

*2001 National Survey of  
Fishing, Hunting, and  
Wildlife-Associated Recreation*

*California*



Revised March 2003



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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. Multistate grants from these programs pay for the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

#### **Suggested Citation**

U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, U.S. Census Bureau. *2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.*

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# Foreword

Fish and wildlife resources are part of our American culture. Whether we are fishing, hunting, watching wildlife or feeding backyard birds, Americans derive many hours of enjoyment from wildlife-related recreation. Wildlife recreation is the cornerstone of our Nation's great conservation ethic.

The 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation is a partnership effort with the States and national conservation organizations, and has become one of the most important sources of information on fish and wildlife recreation in the United States. It is a useful tool that quantifies the economic impact of wildlife-based recreation. Federal, State, and private organizations use this detailed information to manage wildlife, market products, and look for trends. The 2001 Survey is the tenth in a series that began in 1955.

More than 82 million U.S. residents fished, hunted, and watched wildlife in 2001. They spent over \$108 billion pursuing their recreational activities, contributing to millions of jobs in industries and businesses that support wildlife-related recreation. Furthermore, funds generated by licenses and taxes on hunting and fishing equipment pay for many of the conservation efforts in this country.

Wildlife recreationists are among the Nation's most ardent conservationists. They not only contribute financially to conservation efforts, but also spend time and effort to introduce children and other newcomers to the enjoyment of the outdoors and wildlife.

I appreciate the assistance of those who took time to participate in this valuable survey. We all can be grateful that America's great tradition of wildlife-related recreation remains strong.



**Steve Williams**  
Director, U.S. Fish and Wildlife Service  
U.S. Department of the Interior

# Survey Background and Method

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (Survey) has been conducted since 1955 and is one of the oldest and most comprehensive continuing recreation surveys. The purpose of the Survey is to gather information on the number of anglers, hunters, and wildlife-watching participants (formerly known as nonconsumptive wildlife-related participants) in the United States. Information also is collected on how often these recreationists participate and how much they spend on their activities.

Preparations for the 2001 Survey began in 1999 when the International Association of Fish and Wildlife Agencies (IAFWA) asked us, the Fish and Wildlife Service, to conduct the tenth national survey of wildlife-related recreation. Funding came from the Multistate Conservation Grant Programs, authorized by Sport Fish and Wildlife Restoration Acts, as amended.

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

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

Data collection for the Survey was carried out in two phases by the U.S. Census Bureau. The first phase was the screen which began in April 2001. During the screening phase, the Census Bureau interviewed a sample of 80,000 households nationwide to determine who in the household had fished, hunted, or engaged in wildlife-watching activities in 2000, and who had engaged or planned to engage in those activities in 2001. In most cases, one adult household member provided information for all household members. The screen primarily covered 2000 activities while the next, more in-depth phase covered 2001 activities. For more information on the 2000 data, refer to Appendix C.

The second phase of the data collection consisted of three detailed interview waves. The first wave began in April 2001, the second in September 2001, and the last in January 2002. Interviews were conducted with samples of likely anglers, hunters, and wildlife watchers 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 survey phase were limited to those at least 16 years old. Each respondent provided information pertaining only to his or her activities and expenditures. Sample sizes were designed to provide statistically reliable

results at the State level. Altogether, interviews were completed for 25,070 respondents from the sportspersons sample and 15,303 from the wildlife watchers sample. More detailed information on sampling procedures and response rates is found in Appendix D.

## Comparability With Previous Surveys

The 2001 Survey's questions and methodology were similar to those used in the 1996 and 1991 Surveys. Therefore, the estimates of all three surveys are comparable.

The methodology of the 2001, 1996, and 1991 Surveys did differ significantly from the 1985 and 1980 Surveys, so their estimates are not directly comparable to those earlier surveys. The changes in methodology included reducing the recall period over which respondents had to report their activities and expenditures. Previous Surveys used a 12-month recall period which resulted in greater reporting bias. Research found that the amount of activity and expenditures reported in 12-month recall surveys was overestimated in comparison with that reported using shorter recall periods. See the Summary Section and Appendix B.

# *Highlights*



# Introduction

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation reports results from interviews with U.S. residents about their fishing, hunting, and other wildlife-related recreation. This report focuses on 2001 participation and expenditures of U.S. residents 16 years of age and older.

In addition to the 2001 numbers, we also provide 11-year trend data. The 2001 numbers reported can be compared with those in the 1991 and 1996 Survey reports because these three surveys used similar methodologies. However, the 2001 estimates should not be directly compared with the results from Surveys earlier than 1991 because of changes in methodology. These changes were made to improve accuracy in the information provided. Trend information from 1991 to 2001 is presented in Appendix B.

The report also provides information on participation in wildlife-related recreation in 2000, particularly of persons 6 to 15 years of age. The 2000 information is provided in Appendix C. 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 wildlife-watching activities. These categories are not mutually exclusive because many individuals enjoyed fish and wildlife in several ways in 2001. Wildlife-associated recreation is reported in two major categories: (1) fishing and hunting and (2) wildlife watching (formerly nonconsumptive wildlife-related recreation). Wildlife watching includes observing, photographing, and feeding fish and wildlife.

## Fishing and Hunting

This Survey reports information about residents of the United States who fished or hunted in 2001, regardless of whether they were licensed. The fishing and hunting sections of this report are organized to report three groups: (1) sportspersons, (2) anglers, and (3) hunters.

## Sportspersons

Sportspersons are those who fished or hunted. Individuals who fished or hunted commercially in 2001 are reported as sportspersons only if they also fished or hunted for recreation. The sportspersons group is composed of the three subgroups in the diagram below: (1) those who fished and hunted, (2) those who only fished, and (3) those who only hunted. The total number of sportspersons is equal to the sum of people who only

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

## Anglers

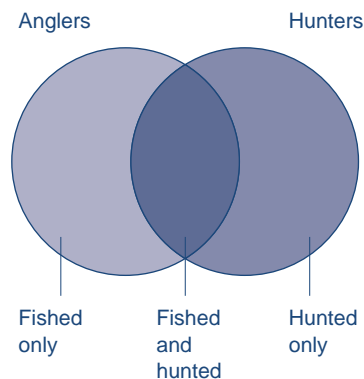
Anglers are sportspersons who only fished plus those who fished and hunted. Anglers include not only licensed hook-and-line anglers, but also those who have no license and those who use special methods such as fishing with spears. Three types of fishing are reported: (1) freshwater, excluding the Great Lakes, (2) Great Lakes, and (3) saltwater. Since many anglers participated in more than one type of fishing, the total number of anglers is less than the sum of the three types of fishing.

## Hunters

Hunters are sportspersons who only hunted plus those who hunted and fished. Hunters include not only licensed hunters using common hunting practices, but also those who have no license and those who engaged in hunting with a bow and arrow, muzzleloader, other primitive firearms, 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 participated in more than one type of hunting, the sum of hunters for big game, small game, migratory bird, and other animals exceeds the total number of hunters.

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## Sportspersons





### **Wildlife-Watching Activities (formerly Nonconsumptive Wildlife-Related Recreation)**

Since 1980, the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation has included information on wildlife-watching activities in addition to fishing and hunting. However, the 1991, 1996, and 2001 Surveys, unlike the 1980 and 1985 Surveys, collected data only for those activities where the primary purpose was wildlife watching (observing, photographing, or feeding wildlife). The Survey uses a strict definition of wildlife watching. Participants must either take a “special interest” in wildlife around their homes or take a trip for the “primary purpose” of wildlife watching. Secondary wildlife-watching activities such as incidentally observing wildlife while

pleasure driving were included in the 1980 and 1985 Surveys but not in the succeeding ones.

Two types of wildlife-watching activity are reported: (1) nonresidential and (2) residential. Because some people participate in more than one type of wildlife-watching activity, the sum of participants in each type will be greater than the total number of wildlife watchers. The two types of wildlife-watching activities are defined below.

#### **Nonresidential (away from the home)**

This group included persons who took trips or outings of at least 1 mile for the primary purpose of observing, feeding, or photographing fish and wildlife. Trips to fish, hunt, or scout and trips to zoos,

circuses, aquariums, or museums were not considered wildlife-watching activities.

#### **Residential (around the home)**

This group included 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 where benefit to wildlife is the primary concern; (5) maintaining plantings (shrubs, agricultural crops, etc.) where benefit to wildlife is the primary concern; or (6) visiting public parks within 1 mile of home for the primary purpose of observing, feeding, or photographing wildlife.



# 2001 California Summary

(Participants 16 years old and older)

## Activities in the United States by California Residents

### Fishing

|   |                  |
|---|------------------|
| <b>Anglers</b> .....  | <b>2,389,000</b> |
| Days of fishing .....   | 27,878,000       |
| Average days per angler .....   | 12               |
| Total expenditures .....  | \$2,162,620,000  |
| Trip-related .....  | \$1,265,231,000  |
| Equipment and other .....   | \$897,389,000    |
| Average per angler .....  | \$.905           |
| Average trip expenditure per day .....                                | \$.45            |
| Trip and equipment expenditures by<br>Californians out of state ..... | \$.201,775,000   |

### Hunting

|   |                |
|---|----------------|
| <b>Hunters</b> .....  | <b>278,000</b> |
| Days of hunting .....   | 3,695,000      |
| Average days per hunter .....   | 13             |
| Total expenditures .....  | \$368,701,000  |
| Trip-related .....  | \$191,303,000  |
| Equipment and other .....   | \$177,398,000  |
| Average per hunter .....  | \$.1,328       |
| Average trip expenditure per day .....                                | \$.52          |
| Trip and equipment expenditures by<br>Californians out of state ..... | \$.50,351,000  |

### Wildlife Watching

|   |                  |
|---|------------------|
| <b>Total wildlife-watching participants</b> .....                     | <b>5,491,000</b> |
| Nonresidential .....  | 2,191,000        |
| Residential .....   | 4,853,000        |
| Total expenditures .....  | \$2,603,127,000  |
| Trip-related .....  | \$894,746,000    |
| Equipment and other .....   | \$1,708,381,000  |
| Average per participant .....   | \$.474           |
| Trip and equipment expenditures by<br>Californians out of state ..... | \$.481,901,000   |

## Activities in California by U.S. Residents

### Fishing

|  |                  |
|--|------------------|
| <b>Anglers</b> .....   | <b>2,444,000</b> |
| Days of fishing .....  | 27,663,000       |
| Average days per angler .....  | 11               |
| Total expenditures .....   | \$2,029,581,000  |
| Trip-related .....   | \$1,129,693,000  |
| Equipment and other .....  | \$899,888,000    |
| Average per angler .....   | \$.835           |
| Average trip expenditure per day .....                                 | \$.41            |
| Trip and equipment expenditures by<br>nonresidents in California ..... | \$.66,654,000    |

### Hunting

|  |                |
|--|----------------|
| <b>Hunters</b> .....   | <b>274,000</b> |
| Days of hunting .....  | 3,426,000      |
| Average days per hunter .....  | 13             |
| Total expenditures .....   | \$315,207,000  |
| Trip-related .....   | \$159,105,000  |
| Equipment and other .....  | \$156,102,000  |
| Average per hunter .....   | \$.1,133       |
| Average trip expenditure per day .....                                 | \$.46          |
| Trip and equipment expenditures by<br>nonresidents in California ..... | \$.10,757,000  |

### Wildlife Watching

|  |                  |
|--|------------------|
| <b>Total wildlife-watching participants</b> .....                      | <b>5,720,000</b> |
| Nonresidential .....   | 2,270,000        |
| Residential .....  | 4,853,000        |
| Total expenditures .....   | \$2,580,874,000  |
| Trip-related .....   | \$880,805,000    |
| Equipment and other .....  | \$1,700,069,000  |
| Average per participant .....  | \$.451           |
| Trip and equipment expenditures by<br>nonresidents in California ..... | \$.465,968,000   |

# Wildlife-Associated Recreation

## Participation in California

The 2001 Survey revealed that 7.2 million California residents and nonresidents 16 years old and older fished, hunted, or wildlife watched in California. Of the total number of participants, 2.4 million fished, 274 thousand hunted, and 5.7 million participated in wildlife-watching activities, including observing, feeding, and photographing wildlife. The sum of anglers, hunters, and wildlife watchers exceeds the total number of participants in wildlife-related recreation because many individuals engaged in more than one wildlife activity.

## Participation by 6- to 15-year-old California Residents

The focus of this report is on the activity of participants 16 years old and older since they are the primary source of wildlife-associated expenditures. However, the activity of 6 to 15 year olds can be calculated using the screening data covering the year 2000. It is assumed for estimation purposes that the relative

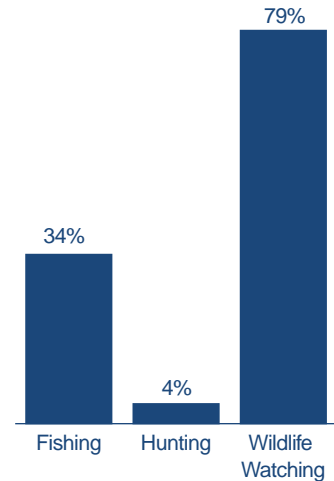
activity levels of 6- to 15-year-old participants and participants 16 years old and older remained the same from 2000 to 2001. Based on this assumption, in addition to the 2,389,000 resident anglers 16 years old and older in California, there were 878,000 resident anglers 6 to 15 years old. There were 5,491,000 Californians 16 years old and older and 1,296,000 Californians 6 to 15 years old who wildlife watched. Sample sizes for hunting for 6 to 15 year olds were too small to reliably report the data.

## Expenditures in California

In 2001, state residents and nonresidents spent \$5.7 billion on wildlife recreation in California. Of that total, trip-related expenditures were nearly \$2.2 billion and equipment purchases totaled \$3.0 billion. The remaining \$587 million was spent on licenses, contributions, land ownership and leasing, and other items and services.

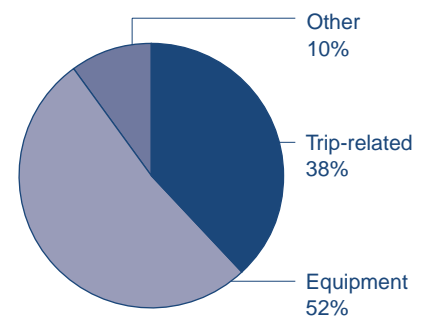
## Percent of Total Participation by Activity

(Total: 7.2 million participants)



## Wildlife-Associated Recreation Expenditures in California

(Total: \$5.7 billion)



## Participants in Wildlife-Associated Recreation in California—2001

(U.S. residents 16 years old and older)

|                          |                    |
|--------------------------|--------------------|
| <b>Total</b> .....       | <b>7.2 million</b> |
| <b>Sportspersons</b>     |                    |
| <b>Total</b> .....       | <b>2.6 million</b> |
| Anglers .....            | 2.4 million        |
| Hunters .....            | 274 thousand       |
| <b>Wildlife Watchers</b> |                    |
| <b>Total</b> .....       | <b>5.7 million</b> |
| Residential .....        | 4.9 million        |
| Nonresidential .....     | 2.3 million        |

Source: Tables 3, 24, 40.

Detail does not add to total because of multiple responses.

# Sportspersons

In 2001, nearly 2.6 million state resident and nonresident sportspersons 16 years old and older fished or hunted in California. This group comprised 2.4 million anglers (96 percent of all sportspersons) and 274 thousand hunters

(11 percent of all sportspersons). Among the 2.6 million sportspersons who fished or hunted in the state, 2.3 million (89%) fished but did not hunt in California. Another 112 thousand (4%) hunted but did not fish there. The remaining 161

thousand (6%) fished and hunted in California in 2001.

## Sportspersons' Participation in California

(State residents and nonresidents 16 years old and older)

|   |                     |
|---|---------------------|
| <b>Sportspersons (fished or hunted)</b> ..... | <b>2.6 million</b>  |
| <b>Anglers</b> .....                          | <b>2.4 million</b>  |
| Fished only .....                             | 2.3 million         |
| Fished and hunted .....                       | 161 thousand        |
| <b>Hunters</b> .....                          | <b>274 thousand</b> |
| Hunted only .....                             | 112 thousand        |
| Hunted and fished .....                       | 161 thousand        |

Source: Table 1.

Detail does not add to total because of multiple responses.

# Anglers

## Participants and Days of Fishing

In 2001, 2.4 million state residents and nonresidents 16 years old and older fished in California. Of this total, 2.3 million anglers (94%) were state residents and 156 thousand anglers (6%) were nonresidents. Anglers fished a total of 27.7 million days in California—an average of 11 days per angler. State residents fished 26.8 million days, 97 percent of all fishing days within California compared to nonresidents who fished 861 thousand days—3 percent of all fishing days in the state.

There were 2.4 million Californians 16 years old and older who fished in the United States in 2001. These anglers fished a total of 27.9 million days. Approximately 2.3 million resident anglers (96%) fished in California. They spent 26.8 million days, 96 percent of their total fishing days, fishing in their resident state.

Some state residents fished in other states as well as in California. In 2001, 276 thousand anglers fished in other states—12 percent of the resident angler total.

They fished 1.1 million days as nonresidents, representing 4 percent of all days fished by California residents. For further details about fishing in California, see Table 3.

### Anglers in California

(State residents and nonresidents 16 years old and older)

|                              |                     |
|------------------------------|---------------------|
| <b>Anglers</b> .....         | <b>2.4 million</b>  |
| Resident .....               | 2.3 million         |
| Nonresident .....            | 156 thousand        |
| <b>Days of fishing</b> ..... | <b>27.7 million</b> |
| Resident .....               | 26.8 million        |
| Nonresident .....            | 861 thousand        |

Source: Table 3.

### In-State/Out-of-State

(State residents 16 years old and older)

|                                 |                     |
|---------------------------------|---------------------|
| <b>California anglers</b> ..... | <b>2.4 million</b>  |
| In California .....             | 2.3 million         |
| In other states .....           | 276 thousand        |
| <b>Days of fishing</b> .....    | <b>27.9 million</b> |
| In California .....             | 26.8 million        |
| In other states .....           | 1.1 million         |

Source: Table 3.

Detail does not add to total because of multiple responses.

### Fishing Expenditures in California

Anglers 16 years old and older spent \$2.0 billion on fishing expenses in California in 2001. Trip-related expenditures including food and lodging, transportation, and other expenses totaled more than \$1.1 billion—56 percent of all their fishing expenditures. They spent \$446 million on food and lodging and \$232 million on transportation. Other trip expenses such as equipment rental, bait, and cooking fuel totaled nearly \$452 million. Each angler spent an average of \$484 on trip-related costs during 2001.

Anglers spent \$807 million on equipment in California in 2001, 40 percent of all fishing expenditures. Fishing equipment (rods, reels, line, etc.) totaled \$459 million—57 percent of the equipment total. Auxiliary equipment expenditures (tents, special fishing clothes, etc.) and special equipment expenditures (boats, pickups, etc.) amounted to \$348 million, 43 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 close to \$93 million—5 percent of all fishing expenditures. For more details about fishing expenditures in California, see Tables 19, 21-23.

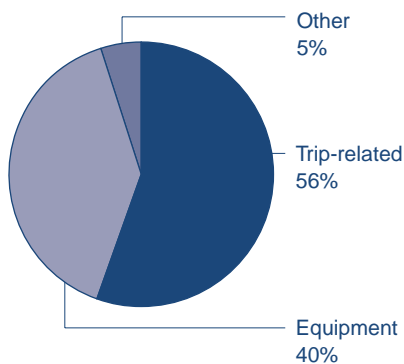
### Fishing Expenditures in California

(State residents and nonresidents 16 years old and older)

|                             |                      |
|-----------------------------|----------------------|
| <b>Total</b> .....          | <b>\$2.0 billion</b> |
| Trip-related .....          | \$1.1 billion        |
| Equipment .....             | \$807 million        |
| Fishing .....               | \$459 million        |
| Auxiliary and special ..... | \$348 million        |
| Other .....                 | \$93 million         |

Source: Table 19.

Fishing Expenditures in California  
(Total: \$2.0 billion)



# Hunters

## Participants and Days of Hunting

In 2001, there were 274 thousand residents and nonresidents 16 years old and older who hunted in California. Resident hunters numbered 261 thousand accounting for 95 percent of the hunters in California. There were 12 thousand nonresidents who hunted in California—5 percent of the State's hunters. Residents and nonresidents hunted 3.4 million days in 2001, an average of 13 days per hunter.

Residents hunted on nearly 3.4 million days in California or 99 percent of all hunting days.

There were 278 thousand California residents 16 years old and older who hunted in the United States in 2001. Of the total 3.7 million days of hunting by state residents, nearly 3.4 million days (91 percent of the total) were spent pursuing game within California.

For more information on hunting activities by California residents, see Table 3.

### Hunters in California

(State residents and nonresidents 16 years old and older)

|                              |                     |
|------------------------------|---------------------|
| <b>Hunters</b> .....         | <b>274 thousand</b> |
| Resident .....               | 261 thousand        |
| Nonresident .....            | 12 thousand         |
| <b>Days of hunting</b> ..... | <b>3.4 million</b>  |
| Resident .....               | 3.4 million         |
| Nonresident .....            | ...                 |

Source: Table 3.

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

### In-State/Out-of-State

(State residents 16 years old and older)

|                                 |                     |
|---------------------------------|---------------------|
| <b>California hunters</b> ..... | <b>278 thousand</b> |
| In California .....             | 261 thousand        |
| In other states .....           | ...                 |
| <b>Days of hunting</b> .....    | <b>3.7 million</b>  |
| In California .....             | 3.4 million         |
| In other states .....           | ...                 |

Source: Table 3.

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

Detail does not add to total because of multiple responses.



### Hunting Expenditures in California

Hunters 16 years old and older spent \$315 million in California in 2001. Trip-related expenses such as food and lodging, transportation, and other trip costs totaled \$159 million, 50 percent of their total expenditures. They spent \$62 million on food and lodging and \$42 million on transportation. Other expenses such as equipment rental totaled \$55 million for the year. The average trip-related expenditure per hunter was \$581.

Hunters spent \$132 million on equipment—42 percent of all hunting expenditures. Hunting equipment (guns, ammunition, etc.) totaled \$111 million and comprised 84 percent of all equipment costs. Hunters spent \$21 million on auxiliary equipment (tents, special hunting clothes, etc.) and special equipment (boats, pickups, etc.), accounting for 16 percent of total equipment expenditures for hunting. Special and auxiliary equipment are items

that were purchased for hunting but could be used in activities other than hunting.

The purchase of other items such as magazines, membership dues, licenses, permits, and land leasing and ownership cost hunters \$24 million—8 percent of all hunting expenditures. For more details on hunting expenditures in California, see Tables 20-23.

