 102 | 111 | 111 | 109 |
| West North Central | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 102 | 106 | 109 | 99 |
| 1990 | 105 | 110 | 113 | 98 |
| South Atlantic | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 109 | 111 | 112 | 100 |
| 1990 | 117 | 123 | 126 | 100 |
| East South Central | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 104 | 101 | 102 | 90 |
| 1990 | 106 | 115 | 118 | 99 |
| West South Central | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 111 | 112 | 114 | 106 |
| 1990 | 113 | 122 | 127 | 98 |
| Mountain | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 112 | 111 | 114 | 101 |
| 1990 | 120 | 120 | 124 | 100 |
| Pacific | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 109 | 106 | 107 | 87 |
| 1990 | 121 | 120 | 121 | 99 |

Index of participation, 1980 = 100

## Table C-3. Index of Change in the Number of Nonconsumptive Participants, by Census Division: 1980 to 1990

[6 years old and older.]

| Division | Total population | Total nonconsumptive | Residential | Nonresidential |
|---|---|---|---|---|
| Total, U.S | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 105 | 95 | 92 | 149 |
| 1990 | 110 | 90 | 87 | 163 |
| New England | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 103 | 91 | 89 | 158 |
| 1990 | 105 | 84 | 81 | 181 |
| Middle Atlantic | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 102 | 84 | 81 | 141 |
| 1990 | 102 | 75 | 72 | 140 |
| East North Central | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 100 | 91 | 88 | 150 |
| 1990 | 102 | 84 | 81 | 151 |
| West North Central | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 102 | 97 | 93 | 155 |
| 1990 | 105 | 97 | 94 | 167 |
| South Atlantic | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 109 | 96 | 94 | 146 |
| 1990 | 117 | 96 | 93 | 187 |
| East South Central | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 104 | 93 | 91 | 158 |
| 1990 | 106 | 91 | 87 | 208 |
| West South Central | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 111 | 100 | 98 | 156 |
| 1990 | 113 | 93 | 89 | 161 |
| Mountain | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 112 | 117 | 114 | 164 |
| 1990 | 120 | 115 | 111 | 176 |
| Pacific | | | | |
| 1980 | 100 | 100 | 100 | 100 |
| 1985 | 109 | 107 | 104 | 139 |
| 1990 | 121 | 102 | 98 | 156 |

Index of participation, 1980 = 100

# Appendix D. Sample Design and Statistical Accuracy

This appendix is partitioned into two parts. The first part of this appendix is the U S. Bureau of the Census 'Source and Accuracy Statement' for the survey This statement describes the sampling design for the 1991 survey and highlights the steps that were taken to produce estimates from the completed questionnaires The statement explains the use of standard errors and confidence intervals. Finally, it provides comprehensive information about errors that are characteristic of surveys, and it provides the formulas and parameters that can be used to calculate an approximate standard error or confidence interval for each number published in this report.

The second part, tables D-1 to D-3, reports approximate standard errors for selected measures of participation and expenditures for wildlife-related recreation

## *Source and Accuracy Statement for the Washington State Report of the 1991 National Survey of Fishing, Hunting, and Wildlife–Associated Recreation*

### Source of Data

The estimates shown in this report are based on the data collected in the 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (FHWAR).

The 1991 FHWAR survey was designed to provide state-level estimates of the number of people who participated in recreational hunting and fishing, and other forms of wildlife-related activities (e.g., wildlife observation) referred to as nonconsumptive use Information was collected on the number of people engaged in the activities, where and how often they pursued them, the type of wildlife encountered, and the amounts of money spent for these activities

The survey was conducted in two stages an initial screening of households to identify likely sportsmen and nonconsumptive participants, and a series of follow-up interviews of selected persons to collect detailed data about their wildlife-related recreation during 1991

The 1991 FHWAR state samples were selected from expired samples from the Current Population Survey (CPS). As such, they are multistage stratified samples of the U.S. population within each state

### Sample Design

#### *A. CPS-Current Population Survey*

The expired CPS samples used for the 1991 FHWAR survey had been selected initially from the 1980 census files with coverage in all 50 states and the District of Columbia The samples, while active, had been continually updated to reflect new construction. The addresses from the state samples were located in more than 729 areas comprising more than 1,973 counties, independent cities, and minor civil divisions in the nation

#### *B. The FHWAR Screening Sample*

The screening sample consisted of households identified from previously interviewed CPS households. Washington's sample households were last contacted for CPS sometime between May 1988 and

March 1990. Beginning with March 1990 and working back, expired CPS sample households were accumulated until the designated sample size was obtained. About 2,450 households were contacted. Of these roughly 17.2 percent were found to be vacant or otherwise not to be enumerated. Of the remaining households roughly 6.2 percent could not be enumerated because the occupants were not found at home after repeated calls or were unavailable for some other reason. Overall, about 1,900 completed household interviews were obtained for a response rate of approximately 93.8 percent. Roughly 68 percent of the interviewed households were contacted by telephone and the remaining interviewed households were contacted by personal visit. The field representatives asked the screening questions for all household members 6 years old and older. Interviewing for the screening sample was conducted during January and February of 1991.

The screening sample was split into two groups: self-respondent and proxy-respondent. Seventy five percent of the households were designated as proxy-respondents where a household respondent answered for all household members. The household respondent was a knowledgeable household member at least 18 years old. The remaining 25 percent of the sample households were self-respondents where each household member age 16 or older responded for himself or herself. A household respondent answered for persons less than 16 years old. Splitting the sample into two respondent types will allow us to see if the respondent type has an effect on the screener data.

## C. The Detailed Samples

### 1. Sportsmen

The state sportsmen sample was selected based on information reported during the screening phase. Every person 16 years of age and older was assigned to a category based on time devoted to hunting/fishing in the past or time expected to be devoted to hunting/fishing in the future. The three sportsmen categories are:

*Active* - a person who participated in hunting/fishing in 1990, already had participated in 1991 or intended to participate in 1991.

*Inactive* - a person who did not participate in hunting/fishing in 1990, participated in 1986-1989, and did not intend to participate in 1991.

*Nonparticipant* - a person who did not participate in hunting/fishing in 1986-1990, and did not intend to participate in 1991.

The active and inactive groups were eligible for interview in the sportsmen detail sample.

The active sportsmen category included two groups, those who hunted/fished in 1990 and those who did not participate in 1990 but planned to or already had in 1991 Sportsmen who hunted/fished in 1990 were stratified into two substrata based on expenditures on hunting or fishing and the number of days of participation in hunting or fishing. The two substrata are:

*Avid* - a person who hunted or fished at least 30 days or spent at least $600 on either hunting or fishing.

*Nonavid* - a person who hunted or fished at least 1 day but not more than 29 days and did not spend more than $600 on either hunting or fishing.

Of the 316 sportsmen identified from the screening sample as avid or having already participated in 1991, all were selected for interviews. Nonavid sportsmen and those sportsmen who did not participate in 1990 were subsampled to yield the desired number of active sportsmen in Washington.

Active sportsmen selected for the detail sample were contacted three times: May 1991, September 1991, and January 1992. The reference period was the preceding 4 months. If we were not able to obtain an interview, we attempted to interview the person in the next interviewing period. The recall period for these persons was longer. After the last interview, we had obtained data on the person's activities for the entire year of 1991. Inactive sportsmen selected for interview were contacted one time in January or February of 1992 The reference period was the preceding year.

About 910 persons were designated for interviews in Washington. Overall, about 880 detailed sportsmen interviews were completed for a response rate of 97.5 percent.

### 2. Nonconsumptive Users

The state nonconsumptive user sample was also selected based on information reported during the screening phase. Every person 16 years of age and older was assigned to a

category based on time devoted to nonconsumptive activities in the past or time expected to be devoted to nonconsumptive activities in the future The two categories are.

*Active* - a person who participated in a nonconsumptive activity in 1990, already had participated in 1991 or intended to participate in 1991.

*Nonparticipant* - a person who did not participate in a nonconsumptive activity in 1990, and did not intend to participate in 1991

The active group was eligible for interview in the nonconsumptive user detail sample

The active nonconsumptive user category included two groups, those who participated in 1990 and those who did not participate in 1990 but planned to or already had in 1991. Nonconsumptive users who participated in 1990 were stratified into two strata based on the distance traveled by the individual to participate in the nonconsumptive activity. The two strata are·

*Primary Nonresidential* - a person who took a trip of 1 mile or more to participate in a nonconsumptive activity.