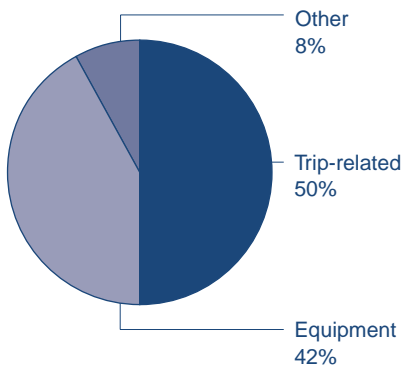
### Hunting Expenditures in California

(State residents and nonresidents 16 years old and older)

|                             |                      |
|-----------------------------|----------------------|
| <b>Total</b> .....          | <b>\$315 million</b> |
| Trip-related .....          | \$159 million        |
| Equipment .....             | \$132 million        |
| Hunting .....               | \$111 million        |
| Auxiliary and special ..... | \$21 million         |
| Other .....                 | \$24 million         |

Source: Table 20.

**Hunting Expenditures in California**  
(Total: \$315 million)



# Wildlife-Watching Activities

## Participants and Days of Activity

In 2001, 5.7 million U.S. residents 16 years old and older fed, observed, or photographed wildlife in California.

Approximately 85 percent—4.9 million of the wildlife watchers—enjoyed their activities close to home and are called "residential" participants. Those persons

who enjoyed wildlife at least 1 mile from home are called "nonresidential" participants. People participating in nonresidential activities in California in 2001 numbered 2.3 million—40 percent of all wildlife watchers in California. Of the 2.3 million, 1.9 million were state residents and 384 thousand were nonresidents.

Californians 16 years old and older who enjoyed nonresidential wildlife watching within their state totaled 1.9 million. Of this group, 1.7 million participants observed wildlife, 819 thousand photographed wildlife, and 559 thousand fed wildlife. Since some individuals engaged in more than one of the three nonresidential activities during the year, the sum of wildlife observers, feeders, and photographers exceeds the total number of nonresidential participants.

Californians spent nearly 21.7 million days engaged in nonresidential wildlife-watching activities in their state. During 2001, they spent 19.9 million days observing wildlife, 5.7 million days feeding wildlife, and 4.3 million days photographing wildlife. The sum of days observing, feeding, and photographing wildlife exceeds the total days of wildlife-watching activity because individuals may have engaged in more than one activity on some days. For further details about nonresidential activities, see Table 25.

California residents also took an active interest in wildlife around their homes. In 2001, 4.9 million state residents enjoyed observing, feeding, and photographing wildlife within 1 mile of their homes. Among this residential group, 3.8 million fed wildlife, 3.1 million observed wildlife, and 1.1 million visited public parks within a mile of home. Another 1.1 million residential participants photographed wildlife around their homes; 675 thousand participants maintained plantings for the benefit of wildlife; and 397 thousand participants maintained natural areas of one-quarter acre or more for 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 California residents participating in residential wildlife-watching activities, see Table 28.

### Wildlife-Watching Participants in California

(State residents and nonresidents 16 years old and older)

|                      |                    |             |
|----------------------|--------------------|-------------|
| <b>Total</b> .....   | <b>5.7 million</b> | <b>100%</b> |
| Residential .....    | 4.9 million        | 85%         |
| Nonresidential ..... | 2.3 million        | 40%         |

Source: Table 24.

Detail does not add to total because of multiple responses.

### Nonresidential (away from home) Wildlife-Watching Participation in California

(State residents and nonresidents 16 years old and older)

|                                  |                     |
|----------------------------------|---------------------|
| <b>Participants, total</b> ..... | <b>2.3 million</b>  |
| Observe wildlife .....           | 2.1 million         |
| Photograph wildlife .....        | 1.1 million         |
| Feed wildlife .....              | 660 thousand        |
| <b>Days, total</b> .....         | <b>23.8 million</b> |
| Observe wildlife .....           | 21.8 million        |
| Feed wildlife .....              | 6.3 million         |
| Photograph wildlife .....        | 5.5 million         |

Source: Table 25.

Detail does not add to total because of multiple responses.

### Residential (around the home) Wildlife-Watching Participation in California

(State residents 16 years old and older)

|                              |                    |
|------------------------------|--------------------|
| <b>Total</b> .....           | <b>4.9 million</b> |
| Feed wildlife .....          | 3.8 million        |
| Observe wildlife .....       | 3.1 million        |
| Visit public areas .....     | 1.1 million        |
| Photograph wildlife .....    | 1.1 million        |
| Maintain plantings .....     | 675 thousand       |
| Maintain natural areas ..... | 397 thousand       |

Source: Table 28.

Detail does not add to total because of multiple responses.

## Wild Bird Observers

Bird watching attracted many wildlife enthusiasts in California. In 2001, 4.0 million people observed birds around the home and on trips. A large majority, 72 percent (2.9 million), observed wild birds around the home while 52 percent (2.1 million) took trips away from home to watch birds.

People bird watching in California varied in their ability to identify different bird species. Within California, 2.8 million of these 4.0 million birders (70 percent) could identify 1 to 20 different types of birds; 569 thousand birders (14 percent) could identify 21 to 40 types of birds; and 563 thousand birders (14 percent) could identify 41 or more types of birds.

Approximately 229 thousand wild bird enthusiasts kept birding life lists in 2001. Participants keeping these lists—a tally of bird species seen by a birder during his or

her lifetime—comprised 6 percent of all wild bird observers in California. For further details about birding in California, see Tables 30 and 31.

## Wildlife-Watching Expenditures in California

Participants 16 years old and older spent \$2.6 billion on wildlife-watching activities in California in 2001. Trip-related expenditures, including food and lodging (\$531 million), transportation (\$301 million), and other trip expenses such as equipment rental (\$49 million) amounted to \$881 million. This summation comprised 34 percent of all wildlife-watching expenditures by participants. The average trip-related expenditure for nonresidential participants was \$388 per person in 2001.

Wildlife-watching participants spent nearly \$1.2 billion on equipment—48 percent of all their expenditures.

Specifically, wildlife-watching equipment (binoculars, special clothing, etc.) totaled \$562 million, 45 percent of the equipment total. Auxiliary equipment expenditures (tents, backpacking equipment, etc.) and special equipment expenditures (campers, trucks, etc.) amounted to \$678 million—55 percent of all equipment costs. Special and auxiliary equipment are items that were purchased for wildlife-watching recreation but can be used in activities other than wildlife-watching activities.

Other items purchased by wildlife-watching participants such as magazines, membership dues, and contributions, land leasing and ownership, and plantings totaled \$461 million—18 percent of all wildlife-watching expenditures. For more details about wildlife-watching expenditures in California, see Table 33.

### Wild Bird Observers in California

(State residents and nonresidents 16 years old and older)

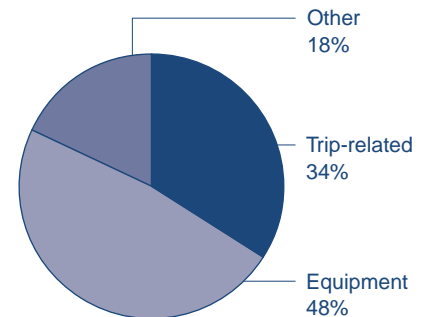
|   |                    |             |
|---|--------------------|-------------|
| <b>Participants, total</b> . . . . .      | <b>4.0 million</b> | <b>100%</b> |
| Residential (around the home) . . . . .   | 2.9 million        | 72%         |
| Nonresidential (away from home) . . . . . | 2.1 million        | 52%         |
| <b>Days, total</b> . . . . .              | <b>305 million</b> | <b>100%</b> |
| Residential (around the home) . . . . .   | 284 million        | 93%         |
| Nonresidential (away from home) . . . . . | 22 million         | 7%          |

Source: Table 30.

Detail does not add to total because of multiple responses.

### Wildlife-Watching Expenditures in California

(Total: \$2.6 billion)



### Wildlife-Watching Expenditures in California

(State residents and nonresidents 16 years old and older)

|                                 |                      |
|---------------------------------|----------------------|
| <b>Total</b> . . . . .          | <b>\$2.6 billion</b> |
| Trip-related . . . . .          | \$881 million        |
| Equipment . . . . .             | \$1.2 billion        |
| Wildlife-watching . . . . .     | \$562 million        |
| Auxiliary and special . . . . . | \$678 million        |
| Other . . . . .                 | \$461 million        |

Source: Table 33.

# 1991-2001 Survey Comparisons

Comparing the estimates from the 1991, 1996, and 2001 National Surveys provides a picture of wildlife-related recreation in the 1990s and early 2000s in California. Only the most general recreation comparisons are presented here.

The best way to compare estimates from surveys is to compare the confidence intervals around the estimates—not to compare the estimates themselves. A 90-percent confidence interval around an

estimate gives the range of estimates that 90 percent of all possible representative samples would supply. If the 90-percent confidence intervals of two survey's estimates overlap, it is not possible to say the two estimates are statistically different at the 10 percent level of significance.

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

expenditure activity of U.S. residents in California.

The expenditure estimates were made comparable by adjusting the estimates for inflation—all dollar estimates are in 2001 dollars. Also, expenditure items that were not common to each survey were not included in the comparisons. Therefore, expenditure estimates used in the comparisons may not match the estimates presented elsewhere in this report.

## California 1991 and 2001 Comparison

|  | 1991        | 2001        | Percent change |
|--|-------------|-------------|----------------|
| <b>Fishing</b>   |             |             |                |
| (Numbers in thousands)                                 |             |             |                |
| Anglers in-state . . . . .                             | 2,677       | 2,444       | *              |
| Days in-state . . . . .                                | 23,994      | 27,663      | *              |
| In-state trip-related expenditures . . . . .           | \$1,078,873 | \$1,116,707 | *              |
| State resident anglers . . . . .                       | 2,707       | 2,389       | -12            |
| Total expenditures by state residents . . . . .        | \$2,334,734 | \$2,149,634 | *              |
| <b>Hunting</b>   |             |             |                |
| (Numbers in thousands)                                 |             |             |                |
| Hunters in-state . . . . .                             | 446         | 274         | -39            |
| Days in-state . . . . .                                | 5,211       | 3,426       | -34            |
| In-state trip-related expenditures . . . . .           | \$140,249   | \$154,412   | *              |
| State resident hunters . . . . .                       | 537         | 278         | -48            |
| Total expenditures by state residents . . . . .        | \$836,095   | \$364,008   | -56            |
| <b>Nonresidential Wildlife Watching</b>                |             |             |                |
| (Numbers in thousands)                                 |             |             |                |
| Participants in-state . . . . .                        | 3,845       | 2,270       | -41            |
| Days in-state . . . . .                                | 42,353      | 23,807      | -44            |
| State resident participants . . . . .                  | 3,408       | 2,191       | -36            |
| <b>Residential Wildlife Watching</b>                   |             |             |                |
| (Numbers in thousands)                                 |             |             |                |
| Total participants . . . . .                           | 6,117       | 4,853       | -21            |
| Observers . . . . .                                    | 4,531       | 3,072       | -32            |
| Feeders . . . . .                                      | 4,899       | 3,763       | -23            |
| <b>Wildlife-Watching Expenditures</b>                  |             |             |                |
| (Numbers in thousands)                                 |             |             |                |
| Trip-related expenditures by state residents . . . . . | \$1,429,681 | \$832,531   | *              |
| Total expenditures by state residents . . . . .        | \$3,311,245 | \$2,234,350 | *              |

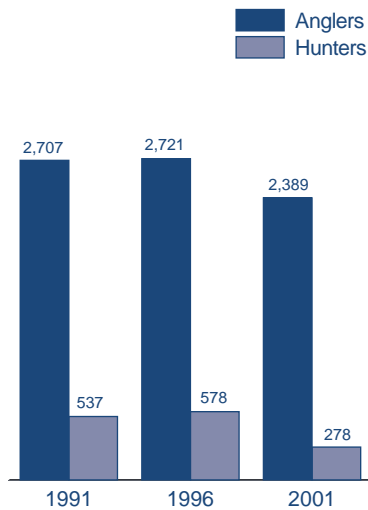
\*No significant difference at the 0.10 level of significance.

## California 1996 and 2001 Comparison

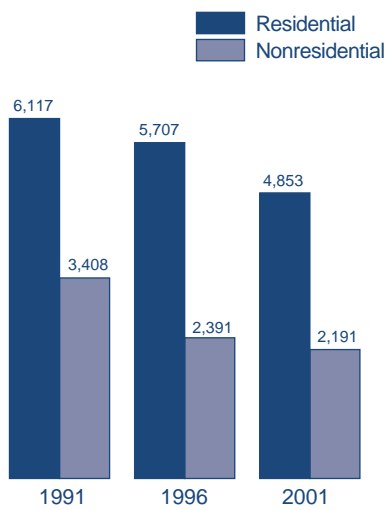
|  | 1996        | 2001        | Percent change |
|--|-------------|-------------|----------------|
| <b>Fishing</b>   |             |             |                |
| (Numbers in thousands)                                 |             |             |                |
| Anglers in-state . . . . .                             | 2,722       | 2,444       | *              |
| Days in-state . . . . .                                | 36,914      | 27,663      | -25            |
| In-state trip-related expenditures . . . . .           | \$1,632,823 | \$1,116,707 | -32            |
| State resident anglers . . . . .                       | 2,721       | 2,389       | *              |
| Total expenditures by state residents . . . . .        | \$4,189,242 | \$2,149,634 | -49            |
| <b>Hunting</b>   |             |             |                |
| (Numbers in thousands)                                 |             |             |                |
| Hunters in-state . . . . .                             | 515         | 274         | -47            |
| Days in-state . . . . .                                | 7,452       | 3,426       | -54            |
| In-state trip-related expenditures . . . . .           | \$301,217   | \$154,412   | -49            |
| State resident hunters . . . . .                       | 578         | 278         | -52            |
| Total expenditures by state residents . . . . .        | \$1,144,663 | \$364,008   | -68            |
| <b>Nonresidential Wildlife Watching</b>                |             |             |                |
| (Numbers in thousands)                                 |             |             |                |
| Participants in-state . . . . .                        | 2,362       | 2,270       | *              |
| Days in-state . . . . .                                | 24,587      | 23,807      | *              |
| State resident participants . . . . .                  | 2,391       | 2,191       | *              |
| <b>Residential Wildlife Watching</b>                   |             |             |                |
| (Numbers in thousands)                                 |             |             |                |
| Total participants . . . . .                           | 5,707       | 4,853       | -15            |
| Observers . . . . .                                    | 4,306       | 3,072       | -29            |
| Feeders . . . . .                                      | 4,336       | 3,763       | *              |
| <b>Wildlife-Watching Expenditures</b>                  |             |             |                |
| (Numbers in thousands)                                 |             |             |                |
| Trip-related expenditures by state residents . . . . . | \$1,529,728 | \$832,531   | -46            |
| Total expenditures by state residents . . . . .        | \$2,865,958 | \$2,234,350 | *              |

\*No significant difference at the .10 level of significance.

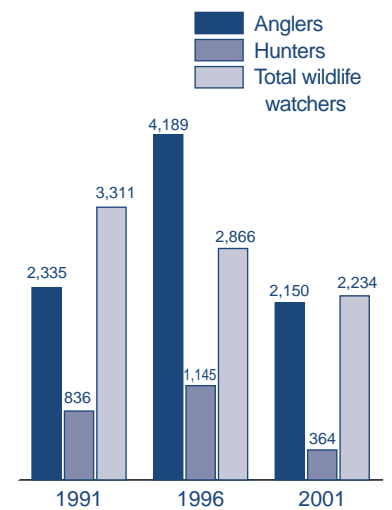
**Number of California Resident Hunters and Anglers: 1991-2001**  
(Thousands)



**Number of California Resident Wildlife Watchers: 1991-2001**  
(Thousands)



**Total Expenditures by California Residents: 1991-2001**  
(Millions. In constant 2001 dollars)



# Guide to Statistical Tables

## Purpose and Coverage of Tables

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

The tables are based on responses to the 2001 Survey which was designed to collect data about participation in wildlife-related recreation. To have taken part in the Survey, a respondent must have been a U.S. resident (a resident of one of the 50 states or the District of Columbia). No one residing outside the United States (including U.S. citizens) was eligible for interviewing. Therefore, reported state and national totals do not include participation by those who were not U.S. residents or who were residing outside the United States.

## Comparability With Previous Surveys

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

## Coverage of an Individual Table

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

## 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, if a table reports the number of trips taken by big game hunters (57 percent), those taken by small game hunters (23 percent), those taken by migratory bird hunters (12 percent), and those taken by sportspersons hunting other animals (8 percent), then these percentages would total 100 percent because they are exclusive categories.

Percents should not add to 100 when nonexclusive groups are being reported. Using Table 2 as an example, 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 necessarily yield 100 percent because respondents could hunt for more than one type of game.

When the base of the percentage is not apparent in context, it is identified in a footnote. For example, Table 12 reports 3 percentages with different bases: one for the number of hunters, one for the number of trips, and one for days of hunting. 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.
- NA Not available.

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

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

“Multiple responses” is a term used to reflect the fact that individuals or their characteristics fall into more than one category. Using Table 2 as an example, those who fished in saltwater and freshwater appear in both of these totals. Yet each angler is represented only once in the “Total, all fishing” row. Similarly, in Table 12 those who hunt for big game and small game are counted only once as a hunter in the “Total, all hunting” row. Therefore, totals may be smaller than the sum of subcategories when multiple responses exist.

“Nonresponse” exists because the survey questions were answered voluntarily and some respondents did not or could not answer all the questions. The effect of nonresponses is illustrated in Table 18 where the total for hunting expenditures may be greater than the sum for the different types of hunting expenditures. This occurs because some respondents did not specify the type of hunting as the primary purpose of the purchase. As a result, it is known that the expenditures were for hunting, but it is not known whether they were primarily for a particular type of hunting. In this case, totals are greater than the sum of subcategories when nonresponses have occurred.

**Table 1. Fishing and Hunting in California by Resident and Nonresident Sportspersons: 2001**

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

| Sportspersons   | Total, state residents and nonresidents |                          | Residents    |                                   | Nonresidents |                                      |
|---|---|--------------------------|--------------|-----------------------------------|--------------|--------------------------------------|
|   | Number                                  | Percent of sportspersons | Number       | Percent of resident sportspersons | Number       | Percent of nonresident sportspersons |
| <b>Total sportspersons (fished or hunted) . . . . .</b> | <b>2,556</b>                            | <b>100</b>               | <b>2,393</b> | <b>100</b>                        | <b>163</b>   | <b>100</b>                           |
| <b>Total anglers . . . . .</b>                          | <b>2,444</b>                            | <b>96</b>                | <b>2,288</b> | <b>96</b>                         | <b>156</b>   | <b>96</b>                            |
| Fished only . . . . .                                   | 2,283                                   | 89                       | 2,132        | 89                                | 150          | 92                                   |
| Fished and hunted . . . . .                             | *161                                    | *6                       | *155         | *6                                | ...          | ...                                  |
| <b>Total hunters . . . . .</b>                          | <b>274</b>                              | <b>11</b>                | <b>261</b>   | <b>11</b>                         | <b>*12</b>   | <b>*8</b>                            |
| Hunted only . . . . .                                   | *112                                    | *4                       | *106         | *4                                | ...          | ...                                  |
| Hunted and fished . . . . .                             | *161                                    | *6                       | *155         | *6                                | ...          | ...                                  |

\* Estimate based on a small sample size.      ... Sample size too small to report data reliably.

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

**Table 2. Anglers and Hunters, Days of Participation, and Trips in California by Type of Fishing and Hunting: 2001**

(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    |
| <b>FISHING</b>                           |              |            |                       |            |               |            |
| <b>Total, all fishing . . . . .</b>      | <b>2,444</b> | <b>100</b> | <b>27,663</b>         | <b>100</b> | <b>20,096</b> | <b>100</b> |
| Total, all freshwater . . . . .          | 1,865        | 76         | 19,385                | 70         | 13,283        | 66         |
| Freshwater, except Great Lakes . . . . . | 1,865        | 76         | 19,385                | 70         | 13,283        | 66         |
| Great Lakes . . . . .                    | ...          | ...        | ...                   | ...        | ...           | ...        |
| Saltwater . . . . .                      | 932          | 38         | 8,345                 | 30         | 6,813         | 34         |
| <b>HUNTING</b>                           |              |            |                       |            |               |            |
| <b>Total, all hunting . . . . .</b>      | <b>274</b>   | <b>100</b> | <b>3,426</b>          | <b>100</b> | <b>2,503</b>  | <b>100</b> |
| Big game . . . . .                       | *129         | *47        | *1,285                | *38        | *462          | *18        |
| Small game . . . . .                     | *109         | *40        | *693                  | *20        | *452          | *18        |
| Migratory bird . . . . .                 | *115         | *42        | *1,782                | *52        | *1,558        | *62        |
| Other animals . . . . .                  | ...          | ...        | ...                   | ...        | ...           | ...        |

\* Estimate based on a small sample size.      ... Sample size too small to report data reliably.