*Primary Residential* - a person who participated in a nonconsumptive activity less than 1 mile from home.

The first stratum, primary nonresidential, was further categorized into two substrata based on expenditures on nonconsumptive activities and the number of days of participation in nonconsumptive activities The two substrata are

*Avid* - a person who participated at least 30 days or spent at least $300 on nonconsumptive activities.

*Nonavid* - a person who participated between 1 and 29 days and spent less than $300 on nonconsumptive activities.

Of the 269 nonconsumptive users identified from the screening sample as avid or having already participated in nonresidential activities in 1991, 176 were selected for interview. The rest of the active group was subsampled to get the desired sample size in Washington

The nonconsumptive user sample was interviewed at the same time as the active sportsmen detail sample

About 540 persons were designated for interviews in Washington. Overall, about 530 interviews were completed for a response rate of 98.0 percent.

## Estimation Procedure

Several stages of adjustments were involved in the estimation procedure used to derive the final 1991 FHWAR person weights. A brief description of the major components of the weights by sample is given below.

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

### *A. Screening Sample*

Every interviewed person in the screening sample received a 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 729+ areas designated for our state samples were selected from roughly 1,900 such areas of the United States. Some of our 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 nonself-representing The first-stage factor reduces the component of variation arising out of sampling the nonself-representing areas.

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

### *B. Sportsmen Sample*

Every interviewed person in the sportsmen detail 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. **Stratum Adjustment.** This factor inflates the weights of persons selected for the detail sample to account for the subsampling done within each sportsmen stratum.

3. **Sportsmen Noninterview Adjustment.** This factor adjusts the weights of the interviewed sportsmen to account for sportsmen selected for the detail sample for which no interview was obtained. A person was considered a noninterview if he/she was not interviewed in the third wave of interviewing.

4. **Sportsmen Ratio Adjustment Factor.** This is a ratio adjustment of the detail sample to the screening sample within sportsmen sampling strata. This adjustment brings the population estimates of persons age 16 or older from the state detail sample into agreement with the same estimates from the state screening sample, which was a much larger sample.

5. **Long-Time Inactive Adjustment.** This is an adjustment designed to reduce the bias caused by not sampling unlikely participants.

   The survey sample was drawn from categories of potential participants in wildlife-related recreation activities identified by a screening of households in January 1991. Persons with a low probability of participating - i.e., persons who said they had not gone hunting or fishing in the last 5 years and who had no intention of going in 1991 - were omitted from the detailed interviews for efficiency. There is no standard statistical method of adjusting for the persons in that group who participated in 1991. An adjustment for their participation was made based on data collected from the detailed and screening interviews.

   Persons who said in the screener that they had not hunted in the previous 5 years and did not intend to hunt in 1991 were not eligible for selection for the detail sample as hunters Some of these people were selected because of their fishing activity or plans. We adjusted the weights of the hunters in the sample for these people by assuming same participation rates for the people who did hunt and who were selected into the sample because of their fishing activity and those that were not selected into the sample.

   We made a similar adjustment for persons who fished in 1991 but in the screener said they had not fished in the previous 5 years and did not intend to fish in 1991.

### *C. Nonconsumptive User Sample*

Every interviewed person in the nonconsumptive user detail 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. **Nonconsumptive User Stratum Adjustment.** This factor inflates the weights of the persons selected for the detail sample to account for the subsampling done within each nonconsumptive user stratum

3. **Nonconsumptive User Noninterview Adjustment.** This factor adjusts the weights of the interviewed nonconsumptive users to account for nonconsumptive users selected for the detail sample for which no interview was obtained. A person was considered a noninterview if he/she was not interviewed in the third wave of interviewing.

4 **Nonconsumptive User Ratio Adjustment Factor.** This is a ratio adjustment of the detail sample to the screening sample within nonconsumptive user sampling strata. This adjustment brings the population estimates of persons age 16 or older from the state detail sample into agreement with the same estimates from the state screening sample, which was a much larger sample.

An adjustment for long-time inactive nonconsumptive users similar to the sportsmen long-time inactive adjustment was not made because there were no inactives included in the nonconsumptive users sample upon which an adjustment could be based

## Accuracy of the Estimates

Since the 1991 estimates come from a sample, they may differ from figures from a complete census using the same questionnaires, instructions, and enumerators. This occurs because a sample survey estimate has two possible types of error. sampling and nonsampling. The accuracy of an estimate depends on both types of error, but the full extent of the nonsampling error is unknown

Consequently, one should be particularly careful when interpreting results based on a relatively small number of cases or on small differences between estimates. The standard errors for the 1991 FHWAR estimates primarily indicate the magnitude of sampling error They also partially measure the effect of some nonsampling errors in responses and enumeration, but do not measure systematic biases in the data. (Bias is the average over all possible samples of the differences between the sample estimates and the actual value).

## Nonsampling Variability

Let us suppose that a comparable complete enumeration was conducted, that is, an interview is attempted for every person 16 years old and over in the United States. Chances are we will not correctly estimate every parameter (for example, the proportion of people who fished) under consideration. In this instance the difference is due solely to nonsampling errors. Nonsampling errors also occur in sample surveys and can be attributed to several sources including the following:

- The inability to obtain information about all cases in the sample.
- Definitional difficulties
- Differences in the interpretation of questions
- Respondents' inability or unwillingness to provide correct information.
- Respondents' inability to recall information.
- Errors made in data collection such as in recording or coding the data.
- Errors made in processing the data.
- Errors made in estimating values for missing data.
- Failure to represent all units with the sample (undercoverage)

There were three particular undercoverage problems in this survey sample attrition, i.e., loss of the original sample due to nonreturns from the field, processing, etc , failure to represent new construction in the sampling frame for the period roughly between November 1986 and March 1990; and failure to give all potential participants a chance of selection for the detail sample.

Sportsmen and nonconsumptive users in 1991 who were either participating for the first time or were participating after a period of inactivity are somewhat underrepresented in the 1991 survey estimates. Unless at the time of the screening interview they had intentions of participating during 1991, they were not given a chance of selection for the detail sample. We tried to partially adjust for the missed long-time inactive participants with the long-time inactive sportsmen weighting adjustment.

Overall CPS undercoverage as compared to the level of the 1980 decennial census is about 7 percent. Generally, undercoverage is larger for males than for females and larger for Blacks and other races combined than for Whites. 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 Further, the independent population controls used have not been adjusted for undercoverage in the 1980 census.

*Comparability of Data.* Data obtained from the 1991 FHWAR survey and other sources are not entirely comparable. This results from differences in field interviewer training and experience and in differing survey processes This is an example of nonsampling variability not reflected in the standard errors. Use caution when comparing results from different sources. (See appendix C )

*Note When Using Small Estimates.* Because of the large standard errors involved, summary measures (such as medians and percentage distributions) would probably not reveal useful information when computed on a smaller base than 65,000 for sportsmen and 105,000 for nonconsumptive users. Take care in the interpretation of small differences. For instance, even a small amount of nonsampling error can cause a borderline difference to appear significant or not, thus distorting a seemingly valid hypothesis test.

## Sampling Variability

The particular state sample used for the 1991 survey is one of a large number of all possible probability samples of the same size that could have been selected using the same sample design. Estimates derived from the different samples would differ from each other. This sample-to-sample variability is referred to as sampling variability and is generally measured by the standard error. The exact sampling error is unknown. However, guides to the potential size of the sampling error are provided by the standard error of the estimate.

Since the standard error of a survey estimate attempts to provide a measure of the variation among the estimates from the possible samples, it is a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. Standard errors, as calculated by methods described next in "Standard Errors and Their Use," are primarily measures of sampling variability, although they may include some nonsampling error.

The sample estimate and its standard error enable one to construct a confidence interval, a range that would include the average result of all possible samples with a known probability. 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. One common type of hypothesis is that the population parameters are different. An example of this would be comparing the proportion of anglers to the proportion of hunters.

Tests may be performed at various levels of significance, where a significance level is the probability of concluding that the characteristics are different when, in fact, they are the same To conclude that two parameters are different at the 0.10 level of significance, for example, 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.

The Census Bureau uses 90-percent confidence intervals and 0 10 levels of significance to determine statistical validity. Consult standard statistical textbooks for alternative criteria.

*Standard Errors and Their Use.* A number of approximations are required to derive, at a moderate cost, standard errors applicable to all the estimates in this report. Instead of providing an individual standard error for each estimate, parameters are provided to calculate standard errors for each type of characteristic. These parameters are listed in tables D-4 to D-9. 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 sportsmen, anglers, hunters, nonconsumptive users.

$$s_x = \sqrt{ax^2 + bx} \qquad (1)$$

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

$$s_x = \sqrt{ax^2 + bx + \frac{cx^2}{y}} \qquad (2)$$

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 that a table shows that 39,979,000 persons 16+ either fished or hunted in the United States in 1991. Using formula (1) with the parameters a = -0.000032 and b = 4,395 from table D-5, the approximate standard error on the estimated number of 39,979,000 sportsmen 16+ is

$$s_x = \sqrt{-0.000032 \times 39{,}979{,}000^2 - 4{,}395 \times 39{,}970{,}000} = 352{,}900$$

The 90-percent confidence interval for the estimated number of sportsmen 16+ is from 39,398,500 to 40,559,500, i.e., 39,979,000 ± 1 645 x 352,900 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 that another table shows that 14,063,000 hunters 16+ engaged in 235,806,000 days of participation in 1991 in the United States. Using formula (2) with the parameters a = 0.000069, b = 9,445, and c = 5,567 from table D-7, the approximate standard error on 235,806,000 estimated days on an estimated base of 14,063,000 hunters is

$$s_x = \sqrt{0.000069 \times 235{,}806{,}000^2 + 9{,}445 \times 235{,}806{,}000 + \frac{5{,}567 \times 235{,}806{,}000^2}{14{,}063{,}000}} = 5{,}298{,}600$$

The 90-percent confidence interval on the estimate of 235,806,000 days is from 227,089,800 to 244,522,200, i.e., 235,806,000 ± 1.645 x 5,298,600. 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 denominator of the percentage are in different categories, use the parameter in the tables indicated by the numerator.

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

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

Here, x is the total number of sportsmen, 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.*

Assume that a table in this report shows that of the 14,063,000 hunters 16+ in the United States, 2.1 percent were Black. From table D-5 the appropriate b parameter is 2,872. Using formula (3), the approximate standard error on the estimate of 2.1 percent is

$$s_{x,p} = \sqrt{2{,}872 \times 2.1 \times 97.9/14{,}063{,}000} = 0.20$$

Consequently, the 90-percent confidence interval for the estimated percentage of Black hunters 16+ is from 1.8 percent to 2.4 percent, i.e., $2.1 \pm 1.645 \times 0.20$

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

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

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 that a table shows that of the 14,063,000 hunters in the United States, 3,930,000 were in the age group 25-34, and 3,369,000 were in the age group 35-44. The corresponding percents are 28.0 percent and 24.0 percent, respectively. The apparent difference between the percent of hunters 25-34 and hunters 35-44 is 4.0 percent. Using formula (3) and the appropriate b parameter from table D-5, the approximate standard errors of 28.0 percent and 24 0 percent are 0.64 and 0.61, respectively. Using formula (4), the approximate standard error of the estimated difference of 4.0 percent is

$$s_{x-y} = \sqrt{0.64^2 + 0.61^2} = 0.88$$

The 90-percent confidence interval on the difference between hunters aged 25-34 and hunters aged 35-44 is from 2 6 to 5.4 percent, i.e., $4.0 \pm 1.645 \times 0.88$. Since this interval does not contain zero, we can conclude with 90 percent confidence that the percentage of hunters aged 25-34 is larger than the percentage of hunters aged 35-44.

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

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

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

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

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 a table shows that the average days per hunter 16+ in the United States was 16 8 days Using formulas (1) and (2) above, we compute the standard error on total days, 235,806,000, and total hunters, 14,063,000, to be 5,298,600 and 194,000, respectively. The approximate standard error on the estimated average of 16 8 days is

$$s_{x/y} = \frac{235{,}806{,}000}{14{,}063{,}000}\sqrt{\left[\frac{5{,}298{,}600}{235{,}806{,}000}\right]^2 + \left[\frac{194{,}000}{14{,}063\,000}\right]^2 - 2 \times 0\,7 \times \frac{5{,}298{,}600 \times 194{,}000}{235{,}806{,}000 \times 14{,}063{,}000}} = 0\,27$$

Therefore, the 90-percent confidence interval on the estimated average of 16 8 days is from 16 4 to 17 2, i.e., $16.8 \pm 1\,645 \times 0.27$

## 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 | |
|---|---|---|---|---|---|---|
| | Estimate | Standard error | Estimate | Standard error | Estimate | Standard error |
| Alabama | 678 | 41 | 10,854 | 1,194 | $728,501 | $142,843 |
| Alaska | 141 | 7 | 1,888 | 263 | $239,166 | $34,946 |
| Arizona | 388 | 29 | 4,438 | 636 | $299,592 | $47,475 |
| Arkansas | 493 | 26 | 8,942 | 1,219 | $286,091 | $36,399 |
| California | 2,707 | 146 | 25,974 | 3,759 | $1,795,949 | $311,306 |
| Colorado | 567 | 29 | 5,364 | 599 | $319,283 | $36,898 |
| Connecticut | 343 | 20 | 5,241 | 587 | $252,997 | $42,236 |
| Delaware | 83 | 5 | 1,153 | 177 | $79,456 | $13,400 |
| Florida | 1,968 | 89 | 35,081 | 3,311 | $1,654,594 | $275,376 |
| Georgia | 987 | 49 | 16,235 | 1,335 | $534,539 | $80,772 |
| Hawaii | 149 | 10 | 2,384 | 471 | $75,519 | $13,346 |
| Idaho | 247 | 12 | 2,706 | 264 | $145,456 | $16,603 |
| Illinois | 1,503 | 78 | 21,970 | 2,462 | $1,111,262 | $128,845 |
| Indiana | 886 | 46 | 12,861 | 879 | $404,367 | $54,132 |
| Iowa | 529 | 27 | 6,571 | 670 | $320,730 | $31,178 |
| Kansas | 445 | 20 | 5,687 | 586 | $288,710 | $38,826 |
| Kentucky | 647 | 33 | 9,426 | 542 | $468,930 | $80,099 |
| Louisiana | 801 | 42 | 13,807 | 1,975 | $686,201 | $131,294 |
| Maine | 236 | 13 | 3,647 | 257 | $177,931 | $25,132 |
| Maryland | 549 | 35 | 6,318 | 1,395 | $467,292 | $81,044 |
| Massachusetts | 583 | 31 | 9,786 | 1,024 | $454,240 | $68,246 |
| Michigan | 1,437 | 63 | 22,984 | 2,007 | $1,286,368 | $191,642 |
| Minnesota | 1,109 | 43 | 16,131 | 1,846 | $846,246 | $104,159 |
| Mississippi | 506 | 32 | 8,758 | 590 | $263,084 | $41,463 |
| Missouri | 1,039 | 48 | 14,072 | 1,829 | $439,234 | $52,721 |
| Montana | 171 | 10 | 1,967 | 229 | $71,200 | $8,782 |
| Nebraska | 269 | 16 | 3,199 | 367 | $147,806 | $19,338 |
| Nevada | 160 | 11 | 1,428 | 163 | $80,123 | $13,601 |
| New Hampshire | 176 | 10 | 2,583 | 244 | $86,978 | $10,442 |
| New Jersey | 789 | 41 | 11,384 | 1,475 | $774,375 | $99,352 |
| New Mexico | 179 | 13 | 1,617 | 263 | $112,863 | $18,386 |
| New York | 1,656 | 92 | 21,995 | 2,492 | $867,242 | $93,709 |
| North Carolina | 1,052 | 50 | 15,245 | 1,422 | $577,540 | $77,049 |
| North Dakota | 126 | 7 | 1,456 | 200 | $69,515 | $8,260 |
| Ohio | 1,468 | 69 | 20,644 | 1,856 | $861,554 | $88,257 |
| Oklahoma | 649 | 31 | 10,836 | 1,011 | $422,036 | $52,808 |
| Oregon | 540 | 27 | 7,013 | 1,301 | $461,297 | $53,101 |
| Pennsylvania | 1,425 | 79 | 26,254 | 3,663 | $677,512 | $83,866 |
| Rhode Island | 97 | 6 | 1,892 | 358 | $63,523 | $10,557 |
| South Carolina | 595 | 32 | 8,952 | 1,011 | $398,587 | $55,140 |
| South Dakota | 129 | 8 | 1,565 | 184 | $87,217 | $12,594 |
| Tennessee | 804 | 40 | 12,940 | 1,307 | $493,174 | $68,132 |
| Texas | 2,650 | 123 | 36,752 | 3,455 | $1,475,470 | $191,689 |
| Utah | 251 | 14 | 2,436 | 242 | $154,205 | $24.253 |
| Vermont | 110 | 6 | 1,863 | 194 | $64,238 | $8,210 |
| Virginia | 929 | 46 | 12,806 | 1,334 | $431,082 | $59,247 |
| Washington | 967 | 47 | 12,655 | 1,251 | $1,009,310 | $111,503 |
| West Virginia | 259 | 17 | 3,897 | 254 | $109,209 | $10,759 |
| Wisconsin | 970 | 49 | 16,323 | 2,335 | $782,388 | $94,748 |
| Wyoming | 115 | 7 | 1,283 | 114 | $66,270 | $10,653 |