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

**Table 3. Anglers and Hunters, Trips, and Days of Participation: 2001**

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

| Anglers and hunters, trips, and days of participation | Activity in California                  |         |                 |         |              |         | Activity by California residents in United States |         |                       |         |                 |         |
|---|---|---------|-----------------|---------|--------------|---------|---|---------|-----------------------|---------|-----------------|---------|
|   | Total, state residents and nonresidents |         | State residents |         | Nonresidents |         | Total, in state of residence and in other states  |         | In state of residence |         | In other states |         |
|   | Number                                  | Percent | Number          | Percent | Number       | Percent | Number  | Percent | Number                | Percent | Number          | Percent |
| <b>FISHING</b>  |   |         |                 |         |              |         |   |         |                       |         |                 |         |
| Total anglers . . . . .                               | 2,444                                   | 100     | 2,288           | 94      | 156          | 6       | 2,389   | 100     | 2,288                 | 96      | 276             | 12      |
| Total trips . . . . .                                 | 20,096                                  | 100     | 19,685          | 98      | 411          | 2       | 20,067  | 100     | 19,685                | 98      | 383             | 2       |
| Total days of fishing . . . . .                       | 27,663                                  | 100     | 26,802          | 97      | 861          | 3       | 27,878  | 100     | 26,802                | 96      | 1,076           | 4       |
| Average days of fishing . . . . .                     | 11                                      | (X)     | 12              | (X)     | 6            | (X)     | 12  | (X)     | 12                    | (X)     | 4               | (X)     |
| <b>HUNTING</b>  |   |         |                 |         |              |         |   |         |                       |         |                 |         |
| Total hunters . . . . .                               | 274                                     | 100     | 261             | 95      | *12          | *5      | 278   | 100     | 261                   | 94      | ...             | ...     |
| Total trips . . . . .                                 | 2,503                                   | 100     | 2,476           | 99      | *27          | *1      | 2,565   | 100     | 2,476                 | 97      | ...             | ...     |
| Total days of hunting . . . . .                       | 3,426                                   | 100     | 3,378           | 99      | ...          | ...     | 3,695   | 100     | 3,378                 | 91      | ...             | ...     |
| Average days of hunting . . . . .                     | 13                                      | (X)     | 13              | (X)     | ...          | (X)     | 13  | (X)     | 13                    | (X)     | ...             | (X)     |

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

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

**Table 4. California Resident Anglers and Hunters by Place Fished or Hunted: 2001**

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

| Place fished or hunted              | Anglers      |            | Hunters    |            |
|-------------------------------------|--------------|------------|------------|------------|
|                                     | Number       | Percent    | Number     | Percent    |
| <b>Total, all places. . . . .</b>   | <b>2,389</b> | <b>100</b> | <b>278</b> | <b>100</b> |
| In-state only . . . . .             | 2,113        | 88         | 240        | 86         |
| In-state and other states . . . . . | *174         | *7         | ...        | ...        |
| In other states only . . . . .      | *101         | *4         | ...        | ...        |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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



**Table 5. California Resident Anglers and Hunters, Days of Participation, and Trips in the United States by Type of Fishing and Hunting: 2001**

(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    |
| <b>FISHING</b>                       |              |            |                       |            |               |            |
| <b>Total, all fishing</b> .....      | <b>2,389</b> | <b>100</b> | <b>27,878</b>         | <b>100</b> | <b>20,067</b> | <b>100</b> |
| Total, all freshwater .....          | 1,877        | 79         | 19,685                | 71         | 13,278        | 66         |
| Freshwater, except Great Lakes ..... | 1,877        | 79         | 19,659                | 71         | 13,278        | 66         |
| Great Lakes .....                    | ...          | ...        | ...                   | ...        | ...           | ...        |
| Saltwater .....                      | 932          | 39         | 8,371                 | 30         | 6,789         | 34         |
| <b>HUNTING</b>                       |              |            |                       |            |               |            |
| <b>Total, all hunting</b> .....      | <b>278</b>   | <b>100</b> | <b>3,695</b>          | <b>100</b> | <b>2,565</b>  | <b>100</b> |
| Big game .....                       | *135         | *49        | *1,457                | *39        | *485          | *19        |
| Small game .....                     | *118         | *42        | *706                  | *19        | *460          | *18        |
| Migratory bird .....                 | *114         | *41        | *1,892                | *51        | *1,590        | *62        |
| Other animals .....                  | ...          | ...        | ...                   | ...        | ...           | ...        |

\* Estimate based on a small sample size.   ... Sample size too small to report data reliably.

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

**Table 6. Freshwater Anglers, Trips, Days of Fishing, and Type of Water Fished: 2001**

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

| Anglers, trips, and days of fishing    | Activity in California                  |            |                 |           |              |          |
|--|---|------------|-----------------|-----------|--------------|----------|
|  | Total, state residents and nonresidents |            | State residents |           | Nonresidents |          |
|  | Number                                  | Percent    | Number          | Percent   | Number       | Percent  |
| <b>Total anglers</b> .....             | <b>1,865</b>                            | <b>100</b> | <b>1,776</b>    | <b>95</b> | <b>89</b>    | <b>5</b> |
| <b>Total trips</b> .....               | <b>13,283</b>                           | <b>100</b> | <b>12,979</b>   | <b>98</b> | <b>304</b>   | <b>2</b> |
| <b>Total days of fishing</b> .....     | <b>19,385</b>                           | <b>100</b> | <b>18,788</b>   | <b>97</b> | <b>597</b>   | <b>3</b> |
| Average days of fishing .....          | 10                                      | (X)        | 11              | (X)       | 7            | (X)      |
| <b>ANGLERS</b>                         |   |            |                 |           |              |          |
| <b>Total, all types of water</b> ..... | <b>1,865</b>                            | <b>100</b> | <b>1,776</b>    | <b>95</b> | <b>89</b>    | <b>5</b> |
| Ponds, lakes or reservoirs .....       | 1,422                                   | 100        | 1,365           | 96        | 57           | 4        |
| Rivers or streams .....                | 916                                     | 100        | 877             | 96        | *39          | *4       |
| <b>DAYS</b>                            |   |            |                 |           |              |          |
| <b>Total, all types of water</b> ..... | <b>19,385</b>                           | <b>100</b> | <b>18,788</b>   | <b>97</b> | <b>597</b>   | <b>3</b> |
| Ponds, lakes or reservoirs .....       | 11,158                                  | 100        | 10,728          | 96        | 429          | 4        |
| Rivers or streams .....                | 9,379                                   | 100        | 9,217           | 98        | *162         | *2       |

\* Estimate based on a small sample size.   (X) Not applicable.

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

**Table 7. Freshwater Anglers and Days of Fishing in California by Type of Fish: 2001**

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

| Anglers and days of fishing                           | Activity in California                  |            |                 |           |              |          |
|---|---|------------|-----------------|-----------|--------------|----------|
|   | Total, state residents and nonresidents |            | State residents |           | Nonresidents |          |
|   | Number                                  | Percent    | Number          | Percent   | Number       | Percent  |
| <b>ANGLERS</b>  |   |            |                 |           |              |          |
| <b>Total, all types of fish</b> .....                 | <b>1,865</b>                            | <b>100</b> | <b>1,776</b>    | <b>95</b> | <b>89</b>    | <b>5</b> |
| Crappie .....   | *77                                     | *100       | *77             | *100      | ...          | ...      |
| Panfish .....   | *89                                     | *100       | *84             | *95       | ...          | ...      |
| White bass, striped bass, striped bass hybrids .....  | 372                                     | 100        | 368             | 99        | ...          | ...      |
| Black bass .....                                      | 495                                     | 100        | 481             | 97        | ...          | ...      |
| Catfish, bullheads .....                              | 403                                     | 100        | 395             | 98        | ...          | ...      |
| Walleye, sauger .....                                 | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Northern pike, pickerel, muskie, muskie hybrids ..... | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Steelhead .....                                       | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Trout .....   | 1,174                                   | 100        | 1,110           | 94        | 65           | 6        |
| Salmon .....  | 294                                     | 100        | 280             | 95        | ...          | ...      |
| Anything <sup>1</sup> .....                           | *192                                    | *100       | *186            | *97       | ...          | ...      |
| Other freshwater fish .....                           | *76                                     | *100       | ...             | ...       | ...          | ...      |
| <b>DAYS</b>   |   |            |                 |           |              |          |
| <b>Total, all types of fish</b> .....                 | <b>19,385</b>                           | <b>100</b> | <b>18,788</b>   | <b>97</b> | <b>597</b>   | <b>3</b> |
| Crappie .....   | *1,076                                  | *100       | *1,076          | *100      | ...          | ...      |
| Panfish .....   | *998                                    | *100       | *975            | *98       | ...          | ...      |
| White bass, striped bass, striped bass hybrids .....  | 2,945                                   | 100        | 2,900           | 98        | ...          | ...      |
| Black bass .....                                      | 4,121                                   | 100        | 4,072           | 99        | ...          | ...      |
| Catfish, bullheads .....                              | 2,918                                   | 100        | 2,888           | 99        | ...          | ...      |
| Walleye, sauger .....                                 | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Northern pike, pickerel, muskie, muskie hybrids ..... | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Steelhead .....                                       | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Trout .....   | 9,901                                   | 100        | 9,474           | 96        | 427          | 4        |
| Salmon .....  | 3,735                                   | 100        | 3,651           | 98        | ...          | ...      |
| Anything <sup>1</sup> .....                           | *1,909                                  | *100       | *1,892          | *99       | ...          | ...      |
| Other freshwater fish .....                           | *714                                    | *100       | ...             | ...       | ...          | ...      |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> Respondent fished for no specific species and identified “Anything” from a list of categories of fish.

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

**Table 8. Great Lakes Anglers, Trips, and Days of Fishing in California: 2001**

This table does not apply to this state.

**Table 9. Great Lakes Anglers and Days of Fishing in California by Type of Fish: 2001**

This table does not apply to this state.

**Table 10. Saltwater Anglers, Trips, and Days of Fishing in California: 2001**

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

| Anglers, trips, and days of fishing | Activity in California                  |         |                 |         |              |         |
|-------------------------------------|---|---------|-----------------|---------|--------------|---------|
|                                     | Total, state residents and nonresidents |         | State residents |         | Nonresidents |         |
|                                     | Number                                  | Percent | Number          | Percent | Number       | Percent |
| Total anglers . . . . .             | 932                                     | 100     | 875             | 94      | 57           | 6       |
| Total trips . . . . .               | 6,813                                   | 100     | 6,705           | 98      | 107          | 2       |
| Total days . . . . .                | 8,345                                   | 100     | 8,118           | 97      | 227          | 3       |
| Average days of fishing . . . . .   | 9                                       | (X)     | 9               | (X)     | 4            | (X)     |

(X) Not applicable.

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

**Table 11. Saltwater Anglers and Days of Fishing in California by Type of Fish: 2001**

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

| Anglers and days of fishing               | Activity in California                  |            |                 |           |              |          |
|---|---|------------|-----------------|-----------|--------------|----------|
|   | Total, state residents and nonresidents |            | State residents |           | Nonresidents |          |
|   | Number                                  | Percent    | Number          | Percent   | Number       | Percent  |
| <b>ANGLERS</b>                            |   |            |                 |           |              |          |
| <b>Total, all types of fish . . . . .</b> | <b>932</b>                              | <b>100</b> | <b>875</b>      | <b>94</b> | <b>57</b>    | <b>6</b> |
| Salmon . . . . .                          | *168                                    | *100       | *162            | *96       | ...          | ...      |
| Striped bass . . . . .                    | 222                                     | 100        | *216            | *97       | ...          | ...      |
| Bluefish . . . . .                        | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Flatfish (flounder, halibut) . . . . .    | *191                                    | *100       | *185            | *97       | ...          | ...      |
| Red drum (redfish) . . . . .              | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Seatrout (weakfish) . . . . .             | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Mackerel . . . . .                        | *107                                    | *100       | *103            | *97       | ...          | ...      |
| Shellfish . . . . .                       | *82                                     | *100       | ...             | ...       | ...          | ...      |
| Anything <sup>1</sup> . . . . .           | 314                                     | 100        | 302             | 96        | ...          | ...      |
| Other saltwater fish . . . . .            | 398                                     | 100        | 376             | 94        | *22          | *6       |
| <b>DAYS</b>                               |   |            |                 |           |              |          |
| <b>Total, all types of fish . . . . .</b> | <b>8,345</b>                            | <b>100</b> | <b>8,118</b>    | <b>97</b> | <b>227</b>   | <b>3</b> |
| Salmon . . . . .                          | *833                                    | *100       | *763            | *92       | ...          | ...      |
| Striped bass . . . . .                    | 3,552                                   | 100        | *3,534          | *99       | ...          | ...      |
| Bluefish . . . . .                        | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Flatfish (flounder, halibut) . . . . .    | *1,013                                  | *100       | *997            | *98       | ...          | ...      |
| Red drum (redfish) . . . . .              | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Seatrout (weakfish) . . . . .             | ...                                     | ...        | ...             | ...       | ...          | ...      |
| Mackerel . . . . .                        | *434                                    | *100       | *425            | *98       | ...          | ...      |
| Shellfish . . . . .                       | *379                                    | *100       | ...             | ...       | ...          | ...      |
| Anything <sup>1</sup> . . . . .           | 2,138                                   | 100        | 2,061           | 96        | ...          | ...      |
| Other saltwater fish . . . . .            | 2,964                                   | 100        | 2,892           | 98        | *72          | *2       |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> Respondent fished for no specific species and identified "Anything" from a list of categories of fish.

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

**Table 12. Hunters, Trips, and Days of Hunting in California by Type of Hunting: 2001**

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

| Hunters, trips, and days of hunting | Activity in California                  |            |                 |           |              |           |
|-------------------------------------|---|------------|-----------------|-----------|--------------|-----------|
|                                     | Total, state residents and nonresidents |            | State residents |           | Nonresidents |           |
|                                     | Number                                  | Percent    | Number          | Percent   | Number       | Percent   |
| <b>HUNTERS</b>                      |   |            |                 |           |              |           |
| <b>Total, all hunting</b> .....     | <b>274</b>                              | <b>100</b> | <b>261</b>      | <b>95</b> | <b>*12</b>   | <b>*5</b> |
| Big game .....                      | *129                                    | *100       | *127            | *99       | ...          | ...       |
| Small game .....                    | *109                                    | *100       | *105            | *97       | ...          | ...       |
| Migratory bird .....                | *115                                    | *100       | *106            | *92       | ...          | ...       |
| Other animals .....                 | ...                                     | ...        | ...             | ...       | ...          | ...       |
| <b>TRIPS</b>                        |   |            |                 |           |              |           |
| <b>Total, all hunting</b> .....     | <b>2,503</b>                            | <b>100</b> | <b>2,476</b>    | <b>99</b> | <b>*27</b>   | <b>*1</b> |
| Big game .....                      | *462                                    | *100       | *460            | *100      | ...          | ...       |
| Small game .....                    | *452                                    | *100       | *448            | *99       | ...          | ...       |
| Migratory bird .....                | *1,558                                  | *100       | *1,539          | *99       | ...          | ...       |
| Other animals .....                 | ...                                     | ...        | ...             | ...       | ...          | ...       |
| <b>DAYS</b>                         |   |            |                 |           |              |           |
| <b>Total, all hunting</b> .....     | <b>3,426</b>                            | <b>100</b> | <b>3,378</b>    | <b>99</b> | ...          | ...       |
| Big game .....                      | *1,285                                  | *100       | *1,276          | *99       | ...          | ...       |
| Small game .....                    | *693                                    | *100       | *675            | *97       | ...          | ...       |
| Migratory bird .....                | *1,782                                  | *100       | *1,755          | *98       | ...          | ...       |
| Other animals .....                 | ...                                     | ...        | ...             | ...       | ...          | ...       |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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

**Table 13. Hunters and Days of Hunting in California by Type of Game: 2001**

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

| Type of game                                   | Hunters, state residents and nonresidents |            | Days of hunting |            |
|--|---|------------|-----------------|------------|
|  | Number                                    | Percent    | Number          | Percent    |
| <b>Total, all types of game</b> .....          | <b>274</b>                                | <b>100</b> | <b>3,426</b>    | <b>100</b> |
| <b>Big game, total</b> .....                   | <b>*129</b>                               | <b>*47</b> | <b>*1,285</b>   | <b>*38</b> |
| Deer.....                                      | *85                                       | *31        | *904            | *26        |
| Elk.....                                       | ...                                       | ...        | ...             | ...        |
| Bear.....                                      | ...                                       | ...        | ...             | ...        |
| Wild turkey.....                               | ...                                       | ...        | ...             | ...        |
| Other big game.....                            | ...                                       | ...        | ...             | ...        |
| <b>Small game, total</b> .....                 | <b>*109</b>                               | <b>*40</b> | <b>*693</b>     | <b>*20</b> |
| Rabbit, hare.....                              | ...                                       | ...        | ...             | ...        |
| Quail.....                                     | *61                                       | *22        | *220            | *6         |
| Grouse/prairie chicken.....                    | ...                                       | ...        | ...             | ...        |
| Squirrel.....                                  | ...                                       | ...        | ...             | ...        |
| Pheasant.....                                  | ...                                       | ...        | ...             | ...        |
| Other small game.....                          | ...                                       | ...        | ...             | ...        |
| <b>Migratory birds, total</b> .....            | <b>*115</b>                               | <b>*42</b> | <b>*1,782</b>   | <b>*52</b> |
| Geese.....                                     | *76                                       | *28        | *1,288          | *38        |
| Duck.....                                      | *97                                       | *35        | *1,524          | *44        |
| Dove.....                                      | ...                                       | ...        | ...             | ...        |
| Other migratory bird.....                      | ...                                       | ...        | ...             | ...        |
| <b>Other animals, total</b> <sup>1</sup> ..... | ...                                       | ...        | ...             | ...        |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> Includes groundhog, raccoon, fox, coyote, crow, prairie dog, etc.

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

**Table 14. Hunters and Days of Hunting in California by Type of Land: 2001**

(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     |
| <b>HUNTERS</b>                        |   |            |                 |            |              |             |
| <b>Total, all types of land</b> ..... | <b>274</b>                              | <b>100</b> | <b>261</b>      | <b>100</b> | <b>*12</b>   | <b>*100</b> |
| <b>Public land, total</b> .....       | <b>*122</b>                             | <b>*45</b> | <b>*117</b>     | <b>*45</b> | ...          | ...         |
| Public land only.....                 | *69                                     | *25        | ...             | ...        | ...          | ...         |
| Public and private land.....          | ...                                     | ...        | ...             | ...        | ...          | ...         |
| <b>Private land, total</b> .....      | <b>*178</b>                             | <b>*65</b> | <b>*171</b>     | <b>*65</b> | ...          | ...         |
| Private land only.....                | *125                                    | *46        | *119            | *46        | ...          | ...         |
| Private and public land.....          | ...                                     | ...        | ...             | ...        | ...          | ...         |
| <b>DAYS</b>                           |   |            |                 |            |              |             |
| <b>Total, all types of land</b> ..... | <b>3,426</b>                            | <b>100</b> | <b>3,378</b>    | <b>100</b> | ...          | ...         |
| Public land <sup>1</sup> .....        | *1,697                                  | *50        | *1,661          | *49        | ...          | ...         |
| Private land <sup>2</sup> .....       | *1,920                                  | *56        | *1,890          | *56        | ...          | ...         |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> Days of hunting on public land includes both days spent solely on public land and those spent on public and private land.

<sup>2</sup> Days of hunting on private land includes both days spent solely on private land and those spent on private and public land.

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

**Table 15. Selected Characteristics of California Resident Anglers and Hunters: 2001**

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

| Characteristic                         | Population    |            | Sportspersons<br>(fished or hunted) |                          |                          | Anglers      |                          |                    | Hunters    |                          |                    |
|--|---------------|------------|-------------------------------------|--------------------------|--------------------------|--------------|--------------------------|--------------------|------------|--------------------------|--------------------|
|  | Number        | Percent    | Number                              | Percent who participated | Percent of sportspersons | Number       | Percent who participated | Percent of anglers | Number     | Percent who participated | Percent of hunters |
| <b>Total persons</b> .....             | <b>25,982</b> | <b>100</b> | <b>2,486</b>                        | <b>10</b>                | <b>100</b>               | <b>2,389</b> | <b>9</b>                 | <b>100</b>         | <b>278</b> | <b>1</b>                 | <b>100</b>         |
| <b>Population Density of Residence</b> |               |            |                                     |                          |                          |              |                          |                    |            |                          |                    |
| Urban .....                            | 24,352        | 94         | 2,119                               | 9                        | 85                       | 2,030        | 8                        | 85                 | 228        | 1                        | 82                 |
| Rural .....                            | 1,629         | 6          | 367                                 | 23                       | 15                       | 358          | 22                       | 15                 | ...        | ...                      | ...                |
| <b>Population Size of Residence</b>    |               |            |                                     |                          |                          |              |                          |                    |            |                          |                    |
| Metropolitan statistical area (MSA) .  | 25,466        | 98         | 2,398                               | 9                        | 96                       | 2,301        | 9                        | 96                 | 270        | 1                        | 97                 |
| 1,000,000 or more .....                | 21,664        | 83         | 1,829                               | 8                        | 74                       | 1,756        | 8                        | 74                 | *185       | *1                       | *67                |
| 250,000 to 999,999 .....               | 2,434         | 9          | *242                                | *10                      | *10                      | *234         | *10                      | *10                | ...        | ...                      | ...                |
| 50,000 to 249,999 .....                | 1,368         | 5          | 328                                 | 24                       | 13                       | 311          | 23                       | 13                 | ...        | ...                      | ...                |
| Outside MSA .....                      | 515           | 2          | *88                                 | *17                      | *4                       | *88          | *17                      | *4                 | ...        | ...                      | ...                |
| <b>Sex</b>                             |               |            |                                     |                          |                          |              |                          |                    |            |                          |                    |
| Male .....                             | 12,483        | 48         | 1,919                               | 15                       | 77                       | 1,831        | 15                       | 77                 | 264        | 2                        | 95                 |
| Female .....                           | 13,499        | 52         | 567                                 | 4                        | 23                       | 558          | 4                        | 23                 | ...        | ...                      | ...                |
| <b>Age</b>                             |               |            |                                     |                          |                          |              |                          |                    |            |                          |                    |
| 16 to 17 years .....                   | 882           | 3          | *117                                | *13                      | *5                       | *109         | *12                      | *5                 | ...        | ...                      | ...                |
| 18 to 24 years .....                   | 3,053         | 12         | *192                                | *6                       | *8                       | *192         | *6                       | *8                 | ...        | ...                      | ...                |
| 25 to 34 years .....                   | 5,065         | 19         | 436                                 | 9                        | 18                       | 423          | 8                        | 18                 | ...        | ...                      | ...                |
| 35 to 44 years .....                   | 5,763         | 22         | 642                                 | 11                       | 26                       | 613          | 11                       | 26                 | *91        | *2                       | *33                |
| 45 to 54 years .....                   | 4,698         | 18         | 576                                 | 12                       | 23                       | 552          | 12                       | 23                 | ...        | ...                      | ...                |
| 55 to 64 years .....                   | 2,755         | 11         | 305                                 | 11                       | 12                       | 300          | 11                       | 13                 | ...        | ...                      | ...                |
| 65 years and older .....               | 3,766         | 14         | *219                                | *6                       | *9                       | *202         | *5                       | *8                 | ...        | ...                      | ...                |
| <b>Ethnicity</b>                       |               |            |                                     |                          |                          |              |                          |                    |            |                          |                    |
| Hispanic .....                         | 7,080         | 27         | 414                                 | 6                        | 17                       | 393          | 6                        | 16                 | ...        | ...                      | ...                |
| Non-Hispanic .....                     | 18,902        | 73         | 2,072                               | 11                       | 83                       | 1,996        | 11                       | 84                 | 238        | 1                        | 86                 |
| <b>Race</b>                            |               |            |                                     |                          |                          |              |                          |                    |            |                          |                    |
| White .....                            | 20,938        | 81         | 2,155                               | 10                       | 87                       | 2,066        | 10                       | 86                 | 236        | 1                        | 85                 |
| Black .....                            | 1,638         | 6          | *97                                 | *6                       | *4                       | *97          | *6                       | *4                 | ...        | ...                      | ...                |
| All others .....                       | 3,405         | 13         | *234                                | *7                       | *9                       | *225         | *7                       | *9                 | ...        | ...                      | ...                |
| <b>Annual Household Income</b>         |               |            |                                     |                          |                          |              |                          |                    |            |                          |                    |
| Under \$10,000 .....                   | 1,564         | 6          | ...                                 | ...                      | ...                      | ...          | ...                      | ...                | ...        | ...                      | ...                |
| \$10,000 to \$19,999 .....             | 2,058         | 8          | *147                                | *7                       | *6                       | *147         | *7                       | *6                 | ...        | ...                      | ...                |
| \$20,000 to \$29,999 .....             | 3,068         | 12         | *130                                | *4                       | *5                       | *116         | *4                       | *5                 | ...        | ...                      | ...                |
| \$30,000 to \$39,999 .....             | 2,495         | 10         | 293                                 | 12                       | 12                       | 280          | 11                       | 12                 | ...        | ...                      | ...                |
| \$40,000 to \$49,999 .....             | 2,052         | 8          | *228                                | *11                      | *9                       | *220         | *11                      | *9                 | ...        | ...                      | ...                |
| \$50,000 to \$74,999 .....             | 3,943         | 15         | 589                                 | 15                       | 24                       | 568          | 14                       | 24                 | *87        | *2                       | *31                |
| \$75,000 to \$99,999 .....             | 2,633         | 10         | 252                                 | 10                       | 10                       | *235         | *9                       | *10                | ...        | ...                      | ...                |
| \$100,000 or more .....                | 3,017         | 12         | 448                                 | 15                       | 18                       | 440          | 15                       | 18                 | ...        | ...                      | ...                |
| Not reported .....                     | 5,151         | 20         | 326                                 | 6                        | 13                       | 317          | 6                        | 13                 | ...        | ...                      | ...                |
| <b>Education</b>                       |               |            |                                     |                          |                          |              |                          |                    |            |                          |                    |
| 11 years or less .....                 | 4,665         | 18         | 295                                 | 6                        | 12                       | 262          | 6                        | 11                 | ...        | ...                      | ...                |
| 12 years .....                         | 7,081         | 27         | 580                                 | 8                        | 23                       | 566          | 8                        | 24                 | ...        | ...                      | ...                |
| 1 to 3 years college .....             | 6,577         | 25         | 835                                 | 13                       | 34                       | 806          | 12                       | 34                 | *97        | *1                       | *35                |
| 4 years college or more .....          | 7,658         | 29         | 776                                 | 10                       | 31                       | 755          | 10                       | 32                 | *81        | *1                       | *29                |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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

**Table 16. Summary of Expenditures in California by U.S. Residents for Fishing and Hunting: 2001**

(Population 16 years old and older)

| Expenditure item                        | Amount<br>(thousands<br>of dollars) | Spenders<br>(thousands) | Average per<br>spender<br>(dollars) | Average per<br>sportsperson<br>(dollars) |
|---|-------------------------------------|-------------------------|-------------------------------------|--|
| <b>FISHING AND HUNTING</b>              |                                     |                         |                                     |  |
| <b>Total</b> .....                      | <b>3,128,727</b>                    | <b>2,579</b>            | <b>1,213</b>                        | <b>1,222</b>                             |
| Food and lodging .....                  | 508,051                             | 2,117                   | 240                                 | 208                                      |
| Transportation .....                    | 274,401                             | 2,077                   | 132                                 | 112                                      |
| Other trip costs <sup>1</sup> .....     | 506,346                             | 1,943                   | 261                                 | 207                                      |
| Equipment (fishing, hunting) .....      | 587,074                             | 1,581                   | 371                                 | 207                                      |
| Auxiliary equipment <sup>2</sup> .....  | 114,565                             | 628                     | 183                                 | 45                                       |
| Special equipment <sup>3</sup> .....    | 1,011,829                           | 332                     | 3,047                               | 395                                      |
| Magazines and books .....               | 19,054                              | 509                     | 37                                  | 6  |
| Membership dues and contributions ..... | 28,020                              | 343                     | 82                                  | 10                                       |
| Other <sup>4</sup> .....                | 79,388                              | 1,673                   | 47                                  | 32                                       |
| <b>FISHING</b>                          |                                     |                         |                                     |  |
| <b>Total</b> .....                      | <b>2,029,581</b>                    | <b>2,363</b>            | <b>859</b>                          | <b>835</b>                               |
| Food and lodging .....                  | 445,790                             | 2,011                   | 222                                 | 191                                      |
| Transportation .....                    | 232,308                             | 1,972                   | 118                                 | 100                                      |
| Other trip costs <sup>1</sup> .....     | 451,595                             | 1,904                   | 237                                 | 194                                      |
| Fishing equipment .....                 | 459,202                             | 1,450                   | 317                                 | 165                                      |
| Auxiliary equipment <sup>2</sup> .....  | 52,981                              | 364                     | 145                                 | 22                                       |
| Special equipment <sup>3</sup> .....    | *295,144                            | *228                    | *1,295                              | *126                                     |
| Magazines and books .....               | 11,581                              | 373                     | 31                                  | 4  |
| Membership dues and contributions ..... | *12,585                             | *168                    | *75                                 | *4                                       |
| Other <sup>4</sup> .....                | 68,396                              | 1,569                   | 44                                  | 29                                       |
| <b>HUNTING</b>                          |                                     |                         |                                     |  |
| <b>Total</b> .....                      | <b>315,207</b>                      | <b>307</b>              | <b>1,027</b>                        | <b>1,133</b>                             |
| Food and lodging .....                  | 62,261                              | 223                     | 279                                 | 228                                      |
| Transportation .....                    | 42,093                              | 234                     | 180                                 | 154                                      |
| Other trip costs <sup>1</sup> .....     | *54,751                             | *125                    | *439                                | *200                                     |
| Hunting equipment .....                 | 110,919                             | 220                     | 505                                 | 393                                      |
| Auxiliary equipment <sup>2</sup> .....  | *20,950                             | *99                     | *213                                | *76                                      |
| Special equipment <sup>3</sup> .....    | ...                                 | ...                     | ...                                 | ...                                      |
| Magazines and books .....               | *5,182                              | *59                     | *87                                 | *18                                      |
| Membership dues and contributions ..... | *7,932                              | *93                     | *86                                 | *24                                      |
| Other <sup>4</sup> .....                | *11,119                             | *190                    | *58                                 | *40                                      |
| <b>UNSPECIFIED<sup>5</sup></b>          |                                     |                         |                                     |  |
| <b>Total</b> .....                      | <b>767,113</b>                      | <b>429</b>              | <b>1,789</b>                        | <b>293</b>                               |
| Auxiliary equipment <sup>2</sup> .....  | *40,634                             | *225                    | *181                                | *15                                      |
| Special equipment <sup>3</sup> .....    | *716,685                            | *104                    | *6,882                              | *274                                     |
| Magazines and books .....               | *2,291                              | *86                     | *27                                 | *1                                       |
| Membership dues and contributions ..... | ...                                 | ...                     | ...                                 | ...                                      |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> Includes boating costs, equipment rental, guide fees, access fees, heating and cooking fuel, and ice and bait (for fishing only).

<sup>2</sup> Includes tents, special clothing, etc.

<sup>3</sup> Includes boats, campers, 4x4 vehicles, cabins, etc.

<sup>4</sup> Includes land leasing and ownership, licenses, stamps, tags, and permits.

<sup>5</sup> Respondent could not specify whether expenditure was primarily for either fishing or hunting.

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



**Table 17. Summary of Fishing Trip and Equipment Expenditures in California by U.S. Residents, by Type of Fishing: 2001**

(Population 16 years old and older)

| Expenditure item                      | Amount<br>(thousands of dollars) | Spenders<br>(thousands) | Average per spender<br>(dollars) | Average per angler<br>(dollars) |
|---------------------------------------|----------------------------------|-------------------------|----------------------------------|---------------------------------|
| <b>ALL FISHING</b>                    |                                  |                         |                                  |                                 |
| <b>Total</b> .....                    | <b>1,937,020</b>                 | <b>2,262</b>            | <b>856</b>                       | <b>798</b>                      |
| Food and lodging .....                | 445,790                          | 2,011                   | 222                              | 191                             |
| Transportation .....                  | 232,308                          | 1,972                   | 118                              | 100                             |
| Other trip costs .....                | 451,595                          | 1,904                   | 237                              | 194                             |
| Equipment .....                       | 807,327                          | 1,507                   | 536                              | 313                             |
| <b>ALL FRESHWATER</b>                 |                                  |                         |                                  |                                 |
| <b>Total</b> .....                    | <b>1,047,949</b>                 | <b>1,798</b>            | <b>583</b>                       | <b>521</b>                      |
| Food and lodging .....                | 299,932                          | 1,555                   | 193                              | 161                             |
| Transportation .....                  | 170,713                          | 1,526                   | 112                              | 92                              |
| Other trip costs .....                | 228,871                          | 1,514                   | 151                              | 123                             |
| Equipment .....                       | 348,433                          | 1,116                   | 312                              | 146                             |
| <b>FRESHWATER, EXCEPT GREAT LAKES</b> |                                  |                         |                                  |                                 |
| <b>Total</b> .....                    | <b>1,046,198</b>                 | <b>1,796</b>            | <b>583</b>                       | <b>521</b>                      |
| Food and lodging .....                | 299,932                          | 1,555                   | 193                              | 161                             |
| Transportation .....                  | 170,713                          | 1,526                   | 112                              | 92                              |
| Other trip costs .....                | 228,871                          | 1,514                   | 151                              | 123                             |
| Equipment .....                       | 346,682                          | 1,109                   | 313                              | 146                             |
| <b>GREAT LAKES</b>                    |                                  |                         |                                  |                                 |
| <b>Total</b> .....                    | ...                              | ...                     | ...                              | ...                             |
| Food and lodging .....                | ...                              | ...                     | ...                              | ...                             |
| Transportation .....                  | ...                              | ...                     | ...                              | ...                             |
| Other trip costs .....                | ...                              | ...                     | ...                              | ...                             |
| Equipment .....                       | ...                              | ...                     | ...                              | ...                             |
| <b>SALTWATER</b>                      |                                  |                         |                                  |                                 |
| <b>Total</b> .....                    | <b>570,185</b>                   | <b>870</b>              | <b>656</b>                       | <b>608</b>                      |
| Food and lodging .....                | 145,858                          | 740                     | 197                              | 156                             |
| Transportation .....                  | 61,595                           | 740                     | 83                               | 66                              |
| Other trip costs .....                | 222,724                          | 706                     | 316                              | 239                             |
| Equipment .....                       | 140,008                          | 436                     | 321                              | 147                             |

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

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

**Table 18. Summary of Hunting Trip and Equipment Expenditures in California by U.S. Residents, by Type of Hunting: 2001**

(Population 16 years old and older)

| Expenditure item       | Amount<br>(thousands of dollars) | Spenders<br>(thousands) | Average per spender<br>(dollars) | Average per hunter<br>(dollars) |
|------------------------|----------------------------------|-------------------------|----------------------------------|---------------------------------|
| <b>ALL HUNTING</b>     |                                  |                         |                                  |                                 |
| <b>Total</b> .....     | <b>290,974</b>                   | <b>286</b>              | <b>1,018</b>                     | <b>1,050</b>                    |
| Food and lodging ..... | 62,261                           | 223                     | 279                              | 228                             |
| Transportation .....   | 42,093                           | 234                     | 180                              | 154                             |
| Other trip costs ..... | *54,751                          | *125                    | *439                             | *200                            |
| Equipment .....        | 131,869                          | 241                     | 548                              | 469                             |
| <b>BIG GAME</b>        |                                  |                         |                                  |                                 |
| <b>Total</b> .....     | <b>*130,803</b>                  | <b>*148</b>             | <b>*881</b>                      | <b>*807</b>                     |
| Food and lodging ..... | *38,796                          | *111                    | *348                             | *301                            |
| Transportation .....   | *24,005                          | *96                     | *250                             | *186                            |
| Other trip costs ..... | ...                              | ...                     | ...                              | ...                             |
| Equipment .....        | *48,958                          | *109                    | *449                             | *173                            |
| <b>SMALL GAME</b>      |                                  |                         |                                  |                                 |
| <b>Total</b> .....     | <b>*28,483</b>                   | <b>*120</b>             | <b>*238</b>                      | <b>*271</b>                     |
| Food and lodging ..... | *9,033                           | *80                     | *112                             | *109                            |
| Transportation .....   | *4,778                           | *90                     | *53                              | *58                             |
| Other trip costs ..... | ...                              | ...                     | ...                              | ...                             |
| Equipment .....        | *12,757                          | *70                     | *182                             | *81                             |
| <b>MIGRATORY BIRD</b>  |                                  |                         |                                  |                                 |
| <b>Total</b> .....     | <b>*116,811</b>                  | <b>*138</b>             | <b>*849</b>                      | <b>*1,288</b>                   |
| Food and lodging ..... | *13,920                          | *81                     | *173                             | *225                            |
| Transportation .....   | *12,798                          | *89                     | *143                             | *207                            |
| Other trip costs ..... | ...                              | ...                     | ...                              | ...                             |
| Equipment .....        | *56,301                          | *119                    | *472                             | *309                            |
| <b>OTHER ANIMALS</b>   |                                  |                         |                                  |                                 |
| <b>Total</b> .....     | ...                              | ...                     | ...                              | ...                             |
| Food and lodging ..... | ...                              | ...                     | ...                              | ...                             |
| Transportation .....   | ...                              | ...                     | ...                              | ...                             |
| Other trip costs ..... | ...                              | ...                     | ...                              | ...                             |
| Equipment .....        | ...                              | ...                     | ...                              | ...                             |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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

**Table 19. Expenditures in California by U.S. Residents for Fishing: 2001**

(Population 16 years old and older)

| Expenditure item  | Expenditures                        |                                    | Spenders              |                       |                                     |
|---|-------------------------------------|------------------------------------|-----------------------|-----------------------|-------------------------------------|
|   | Amount<br>(thousands<br>of dollars) | Average per<br>angler<br>(dollars) | Number<br>(thousands) | Percent of<br>anglers | Average per<br>spender<br>(dollars) |
| <b>Total, all items</b> .....                                       | <b>2,029,581</b>                    | <b>835</b>                         | <b>2,363</b>          | <b>101</b>            | <b>859</b>                          |
| <b>TRIP-RELATED EXPENDITURES</b>                                    |                                     |                                    |                       |                       |                                     |
| <b>Total trip-related</b> .....                                     | <b>1,129,693</b>                    | <b>484</b>                         | <b>2,181</b>          | <b>93</b>             | <b>518</b>                          |
| <b>Food and lodging, total</b> .....                                | <b>445,790</b>                      | <b>191</b>                         | <b>2,011</b>          | <b>86</b>             | <b>222</b>                          |
| Food .....  | 319,158                             | 137                                | 2,009                 | 86                    | 159                                 |
| Lodging .....   | 126,632                             | 54                                 | 614                   | 26                    | 206                                 |
| Transportation .....  | 232,308                             | 100                                | 1,972                 | 85                    | 118                                 |
| <b>Other trip costs, total</b> .....                                | <b>451,595</b>                      | <b>194</b>                         | <b>1,904</b>          | <b>82</b>             | <b>237</b>                          |
| Privilege and other fees <sup>1</sup> .....                         | 111,549                             | 48                                 | 941                   | 40                    | 119                                 |
| Boating costs <sup>2</sup> .....                                    | 235,460                             | 101                                | 558                   | 24                    | 422                                 |
| Bait .....  | 69,462                              | 30                                 | 1,551                 | 66                    | 45                                  |
| Ice .....   | 22,139                              | 9                                  | 1,165                 | 50                    | 19                                  |
| Heating and cooking fuel .....                                      | 12,986                              | 6                                  | 425                   | 18                    | 31                                  |
| <b>EQUIPMENT AND OTHER EXPENDITURES<br/>PRIMARILY FOR FISHING</b>   |                                     |                                    |                       |                       |                                     |
| <b>Fishing equipment, total</b> .....                               | <b>459,202</b>                      | <b>165</b>                         | <b>1,450</b>          | <b>62</b>             | <b>317</b>                          |
| Reels, rods, and rod making components .....                        | 147,016                             | 57                                 | 765                   | 33                    | 192                                 |
| Lines, hooks, sinkers, etc .....                                    | 73,831                              | 30                                 | 1,183                 | 51                    | 62                                  |
| Artificial lures and flies .....                                    | 55,660                              | 23                                 | 1,036                 | 44                    | 54                                  |
| Creels, stringers, fish bags, landing nets, and gaff<br>hooks ..... | 14,923                              | 6                                  | 254                   | 11                    | 59                                  |
| Minnow seines, traps, and bait containers .....                     | *1,749                              | *1                                 | *109                  | *5                    | *16                                 |
| Other fishing equipment <sup>3</sup> .....                          | 166,024                             | 47                                 | 493                   | 21                    | 337                                 |
| Auxiliary equipment <sup>4</sup> .....                              | 52,981                              | 22                                 | 364                   | 16                    | 145                                 |
| Special equipment <sup>5</sup> .....                                | *295,144                            | *126                               | *228                  | *10                   | *1,295                              |
| Other fishing costs <sup>6</sup> .....                              | 92,562                              | 37                                 | 1,687                 | 72                    | 55                                  |

\* Estimate based on a small sample size.

<sup>1</sup> Includes boat or equipment rental and fees for guides, pack trip (party and charter boats, etc.), public land use, and private land use.

<sup>2</sup> Includes boat launching, mooring, storage, maintenance, insurance, pumpout fees and fuel.

<sup>3</sup> Includes electronic fishing devices (depth finders, fish finders, etc.), tackle boxes, ice fishing equipment, and other fishing equipment.

<sup>4</sup> Includes tents, special fishing clothing, etc.

<sup>5</sup> Includes boats, campers, 4x4 vehicles, cabins, etc.

<sup>6</sup> Includes magazines and books, membership dues and contributions, land leasing and ownership, licenses, stamps, tags, and permits.

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

**Table 20. Expenditures in California by U.S. Residents for Hunting: 2001**

(Population 16 years old and older)

| Expenditure item  | Expenditures                        |                                    | Spenders              |                       |                                     |
|---|-------------------------------------|------------------------------------|-----------------------|-----------------------|-------------------------------------|
|   | Amount<br>(thousands<br>of dollars) | Average per<br>hunter<br>(dollars) | Number<br>(thousands) | Percent of<br>hunters | Average per<br>spender<br>(dollars) |
| <b>Total, all items</b> .....                                     | <b>315,207</b>                      | <b>1,133</b>                       | <b>307</b>            | <b>112</b>            | <b>1,027</b>                        |
| <b>TRIP-RELATED EXPENDITURES</b>                                  |                                     |                                    |                       |                       |                                     |
| <b>Total trip-related</b> .....                                   | <b>159,105</b>                      | <b>581</b>                         | <b>258</b>            | <b>94</b>             | <b>616</b>                          |
| <b>Food and lodging, total</b> .....                              | <b>62,261</b>                       | <b>228</b>                         | <b>223</b>            | <b>81</b>             | <b>279</b>                          |
| Food .....  | 52,648                              | 192                                | 223                   | 81                    | 236                                 |
| Lodging .....   | ...                                 | ...                                | ...                   | ...                   | ...                                 |
| Transportation .....  | 42,093                              | 154                                | 234                   | 85                    | 180                                 |
| <b>Other trip costs, total</b> .....                              | <b>*54,751</b>                      | <b>*200</b>                        | <b>*125</b>           | <b>*46</b>            | <b>*439</b>                         |
| Privilege and other fees <sup>1</sup> .....                       | *50,058                             | *183                               | *88                   | *32                   | *566                                |
| Boating costs .....   | ...                                 | ...                                | ...                   | ...                   | ...                                 |
| Heating and cooking fuel .....                                    | ...                                 | ...                                | ...                   | ...                   | ...                                 |
| <b>EQUIPMENT AND OTHER EXPENDITURES<br/>PRIMARILY FOR HUNTING</b> |                                     |                                    |                       |                       |                                     |
| <b>Hunting equipment, total</b> .....                             | <b>110,919</b>                      | <b>393</b>                         | <b>220</b>            | <b>80</b>             | <b>505</b>                          |
| Guns and rifles .....   | ...                                 | ...                                | ...                   | ...                   | ...                                 |
| Ammunition .....  | *28,488                             | *102                               | *174                  | *64                   | *163                                |
| Other hunting equipment <sup>2</sup> .....                        | *34,433                             | *117                               | *134                  | *49                   | *258                                |
| Auxiliary equipment <sup>3</sup> .....                            | *20,950                             | *76                                | *99                   | *36                   | *213                                |
| Special equipment <sup>4</sup> .....                              | ...                                 | ...                                | ...                   | ...                   | ...                                 |
| Other hunting costs <sup>5</sup> .....                            | 24,233                              | 82                                 | 243                   | 89                    | 100                                 |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> Includes tents, special hunting clothing, etc.

<sup>4</sup> Includes boats, campers, 4x4 vehicles, cabins, etc.

<sup>5</sup> Includes magazines and books, membership dues and contributions, land leasing and ownership, licenses, stamps, and permits.