## 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 | |
|---|---|---|---|---|---|---|
| | Estimate | Standard error | Estimate | Standard error | Estimate | Standard error |
| Alabama | 311 | 24 | 5,748 | 870 | $275,883 | $57,589 |
| Alaska | 55 | 4 | 737 | 95 | $88,589 | $11,287 |
| Arizona | 153 | 17 | 1,516 | 295 | $153,601 | $39,055 |
| Arkansas | 264 | 19 | 5,177 | 561 | $288,060 | $49,696 |
| California | 537 | 56 | 6,369 | 1,212 | $643,150 | $153,043 |
| Colorado | 206 | 19 | 1,838 | 356 | $154,499 | $26,502 |
| Connecticut | 50 | 7 | 936 | 243 | $43,335 | $10,470 |
| Delaware | 25 | 3 | 424 | 82 | $20,546 | $4,462 |
| Florida | 348 | 39 | 5,946 | 1,602 | $323,749 | $87,016 |
| Georgia | 336 | 29 | 5,695 | 932 | $548,301 | $132,602 |
| Hawaii | 17 | 3 | 289 | 104 | $17,250 | $5,585 |
| Idaho | 161 | 11 | 1,985 | 284 | $97,947 | $13,407 |
| Illinois | 457 | 43 | 7,238 | 1,049 | $326,957 | $59,620 |
| Indiana | 320 | 26 | 7,208 | 1,071 | $243,627 | $49,481 |
| Iowa | 246 | 19 | 3,735 | 516 | $443,965 | $93,512 |
| Kansas | 202 | 15 | 2,862 | 319 | $125,617 | $28,528 |
| Kentucky | 340 | 22 | 6,112 | 807 | $236,506 | $41,377 |
| Louisiana | 333 | 24 | 7,398 | 1,017 | $433,808 | $94,354 |
| Maine | 123 | 10 | 1,998 | 285 | $66,716 | $9,818 |
| Maryland | 149 | 17 | 2,491 | 565 | $345,996 | $68,026 |
| Massachusetts | 120 | 13 | 1,973 | 309 | $113,459 | $20,017 |
| Michigan | 785 | 42 | 14,955 | 1,549 | $873,442 | $107,178 |
| Minnesota | 452 | 27 | 5,137 | 622 | $289,690 | $30,050 |
| Mississippi | 292 | 20 | 7,986 | 720 | $402,096 | $72,932 |
| Missouri | 479 | 32 | 7,269 | 833 | $339,226 | $51,029 |
| Montana | 158 | 9 | 1,950 | 197 | $88,196 | $10,204 |
| Nebraska | 138 | 11 | 2,055 | 256 | $67,626 | $12,050 |
| Nevada | 57 | 7 | 586 | 205 | $65,345 | $12,146 |
| New Hampshire | 65 | 6 | 1,111 | 156 | $44,051 | $7,985 |
| New Jersey | 139 | 16 | 2,564 | 405 | $123,625 | $23,662 |
| New Mexico | 98 | 10 | 1,021 | 241 | $57,082 | $12,632 |
| New York | 688 | 51 | 12,788 | 1,338 | $504,491 | $55,917 |
| North Carolina | 401 | 29 | 7,412 | 779 | $270,660 | $48,532 |
| North Dakota | 89 | 5 | 1,266 | 134 | $51,770 | $6,459 |
| Ohio | 580 | 41 | 9,451 | 1,172 | $381,711 | $61,342 |
| Oklahoma | 229 | 22 | 3,803 | 878 | $158,708 | $36,391 |
| Oregon | 240 | 18 | 2,506 | 324 | $122,739 | $16,618 |
| Pennsylvania | 919 | 58 | 15,626 | 1,355 | $536,917 | $83,506 |
| Rhode Island | 16 | 2 | 340 | 88 | $20,785 | $5,806 |
| South Carolina | 186 | 17 | 3,619 | 476 | $128,010 | $23,944 |
| South Dakota | 103 | 6 | 1,688 | 193 | $78,955 | $10,987 |
| Tennessee | 336 | 23 | 7,595 | 816 | $311,721 | $44,125 |
| Texas | 1,018 | 72 | 14,953 | 2,549 | $1,006,433 | $121,031 |
| Utah | 162 | 13 | 1,402 | 220 | $86,214 | $12,476 |
| Vermont | 69 | 5 | 1,541 | 169 | $48,186 | $12,183 |
| Virginia | 368 | 29 | 8,570 | 1,852 | $255,822 | $45,797 |
| Washington | 251 | 29 | 3,546 | 1,226 | $191,609 | $50,171 |
| West Virginia | 271 | 19 | 5,677 | 950 | $165,081 | $20,916 |
| Wisconsin | 647 | 37 | 10,983 | 1,297 | $624,436 | $89,270 |
| Wyoming | 74 | 5 | 733 | 69 | $50,249 | $9,395 |

## Table D-3. Approximate Standard Errors of Resident Primary Nonresidential Participants, Days of Primary Nonresidential Participation by State Residents, and Trip-Related Expenditures for Primary Nonresidential Activities by State Residents

[Numbers in thousands]

| State | Participation | | Days | | Expenditures | |
|---|---|---|---|---|---|---|
| | Estimate | Standard error | Estimate | Standard error | Estimate | Standard error |
| Alabama | 347 | 27 | 3,077 | 522 | $73,608 | $14,056 |
| Alaska | 143 | 9 | 1,923 | 289 | $49,024 | $9,202 |
| Arizona | 435 | 37 | 5,026 | 914 | $101,912 | $19,261 |
| Arkansas | 279 | 23 | 2,276 | 413 | $44,869 | $9,162 |
| California | 3,408 | 256 | 46,556 | 14,357 | $1,157,836 | $304,018 |
| Colorado | 571 | 38 | 6,179 | 1,622 | $132,069 | $37,444 |
| Connecticut | 361 | 28 | 5,271 | 962 | $94,607 | $16,980 |
| Delaware | 84 | 6 | 878 | 128 | $15,714 | $2,966 |
| Florida | 1,678 | 125 | 15,421 | 1,863 | $556,366 | $109,989 |
| Georgia | 400 | 39 | 4,570 | 1,245 | $106,614 | $21,424 |
| Hawaii | 84 | 7 | 967 | 190 | $33,041 | $7,881 |
| Idaho | 224 | 13 | 2,308 | 335 | $39,563 | $6,047 |
| Illinois | 1,182 | 90 | 12,512 | 1,671 | $435,454 | $95,204 |
| Indiana | 664 | 51 | 7,564 | 992 | $119,869 | $21,443 |
| Iowa | 398 | 30 | 4,547 | 825 | $61,179 | $10,371 |
| Kansas | 323 | 25 | 2,668 | 343 | $45,768 | $8,826 |
| Kentucky | 382 | 31 | 3,967 | 830 | $59,936 | $11,742 |
| Louisiana | 306 | 27 | 2,625 | 727 | $60,678 | $12,623 |
| Maine | 217 | 15 | 2,453 | 315 | $39,660 | $6,154 |
| Maryland | 531 | 43 | 6,461 | 1,612 | $118,235 | $18,781 |
| Massachusetts | 868 | 54 | 10,707 | 1,471 | $216,609 | $32,419 |
| Michigan | 1,395 | 95 | 15,099 | 2,281 | $300,175 | $72,217 |
| Minnesota | 782 | 55 | 11,023 | 2,629 | $181,883 | $34,629 |
| Mississippi | 231 | 21 | 2,856 | 616 | $58,562 | $12,486 |
| Missouri | 740 | 54 | 7,186 | 1,225 | $126,749 | $30,837 |
| Montana | 185 | 11 | 1,921 | 251 | $34,174 | $6,452 |
| Nebraska | 237 | 17 | 1,893 | 342 | $38,632 | $6,811 |
| Nevada | 175 | 12 | 1,981 | 313 | $73,101 | $15,895 |
| New Hampshire | 186 | 12 | 2,202 | 346 | $31,212 | $4,806 |
| New Jersey | 765 | 56 | 6,692 | 1,000 | $210,435 | $33,139 |
| New Mexico | 231 | 16 | 2,493 | 648 | $61,194 | $13,712 |
| New York | 1,611 | 123 | 14,737 | 2,442 | $380,928 | $70,950 |
| North Carolina | 540 | 44 | 6,041 | 1,072 | $115,652 | $18,544 |
| North Dakota | 78 | 6 | 768 | 147 | $9,711 | $1,743 |
| Ohio | 1,373 | 97 | 15,206 | 2,376 | $275,703 | $42,157 |
| Oklahoma | 394 | 37 | 4,453 | 1,263 | $81,515 | $19,865 |
| Oregon | 524 | 34 | 6,348 | 989 | $119,014 | $23,813 |
| Pennsylvania | 1,790 | 112 | 23,161 | 4,047 | $456,147 | $70,375 |
| Rhode Island | 116 | 9 | 1,375 | 208 | $30,285 | $6,394 |
| South Carolina | 179 | 20 | 2,363 | 709 | $23,353 | $5,013 |
| South Dakota | 96 | 7 | 1,278 | 241 | $19,067 | $4,705 |
| Tennessee | 632 | 51 | 7,221 | 1,185 | $127,306 | $26,870 |
| Texas | 1,481 | 121 | 17,933 | 3,135 | $423,218 | $96,966 |
| Utah | 284 | 19 | 2,572 | 332 | $58,848 | $12,515 |
| Vermont | 109 | 7 | 1,827 | 272 | $20,263 | $3,120 |
| Virginia | 786 | 62 | 6,867 | 1,170 | $141,648 | $21,058 |
| Washington | 875 | 64 | 13,125 | 1,959 | $298,941 | $50,235 |
| West Virginia | 214 | 19 | 2,946 | 920 | $32,684 | $5,293 |
| Wisconsin | 958 | 59 | 11,087 | 1,179 | $140,584 | $21,898 |
| Wyoming | 112 | 7 | 1,195 | 163 | $24,171 | $4,001 |