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

**Table 21. Trip and Equipment Expenditures in California for Fishing and Hunting by California Residents and Nonresidents: 2001**

(Population 16 years old and older)

| Equipment item  | Amount<br>(thousands<br>of dollars) | Spenders<br>(thousands) | Average<br>per spender<br>(dollars) | Average per<br>sportsperson<br>(dollars) |
|---|-------------------------------------|-------------------------|-------------------------------------|--|
| <b>STATE RESIDENTS AND NONRESIDENTS</b>                                   |                                     |                         |                                     |  |
| <b>Trip and equipment expenditures for fishing and hunting, total . .</b> | <b>3,002,266</b>                    | <b>2,451</b>            | <b>1,225</b>                        | <b>1,168</b>                             |
| <b>Trip and equipment expenditures for fishing, total . . . . .</b>       | <b>1,937,020</b>                    | <b>2,262</b>            | <b>856</b>                          | <b>798</b>                               |
| Food and lodging . . . . .  | 445,790                             | 2,011                   | 222                                 | 191                                      |
| Transportation . . . . .  | 232,308                             | 1,972                   | 118                                 | 100                                      |
| Boating costs <sup>1</sup> . . . . .                                      | 235,460                             | 558                     | 422                                 | 101                                      |
| Other trip costs <sup>2</sup> . . . . .                                   | 216,135                             | 1,870                   | 116                                 | 93                                       |
| Equipment . . . . .   | 807,327                             | 1,507                   | 536                                 | 313                                      |
| <b>Trip and equipment expenditures for hunting, total . . . . .</b>       | <b>290,974</b>                      | <b>286</b>              | <b>1,018</b>                        | <b>1,050</b>                             |
| Food and lodging . . . . .  | 62,261                              | 223                     | 279                                 | 228                                      |
| Transportation . . . . .  | 42,093                              | 234                     | 180                                 | 154                                      |
| Boating costs <sup>1</sup> . . . . .                                      | ...                                 | ...                     | ...                                 | ...                                      |
| Other trip costs <sup>2</sup> . . . . .                                   | *51,656                             | *125                    | *414                                | *189                                     |
| Equipment . . . . .   | 131,869                             | 241                     | 548                                 | 469                                      |
| <b>Unspecified equipment<sup>3</sup> . . . . .</b>                        | <b>774,271</b>                      | <b>375</b>              | <b>2,065</b>                        | <b>289</b>                               |
| <b>STATE RESIDENTS</b>  |                                     |                         |                                     |  |
| <b>Trip and equipment expenditures for fishing and hunting, total . .</b> | <b>2,875,583</b>                    | <b>2,276</b>            | <b>1,263</b>                        | <b>1,207</b>                             |
| <b>Trip and equipment expenditures for fishing, total . . . . .</b>       | <b>1,870,366</b>                    | <b>2,121</b>            | <b>882</b>                          | <b>817</b>                               |
| Food and lodging . . . . .  | 412,523                             | 1,910                   | 216                                 | 187                                      |
| Transportation . . . . .  | 215,495                             | 1,877                   | 115                                 | 98                                       |
| Boating costs <sup>1</sup> . . . . .                                      | 234,709                             | 547                     | 429                                 | 107                                      |
| Other trip costs <sup>2</sup> . . . . .                                   | 207,501                             | 1,789                   | 116                                 | 94                                       |
| Equipment . . . . .   | 800,139                             | 1,467                   | 545                                 | 331                                      |
| <b>Trip and equipment expenditures for hunting, total . . . . .</b>       | <b>280,217</b>                      | <b>269</b>              | <b>1,040</b>                        | <b>1,069</b>                             |
| Food and lodging . . . . .  | *59,592                             | *215                    | *278                                | *228                                     |
| Transportation . . . . .  | 38,421                              | 224                     | 172                                 | 147                                      |
| Boating costs <sup>1</sup> . . . . .                                      | ...                                 | ...                     | ...                                 | ...                                      |
| Other trip costs <sup>2</sup> . . . . .                                   | *51,598                             | *123                    | *420                                | *198                                     |
| Equipment . . . . .   | 127,594                             | 230                     | 554                                 | 485                                      |
| <b>Unspecified equipment<sup>3</sup> . . . . .</b>                        | <b>725,000</b>                      | <b>349</b>              | <b>2,078</b>                        | <b>306</b>                               |
| <b>NONRESIDENTS</b>   |                                     |                         |                                     |  |
| <b>Trip and equipment expenditures for fishing and hunting, total . .</b> | <b>126,682</b>                      | <b>175</b>              | <b>725</b>                          | <b>512</b>                               |
| <b>Trip and equipment expenditures for fishing, total . . . . .</b>       | <b>66,654</b>                       | <b>141</b>              | <b>474</b>                          | <b>472</b>                               |
| Food and lodging . . . . .  | 33,267                              | 101                     | 331                                 | 253                                      |
| Transportation . . . . .  | 16,813                              | 95                      | 176                                 | 128                                      |
| Boating costs <sup>1</sup> . . . . .                                      | ...                                 | ...                     | ...                                 | ...                                      |
| Other trip costs <sup>2</sup> . . . . .                                   | 8,634                               | 81                      | 106                                 | 66                                       |
| Equipment . . . . .   | *7,188                              | *40                     | *180                                | *20                                      |
| <b>Trip and equipment expenditures for hunting, total . . . . .</b>       | <b>*10,757</b>                      | <b>*17</b>              | <b>*649</b>                         | <b>*664</b>                              |
| Food and lodging . . . . .  | ...                                 | ...                     | ...                                 | ...                                      |
| Transportation . . . . .  | ...                                 | ...                     | ...                                 | ...                                      |
| Boating costs <sup>1</sup> . . . . .                                      | ...                                 | ...                     | ...                                 | ...                                      |
| Other trip costs <sup>2</sup> . . . . .                                   | ...                                 | ...                     | ...                                 | ...                                      |
| Equipment . . . . .   | ...                                 | ...                     | ...                                 | ...                                      |
| <b>Unspecified equipment<sup>3</sup> . . . . .</b>                        | <b>*49,272</b>                      | <b>*26</b>              | <b>*1,901</b>                       | <b>*3</b>                                |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> Includes boat launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

<sup>2</sup> Includes equipment rental, guide and access fees, ice and bait for fishing, and heating and cooking oil.

<sup>3</sup> Respondent could not specify whether item was for fishing or for hunting.

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

**Table 22. Summary of Expenditures by California Residents in the United States for Fishing and Hunting: 2001**

(State population 16 years old and older)

| Expenditure item                        | Amount<br>(thousands<br>of dollars) | Spenders<br>(thousands) | Average per<br>spender<br>(dollars) | Average per<br>sportsperson<br>(dollars) |
|---|-------------------------------------|-------------------------|-------------------------------------|--|
| <b>FISHING AND HUNTING</b>              |                                     |                         |                                     |  |
| <b>Total</b> .....                      | <b>3,266,088</b>                    | <b>2,386</b>            | <b>1,369</b>                        | <b>1,314</b>                             |
| Food and lodging .....                  | 590,686                             | 2,044                   | 289                                 | 238                                      |
| Transportation .....                    | 346,248                             | 2,027                   | 171                                 | 139                                      |
| Other trip costs <sup>1</sup> .....     | 519,600                             | 1,895                   | 274                                 | 209                                      |
| Equipment (fishing, hunting) .....      | 594,287                             | 1,556                   | 382                                 | 239                                      |
| Auxiliary equipment <sup>2</sup> .....  | 111,499                             | 627                     | 178                                 | 45                                       |
| Special equipment <sup>3</sup> .....    | 965,638                             | 326                     | 2,964                               | 388                                      |
| Magazines and books .....               | 18,608                              | 517                     | 36                                  | 7  |
| Membership dues and contributions ..... | 26,884                              | 335                     | 80                                  | 11                                       |
| Other <sup>4</sup> .....                | 92,637                              | 1,629                   | 57                                  | 37                                       |
| <b>FISHING</b>                          |                                     |                         |                                     |  |
| <b>Total</b> .....                      | <b>2,162,620</b>                    | <b>2,271</b>            | <b>952</b>                          | <b>905</b>                               |
| Food and lodging .....                  | 515,484                             | 1,942                   | 265                                 | 216                                      |
| Transportation .....                    | 287,411                             | 1,931                   | 149                                 | 120                                      |
| Other trip costs <sup>1</sup> .....     | 462,336                             | 1,849                   | 250                                 | 194                                      |
| Fishing equipment .....                 | 459,964                             | 1,440                   | 319                                 | 193                                      |
| Auxiliary equipment <sup>2</sup> .....  | 52,297                              | 376                     | 139                                 | 22                                       |
| Special equipment <sup>3</sup> .....    | *294,650                            | *227                    | *1,297                              | *123                                     |
| Magazines and books .....               | 10,070                              | 361                     | 28                                  | 4  |
| Membership dues and contributions ..... | *12,024                             | *167                    | *72                                 | *5                                       |
| Other <sup>4</sup> .....                | 68,386                              | 1,548                   | 44                                  | 29                                       |
| <b>HUNTING</b>                          |                                     |                         |                                     |  |
| <b>Total</b> .....                      | <b>368,701</b>                      | <b>269</b>              | <b>1,369</b>                        | <b>1,328</b>                             |
| Food and lodging .....                  | 75,202                              | 231                     | 325                                 | 271                                      |
| Transportation .....                    | 58,836                              | 245                     | 240                                 | 212                                      |
| Other trip costs <sup>1</sup> .....     | *57,265                             | *139                    | *411                                | *206                                     |
| Hunting equipment .....                 | *119,476                            | *218                    | *549                                | *430                                     |
| Auxiliary equipment <sup>2</sup> .....  | *20,037                             | *98                     | *205                                | *72                                      |
| Special equipment <sup>3</sup> .....    | ...                                 | ...                     | ...                                 | ...                                      |
| Magazines and books .....               | *5,250                              | *56                     | *93                                 | *19                                      |
| Membership dues and contributions ..... | *8,382                              | *91                     | *93                                 | *30                                      |
| Other <sup>4</sup> .....                | *24,252                             | *199                    | *122                                | *87                                      |
| <b>UNSPECIFIED<sup>5</sup></b>          |                                     |                         |                                     |  |
| <b>Total</b> .....                      | <b>719,920</b>                      | <b>430</b>              | <b>1,674</b>                        | <b>290</b>                               |
| Auxiliary equipment <sup>2</sup> .....  | *39,164                             | *212                    | *184                                | *16                                      |
| Special equipment <sup>3</sup> .....    | *670,988                            | *99                     | *6,805                              | *270                                     |
| Magazines and books .....               | *3,288                              | *116                    | *28                                 | *1                                       |
| Membership dues and contributions ..... | ...                                 | ...                     | ...                                 | ...                                      |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> Includes boating costs, equipment rental, guide fees, access fees, heating and cooking fuel, and ice and bait (for fishing only).

<sup>2</sup> Includes tents, special clothing, etc.

<sup>3</sup> Includes boats, campers, 4x4 vehicles, cabins, etc.

<sup>4</sup> Includes land leasing and ownership, licenses, stamps, tags, and permits.

<sup>5</sup> Respondent could not specify whether expenditure was primarily for either fishing or hunting.

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

**Table 23. Summary of Expenditures by California Residents in State and Out of State for Fishing and Hunting: 2001**

(State population 16 years old and older)

| Expenditure item   | Amount<br>(thousands<br>of dollars) | Spenders<br>(thousands) | Average per<br>spender<br>(dollars) | Average per<br>sportsperson<br>(dollars) |
|--|-------------------------------------|-------------------------|-------------------------------------|--|
| <b>IN CALIFORNIA</b>   |                                     |                         |                                     |  |
| <b>Expenditures for fishing and hunting, total</b> .....                         | <b>2,989,784</b>                    | <b>2,339</b>            | <b>1,278</b>                        | <b>1,296</b>                             |
| Trip-related expenditures.....   | 1,222,850                           | 2,185                   | 560                                 | 530                                      |
| Equipment (fishing and hunting) .....  | 575,887                             | 1,530                   | 376                                 | 250                                      |
| Auxiliary equipment <sup>1</sup> .....   | 111,208                             | 609                     | 183                                 | 48                                       |
| Special equipment <sup>2</sup> .....   | 965,638                             | 326                     | 2,964                               | 418                                      |
| Other <sup>3</sup> .....   | 114,201                             | 1,741                   | 66                                  | 49                                       |
| <b>Expenditures for fishing, total</b> .....                                     | <b>1,956,082</b>                    | <b>2,193</b>            | <b>892</b>                          | <b>888</b>                               |
| Trip-related expenditures.....   | 1,070,227                           | 2,065                   | 518                                 | 486                                      |
| Fishing equipment.....   | 453,483                             | 1,414                   | 321                                 | 206                                      |
| Auxiliary equipment <sup>1</sup> .....   | 52,006                              | 358                     | 145                                 | 24                                       |
| Special equipment <sup>2</sup> .....   | *294,650                            | *227                    | *1,297                              | *134                                     |
| Other <sup>3</sup> .....   | 85,716                              | 1,606                   | 53                                  | 39                                       |
| <b>Expenditures for hunting, total</b> .....                                     | <b>300,274</b>                      | <b>269</b>              | <b>1,115</b>                        | <b>1,150</b>                             |
| Trip-related expenditures.....   | 152,623                             | 248                     | 615                                 | 584                                      |
| Hunting equipment.....   | *107,557                            | *209                    | *513                                | *412                                     |
| Auxiliary equipment <sup>1</sup> .....   | *20,037                             | *98                     | *205                                | *77                                      |
| Special equipment <sup>2</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |
| Other <sup>3</sup> .....   | *20,057                             | *213                    | *94                                 | *77                                      |
| <b>Unspecified expenditures for fishing and hunting, total<sup>4</sup></b> ..... | <b>716,352</b>                      | <b>353</b>              | <b>2,032</b>                        | <b>310</b>                               |
| Auxiliary equipment <sup>1</sup> .....   | *38,550                             | *199                    | *194                                | *17                                      |
| Special equipment <sup>2</sup> .....   | *670,988                            | *99                     | *6,805                              | *291                                     |
| Other <sup>3</sup> .....   | *6,814                              | *89                     | *77                                 | *3                                       |
| <b>OUT OF STATE</b>  |                                     |                         |                                     |  |
| <b>Expenditures for fishing and hunting, total</b> .....                         | <b>273,582</b>                      | <b>342</b>              | <b>800</b>                          | <b>985</b>                               |
| Trip-related expenditures.....   | *233,684                            | *226                    | *1,035                              | *841                                     |
| Equipment (fishing and hunting) .....  | *18,151                             | *133                    | *136                                | *65                                      |
| Auxiliary equipment <sup>1</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |
| Special equipment <sup>2</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |
| Other <sup>3</sup> .....   | *21,456                             | *183                    | *118                                | *77                                      |
| <b>Expenditures for fishing, total</b> .....                                     | <b>206,300</b>                      | <b>266</b>              | <b>775</b>                          | <b>791</b>                               |
| Trip-related expenditures.....   | *195,004                            | *204                    | *954                                | *747                                     |
| Fishing equipment.....   | *6,481                              | *87                     | *75                                 | *25                                      |
| Auxiliary equipment <sup>1</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |
| Special equipment <sup>2</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |
| Other <sup>3</sup> .....   | *4,525                              | *133                    | *34                                 | *17                                      |
| <b>Expenditures for hunting, total</b> .....                                     | <b>*66,750</b>                      | <b>*76</b>              | <b>*883</b>                         | <b>*1,760</b>                            |
| Trip-related expenditures.....   | ...                                 | ...                     | ...                                 | ...                                      |
| Hunting equipment.....   | ...                                 | ...                     | ...                                 | ...                                      |
| Auxiliary equipment <sup>1</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |
| Special equipment <sup>2</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |
| Other <sup>3</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |
| <b>Unspecified expenditures for fishing and hunting, total<sup>4</sup></b> ..... | <b>...</b>                          | <b>...</b>              | <b>...</b>                          | <b>...</b>                               |
| Auxiliary equipment <sup>1</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |
| Special equipment <sup>2</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |
| Other <sup>3</sup> .....   | ...                                 | ...                     | ...                                 | ...                                      |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> Includes tents, special hunting or fishing clothing, etc.

<sup>2</sup> Includes boats, campers, 4x4 vehicles, cabins, etc.

<sup>3</sup> Includes magazines, books, membership dues, contributions, land leasing and ownership, stamps, tags, and licenses.

<sup>4</sup> Respondent could not specify whether expenditure was primarily for either fishing or hunting.

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

**Table 24. U.S. Residents Participating in Wildlife Watching in California: 2001**

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

| Participants                              | Number       | Percent    |
|---|--------------|------------|
| <b>Total participants</b> .....           | <b>5,720</b> | <b>100</b> |
| Nonresidential (away from home) .....     | 2,270        | 40         |
| Observe wildlife .....                    | 2,099        | 37         |
| Photograph wildlife .....                 | 1,081        | 19         |
| Feed wildlife .....                       | 660          | 12         |
| Residential (around the home) .....       | 4,853        | 85         |
| Observe wildlife .....                    | 3,072        | 54         |
| Photograph wildlife .....                 | 1,052        | 18         |
| Feed wildlife .....                       | 3,763        | 66         |
| Visit public parks <sup>1</sup> .....     | 1,093        | 19         |
| Maintain plantings or natural areas ..... | 829          | 14         |

<sup>1</sup> Includes visits only to parks or publicly owned areas within 1 mile of home.

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

**Table 25. Participants, Trips, and Days of Participation in Nonresidential (Away From Home) Wildlife-Watching Activities in California: 2001**

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

| Participants, trips, and days of participation | Activity in California                  |            |                 |            |              |            |
|--|---|------------|-----------------|------------|--------------|------------|
|  | Total, state residents and nonresidents |            | State residents |            | Nonresidents |            |
|  | Number                                  | Percent    | Number          | Percent    | Number       | Percent    |
| <b>PARTICIPANTS</b>                            |   |            |                 |            |              |            |
| <b>Total participants</b> .....                | <b>2,270</b>                            | <b>100</b> | <b>1,885</b>    | <b>100</b> | <b>384</b>   | <b>100</b> |
| Observe wildlife .....                         | 2,099                                   | 93         | 1,731           | 92         | 369          | 96         |
| Photograph wildlife .....                      | 1,081                                   | 48         | 819             | 43         | 262          | 68         |
| Feed wildlife .....                            | 660                                     | 29         | 559             | 30         | *101         | *26        |
| <b>TRIPS</b>                                   |   |            |                 |            |              |            |
| Total trips .....                              | 16,921                                  | 100        | 16,085          | 100        | 835          | 100        |
| Average days per trip .....                    | 1                                       | (X)        | 1               | (X)        | 3            | (X)        |
| <b>DAYS</b>                                    |   |            |                 |            |              |            |
| <b>Total days</b> .....                        | <b>23,807</b>                           | <b>100</b> | <b>21,661</b>   | <b>100</b> | <b>2,145</b> | <b>100</b> |
| Observing wildlife .....                       | 21,771                                  | 91         | 19,949          | 92         | 1,823        | 85         |
| Photographing wildlife .....                   | 5,457                                   | 23         | 4,327           | 20         | 1,131        | 53         |
| Feeding wildlife .....                         | 6,260                                   | 26         | *5,747          | *27        | *512         | *24        |
| <b>Average days per participant</b> .....      | <b>10</b>                               | <b>(X)</b> | <b>11</b>       | <b>(X)</b> | <b>6</b>     | <b>(X)</b> |
| Observing wildlife .....                       | 10                                      | (X)        | 12              | (X)        | 5            | (X)        |
| Photographing wildlife .....                   | 5                                       | (X)        | 5               | (X)        | 4            | (X)        |
| Feeding wildlife .....                         | 9                                       | (X)        | *10             | (X)        | *5           | (X)        |

\* Estimate based on a small sample size. (X) Not applicable.

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



**Table 26. Nonresidential (Away From Home) Wildlife-Watching Participants Visiting Public Areas in California and Type of Site Visited: 2001**

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

| Participants and sites           | Total, state residents and nonresidents |            | State residents |            | Nonresidents |            |
|----------------------------------|---|------------|-----------------|------------|--------------|------------|
|                                  | Number                                  | Percent    | Number          | Percent    | Number       | Percent    |
| <b>Total participants</b> .....  | <b>2,270</b>                            | <b>100</b> | <b>1,885</b>    | <b>100</b> | <b>384</b>   | <b>100</b> |
| Visited public areas .....       | 1,980                                   | 87         | 1,658           | 88         | 322          | 84         |
| Did not visit public areas ..... | 289                                     | 13         | *227            | *12        | *62          | *16        |
| <b>Total, all sites</b> .....    | <b>2,270</b>                            | <b>100</b> | <b>1,885</b>    | <b>100</b> | <b>384</b>   | <b>100</b> |
| Oceanside .....                  | 1,209                                   | 53         | 900             | 48         | 308          | 80         |
| Lakes and streamsides .....      | 1,314                                   | 58         | 1,125           | 60         | 189          | 49         |
| Marsh, wetland, swamp .....      | 809                                     | 36         | 733             | 39         | *76          | *20        |
| Woodland .....                   | 1,136                                   | 50         | 898             | 48         | 237          | 62         |
| Brush-covered areas .....        | 1,126                                   | 50         | 967             | 51         | 159          | 41         |
| Open field .....                 | 1,136                                   | 50         | 929             | 49         | 207          | 54         |
| Man-made area .....              | 634                                     | 28         | 482             | 26         | 152          | 40         |
| Other .....                      | *357                                    | *16        | *330            | *18        | ...          | ...        |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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

**Table 27. Nonresidential (Away From Home) Wildlife-Watching Participants by Wildlife Observed, Photographed, or Fed in California: 2001**

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

| Wildlife observed, photographed, or fed | Total, state residents and nonresidents |            | State residents |           | Nonresidents |           |
|---|---|------------|-----------------|-----------|--------------|-----------|
|   | Number                                  | Percent    | Number          | Percent   | Number       | Percent   |
| <b>Total all wildlife</b> .....         | <b>2,270</b>                            | <b>100</b> | <b>1,885</b>    | <b>83</b> | <b>384</b>   | <b>17</b> |
| <b>Total birds</b> .....                | <b>2,117</b>                            | <b>100</b> | <b>1,755</b>    | <b>83</b> | <b>362</b>   | <b>17</b> |
| Songbirds .....                         | 1,110                                   | 100        | 891             | 80        | 219          | 20        |
| Birds of prey .....                     | 1,410                                   | 100        | 1,155           | 82        | 255          | 18        |
| Waterfowl .....                         | 1,483                                   | 100        | 1,182           | 80        | 301          | 20        |
| Shorebirds .....                        | 1,326                                   | 100        | 1,028           | 78        | 298          | 22        |
| Other birds .....                       | 760                                     | 100        | 636             | 84        | *124         | *16       |
| <b>Total land mammals</b> .....         | <b>1,607</b>                            | <b>100</b> | <b>1,330</b>    | <b>83</b> | <b>277</b>   | <b>17</b> |
| Large land mammals .....                | 1,100                                   | 100        | 904             | 82        | 195          | 18        |
| Small land mammals .....                | 1,425                                   | 100        | 1,189           | 83        | 236          | 17        |
| Fish .....                              | 558                                     | 100        | *406            | *73       | 152          | 27        |
| Marine mammals .....                    | 872                                     | 100        | 630             | 72        | 242          | 28        |
| Other wildlife .....                    | 1,119                                   | 100        | 920             | 82        | 199          | 18        |

\* Estimate based on a small sample size.

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

**Table 28. Participation in Residential (Around the Home) Wildlife-Watching Activities in California: 2001**

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

| Residential activity                            | Participants |            | Residential activity                                  | Participants |            |
|---|--------------|------------|---|--------------|------------|
|   | Number       | Percent    |   | Number       | Percent    |
| <b>Total residential participants</b> . . . . . | <b>4,853</b> | <b>100</b> | 11 to 50 days . . . . .                               | 698          | 23         |
| Observe wildlife . . . . .                      | 3,072        | 63         | 51 to 200 days . . . . .                              | 876          | 29         |
| Visit public parks <sup>1</sup> . . . . .       | 1,093        | 23         | 201 days or more . . . . .                            | 465          | 15         |
| Photograph wildlife . . . . .                   | 1,052        | 22         | <b>Participants Visiting Public Parks<sup>1</sup></b> |              |            |
| Feed wildlife . . . . .                         | 3,763        | 78         | <b>Total, 1 day or more</b> . . . . .                 | <b>1,093</b> | <b>100</b> |
| Maintain natural areas . . . . .                | *397         | *8         | 1 to 5 days . . . . .                                 | 582          | 53         |
| Maintain plantings . . . . .                    | 675          | 14         | 6 to 10 days . . . . .                                | ...          | ...        |
| <b>Participants Observing Wildlife</b>          |              |            | 11 days or more . . . . .                             | *349         | *32        |
| <b>Total, all wildlife</b> . . . . .            | <b>3,072</b> | <b>100</b> | <b>Participants Photographing Wildlife</b>            |              |            |
| Birds . . . . .                                 | 2,862        | 93         | <b>Total, 1 day or more</b> . . . . .                 | <b>1,052</b> | <b>100</b> |
| Land mammals . . . . .                          | 2,169        | 71         | 1 to 3 days . . . . .                                 | *479         | *46        |
| Large mammals . . . . .                         | 755          | 25         | 4 to 10 days . . . . .                                | *426         | *40        |
| Small mammals . . . . .                         | 2,054        | 67         | 11 or more days . . . . .                             | *146         | *14        |
| Amphibians or reptiles . . . . .                | 837          | 27         | <b>Participants Feeding Wildlife</b>                  |              |            |
| Insects or spiders . . . . .                    | 1,126        | 37         | <b>Total, all wildlife</b> . . . . .                  | <b>3,763</b> | <b>100</b> |
| Fish and other wildlife . . . . .               | 583          | 19         | Wild birds . . . . .                                  | 3,579        | 95         |
| <b>Total, 1 day or more</b> . . . . .           | <b>3,072</b> | <b>100</b> | Other wildlife . . . . .                              | 943          | 25         |
| 1 to 10 days . . . . .                          | 952          | 31         |   |              |            |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> Includes visits only to parks or publicly owned areas within 1 mile of home.

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

**Table 29. California Residents Participating in Wildlife Watching in the United States: 2001**

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

| Participants                                  | Number       | Percent of participants | Percent of population |
|---|--------------|-------------------------|-----------------------|
| <b>Total participants</b> . . . . .           | <b>5,491</b> | <b>100</b>              | <b>21</b>             |
| Nonresidential (away from home) . . . . .     | 2,191        | 40                      | 8                     |
| Residential (around home) . . . . .           | 4,853        | 88                      | 19                    |
| Observe wildlife . . . . .                    | 3,072        | 56                      | 12                    |
| Photograph wildlife . . . . .                 | 1,052        | 19                      | 4                     |
| Feed wild birds or other wildlife . . . . .   | 3,763        | 69                      | 14                    |
| Maintain plantings or natural areas . . . . . | 829          | 15                      | 3                     |
| Visit public parks . . . . .                  | 1,093        | 20                      | 4                     |

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

**Table 30. Wild Bird Observers and Days of Observation in California: 2001**

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

| Observers and days of observation               | Total, state residents and nonresidents |            | State residents |            | Nonresidents |            |
|---|---|------------|-----------------|------------|--------------|------------|
|   | Number                                  | Percent    | Number          | Percent    | Number       | Percent    |
| <b>OBSERVERS</b>                                |   |            |                 |            |              |            |
| <b>Total bird observers.....</b>                | <b>3,987</b>                            | <b>100</b> | <b>3,629</b>    | <b>100</b> | <b>358</b>   | <b>100</b> |
| Residential (around the home) observers .....   | 2,862                                   | 72         | 2,862           | 79         | ...          | ...        |
| Nonresidential (away from home) observers ..... | 2,089                                   | 52         | 1,732           | 48         | 358          | 100        |
| <b>DAYS</b>                                     |   |            |                 |            |              |            |
| <b>Total days observing birds .....</b>         | <b>305,116</b>                          | <b>100</b> | <b>303,282</b>  | <b>100</b> | <b>1,833</b> | <b>100</b> |
| Residential (around the home) .....             | 283,544                                 | 93         | 283,544         | 93         | ...          | ...        |
| Nonresidential (away from home).....            | 21,571                                  | 7          | 19,738          | 7          | 1,833        | 100        |

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

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

**Table 31. Wild Bird Observers in California Who Can Identify Wild Birds by Sight or Sound, and Who Keep Birding Life Lists: 2001**

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

| Participants                                | Number       | Percent    |
|---|--------------|------------|
| <b>Total bird observers.....</b>            | <b>3,987</b> | <b>100</b> |
| Observers who can identify:                 |              |            |
| 1-20 bird species .....                     | 2,810        | 70         |
| 21-40 bird species .....                    | 569          | 14         |
| 41 or more species.....                     | 563          | 14         |
| Observers who keep birding life lists ..... | *229         | *6         |

\* Estimate based on a small sample size.

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

**Table 32. Selected Characteristics of California Residents Participating in Wildlife Watching: 2001**

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

| Characteristic                         | Population    |            | Participants |                          |            |                                    |                          |            |                                  |                          |            |
|--|---------------|------------|--------------|--------------------------|------------|------------------------------------|--------------------------|------------|----------------------------------|--------------------------|------------|
|  |               |            | Total        |                          |            | Nonresidential<br>(away from home) |                          |            | Residential<br>(around the home) |                          |            |
|  | Number        | Percent    | Number       | Percent who participated | Percent    | Number                             | Percent who participated | Percent    | Number                           | Percent who participated | Percent    |
| <b>Total persons</b> .....             | <b>25,982</b> | <b>100</b> | <b>5,491</b> | <b>21</b>                | <b>100</b> | <b>2,191</b>                       | <b>8</b>                 | <b>100</b> | <b>4,853</b>                     | <b>19</b>                | <b>100</b> |
| <b>Population Density of Residence</b> |               |            |              |                          |            |                                    |                          |            |                                  |                          |            |
| Urban.....                             | 24,352        | 94         | 5,004        | 21                       | 91         | 2,000                              | 8                        | 91         | 4,367                            | 18                       | 90         |
| Rural.....                             | 1,629         | 6          | *486         | *30                      | *9         | *191                               | *12                      | *9         | *486                             | *30                      | *10        |
| <b>Population Size of Residence</b>    |               |            |              |                          |            |                                    |                          |            |                                  |                          |            |
| Metropolitan statistical area (MSA) .  | 25,466        | 98         | 5,141        | 20                       | 94         | 2,082                              | 8                        | 95         | 4,503                            | 18                       | 93         |
| 1,000,000 or more.....                 | 21,664        | 83         | 4,151        | 19                       | 76         | 1,734                              | 8                        | 79         | 3,593                            | 17                       | 74         |
| 250,000 to 999,999.....                | 2,434         | 9          | *455         | *19                      | *8         | ...                                | ...                      | ...        | *407                             | *17                      | *8         |
| 50,000 to 249,999.....                 | 1,368         | 5          | *535         | *39                      | *10        | *192                               | *14                      | *9         | *503                             | *37                      | *10        |
| Outside MSA.....                       | 515           | 2          | *350         | *68                      | *6         | ...                                | ...                      | ...        | *350                             | *68                      | *7         |
| <b>Sex</b>                             |               |            |              |                          |            |                                    |                          |            |                                  |                          |            |
| Male.....                              | 12,483        | 48         | 2,509        | 20                       | 46         | 1,058                              | 8                        | 48         | 2,124                            | 17                       | 44         |
| Female.....                            | 13,499        | 52         | 2,981        | 22                       | 54         | 1,132                              | 8                        | 52         | 2,729                            | 20                       | 56         |
| <b>Age</b>                             |               |            |              |                          |            |                                    |                          |            |                                  |                          |            |
| 16 to 17 years.....                    | 882           | 3          | ...          | ...                      | ...        | ...                                | ...                      | ...        | ...                              | ...                      | ...        |
| 18 to 24 years.....                    | 3,053         | 12         | *275         | *9                       | *5         | ...                                | ...                      | ...        | *241                             | *8                       | *5         |
| 25 to 34 years.....                    | 5,065         | 19         | *561         | *11                      | *10        | ...                                | ...                      | ...        | *490                             | *10                      | *10        |
| 35 to 44 years.....                    | 5,763         | 22         | 1,566        | 27                       | 29         | 728                                | 13                       | 33         | 1,329                            | 23                       | 27         |
| 45 to 54 years.....                    | 4,698         | 18         | 1,269        | 27                       | 23         | 569                                | 12                       | 26         | 1,087                            | 23                       | 22         |
| 55 to 64 years.....                    | 2,755         | 11         | 862          | 31                       | 16         | *328                               | *12                      | *15        | 828                              | 30                       | 17         |
| 65 years and older.....                | 3,766         | 14         | 787          | 21                       | 14         | *211                               | *6                       | *10        | 744                              | 20                       | 15         |
| <b>Ethnicity</b>                       |               |            |              |                          |            |                                    |                          |            |                                  |                          |            |
| Hispanic.....                          | 7,080         | 27         | 664          | 9                        | 12         | *276                               | *4                       | *13        | *516                             | *7                       | *11        |
| Non-Hispanic.....                      | 18,902        | 73         | 4,826        | 26                       | 88         | 1,914                              | 10                       | 87         | 4,337                            | 23                       | 89         |
| <b>Race</b>                            |               |            |              |                          |            |                                    |                          |            |                                  |                          |            |
| White.....                             | 20,938        | 81         | 5,034        | 24                       | 92         | 2,030                              | 10                       | 93         | 4,468                            | 21                       | 92         |
| Black.....                             | 1,638         | 6          | ...          | ...                      | ...        | ...                                | ...                      | ...        | ...                              | ...                      | ...        |
| All others.....                        | 3,405         | 13         | *311         | *9                       | *6         | ...                                | ...                      | ...        | *274                             | *8                       | *6         |
| <b>Annual Household Income</b>         |               |            |              |                          |            |                                    |                          |            |                                  |                          |            |
| Under \$10,000.....                    | 1,564         | 6          | *267         | *17                      | *5         | ...                                | ...                      | ...        | *267                             | *17                      | *5         |
| \$10,000 to \$19,999.....              | 2,058         | 8          | *295         | *14                      | *5         | ...                                | ...                      | ...        | *278                             | *14                      | *6         |
| \$20,000 to \$29,999.....              | 3,068         | 12         | *428         | *14                      | *8         | ...                                | ...                      | ...        | *414                             | *13                      | *9         |
| \$30,000 to \$39,999.....              | 2,495         | 10         | 580          | 23                       | 11         | *206                               | *8                       | *9         | 544                              | 22                       | 11         |
| \$40,000 to \$49,999.....              | 2,052         | 8          | 560          | 27                       | 10         | *210                               | *10                      | *10        | *506                             | *25                      | *10        |
| \$50,000 to \$74,999.....              | 3,943         | 15         | 1,097        | 28                       | 20         | 579                                | 15                       | 26         | 794                              | 20                       | 16         |
| \$75,000 to \$99,999.....              | 2,633         | 10         | 777          | 30                       | 14         | *346                               | *13                      | *16        | 676                              | 26                       | 14         |
| \$100,000 or more.....                 | 3,017         | 12         | 1,007        | 33                       | 18         | *407                               | *13                      | *19        | 959                              | 32                       | 20         |
| Not reported.....                      | 5,151         | 20         | *480         | *9                       | *9         | *179                               | *3                       | *8         | *416                             | *8                       | *9         |
| <b>Education</b>                       |               |            |              |                          |            |                                    |                          |            |                                  |                          |            |
| 11 years or less.....                  | 4,665         | 18         | *521         | *11                      | *9         | ...                                | ...                      | ...        | *437                             | *9                       | *9         |
| 12 years.....                          | 7,081         | 27         | 1,040        | 15                       | 19         | *284                               | *4                       | *13        | 955                              | 13                       | 20         |
| 1 to 3 years college.....              | 6,577         | 25         | 1,488        | 23                       | 27         | 715                                | 11                       | 33         | 1,287                            | 20                       | 27         |
| 4 years college or more.....           | 7,658         | 29         | 2,442        | 32                       | 44         | 1,028                              | 13                       | 47         | 2,175                            | 28                       | 45         |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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

**Table 33. Expenditures in California by U.S. Residents for Wildlife Watching: 2001**

(Population 16 years old and older)

| Expenditure item   | Expenditures<br>(thousands<br>of dollars) | Average per<br>participant<br>(dollars) | Spenders              |  |                                     |
|--|---|---|-----------------------|--|-------------------------------------|
|  |   |   | Number<br>(thousands) | Percent of<br>wildlife-watching<br>participants <sup>1</sup> | Average per<br>spender<br>(dollars) |
| <b>Total, all items</b> .....  | <b>2,580,874</b>                          | <b>451</b>                              | <b>4,530</b>          | <b>79</b>  | <b>570</b>                          |
| <b>TRIP EXPENDITURES</b>   |   |   |                       |  |                                     |
| <b>Total trip-related</b> .....  | <b>880,805</b>                            | <b>388</b>                              | <b>1,951</b>          | <b>86</b>  | <b>451</b>                          |
| Food and lodging .....   | 531,229                                   | 234                                     | 1,678                 | 74   | 317                                 |
| Food .....   | 244,125                                   | 108                                     | 1,663                 | 73   | 147                                 |
| Lodging .....  | 287,104                                   | 126                                     | 867                   | 38   | 331                                 |
| Transportation .....   | 300,502                                   | 132                                     | 1,852                 | 82   | 162                                 |
| Other trip costs <sup>2</sup> .....  | 49,074                                    | 22                                      | 861                   | 38   | 57                                  |
| <b>EQUIPMENT AND OTHER EXPENDITURES</b>  |   |   |                       |  |                                     |
| <b>Total</b> .....   | <b>1,700,069</b>                          | <b>297</b>                              | <b>3,827</b>          | <b>67</b>  | <b>444</b>                          |
| <b>Wildlife-watching equipment, total</b> .....                                  | <b>561,514</b>                            | <b>98</b>                               | <b>3,345</b>          | <b>58</b>  | <b>168</b>                          |
| Binoculars, spotting scopes .....  | 60,363                                    | 11                                      | 539                   | 9  | 112                                 |
| Film and developing .....  | 115,330                                   | 20                                      | 1,427                 | 25   | 81                                  |
| Cameras, special lenses, videocameras, and other<br>photographic equipment ..... | 166,303                                   | 29                                      | 522                   | 9  | 318                                 |
| Day packs, carrying cases, and special clothing .....                            | *37,310                                   | *7                                      | *360                  | *6   | *104                                |
| Bird food .....  | 108,655                                   | 19                                      | 1,933                 | 34   | 56                                  |
| Food for other wildlife .....  | *10,970                                   | *2                                      | *429                  | *8   | *26                                 |
| Nest boxes, bird houses, bird feeders, and bird baths .....                      | 47,264                                    | 8                                       | 1,143                 | 20   | 41                                  |
| Other equipment (including field guides) .....                                   | 15,319                                    | 3                                       | 414                   | 7  | 37                                  |
| Auxiliary equipment <sup>3</sup> .....   | *51,816                                   | *9                                      | *375                  | *7   | *138                                |
| Special equipment <sup>4</sup> .....   | ...                                       | ...                                     | ...                   | ...  | ...                                 |
| Magazines and books .....  | 55,132                                    | 10                                      | 607                   | 11   | 91                                  |
| Membership dues and contributions .....  | 112,978                                   | 20                                      | 996                   | 17   | 113                                 |
| Land leasing and ownership .....   | ...                                       | ...                                     | ...                   | ...  | ...                                 |
| Plantings .....  | 43,315                                    | 9                                       | 643                   | 13   | 67                                  |

\* Estimate based on a small sample size.   ... Sample size too small to report data reliably.

<sup>1</sup> Percent of wildlife-watching participants column for trip-related expenditures is based on nonresidential participants. For equipment and other expenditures, the percent of wildlife-watching participants column is based on total wildlife-watching participants.

<sup>2</sup> Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.

<sup>3</sup> Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.

<sup>4</sup> Includes travel or tent trailers, off-the-road vehicles, pickups, campers or vans, motor homes, boats, and other special equipment.

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

**Table 34. Trip and Equipment Expenditures in California for Wildlife Watching by Residents and Nonresidents: 2001**

(Population 16 years old and older)

| Expenditure item                        | Amount<br>(thousands<br>of dollars) | Spenders<br>(thousands) | Average per<br>spender<br>(dollars) | Average per<br>participant<br>(dollars) |
|---|-------------------------------------|-------------------------|-------------------------------------|---|
| <b>STATE RESIDENTS AND NONRESIDENTS</b> |                                     |                         |                                     |   |
| <b>Total</b> .....                      | <b>2,120,000</b>                    | <b>4,163</b>            | <b>509</b>                          | <b>371</b>                              |
| Food and lodging .....                  | 531,229                             | 1,678                   | 317                                 | 234                                     |
| Transportation .....                    | 300,502                             | 1,852                   | 162                                 | 132                                     |
| Other trip costs <sup>1</sup> .....     | 49,074                              | 861                     | 57                                  | 22                                      |
| Equipment <sup>2</sup> .....            | 1,239,194                           | 3,424                   | 362                                 | 217                                     |
| <b>STATE RESIDENTS</b>                  |                                     |                         |                                     |   |
| <b>Total</b> .....                      | <b>1,654,031</b>                    | <b>3,687</b>            | <b>449</b>                          | <b>310</b>                              |
| Food and lodging .....                  | 303,913                             | 1,332                   | 228                                 | 161                                     |
| Transportation .....                    | 146,441                             | 1,533                   | 96                                  | 78                                      |
| Other trip costs <sup>1</sup> .....     | 38,561                              | 699                     | 55                                  | 20                                      |
| Equipment <sup>2</sup> .....            | 1,165,117                           | 3,234                   | 360                                 | 218                                     |
| <b>NONRESIDENTS</b>                     |                                     |                         |                                     |   |
| <b>Total</b> .....                      | <b>465,968</b>                      | <b>476</b>              | <b>979</b>                          | <b>1,212</b>                            |
| Food and lodging .....                  | 227,317                             | 346                     | 657                                 | 591                                     |
| Transportation .....                    | 154,061                             | 319                     | 482                                 | 401                                     |
| Other trip costs <sup>1</sup> .....     | 10,513                              | 163                     | 65                                  | 27                                      |
| Equipment <sup>2</sup> .....            | 74,077                              | 190                     | 390                                 | 193                                     |

<sup>1</sup> Includes equipment rental and fees for guides, pack trips, public land use, private land use, boat fuel, other boating costs, and heating and cooking fuel.

<sup>2</sup> Includes wildlife watching, auxiliary and special equipment.

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

**Table 35. Expenditures in the United States by California Residents for Wildlife Watching: 2001**

(Population 16 years old and older)

| Expenditure item   | Expenditures<br>(thousands<br>of dollars) | Average per<br>participant<br>(dollars) | Spenders              |  |                                     |
|--|---|---|-----------------------|--|-------------------------------------|
|  |   |   | Number<br>(thousands) | Percent of<br>wildlife-watching<br>participants <sup>1</sup> | Average per<br>spender<br>(dollars) |
| <b>Total, all items</b> .....  | <b>2,603,127</b>                          | <b>474</b>                              | <b>4,064</b>          | <b>74</b>  | <b>640</b>                          |
| <b>TRIP EXPENDITURES</b>   |   |   |                       |  |                                     |
| <b>Total trip-related</b> .....  | <b>894,746</b>                            | <b>475</b>                              | <b>1,793</b>          | <b>95</b>  | <b>499</b>                          |
| Food and lodging .....   | 518,795                                   | 275                                     | 1,558                 | 83   | 333                                 |
| Food .....   | 273,492                                   | 145                                     | 1,544                 | 82   | 177                                 |
| Lodging .....  | 245,303                                   | 130                                     | 875                   | 46   | 280                                 |
| Transportation .....   | 313,736                                   | 166                                     | 1,722                 | 91   | 182                                 |
| Other trip costs <sup>2</sup> .....  | 62,215                                    | 33                                      | 804                   | 43   | 77                                  |
| <b>EQUIPMENT AND OTHER EXPENDITURES</b>  |   |   |                       |  |                                     |
| <b>Total</b> .....   | <b>1,708,381</b>                          | <b>311</b>                              | <b>3,558</b>          | <b>65</b>  | <b>480</b>                          |
| <b>Wildlife-watching equipment, total</b> .....                                  | <b>533,046</b>                            | <b>97</b>                               | <b>3,174</b>          | <b>58</b>  | <b>168</b>                          |
| Binoculars, spotting scopes .....  | 62,509                                    | 11                                      | 529                   | 10   | 118                                 |
| Film and developing .....  | 114,462                                   | 21                                      | 1,412                 | 26   | 81                                  |
| Cameras, special lenses, videocameras, and other<br>photographic equipment ..... | 136,688                                   | 25                                      | 479                   | 9  | 285                                 |
| Day packs, carrying cases, and special clothing .....                            | *37,783                                   | *7                                      | *358                  | *7   | *106                                |
| Bird food .....  | 108,927                                   | 20                                      | 1,930                 | 35   | 56                                  |
| Food for other wildlife .....  | *10,915                                   | *2                                      | *426                  | *8   | *26                                 |
| Nest boxes, bird houses, bird feeders, and bird baths .....                      | 46,642                                    | 8                                       | 1,130                 | 21   | 41                                  |
| Other equipment .....  | *15,120                                   | *3                                      | *380                  | *7   | *40                                 |
| Auxiliary equipment <sup>3</sup> .....   | *50,581                                   | *9                                      | *357                  | *6   | *142                                |
| Special equipment <sup>4</sup> .....   | ...                                       | ...                                     | ...                   | ...  | ...                                 |
| Magazines and books .....  | 54,387                                    | 10                                      | 585                   | 11   | 93                                  |
| Membership dues and contributions .....  | 114,128                                   | 21                                      | 959                   | 17   | 119                                 |
| Land leasing and ownership .....   | ...                                       | ...                                     | ...                   | ...  | ...                                 |
| Plantings .....  | 43,315                                    | 9                                       | 643                   | 13   | 67                                  |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

<sup>1</sup> Percent of wildlife-watching participants column for trip-related expenditures is based on nonresidential participants. For equipment and other expenditures, the percent of wildlife-watching participants column is based on total wildlife-watching participants.

<sup>2</sup> Includes equipment rental and fees for guides, pack trips, public land use and private land use, boat fuel, other boating costs, and heating and cooking fuel.

<sup>3</sup> Includes tents, tarps, frame packs and other backpacking equipment, other camping equipment, and other auxiliary equipment.

<sup>4</sup> Includes travel or tent trailers, off-the-road vehicles, pickups, campers or vans, motor homes, boats, and other special equipment.