## Table D-4. a and b Parameters for Calculating Approximate Standard Errors of Sportsmen, Anglers, Hunters, and Nonconsumptive Users[1]

| State | 6 years old and over | | 6 to 15 year olds only | |
|---|---|---|---|---|
| | a | b | a | b |
| United States | -0.0000118 | 2,669 | -0.0000673 | 2,391 |
| Alabama | -0.0006116 | 2,282 | -0.0031691 | 1,968 |
| Alaska | -0.0013864 | 629 | -0.0045765 | 389 |
| Arizona | -0.0006194 | 2,013 | -0.0025525 | 1,386 |
| Arkansas | -0.0007403 | 1,611 | -0.0036775 | 1,357 |
| California | -0.0001953 | 5,202 | -0.0011774 | 5,032 |
| Colorado | -0.0005021 | 1,501 | -0.0030379 | 1,443 |
| Connecticut | -0.0003050 | 887 | -0.0022934 | 938 |
| Delaware | -0.0004916 | 306 | -0.0030632 | 291 |
| Florida | -0.0002670 | 3,180 | -0.0017448 | 2,776 |
| Georgia | -0 0004358 | 2,551 | -0.0022912 | 2,321 |
| Hawaii | -0.0004746 | 474 | -0.0024268 | 381 |
| Idaho | -0.0008082 | 749 | -0.0032099 | 581 |
| Illinois | -0.0002717 | 2,858 | -0.0013644 | 2,209 |
| Indiana | -0.0003748 | 1,908 | -0.0020777 | 1,712 |
| Iowa | -0.0005406 | 1,392 | -0.0029781 | 1,224 |
| Kansas | -0.0004502 | 1,017 | -0.0027162 | 1,024 |
| Kentucky | -0.0004634 | 1,562 | -0.0027266 | 1,486 |
| Louisiana | -0.0005713 | 2,208 | -0.0024716 | 1,740 |
| Maine | -0.0007030 | 790 | -0.0037719 | 645 |
| Maryland | -0.0004325 | 1,855 | -0.0026079 | 1,643 |
| Massachusetts | -0.0002129 | 1,138 | -0.0015340 | 1,083 |
| Michigan | -0.0003476 | 2,909 | -0.0019313 | 2,615 |
| Minnesota | -0.0005451 | 2,154 | -0.0028866 | 1,859 |
| Mississippi | -0.0007184 | 1,686 | -0.0035566 | 1,540 |
| Missouri | -0.0004485 | 2,092 | -0.0021324 | 1,546 |
| Montana | -0.0008103 | 588 | -0.0036880 | 461 |
| Nebraska | -0.0007032 | 1,021 | -0.0037975 | 919 |
| Nevada | -0.0005222 | 562 | -0.0027778 | 450 |
| New Hampshire | -0.0004595 | 468 | -0.0028000 | 434 |
| New Jersey | -0.0002130 | 1,488 | -0.0014061 | 1,378 |
| New Mexico | -0.0007202 | 996 | -0.0026031 | 669 |
| New York | -0.0002120 | 3,423 | -0.0012354 | 2,892 |
| North Carolina | -0.0003168 | 1,903 | -0.0018173 | 1,641 |
| North Dakota | -0.0006465 | 374 | -0.0030495 | 308 |
| Ohio | -0.0002246 | 2,220 | -0.0013278 | 2,094 |
| Oklahoma | -0.0006190 | 1,788 | -0.0029140 | 1,390 |
| Oregon | -0.0004238 | 1,114 | -0.0026995 | 1,096 |
| Pennsylvania | -0.0003050 | 3,348 | -0.0020045 | 3,151 |
| Rhode Island | -0.0003436 | 310 | -0.0021600 | 270 |
| South Carolina | -0.0004618 | 1,469 | -0.0025578 | 1,371 |
| South Dakota | -0.0007407 | 471 | -0.0039279 | 436 |
| Tennessee | -0.0004086 | 1,849 | -0.0022994 | 1,628 |
| Texas | -0.0002984 | 4,553 | -0.0016448 | 4,454 |
| Utah | -0.0006587 | 998 | -0.0027660 | 1,040 |
| Vermont | -0.0006589 | 346 | -0.0039241 | 310 |
| Virginia | -0.0004226 | 2,335 | -0.0021343 | 1,716 |
| Washington | -0.0004833 | 2,133 | -0.0033565 | 2,363 |
| West Virginia | -0.0007768 | 1,307 | -0.0040573 | 1,063 |
| Wisconsin | -0.0005539 | 2,445 | -0.0033165 | 2,368 |
| Wyoming | -0.0011709 | 494 | -0.0057532 | 443 |

[1]*These parameters are to be used only to calculate estimates of standard errors for characteristics developed from the screening sample.*

## Table D-5. a and b Parameters for Calculating Approximate Standard Errors of Levels for the Detail Sportsmen Sample

| State | Sportsmen and anglers 16+ | | Hunters 16+ | |
|---|---|---|---|---|
| | a | b | a | b |
| United States | -0.000032 | 4,395 | -0.000014 | 2,872 |
| Alabama | -0.001284 | 3,350 | -0.000452 | 2,028 |
| Alaska | -0.001049 | 534 | -0.000533 | 389 |
| Arizona | -0.001024 | 2,542 | -0.000653 | 2,057 |
| Arkansas | -0.000984 | 1,874 | -0.000688 | 1,555 |
| California | -0.000726 | 9,809 | -0.000284 | 5,976 |
| Colorado | -0.000802 | 1,936 | -0.000729 | 1,830 |
| Connecticut | -0.001130 | 1,585 | -0.000381 | 951 |
| Delaware | -0.001214 | 459 | -0.000350 | 276 |
| Florida | -0.000757 | 5,471 | -0.000570 | 4,598 |
| Georgia | -0.000638 | 3,018 | -0.000469 | 2,627 |
| Hawaii | -0.001467 | 824 | -0.000381 | 441 |
| Idaho | -0.000969 | 835 | -0.001275 | 998 |
| Illinois | -0.000965 | 5,509 | -0.000668 | 4,374 |
| Indiana | -0.000983 | 3,220 | -0.000534 | 2,252 |
| Iowa | -0.000905 | 1,826 | -0.000729 | 1,616 |
| Kansas | -0.000644 | 1,217 | -0.000592 | 1,163 |
| Kentucky | -0.000899 | 2,232 | -0.000514 | 1,640 |
| Louisiana | -0.001103 | 3,073 | -0.000360 | 1,864 |
| Maine | -0.000958 | 916 | -0.000833 | 854 |
| Maryland | -0.001090 | 2,776 | -0.000521 | 1,979 |
| Massachusetts | -0.000910 | 2,189 | -0.000462 | 1,513 |
| Michigan | -0.000525 | 3,538 | -0.000218 | 2,451 |
| Minnesota | -0.000661 | 2,415 | -0.000415 | 1,860 |
| Mississippi | -0.001820 | 2,905 | -0.000585 | 1,538 |
| Missouri | -0.000949 | 3,179 | -0.000611 | 2,445 |
| Montana | -0.001371 | 819 | -0.001189 | 744 |
| Nebraska | -0.001090 | 1,273 | -0.000671 | 1,000 |
| Nevada | -0.001357 | 958 | -0.001135 | 853 |
| New Hampshire | -0.001420 | 861 | -0.000653 | 547 |
| New Jersey | -0.000873 | 2,822 | -0.000369 | 1,804 |
| New Mexico | -0.001087 | 1,210 | -0.001122 | 1,230 |
| New York | -0.000931 | 6,658 | -0.000354 | 4,061 |
| North Carolina | -0.000888 | 3,274 | -0.000502 | 2,347 |
| North Dakota | -0.000911 | 455 | -0.000562 | 348 |
| Ohio | -0.000837 | 4,486 | -0.000490 | 3,202 |
| Oklahoma | -0.000696 | 1,898 | -0.001058 | 2,412 |
| Oregon | -0.000966 | 1,836 | -0.000681 | 1,456 |
| Pennsylvania | -0.001028 | 5,797 | -0.000520 | 4,077 |
| Rhode Island | -0.001104 | 517 | -0.000219 | 276 |
| South Carolina | -0.001248 | 2,463 | -0.000621 | 1,670 |
| South Dakota | -0.001170 | 607 | -0.000779 | 483 |
| Tennessee | -0.000861 | 2,723 | -0.000331 | 1,700 |
| Texas | -0.000808 | 7,823 | -0.000442 | 5,473 |
| Utah | -0.000631 | 979 | -0.000986 | 1,226 |
| Vermont | -0.001037 | 444 | -0.000786 | 379 |
| Virginia | -0.000685 | 2,917 | -0.000469 | 2,439 |
| Washington | -0.000981 | 3,234 | -0.001141 | 3,590 |
| West Virginia | -0.000793 | 1,318 | -0.001212 | 1,596 |
| Wisconsin | -0.001093 | 3,578 | -0.000559 | 2,455 |
| Wyoming | -0.001606 | 603 | -0.001019 | 456 |

## Table D-6. a, b, and c Parameters for Calculating Approximate Standard Errors for Expenditures for the Detail Sportsmen Sample

| State | Sportsmen and anglers 16+ | | | Hunters 16+ | | |
|---|---|---|---|---|---|---|
| | a | b | c | a | b | c |
| United States | 0.000745 | 34,470 | 16,835 | -0.000274 | 17,643 | 16,954 |
| Alabama | 0.028530 | -38,534 | 6,557 | 0.030372 | -54,158 | 4,026 |
| Alaska | 0.018611 | -1,076 | 384 | 0.004880 | 7,829 | 623 |
| Arizona | 0.013489 | -3,777 | 4,390 | 0.042530 | -68,524 | 3,446 |
| Arkansas | 0.009865 | -1,423 | 3,087 | 0.004490 | -89,190 | 6,649 |
| California | 0.027217 | 273,355 | 7,227 | 0.031160 | -168,238 | 12,140 |
| Colorado | 0.007850 | -4,466 | 3,093 | 0.009625 | -47,715 | 4,096 |
| Connecticut | 0.021108 | -7,442 | 2,286 | 0.020330 | -12,693 | 1,932 |
| Delaware | 0.017594 | -3,713 | 889 | 0.029927 | -3,775 | 425 |
| Florida | 0.023619 | 30,561 | 7,698 | 0.046200 | -176,405 | 8,906 |
| Georgia | 0.017015 | 6,534 | 5,515 | 0.022700 | -130,448 | 11,910 |
| Hawaii | 0.022298 | -846 | 1,288 | 0.077950 | -5,020 | 467 |
| Idaho | 0.007513 | -3,331 | 1,367 | 0.009691 | -6,013 | 1,457 |
| Illinois | 0.005565 | -9,417 | 1,598 | 0.018169 | -87,947 | 6,690 |
| Indiana | 0.008574 | -43,203 | 8,233 | 0.024170 | -124,142 | 5,444 |
| Iowa | 0.002365 | -15,013 | 3,719 | 0.034476 | -42,093 | 2,366 |
| Kansas | 0.013822 | -7,587 | 1,872 | 0.039090 | -54,605 | 2,611 |
| Kentucky | 0.023614 | 11,585 | 3,464 | 0.020540 | -27,324 | 3,376 |
| Louisiana | 0.030260 | -28,497 | 5,042 | 0.025550 | -115,743 | 7,292 |
| Maine | 0.012997 | -9,830 | 1,612 | 0.010974 | -8,335 | 1,284 |
| Maryland | 0.023826 | -686 | 3,308 | 0.011030 | -20,197 | 4,064 |
| Massachusetts | 0.013047 | -31,394 | 5,442 | 0.013405 | 13,784 | 2,105 |
| Michigan | 0.014449 | -96,888 | 11,103 | 0.004782 | -37,776 | 8,038 |
| Minnesota | 0.010570 | -23,060 | 5,043 | 0.001701 | -13,909 | 4,092 |
| Mississippi | 0.002090 | -74,387 | 10,961 | 0.011080 | -102,074 | 6,251 |
| Missouri | 0.009317 | -24,336 | 5,227 | 0.013525 | -67,063 | 4,390 |
| Montana | 0.007344 | -1,738 | 1,323 | 0.005268 | 114 | 1,279 |
| Nebraska | 0.009074 | -5,195 | 2,139 | 0.018807 | -18,565 | 1,790 |
| Nevada | 0.014154 | -15,238 | 2,314 | 0.013870 | -6,060 | 1,161 |
| New Hampshire | 0.001028 | -17,581 | 2,364 | 0.018435 | -9,120 | 948 |
| New Jersey | 0.007586 | -36,453 | 6,828 | 0.018993 | 7,371 | 2,363 |
| New Mexico | 0.018114 | -1,548 | 1,491 | 0.031320 | -10,448 | 1,732 |
| New York | 0.001665 | -34,650 | 6,464 | 0.002663 | 112,661 | 6,318 |
| North Carolina | 0.011615 | -24,756 | 6,173 | 0.018443 | -47,032 | 5,470 |
| North Dakota | 0.008821 | -2,124 | 666 | 0.009315 | -6,902 | 569 |
| Ohio | 0.004213 | -35,115 | 8,926 | 0.012912 | -62,926 | 7,384 |
| Oklahoma | 0.009985 | -14,260 | 3,595 | 0.043804 | -834 | 1,963 |
| Oregon | 0.005453 | -11,903 | 4,228 | 0.007854 | -1,130 | 2,479 |
| Pennsylvania | 0.000416 | -83,888 | 20,828 | 0.015999 | 7,428 | 7,478 |
| Rhode Island | 0.020288 | -5,285 | 689 | 0.054010 | -3,549 | 392 |
| South Carolina | 0.010860 | -28,489 | 4,734 | 0.014430 | -45,449 | 3,850 |
| South Dakota | 0.015625 | -1,308 | 673 | 0.010036 | -12,819 | 972 |
| Tennessee | 0.012744 | -18,120 | 4,952 | 0.006234 | -59,874 | 4,533 |
| Texas | 0.013120 | -32,602 | 9,846 | 0.004451 | 17,951 | 10,125 |
| Utah | 0.016880 | -6,103 | 1,982 | 0.009898 | -14,696 | 1,820 |
| Vermont | 0.001944 | -15,681 | 1,579 | 0.053670 | -11,001 | 718 |
| Virginia | 0.013836 | 6,730 | 4,561 | 0.023587 | -26,835 | 3,063 |
| Washington | 0.005950 | -19,151 | 5,965 | 0.053290 | -94,821 | 3,905 |
| West Virginia | -0.000448 | -5,976 | 2,586 | 0.008732 | -9,638 | 1,901 |
| Wisconsin | 0.009191 | -19,263 | 5,304 | 0.006010 | -93,592 | 9,429 |
| Wyoming | 0.017028 | -1,035 | 1,010 | 0.018940 | -9,791 | 1,193 |