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

**Table 36. Summary of Expenditures by California Residents in State and Out of State for Wildlife Watching: 2001**

(State population 16 years old and older)

| Expenditure item                                       | Amount<br>(thousands<br>of dollars) | Spenders<br>(thousands) | Average per<br>spender<br>(dollars) | Average per<br>participant<br>(dollars) |
|--|-------------------------------------|-------------------------|-------------------------------------|---|
| <b>IN CALIFORNIA</b>                                   |                                     |                         |                                     |   |
| <b>Expenditures for wildlife watching, total</b> ..... | <b>2,109,139</b>                    | <b>3,946</b>            | <b>534</b>                          | <b>384</b>                              |
| Trip-related expenditures .....                        | 488,914                             | 1,604                   | 305                                 | 259                                     |
| Wildlife-watching equipment .....                      | 523,935                             | 3,174                   | 165                                 | 95                                      |
| Auxiliary equipment .....                              | *50,581                             | *357                    | *142                                | *9                                      |
| Special equipment .....                                | ...                                 | ...                     | ...                                 | ...                                     |
| Other .....  | 411,793                             | 1,271                   | 324                                 | 75                                      |
| <b>OUT OF STATE</b>                                    |                                     |                         |                                     |   |
| <b>Expenditures for wildlife watching, total</b> ..... | <b>488,663</b>                      | <b>594</b>              | <b>822</b>                          | <b>89</b>                               |
| Trip-related expenditures .....                        | 405,832                             | 546                     | 743                                 | 185                                     |
| Wildlife-watching equipment .....                      | ...                                 | ...                     | ...                                 | ...                                     |
| Auxiliary equipment .....                              | ...                                 | ...                     | ...                                 | ...                                     |
| Special equipment .....                                | ...                                 | ...                     | ...                                 | ...                                     |
| Other .....  | ...                                 | ...                     | ...                                 | ...                                     |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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



**Table 37. Participation of California Resident Wildlife-Watching Participants in Fishing and Hunting: 2001**

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

| Participants                        | Total,<br>nonresidential and residential |            | Wildlife-watching activity         |            |                                  |            |
|-------------------------------------|--|------------|------------------------------------|------------|----------------------------------|------------|
|                                     |  |            | Nonresidential<br>(away from home) |            | Residential<br>(around the home) |            |
|                                     | Number                                   | Percent    | Number                             | Percent    | Number                           | Percent    |
| <b>Total participants</b> .....     | <b>5,491</b>                             | <b>100</b> | <b>2,191</b>                       | <b>100</b> | <b>4,853</b>                     | <b>100</b> |
| Wildlife-watching participants who: |  |            |                                    |            |                                  |            |
| Did not fish or hunt .....          | 4,388                                    | 80         | 1,565                              | 71         | 3,952                            | 81         |
| Fished or hunted .....              | 1,103                                    | 20         | 626                                | 29         | 901                              | 19         |
| Fished .....                        | 1,035                                    | 19         | 596                                | 27         | 850                              | 18         |
| Hunted .....                        | *130                                     | *2         | ...                                | ...        | *113                             | *2         |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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

**Table 38. Participation of California Resident Sportspersons in Wildlife-Watching Activities: 2001**

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

| Sportspersons  | Sportspersons |            | Anglers      |            | Hunters    |            |
|--|---------------|------------|--------------|------------|------------|------------|
|  | Number        | Percent    | Number       | Percent    | Number     | Percent    |
| <b>Total Sportspersons</b> .....                     | <b>2,486</b>  | <b>100</b> | <b>2,389</b> | <b>100</b> | <b>278</b> | <b>100</b> |
| Sportspersons who:                                   |               |            |              |            |            |            |
| Did not engage in wildlife-watching activities ..... | 1,383         | 56         | 1,353        | 57         | *148       | *53        |
| Engaged in wildlife-watching activities .....        | 1,103         | 44         | 1,035        | 43         | *130       | *47        |
| Nonresidential (away from home) .....                | 626           | 25         | 596          | 25         | ...        | ...        |
| Residential (around the home) .....                  | 901           | 36         | 850          | 36         | *113       | *41        |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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

**Table 39. Participants in Wildlife-Associated Recreation by Participant's State of Residence: 2001**

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

| Participant's state of residence | Population     | Total participants |                       | Sportspersons |                       | Wildlife-watching participants |                       |
|----------------------------------|----------------|--------------------|-----------------------|---------------|-----------------------|--------------------------------|-----------------------|
|                                  |                | Number             | Percent of population | Number        | Percent of population | Number                         | Percent of population |
| <b>United States, total.....</b> | <b>212,298</b> | <b>82,302</b>      | <b>39</b>             | <b>37,805</b> | <b>18</b>             | <b>66,105</b>                  | <b>31</b>             |
| Alabama .....                    | 3,427          | 1,323              | 39                    | 726           | 21                    | 965                            | 28                    |
| Alaska .....                     | 454            | 320                | 70                    | 205           | 45                    | 241                            | 53                    |
| Arizona .....                    | 3,700          | 1,296              | 35                    | 437           | 12                    | 1,107                          | 30                    |
| Arkansas .....                   | 1,999          | 1,034              | 52                    | 617           | 31                    | 774                            | 39                    |
| California .....                 | 25,982         | 6,873              | 26                    | 2,486         | 10                    | 5,491                          | 21                    |
| Colorado .....                   | 3,215          | 1,518              | 47                    | 679           | 21                    | 1,213                          | 38                    |
| Connecticut.....                 | 2,536          | 999                | 39                    | 332           | 13                    | 885                            | 35                    |
| Delaware.....                    | 599            | 220                | 37                    | 94            | 16                    | 170                            | 28                    |
| Florida .....                    | 12,171         | 3,857              | 32                    | 2,158         | 18                    | 2,856                          | 23                    |
| Georgia .....                    | 6,096          | 1,932              | 32                    | 1,136         | 19                    | 1,326                          | 22                    |
| Hawaii .....                     | 916            | 195                | 21                    | 114           | 12                    | 126                            | 14                    |
| Idaho.....                       | 972            | 507                | 52                    | 306           | 31                    | 388                            | 40                    |
| Illinois.....                    | 9,244          | 3,154              | 34                    | 1,507         | 16                    | 2,498                          | 27                    |
| Indiana .....                    | 4,558          | 2,179              | 48                    | 914           | 20                    | 1,786                          | 39                    |
| Iowa .....                       | 2,201          | 1,206              | 55                    | 580           | 26                    | 977                            | 44                    |
| Kansas .....                     | 2,017          | 942                | 47                    | 491           | 24                    | 735                            | 36                    |
| Kentucky .....                   | 3,121          | 1,547              | 50                    | 703           | 23                    | 1,264                          | 40                    |
| Louisiana .....                  | 3,306          | 1,330              | 40                    | 833           | 25                    | 844                            | 26                    |
| Maine .....                      | 1,005          | 607                | 60                    | 256           | 26                    | 520                            | 52                    |
| Maryland .....                   | 4,078          | 1,546              | 38                    | 571           | 14                    | 1,311                          | 32                    |
| Massachusetts.....               | 4,837          | 1,726              | 36                    | 521           | 11                    | 1,493                          | 31                    |
| Michigan.....                    | 7,587          | 2,950              | 39                    | 1,325         | 17                    | 2,424                          | 32                    |
| Minnesota.....                   | 3,688          | 2,388              | 65                    | 1,437         | 39                    | 1,993                          | 54                    |
| Mississippi .....                | 2,111          | 851                | 40                    | 533           | 25                    | 579                            | 27                    |
| Missouri .....                   | 4,206          | 2,010              | 48                    | 1,076         | 26                    | 1,612                          | 38                    |
| Montana .....                    | 699            | 438                | 63                    | 279           | 40                    | 362                            | 52                    |
| Nebraska.....                    | 1,266          | 623                | 49                    | 308           | 24                    | 498                            | 39                    |
| Nevada .....                     | 1,454          | 439                | 30                    | 194           | 13                    | 334                            | 23                    |
| New Hampshire.....               | 954            | 506                | 53                    | 175           | 18                    | 450                            | 47                    |
| New Jersey.....                  | 6,300          | 1,993              | 32                    | 669           | 11                    | 1,694                          | 27                    |
| New Mexico.....                  | 1,337          | 595                | 45                    | 256           | 19                    | 471                            | 35                    |
| New York.....                    | 14,201         | 3,987              | 28                    | 1,492         | 11                    | 3,522                          | 25                    |
| North Carolina.....              | 5,918          | 2,330              | 39                    | 982           | 17                    | 1,884                          | 32                    |
| North Dakota.....                | 483            | 228                | 47                    | 170           | 35                    | 135                            | 28                    |
| Ohio .....                       | 8,645          | 3,407              | 39                    | 1,513         | 17                    | 2,768                          | 32                    |
| Oklahoma .....                   | 2,587          | 1,308              | 51                    | 730           | 28                    | 1,042                          | 40                    |
| Oregon .....                     | 2,630          | 1,545              | 59                    | 611           | 23                    | 1,286                          | 49                    |
| Pennsylvania.....                | 9,303          | 4,169              | 45                    | 1,648         | 18                    | 3,522                          | 38                    |
| Rhode Island .....               | 765            | 280                | 37                    | 96            | 13                    | 242                            | 32                    |
| South Carolina.....              | 3,080          | 1,375              | 45                    | 674           | 22                    | 1,079                          | 35                    |
| South Dakota.....                | 559            | 326                | 58                    | 176           | 31                    | 251                            | 45                    |
| Tennessee.....                   | 4,317          | 2,109              | 49                    | 903           | 21                    | 1,706                          | 40                    |
| Texas.....                       | 15,445         | 4,515              | 29                    | 2,745         | 18                    | 3,088                          | 20                    |
| Utah .....                       | 1,554          | 736                | 47                    | 468           | 30                    | 572                            | 37                    |
| Vermont .....                    | 479            | 319                | 67                    | 125           | 26                    | 287                            | 60                    |
| Virginia.....                    | 5,471          | 2,535              | 46                    | 970           | 18                    | 2,168                          | 40                    |
| Washington.....                  | 4,516          | 2,537              | 56                    | 932           | 21                    | 2,234                          | 49                    |
| West Virginia.....               | 1,447          | 694                | 48                    | 353           | 24                    | 517                            | 36                    |
| Wisconsin.....                   | 4,059          | 2,489              | 61                    | 1,141         | 28                    | 2,159                          | 53                    |
| Wyoming.....                     | 377            | 223                | 59                    | 138           | 37                    | 172                            | 46                    |

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 accuracy appendix.

**Table 40. Participants in Wildlife-Associated Recreation by State Where Activity Took Place: 2001**

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

| State where activity took place  | Total participants |            | Sportspersons |           | Wildlife-watching participants |           |
|----------------------------------|--------------------|------------|---------------|-----------|--------------------------------|-----------|
|                                  | Number             | Percent    | Number        | Percent   | Number                         | Percent   |
| <b>United States, total.....</b> | <b>82,302</b>      | <b>100</b> | <b>37,805</b> | <b>46</b> | <b>66,105</b>                  | <b>80</b> |
| Alabama.....                     | 1,557              | 100        | 1,021         | 66        | 1,016                          | 65        |
| Alaska.....                      | 632                | 100        | 457           | 72        | 420                            | 67        |
| Arizona.....                     | 1,720              | 100        | 486           | 28        | 1,465                          | 85        |
| Arkansas.....                    | 1,369              | 100        | 960           | 70        | 841                            | 61        |
| California.....                  | 7,231              | 100        | 2,556         | 35        | 5,720                          | 79        |
| Colorado.....                    | 2,138              | 100        | 1,077         | 50        | 1,552                          | 73        |
| Connecticut.....                 | 1,151              | 100        | 356           | 31        | 967                            | 84        |
| Delaware.....                    | 321                | 100        | 157           | 49        | 232                            | 72        |
| Florida.....                     | 4,860              | 100        | 3,158         | 65        | 3,240                          | 67        |
| Georgia.....                     | 2,198              | 100        | 1,236         | 56        | 1,494                          | 68        |
| Hawaii.....                      | 324                | 100        | 151           | 46        | 220                            | 68        |
| Idaho.....                       | 868                | 100        | 486           | 56        | 643                            | 74        |
| Illinois.....                    | 3,390              | 100        | 1,366         | 40        | 2,627                          | 77        |
| Indiana.....                     | 2,427              | 100        | 965           | 40        | 1,866                          | 77        |
| Iowa.....                        | 1,334              | 100        | 645           | 48        | 1,022                          | 77        |
| Kansas.....                      | 1,091              | 100        | 563           | 52        | 807                            | 74        |
| Kentucky.....                    | 1,834              | 100        | 901           | 49        | 1,362                          | 74        |
| Louisiana.....                   | 1,558              | 100        | 1,059         | 68        | 935                            | 60        |
| Maine.....                       | 975                | 100        | 449           | 46        | 778                            | 80        |
| Maryland.....                    | 1,911              | 100        | 752           | 39        | 1,524                          | 80        |
| Massachusetts.....               | 1,988              | 100        | 632           | 32        | 1,686                          | 85        |
| Michigan.....                    | 3,481              | 100        | 1,659         | 48        | 2,666                          | 77        |
| Minnesota.....                   | 2,915              | 100        | 1,733         | 59        | 2,155                          | 74        |
| Mississippi.....                 | 1,017              | 100        | 720           | 71        | 631                            | 62        |
| Missouri.....                    | 2,494              | 100        | 1,382         | 55        | 1,826                          | 73        |
| Montana.....                     | 871                | 100        | 463           | 53        | 687                            | 79        |
| Nebraska.....                    | 768                | 100        | 382           | 50        | 565                            | 74        |
| Nevada.....                      | 657                | 100        | 193           | 29        | 543                            | 83        |
| New Hampshire.....               | 892                | 100        | 295           | 33        | 766                            | 86        |
| New Jersey.....                  | 2,345              | 100        | 855           | 36        | 1,895                          | 81        |
| New Mexico.....                  | 884                | 100        | 379           | 43        | 671                            | 76        |
| New York.....                    | 4,620              | 100        | 1,760         | 38        | 3,885                          | 84        |
| North Carolina.....              | 2,882              | 100        | 1,386         | 48        | 2,168                          | 75        |
| North Dakota.....                | 322                | 100        | 259           | 81        | 190                            | 59        |
| Ohio.....                        | 3,658              | 100        | 1,540         | 42        | 2,897                          | 79        |
| Oklahoma.....                    | 1,529              | 100        | 838           | 55        | 1,131                          | 74        |
| Oregon.....                      | 2,051              | 100        | 761           | 37        | 1,680                          | 82        |
| Pennsylvania.....                | 4,570              | 100        | 1,783         | 39        | 3,794                          | 83        |
| Rhode Island.....                | 399                | 100        | 181           | 45        | 298                            | 75        |
| South Carolina.....              | 1,666              | 100        | 922           | 55        | 1,186                          | 71        |
| South Dakota.....                | 518                | 100        | 349           | 67        | 358                            | 69        |
| Tennessee.....                   | 2,671              | 100        | 1,062         | 40        | 2,084                          | 78        |
| Texas.....                       | 4,949              | 100        | 2,857         | 58        | 3,240                          | 65        |
| Utah.....                        | 1,091              | 100        | 585           | 54        | 806                            | 74        |
| Vermont.....                     | 569                | 100        | 211           | 37        | 496                            | 87        |
| Virginia.....                    | 3,001              | 100        | 1,137         | 38        | 2,460                          | 82        |
| Washington.....                  | 2,970              | 100        | 1,024         | 34        | 2,496                          | 84        |
| West Virginia.....               | 843                | 100        | 444           | 53        | 605                            | 72        |
| Wisconsin.....                   | 3,165              | 100        | 1,611         | 51        | 2,442                          | 77        |
| Wyoming.....                     | 662                | 100        | 373           | 56        | 498                            | 75        |

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 accuracy appendix.

**Table 41. Anglers and Hunters by State Where Fishing or Hunting Took Place: 2001**

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

| State where fishing or hunting took place | Anglers                                   |            |               |           |              |           | Hunters                                   |            |               |           |              |           |
|---|---|------------|---------------|-----------|--------------|-----------|---|------------|---------------|-----------|--------------|-----------|
|   | Total anglers, residents and nonresidents |            | Residents     |           | Nonresidents |           | Total hunters, residents and nonresidents |            | Residents     |           | Nonresidents |           |
|   | Number                                    | Percent    | Number        | Percent   | Number       | Percent   | Number                                    | Percent    | Number        | Percent   | Number       | Percent   |
| <b>United States, total . . . . .</b>     | <b>34,071</b>                             | <b>100</b> | <b>31,218</b> | <b>92</b> | <b>7,880</b> | <b>23</b> | <b>13,034</b>                             | <b>100</b> | <b>12,377</b> | <b>95</b> | <b>2,027</b> | <b>16</b> |
| Alabama . . . . .                         | 851                                       | 100        | 610           | 72        | 241          | 28        | 423                                       | 100        | 307           | 73        | 116          | 27        |
| Alaska . . . . .                          | 421                                       | 100        | 183           | 43        | 239          | 57        | 93  | 100        | 72            | 77        | *21          | *23       |
| Arizona . . . . .                         | 419                                       | 100        | 351           | 84        | 68           | 16        | 148                                       | 100        | 119           | 81        | *28          | *19       |
| Arkansas . . . . .                        | 782                                       | 100        | 539           | 69        | 243          | 31        | 431                                       | 100        | 303           | 70        | 128          | 30        |
| California . . . . .                      | 2,444                                     | 100        | 2,288         | 94        | 156          | 6         | 274                                       | 100        | 261           | 95        | *12          | *5        |
| Colorado . . . . .                        | 915                                       | 100        | 560           | 61        | 357          | 39        | 281                                       | 100        | 159           | 57        | 121          | 43        |
| Connecticut . . . . .                     | 346                                       | 100        | 271           | 78        | 75           | 22        | 45  | 100        | *35           | *77       | ...          | ...       |
| Delaware . . . . .                        | 148                                       | 100        | 71            | 47        | *78          | *53       | 16  | 100        | 13            | 81        | ...          | ...       |
| Florida . . . . .                         | 3,104                                     | 100        | 2,057         | 66        | 1,047        | 34        | 226                                       | 100        | 191           | 84        | *35          | *16       |
| Georgia . . . . .                         | 1,086                                     | 100        | 947           | 87        | 139          | 13        | 417                                       | 100        | 355           | 85        | *62          | *15       |
| Hawaii . . . . .                          | 150                                       | 100        | 109           | 73        | *41          | *27       | 17  | 100        | 17            | 100       | ...          | ...       |
| Idaho . . . . .                           | 416                                       | 100        | 251           | 60        | 165          | 40        | 197                                       | 100        | 150           | 76        | 47           | 24        |
| Illinois . . . . .                        | 1,237                                     | 100        | 1,157         | 94        | 80           | 6         | 310                                       | 100        | 246           | 79        | *64          | *21       |
| Indiana . . . . .                         | 874                                       | 100        | 784           | 90        | 90           | 10        | 290                                       | 100        | 269           | 93        | ...          | ...       |
| Iowa . . . . .                            | 542                                       | 100        | 471           | 87        | 70           | 13        | 243                                       | 100        | 195           | 80        | *48          | *20       |
| Kansas . . . . .                          | 404                                       | 100        | 357           | 88        | *47          | *12       | 291                                       | 100        | 189           | 65        | 103          | 35        |
| Kentucky . . . . .                        | 780                                       | 100        | 590           | 76        | 190          | 24        | 323                                       | 100        | 269           | 83        | *54          | *17       |
| Louisiana . . . . .                       | 970                                       | 100        | 757           | 78        | 213          | 22        | 333                                       | 100        | 295           | 89        | *38          | *11       |
| Maine . . . . .                           | 376                                       | 100        | 212           | 56        | 165          | 44        | 164                                       | 100        | 123           | 75        | 41           | 25        |
| Maryland . . . . .                        | 701                                       | 100        | 457           | 65        | 243          | 35        | 145                                       | 100        | 115           | 80        | *30          | *20       |
| Massachusetts . . . . .                   | 615                                       | 100        | 425           | 69        | 191          | 31        | 66  | 100        | 64            | 97        | ...          | ...       |
| Michigan . . . . .                        | 1,354                                     | 100        | 1,002         | 74        | 352          | 26        | 754                                       | 100        | 705           | 94        | *48          | *6        |
| Minnesota . . . . .                       | 1,624                                     | 100        | 1,293         | 80        | 331          | 20        | 597                                       | 100        | 568           | 95        | *29          | *5        |
| Mississippi . . . . .                     | 586                                       | 100        | 450           | 77        | 136          | 23        | 357                                       | 100        | 245           | 69        | 111          | 31        |
| Missouri . . . . .                        | 1,215                                     | 100        | 942           | 78        | 272          | 22        | 489                                       | 100        | 405           | 83        | 84           | 17        |
| Montana . . . . .                         | 349                                       | 100        | 212           | 61        | 138          | 39        | 229                                       | 100        | 170           | 74        | 59           | 26        |
| Nebraska . . . . .                        | 296                                       | 100        | 241           | 81        | 55           | 19        | 173                                       | 100        | 124           | 72        | *49          | *28       |
| Nevada . . . . .                          | 172                                       | 100        | 119           | 69        | *53          | *31       | 47  | 100        | 42            | 90        | ...          | ...       |
| New Hampshire . . . . .                   | 267                                       | 100        | 147           | 55        | 119          | 45        | 78  | 100        | 52            | 67        | *26          | *33       |
| New Jersey . . . . .                      | 806                                       | 100        | 531           | 66        | 275          | 34        | 135                                       | 100        | 108           | 80        | ...          | ...       |
| New Mexico . . . . .                      | 314                                       | 100        | 197           | 63        | *116         | *37       | 130                                       | 100        | 105           | 80        | *26          | *20       |
| New York . . . . .                        | 1,550                                     | 100        | 1,243         | 80        | 307          | 20        | 714                                       | 100        | 635           | 89        | 79           | 11        |
| North Carolina . . . . .                  | 1,287                                     | 100        | 831           | 65        | 456          | 35        | 295                                       | 100        | 272           | 92        | *23          | *8        |
| North Dakota . . . . .                    | 179                                       | 100        | 119           | 67        | *59          | *33       | 139                                       | 100        | 87            | 63        | *52          | *37       |
| Ohio . . . . .                            | 1,371                                     | 100        | 1,225         | 89        | 146          | 11        | 490                                       | 100        | 452           | 92        | *38          | *8        |
| Oklahoma . . . . .                        | 774                                       | 100        | 648           | 84        | 126          | 16        | 261                                       | 100        | 241           | 92        | *20          | *8        |
| Oregon . . . . .                          | 687                                       | 100        | 513           | 75        | 174          | 25        | 248                                       | 100        | 234           | 94        | *15          | *6        |
| Pennsylvania . . . . .                    | 1,266                                     | 100        | 1,032         | 82        | 234          | 18        | 1,000                                     | 100        | 858           | 86        | 142          | 14        |
| Rhode Island . . . . .                    | 179                                       | 100        | 86            | 48        | 93           | 52        | *9  | *100       | *7            | *83       | ...          | ...       |
| South Carolina . . . . .                  | 812                                       | 100        | 571           | 70        | 241          | 30        | 265                                       | 100        | 221           | 83        | *44          | *17       |
| South Dakota . . . . .                    | 214                                       | 100        | 140           | 65        | 75           | 35        | 209                                       | 100        | 90            | 43        | 119          | 57        |
| Tennessee . . . . .                       | 903                                       | 100        | 709           | 79        | 194          | 21        | 359                                       | 100        | 288           | 80        | 71           | 20        |
| Texas . . . . .                           | 2,372                                     | 100        | 2,151         | 91        | 221          | 9         | 1,201                                     | 100        | 1,101         | 92        | 100          | 8         |
| Utah . . . . .                            | 517                                       | 100        | 388           | 75        | 129          | 25        | 198                                       | 100        | 177           | 89        | *22          | *11       |
| Vermont . . . . .                         | 171                                       | 100        | 96            | 56        | 75           | 44        | 100                                       | 100        | 74            | 74        | *26          | *26       |
| Virginia . . . . .                        | 1,010                                     | 100        | 761           | 75        | 248          | 25        | 355                                       | 100        | 279           | 79        | *75          | *21       |
| Washington . . . . .                      | 938                                       | 100        | 808           | 86        | 130          | 14        | 227                                       | 100        | 210           | 92        | ...          | ...       |
| West Virginia . . . . .                   | 318                                       | 100        | 250           | 79        | *67          | *21       | 284                                       | 100        | 229           | 81        | *55          | *19       |
| Wisconsin . . . . .                       | 1,412                                     | 100        | 941           | 67        | 471          | 33        | 660                                       | 100        | 588           | 89        | *72          | *11       |
| Wyoming . . . . .                         | 293                                       | 100        | 117           | 40        | 176          | 60        | 133                                       | 100        | 65            | 49        | 68           | 51        |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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