## Table D-7. a, b, and c Parameters for Calculating Approximate Standard Errors for Days or Trips for the Detail Sportsmen Sample

| State | Sportsmen and anglers 16+ | | | Hunters 16+ | | |
|---|---|---|---|---|---|---|
| | a | b | c | a | b | c |
| United States | -0.000144 | -28,529 | 17,917 | 0.000069 | 9,445 | 5,567 |
| Alabama | -0.002322 | -8,057 | 10,284 | 0.013585 | -3,849 | 3,113 |
| Alaska | 0.017254 | -433 | 344 | 0.007475 | -775 | 572 |
| Arizona | 0.014448 | 121 | 2,357 | 0.017234 | -8,222 | 3,986 |
| Arkansas | 0.013145 | -1,560 | 2,761 | -0.000013 | 468 | 3,079 |
| California | 0.019127 | 8,300 | 4,057 | 0.015920 | -5,272 | 11,342 |
| Colorado | 0.004447 | -7,501 | 5,350 | 0.027855 | -2,709 | 2,302 |
| Connecticut | 0.006748 | -1,650 | 2,102 | 0.045472 | 660 | 1,069 |
| Delaware | 0.014386 | -1,429 | 879 | 0.022828 | -451 | 376 |
| Florida | 0.004190 | -7,941 | 9,726 | 0.060620 | -2,325 | 4,311 |
| Georgia | -0.004071 | -9,819 | 11,283 | 0.018543 | 5,055 | 2,474 |
| Hawaii | 0.030213 | -1,267 | 1,390 | 0.107950 | -226 | 383 |
| Idaho | 0.001369 | -1,642 | 2,166 | 0.011626 | -331 | 1,456 |
| Illinois | 0.004376 | -10,396 | 13,001 | 0.008279 | -563 | 5,853 |
| Indiana | -0.005679 | -17,955 | 10,407 | 0.011527 | -9,519 | 3,795 |
| Iowa | 0.002951 | -2,071 | 4,109 | 0.007895 | -6,046 | 3,143 |
| Kansas | 0.007352 | -604 | 1,497 | -0.002003 | -8,016 | 3,489 |
| Kentucky | -0.003142 | -2,893 | 4,370 | 0.007808 | -3,893 | 3,484 |
| Louisiana | 0.013202 | -16,559 | 6,777 | 0.012199 | 2,044 | 2,135 |
| Maine | -0.011035 | -3,485 | 4,005 | 0.007157 | -2,867 | 1,806 |
| Maryland | 0.045450 | -1,164 | 1,915 | 0.035718 | -1,442 | 2,437 |
| Massachusetts | 0.004395 | -3,357 | 4,018 | 0.006853 | -2,991 | 2,303 |
| Michigan | -0.001452 | -16,536 | 14,076 | 0.004264 | -10,292 | 5,610 |
| Minnesota | 0.008364 | -7,130 | 5,743 | 0.005830 | -9,272 | 4,802 |
| Mississippi | -0.017627 | -10,434 | 11,811 | -0.001552 | -2,439 | 2,916 |
| Missouri | 0.012202 | -4,169 | 5,187 | 0.006883 | 2,284 | 2,840 |
| Montana | 0.004255 | -1,379 | 1,718 | 0.002052 | -1,580 | 1,417 |
| Nebraska | 0.002607 | -2,690 | 3,064 | 0.005199 | -1,921 | 1,554 |
| Nevada | 0.003045 | -1,649 | 1,798 | 0.115390 | -242 | 411 |
| New Hampshire | 0.000214 | -1,570 | 1,633 | 0.009654 | 640 | 627 |
| New Jersey | 0.010017 | -4,620 | 5,660 | 0.008681 | 11,245 | 1,642 |
| New Mexico | 0.017088 | -1,424 | 1,838 | 0.047235 | 127 | 827 |
| New York | 0.005934 | 43,758 | 8,137 | 0.000654 | -10,622 | 7,656 |
| North Carolina | 0.002948 | -6,843 | 6,520 | 0.001450 | -2,510 | 3,978 |
| North Dakota | 0.014352 | -279 | 583 | 0.004591 | -486 | 621 |
| Ohio | 0.002097 | -14,149 | 9,795 | 0.005342 | -10,571 | 6,469 |
| Oklahoma | -0.000714 | -5,313 | 6,427 | 0.037022 | -8,855 | 4,250 |
| Oregon | 0.028740 | -2,964 | 3,304 | 0.006202 | -4,366 | 2,940 |
| Pennsylvania | 0.017015 | 38,935 | 1,385 | 0.000078 | -4,935 | 7,128 |
| Rhode Island | 0.030402 | -466 | 557 | 0.049018 | -158 | 295 |
| South Carolina | 0.006928 | 28,696 | 1,559 | 0.002727 | -2,574 | 2,846 |
| South Dakota | 0.005192 | -725 | 1,179 | 0.003239 | -2,324 | 1,152 |
| Tennessee | 0.007245 | 1,883 | 2,263 | 0.001422 | -5,173 | 3,626 |
| Texas | 0.001997 | -17,658 | 9,396 | 0.022648 | -4,099 | 6,813 |
| Utah | 0.003485 | 370 | 1,570 | 0.017024 | -1,801 | 1,444 |
| Vermont | 0.002760 | -57 | 890 | 0.000718 | -2,381 | 887 |
| Virginia | 0.001179 | -18,439 | 10,318 | 0.037767 | -3,002 | 3,410 |
| Washington | 0.000425 | -7,499 | 9,611 | 0.102630 | -12,596 | 5,122 |
| West Virginia | -0.010583 | -5,227 | 4,180 | 0.021073 | -4,218 | 2,077 |
| Wisconsin | 0.013691 | -9,186 | 7,120 | 0.006278 | -12,752 | 5,707 |
| Wyoming | -0.004748 | -1,159 | 1,555 | -0.002873 | -917 | 949 |

## Table D-8. a and b Parameters for Calculating Approximate Standard Errors of Levels of Nonconsumptive Users for the Detail Nonconsumptive User Sample

| State | Primary nonresidential users | | All nonconsumptive users[1] | |
|---|---|---|---|---|
| | a | b | a | b |
| United States | -0.000094 | 10,345 | -0.000088 | 9,722 |
| Alabama | -0.000691 | 2,398 | -0.001069 | 2,946 |
| Alaska | -0.002091 | 817 | -0.002814 | 1,010 |
| Arizona | -0.002184 | 4,125 | -0.002653 | 4,757 |
| Arkansas | -0.001418 | 2,248 | -0.002136 | 2,922 |
| California | -0.002838 | 28,828 | -0.002973 | 30,038 |
| Colorado | -0.001952 | 3,708 | -0.002368 | 4,342 |
| Connecticut | -0.001824 | 2,789 | -0.002321 | 3,411 |
| Delaware | -0.001447 | 549 | -0.001863 | 655 |
| Florida | -0.002349 | 13,284 | -0.002524 | 14,134 |
| Georgia | -0.001212 | 4,275 | -0.001975 | 5,970 |
| Hawaii | -0.000971 | 633 | -0.001289 | 735 |
| Idaho | -0.001659 | 1,156 | -0.002100 | 1,367 |
| Illinois | -0.001728 | 8,929 | -0.002028 | 10,182 |
| Indiana | -0.001708 | 5,021 | -0.001959 | 5,607 |
| Iowa | -0.001686 | 2,878 | -0.002792 | 4,312 |
| Kansas | -0.001952 | 2,592 | -0.002742 | 3,420 |
| Kentucky | -0.001451 | 3,024 | -0.001980 | 3,807 |
| Louisiana | -0.001014 | 2,775 | -0.001824 | 3,813 |
| Maine | -0.001892 | 1,517 | -0.002362 | 1,804 |
| Maryland | -0.001963 | 4,595 | -0.001950 | 4,572 |
| Massachusetts | -0.001912 | 5,006 | -0.002247 | 5,768 |
| Michigan | -0.002008 | 9,330 | -0.002276 | 10,367 |
| Minnesota | -0.002043 | 5,423 | -0.002594 | 6,625 |
| Mississippi | -0.001392 | 2,284 | -0.001461 | 2,346 |
| Missouri | -0.001834 | 5,297 | -0.002590 | 7,047 |
| Montana | -0.002077 | 1,092 | -0.002716 | 1,346 |
| Nebraska | -0.001555 | 1,654 | -0.002729 | 2,527 |
| Nevada | -0.001814 | 1,178 | -0.002228 | 1,375 |
| New Hampshire | -0.001682 | 1,109 | -0.002220 | 1,391 |
| New Jersey | -0.001732 | 5,466 | -0.002117 | 6,472 |
| New Mexico | -0.001757 | 1,581 | -0.002017 | 1,727 |
| New York | -0.001824 | 12,284 | -0.002377 | 15,325 |
| North Carolina | -0.001231 | 4,225 | -0.001367 | 4,572 |
| North Dakota | -0.001537 | 605 | -0.002130 | 759 |
| Ohio | -0.001857 | 9,338 | -0.002332 | 11,413 |
| Oklahoma | -0.002464 | 4,517 | -0.002751 | 4,942 |
| Oregon | -0.001941 | 3,217 | -0.002337 | 3,766 |
| Pennsylvania | -0.001747 | 10,161 | -0.002241 | 12,498 |
| Rhode Island | -0.001822 | 930 | -0.002427 | 1,184 |
| South Carolina | -0.001428 | 2,505 | -0.002508 | 3,662 |
| South Dakota | -0.001219 | 612 | 0.001646 | 738 |
| Tennessee | -0.002210 | 5,527 | -0.002570 | 6,262 |
| Texas | -0.001836 | 12,634 | -0.002091 | 13,972 |
| Utah | -0.001964 | 1,871 | -0.003083 | 2,619 |
| Vermont | -0.001677 | 665 | -0.001786 | 699 |
| Virginia | -0.002110 | 6,539 | -0.003464 | 9,915 |
| Washington | -0.002340 | 6,783 | -0.002322 | 6,739 |
| West Virginia | -0.001790 | 1,985 | -0.001623 | 1,873 |
| Wisconsin | -0.001793 | 5,306 | -0.002414 | 6,742 |
| Wyoming | -0.002136 | 717 | -0.002535 | 809 |

[1]Use these parameters for: total nonconsumptive users and primary residential users.

## Table D-9. a, b, and c Parameters for Calculating Approximate Standard Errors for Expenditures and Days or Trips for Nonconsumptive Users

| State | Expenditures | | | Days or trips | | |
|---|---|---|---|---|---|---|
| | a | b | c | a | b | c |
| United States | 0.001215 | -282,226 | 45,885 | 0.000987 | -60,563 | 52,811 |
| Alabama | 0.024139 | -9,379 | 4,098 | 0.018332 | -1,449 | 3,778 |
| Alaska | 0.026812 | -8,153 | 1,170 | 0.014523 | -805 | 1,206 |
| Arizona | 0.023064 | -20,364 | 5,437 | 0.013842 | -6,283 | 8,922 |
| Arkansas | 0.030419 | -27,113 | 3,108 | 0.021343 | -3,154 | 3,606 |
| California | 0.062820 | -40,744 | 20,464 | 0.083140 | -37,154 | 43,490 |
| Colorado | 0.070850 | -18,657 | 5,204 | 0.056430 | -6,763 | 7,756 |
| Connecticut | 0.019390 | -11,363 | 4,382 | 0.016898 | -6,496 | 6,367 |
| Delaware | 0.023965 | -4,782 | 935 | 0.009040 | -629 | 1,084 |
| Florida | 0.020540 | -30 | 29,437 | 0.001485 | -25,490 | 24,770 |
| Georgia | 0.013762 | -16,567 | 9,698 | 0.058840 | -3,549 | 6,485 |
| Hawaii | 0.045890 | -2,820 | 878 | 0.022950 | -735 | 1,391 |
| Idaho | 0.014826 | -4,670 | 1,827 | 0.009063 | -3,202 | 3,010 |
| Illinois | 0.031830 | -69,745 | 17,258 | 0.003981 | -13,077 | 17,614 |
| Indiana | 0.015877 | 15,202 | 9,997 | 0.002404 | -6,885 | 10,423 |
| Iowa | 0.016991 | -22,437 | 4,615 | 0.018967 | -2,973 | 5,811 |
| Kansas | 0.025093 | -9,399 | 3,851 | 0.002322 | -3,201 | 4,962 |
| Kentucky | 0.016727 | -47,093 | 7,655 | 0.023920 | -4,865 | 8,041 |
| Louisiana | 0.023500 | -32,823 | 5,830 | 0.059580 | -4,383 | 5,780 |
| Maine | 0.010085 | -16,556 | 3,017 | 0.001313 | -2,978 | 3,563 |
| Maryland | 0.005947 | 26,331 | 9,024 | 0.047920 | -7,463 | 8,233 |
| Massachusetts | 0.009778 | -4,391 | 10,512 | 0.005279 | -11,297 | 12,718 |
| Michigan | 0.048560 | -69,873 | 12,523 | 0.009817 | -14,832 | 19,522 |
| Minnesota | 0.022050 | -40,965 | 10,643 | 0.044920 | -7,952 | 9,931 |
| Mississippi | 0.031680 | 37,625 | 2,650 | 0.031717 | -2,263 | 3,602 |
| Missouri | 0.043330 | -17,567 | 11,392 | 0.013076 | -24,564 | 14,369 |
| Montana | 0.025931 | -3,917 | 1,783 | 0.005356 | -2,059 | 2,364 |
| Nebraska | 0.024994 | 54,614 | 1,058 | 0.018741 | -2,335 | 3,580 |
| Nevada | 0.033870 | -16,308 | 2,314 | 0.013184 | -1,504 | 2,185 |
| New Hampshire | 0.011799 | -8,549 | 2,135 | 0.012387 | -1,752 | 2,449 |
| New Jersey | 0.010069 | -45,658 | 10,664 | 0.011673 | -3,259 | 8,525 |
| New Mexico | 0.038710 | 15,720 | 2,553 | 0.058800 | -1,872 | 2,196 |
| New York | 0.018378 | -93,452 | 24,061 | 0.017948 | -6,374 | 16,002 |
| North Carolina | 0.007832 | -65,772 | 9,255 | 0.013342 | -6,894 | 10,406 |
| North Dakota | 0.024253 | 434 | 593 | 0.023215 | -734 | 1,129 |
| Ohio | 0.014133 | 59,639 | 10,783 | 0.009514 | -29,385 | 3,110 |
| Oklahoma | 0.043254 | -43,610 | 6,312 | 0.054340 | -37,951 | 13,662 |
| Oregon | 0.028490 | 14,151 | 5,638 | 0.010153 | -5,199 | 7,825 |
| Pennsylvania | 0.013522 | -32,299 | 17,430 | 0.019134 | -12,423 | 21,369 |
| Rhode Island | 0.033382 | -203 | 1,218 | 0.009271 | -1,475 | 1,704 |
| South Carolina | 0.025928 | -9,766 | 3,216 | 0.067680 | -2,369 | 4,161 |
| South Dakota | 0.045880 | -13,835 | 1,422 | 0.015271 | -3,894 | 2,242 |
| Tennessee | 0.036348 | -10,592 | 5,006 | 0.011982 | -27,873 | 11,873 |
| Texas | 0.036702 | -277,947 | 23,888 | 0.009839 | -31,816 | 33,326 |
| Utah | 0.034840 | -2,067 | 2,771 | 0.003765 | -2,307 | 3,918 |
| Vermont | 0.011607 | -5,393 | 1,249 | 0.008395 | -2,664 | 1,666 |
| Virginia | 0.010021 | 3,592 | 8,595 | 0.016696 | -10,043 | 10,862 |
| Washington | 0.019285 | 59,681 | 7,549 | 0.008059 | -6,772 | 12,897 |
| West Virginia | 0.017676 | 894 | 1,702 | 0.087620 | -2,413 | 2,289 |
| Wisconsin | 0.014365 | 40,476 | 8,693 | -0.001194 | -15,463 | 13,311 |
| Wyoming | 0.014594 | -9,350 | 1,442 | 0.002206 | -1,753 | 2,011 |

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