# *Appendix A*



# Appendix A.

## Definitions

**Annual household income**—Total 2001 income of household members before taxes and other deductions.

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

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

**Birding life list**—A tally of bird species seen during a birder's lifetime.

### Census Divisions

#### East North Central

Illinois  
Indiana  
Michigan  
Ohio  
Wisconsin

#### East South Central

Alabama  
Kentucky  
Mississippi  
Tennessee

#### Middle Atlantic

New Jersey  
New York  
Pennsylvania

#### Mountain

Arizona  
Colorado  
Idaho  
Montana  
Nevada  
New Mexico

Utah  
Wyoming

#### New England

Connecticut  
Maine  
Massachusetts  
New Hampshire  
Rhode Island  
Vermont

#### Pacific

Alaska  
California  
Hawaii  
Oregon  
Washington

#### South Atlantic

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

#### West North Central

Kansas  
Iowa  
Minnesota  
Missouri  
Nebraska  
North Dakota  
South Dakota

#### West South Central

Arkansas  
Louisiana  
Oklahoma  
Texas

**Day**—Any part of a day spent in a given activity. For example, if someone hunted 2 hours 1 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 2001 for wildlife-related recreation trips in the United States and wildlife-related recreational equipment purchased in the United States. 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, bow and arrow, or spear; it also includes catching or gathering shellfish (clams, crabs, etc.); and the noncommercial seining or netting of fish, unless the fish are for use as bait. For example, seining for smelt is fishing, but seining for bait minnows is not included as fishing.

**Fishing equipment**—Items owned primarily for fishing. These items are listed in Table 19.

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

**Great Lakes fishing**—Fishing in Lakes Superior, Michigan, Huron, St. Clair, Erie, and Ontario, their connecting waters such as the St. Marys 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 20.

**Local land**—Public land owned by local government 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.

**Metropolitan statistical area (MSA)**—Except in the New England States, an MSA is a county or group of contiguous counties containing at least one city of 50,000 or more inhabitants or twin cities (i.e., cities with contiguous boundaries and constituting, for general social and economic purposes, a single community) with a combined population of at least 50,000. Also included in an MSA are contiguous counties that are socially and economically integrated with the central city. In the New England States, an MSA consists of towns and cities instead of counties. Each MSA must include at least one central city.

**Migratory birds**—Birds that regularly migrate from one region or climate to another. The survey focuses on migratory birds which may be hunted, including bandtailed pigeons, coots, ducks, doves, gallinules, geese, rails, and woodcocks.

**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 over state 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.

**Nonresidential activity (away from home)**—Trips or outings at least 1 mile from home for the primary purpose of observing, photographing, or feeding wildlife. Trips to zoos, circuses, aquariums, and museums are not included.

**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. Nonresponses result in reported totals that are greater than the sum of their parts.

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

**Other animals**—Coyotes, crows, foxes, groundhogs, prairie dogs, raccoons, and similar animals that 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 engaged in fishing, hunting, or a wildlife-watching activity.

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

**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.

**Residential activity (around the home)**—Activity within 1 mile of home with a primary purpose: (1) closely observing or trying to identify birds or other wildlife, (2) photographing wildlife, (3) feeding birds or other wildlife, (4) maintaining natural areas of at least one-quarter acre primarily for the benefit to wildlife, (5) maintaining plantings (shrubs, agricultural crops, etc.) primarily for the benefit of wildlife, or (6) visiting public parks within 1 mile of home to observe, photograph, or feed wildlife.

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

**Rural**—Respondent lived in a rural nonfarm, or rural farm area, as determined by Census.

**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 with a household representative in each household to identify respondents who are eligible for indepth interviews. Screening interviews gather 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 that are owned primarily for wildlife-related recreation. These include for the sportsmen section bass boat and other types of motor boat; canoe and other types of nonmotor boat; boat motor, boat trailer/hitch, and other boat accessories; pickup, camper, van, travel or tent trailer, motor home, house trailer, RV, cabin; and trail bike, dune buggy, 4x4 vehicle, four-wheeler, and snowmobile. For the wildlife-watching section these include off-the-road vehicles such as snowmobiles, four-wheeler, 4x4 vehicle, trail bike, dune buggy, travel or tent trailer, motor home, pickup, camper, van,

house trailer, RV, boat and boat accessories, and cabin.

**Spenders**—Individuals who reported an expenditure value for fishing, hunting, or wildlife-watching activities or equipment.

**Sportspersons**—Individuals who engaged 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 wildlife-watching 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. 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**—Respondent lived in an urban area, as determined by the U.S. Census Bureau.

**Wildlife**—Animals such as birds, fish, insects, mammals, amphibians, and reptiles that are living in natural or wild environments. Wildlife does not include

animals living in aquariums, zoos, and other artificial surroundings or domestic animals such as farm animals or pets.

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

**Wildlife-watching activity**—An activity engaged in primarily for the purpose of feeding, photographing, or observing fish or other wildlife. In previous years, this was termed nonconsumptive activity. (See also residential and nonresidential activities.)

**Wildlife-watching equipment**—Items owned primarily for observing, photographing, or feeding wildlife. These items are listed in Table 33.



# *Appendix B*



# Appendix B.

## National and Regional 1991-2001 Comparisons

Appendix B provides national and regional trend information based on the 1991, 1996, and 2001 Surveys. Since all three surveys used similar methodologies, their published information is directly comparable.

### Fishing and Hunting

Comparing national hunting and fishing estimates for the 1991, 1996, and 2001 Surveys found participation declined over that 10-year time period. In 1991 and 1996, the number of people who hunted and fished remained essentially unchanged. In 2001, the overall number of people who hunted and fished declined from their 1991/1996 levels. In 1991, there were 35.6 million anglers and 14.1 million hunters. In 1996, there were 35.2 million anglers and 14.0 million hunters. In 2001, there were 34.1 million anglers—a 4 percent drop from its 1991 level, and 13.0 million hunters—a 7 percent drop from 1991.

The amount of time people spent fishing and hunting fluctuated between 1991 and 2001. The number of days spent fishing rose 22 percent between 1991 and 1996 and then fell 11 percent between 1996 and 2001. Days of hunting followed a similar pattern. Between 1991 and 1996, hunting days increased 9 percent but then fell 11 percent between 1996 and 2001.

The amount of money spent for fishing and hunting trips and equipment rose from 1991 to 1996 and fell from 1996 to 2001. Total fishing expenditures rose 37 percent from \$31.2 billion in 1991 to \$42.7 billion in 1996; and, then fell 17 percent to \$35.6 billion in 2001. Likewise, hunting expenditures increased from \$16.0 billion in 1991 to \$23.3 billion in 1996—45 percent increase—and then fell 12 percent to \$20.6 billion in 2001.

### Wildlife Watching

Comparing the results from the last three surveys finds different trends for various

types of wildlife watching. The number of wildlife watchers decreased 17 percent from 1991 to 1996 and increased 5 percent from 1996 to 2001—with 76.1 million participants in 1991, 62.9 million in 1996, and 66.1 million in 2001. Residential wildlife watching, the preeminent type of wildlife watching, lead this trend with an 18 percent drop from 1991 to 1996 and a 4 percent increase from 1996 to 2001. Unlike residential wildlife watching, nonresidential wildlife watching dropped throughout the '90s and early '00s with a 21 percent drop from 1991 to 1996 and an 8 percent drop from 1996 to 2001. Days afield by participants tended upward, counter to the trend in participation, although the increase is not statistically significant. Total expenditures for wildlife watching increased 21 percent from 1991 to 1996 and 16 percent from 1996 to 2001, making an overall increase of 41 percent from 1991 to 2001.

### Differences in the 1991, 1996, and 2001 Surveys

The 1996 and 2001 Surveys underwent a number of changes in order to improve data collection, lower costs, and meet the data needs of its users. The most significant design differences in the three surveys are as follows:

1. The 1991 Survey data was collected by interviewers filling out paper questionnaires. The data entries were keyed in a separate operation after the interview. The 1996 and 2001 survey data were collected by the use of computer-assisted interviews. The questionnaires were programmed into computers, and interviewers keyed in the responses at the time of the interview.
2. The 1991 Survey screening phase was conducted in January and February of 1991, when the sample households were contacted and a household respondent was

interviewed on behalf of the entire household. The 1991 screening interview consisted primarily of sociodemographic questions and wildlife-related recreation questions concerning activity in the year 1990 and intentions for the year 1991. The screening interviews for the 1996 and 2001 Surveys were conducted April through June of their survey years in conjunction with the first wave of the detailed interviews. The screening interviews consisted primarily of sociodemographic questions and wildlife-related recreation questions concerning activity in the previous year (1995 or 2000) and intentions for the survey year (1996 or 2001).

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

### Important instrument differences in the 1991, 1996, and 2001 Surveys

1. The 1991 Survey collected information on all wildlife-related recreation purchases made by participants without reference to where the purchase was made. The 1996 and 2001 Surveys asked in which state the purchase was made.
2. In 1991, respondents were asked what kind of fishing they did, i.e., Great Lakes, other freshwater, or saltwater, and then were asked in what states they fished. In 1996 and 2001, respondents were asked in which states they fished and then were asked the pertinent kind of fishing questions. This method had the advantage of not asking about,

for example, saltwater fishing when they only fished in a noncoastal state. In 1991, respondents were asked how many days they "actually" hunted or fished for a particular type of game or fish and then how many days they "chiefly" hunted or fished for the same type of game or fish rather than another type of game or fish. To get total days of hunting or fishing for a particular type of game or fish, the "actually" day response was used, while to get the sum of all days of hunting or fishing, the "chiefly" days were summed. In 1996 and 2001, respondents were asked their total days of hunting or fishing in the United States and each state, then how many days they hunted or fished for a particular type of game or fish.

Trip-related and equipment expenditure categories were not the same for all Surveys. "Guide fee" and "Pack trip or package fee" were two separate trip-related expenditure items in 1991, while they were combined into one category in the 1996 and 2001 Surveys. "Boating costs" was added to the 1996 and 2001 hunting and wildlife-watching trip-related expenditure sections. "Heating and cooking fuel" was added to all of the trip-related expenditure sections. "Spearfishing equipment" was moved from a separate category to the "Other" list. "Rods" and "Reels" were two separate categories in 1991 but were combined in 1996 and 2001. "Lines, hooks, sinkers, etc." was one category in 1991 but split into "Lines" and "Hooks, sinkers, etc." in 1996 and 2001. "Food used to feed other wildlife" was added to the wildlife-watching equipment section, "Boats" and "Cabins" were added to the wildlife-watching special equipment section, and "Land leasing and ownership" was added to the wildlife-watching expenditures section.

5. Questions asking sportspersons if they participated as much as they wanted were added in 1996 and 2001. If the sportspersons said no, they were asked why not.

6. The 1991 Survey included questions about participation in organized fishing competitions; anglers using bows and arrows, nets or seines, or spearfishing; hunters using pistols or handguns and target shooting in preparation for hunting. These questions were not asked in 1996 and 2001.
7. The 1996 Survey included questions about catch and release fishing and persons with disabilities participating in wildlife-related recreation. These questions were not part of the 1991 Survey. The 2001 Survey included questions about persons with disabilities participating in wildlife-related recreation but not about catch and release fishing.
8. The 1991 Survey included questions about average distance traveled to recreation sites. These questions were not included in the 1996 and 2001 Surveys.
9. The 1996 Survey included questions about the last trip the respondent took. Included were questions about the type of trip, where the activity took place, and the distance and direction to the site visited. These questions were not asked in 2001.
10. The 1991 Survey collected data on hunting, fishing, and wildlife watching by U.S. residents in Canada. The 1996 and 2001 Surveys collected data on fishing and wildlife-watching by U.S. residents in Canada.

#### Important instrument changes in the 2001 Survey

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

2. The 1991 and 1996 land leasing and ownership sections asked the respondent to combine the two types of land use into one and give total acreage and expenditures. In 2001, the two types of land use were explored separately.
3. The 1991 and 1996 wildlife watching sections included questions on birdwatching for residential users only. The 2001 Survey added a question on birdwatching for nonresidential users. Also, questions on the use of birding life lists and how many species the respondent can identify were added in 2001.
4. "Recreational vehicles" was added to the sportspersons and wildlife watchers special equipment section in 2001. "House trailer" was added to the sportspersons special equipment section.
5. Total personal income was asked in the detailed phase of the 1996 Survey. This was changed to total household income in the 2001 Survey.
6. A question was added to the trip-related expenditures section in the 2001 Survey to ascertain how much of the total was spent in the respondent's state of residence when the respondent participated in hunting, fishing, or wildlife watching out-of-state.
7. Boating questions were added to the 2001 Surveys fishing section. The respondent was asked about the extent of boat usage for the three types of fishing.
8. The 1996 Survey included questions about the months residential wildlife watchers fed birds. These questions were not repeated in the 2001 Survey.
9. The contingent valuation sections of the three types of wildlife-related recreation were altered, using an open-ended question format instead of 1996's dichotomous choice format.

**Table B-1. Comparison of Wildlife-Related Recreation in the United States: 1991 to 2001**

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

| Participants, days, and expenditures  | 1991<br>(Number) | 2001<br>(Number) | 1991-2001<br>(Percent<br>change) | 1996<br>(Number) | 2001<br>(Number) | 1996-2001<br>(Percent<br>change) |
|---|------------------|------------------|----------------------------------|------------------|------------------|----------------------------------|
| <b>Hunting</b>  |                  |                  |                                  |                  |                  |                                  |
| Hunters, total . . . . .  | 14,063           | 13,034           | -7                               | 13,975           | 13,034           | -7                               |
| Hunting days, total . . . . .   | 235,806          | 228,368          | -3*                              | 256,676          | 228,368          | -11                              |
| Hunting expenditures, total (2001 dollars) <sup>1</sup> . . . . .           | \$16,031,197     | \$20,611,025     | 29                               | \$23,293,156     | \$20,611,025     | -12*                             |
| <b>Fishing</b>  |                  |                  |                                  |                  |                  |                                  |
| Anglers, total . . . . .  | 35,578           | 34,067           | -4                               | 35,246           | 34,067           | -3                               |
| Fishing days, total . . . . .   | 511,329          | 557,394          | 9                                | 625,893          | 557,394          | -11                              |
| Fishing expenditures, total (2001 dollars) <sup>1</sup> . . . . .           | \$31,175,168     | \$35,632,132     | 14                               | \$42,710,679     | \$35,632,132     | -17                              |
| <b>Wildlife Watching</b>  |                  |                  |                                  |                  |                  |                                  |
| Total wildlife watching . . . . .   | 76,111           | 66,105           | -13                              | 62,868           | 66,105           | 5                                |
| Residential . . . . .   | 73,904           | 62,928           | -15                              | 60,751           | 62,928           | 4                                |
| Nonresidential . . . . .  | 29,999           | 21,823           | -27                              | 23,652           | 21,823           | -8                               |
| Days, nonresidential . . . . .  | 342,406          | 372,006          | 9*                               | 313,790          | 372,006          | 19                               |
| Wildlife-watching expenditures, total (2001 dollars) <sup>1</sup> . . . . . | \$24,002,990     | \$33,730,868     | 41                               | \$29,062,524     | \$33,730,868     | 16                               |

\* Not different from zero at the 5 percent confidence level.

<sup>1</sup>All 2001 and 1996 expenditure categories are adjusted to make them comparable to 1991.

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

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

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

**Table B-3. Wildlife-Watching (Nonconsumptive) Participants by Census Division: 1991, 1996, and 2001**

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

| Wildlife watching                        | 1991    |         | 1996    |         | 2001    |         |
|--|---------|---------|---------|---------|---------|---------|
|  | Number  | Percent | Number  | Percent | Number  | Percent |
| <b>UNITED STATES</b>                     |         |         |         |         |         |         |
| Total population . . . . .               | 189,964 | 100     | 201,472 | 100     | 212,298 | 100     |
| Wildlife-watching participants . . . . . | 76,111  | 40      | 62,868  | 31      | 66,105  | 31      |
| Nonresidential . . . . .                 | 29,999  | 16      | 23,652  | 12      | 21,823  | 10      |
| Residential . . . . .                    | 73,904  | 39      | 60,751  | 30      | 62,928  | 30      |
| <b>New England</b>                       |         |         |         |         |         |         |
| Total population . . . . .               | 10,180  | 100     | 10,306  | 100     | 10,575  | 100     |
| Wildlife-watching participants . . . . . | 4,598   | 45      | 3,710   | 36      | 3,875   | 37      |
| Nonresidential . . . . .                 | 1,856   | 18      | 1,443   | 14      | 1,155   | 11      |
| Residential . . . . .                    | 4,544   | 45      | 3,586   | 35      | 3,765   | 36      |
| <b>Middle Atlantic</b>                   |         |         |         |         |         |         |
| Total population . . . . .               | 29,216  | 100     | 29,371  | 100     | 29,806  | 100     |
| Wildlife-watching participants . . . . . | 10,556  | 36      | 8,185   | 28      | 8,740   | 29      |
| Nonresidential . . . . .                 | 4,166   | 14      | 2,960   | 10      | 2,849   | 10      |
| Residential . . . . .                    | 10,282  | 35      | 8,023   | 27      | 8,452   | 28      |
| <b>East North Central</b>                |         |         |         |         |         |         |
| Total population . . . . .               | 32,188  | 100     | 33,121  | 100     | 34,082  | 100     |
| Wildlife-watching participants . . . . . | 14,511  | 45      | 11,731  | 35      | 11,631  | 34      |
| Nonresidential . . . . .                 | 5,572   | 17      | 4,501   | 14      | 3,571   | 10      |
| Residential . . . . .                    | 14,175  | 44      | 11,297  | 34      | 11,196  | 33      |
| <b>West North Central</b>                |         |         |         |         |         |         |
| Total population . . . . .               | 13,504  | 100     | 13,875  | 100     | 14,430  | 100     |
| Wildlife-watching participants . . . . . | 6,924   | 51      | 5,089   | 37      | 6,206   | 43      |
| Nonresidential . . . . .                 | 2,654   | 20      | 1,927   | 14      | 2,059   | 14      |
| Residential . . . . .                    | 6,722   | 50      | 4,900   | 35      | 5,938   | 41      |
| <b>South Atlantic</b>                    |         |         |         |         |         |         |
| Total population . . . . .               | 33,682  | 100     | 36,776  | 100     | 39,286  | 100     |
| Wildlife-watching participants . . . . . | 13,047  | 39      | 11,252  | 31      | 11,395  | 29      |
| Nonresidential . . . . .                 | 4,450   | 13      | 3,992   | 11      | 3,469   | 9       |
| Residential . . . . .                    | 12,813  | 38      | 10,964  | 30      | 10,911  | 28      |
| <b>East South Central</b>                |         |         |         |         |         |         |
| Total population . . . . .               | 11,667  | 100     | 12,459  | 100     | 12,976  | 100     |
| Wildlife-watching participants . . . . . | 4,864   | 42      | 3,904   | 31      | 4,514   | 35      |
| Nonresidential . . . . .                 | 1,592   | 14      | 1,118   | 9       | 1,086   | 8       |
| Residential . . . . .                    | 4,765   | 41      | 3,795   | 30      | 4,390   | 34      |
| <b>West South Central</b>                |         |         |         |         |         |         |
| Total population . . . . .               | 19,926  | 100     | 21,811  | 100     | 23,337  | 100     |
| Wildlife-watching participants . . . . . | 7,035   | 35      | 5,933   | 27      | 5,747   | 25      |
| Nonresidential . . . . .                 | 2,459   | 12      | 2,096   | 10      | 1,822   | 8       |
| Residential . . . . .                    | 6,817   | 34      | 5,773   | 26      | 5,490   | 24      |
| <b>Mountain</b>                          |         |         |         |         |         |         |
| Total population . . . . .               | 10,092  | 100     | 11,966  | 100     | 13,308  | 100     |
| Wildlife-watching participants . . . . . | 4,437   | 44      | 4,099   | 34      | 4,619   | 35      |
| Nonresidential . . . . .                 | 2,215   | 22      | 1,967   | 16      | 2,019   | 15      |
| Residential . . . . .                    | 4,145   | 41      | 3,855   | 32      | 4,282   | 32      |
| <b>Pacific</b>                           |         |         |         |         |         |         |
| Total population . . . . .               | 29,508  | 100     | 31,787  | 100     | 34,498  | 100     |
| Wildlife-watching participants . . . . . | 10,139  | 34      | 8,966   | 28      | 9,377   | 27      |
| Nonresidential . . . . .                 | 5,035   | 17      | 3,648   | 11      | 3,793   | 11      |
| Residential . . . . .                    | 9,641   | 33      | 8,558   | 27      | 8,504   | 25      |

# *Appendix C*



# Appendix C.

## Participants 6 to 15 Years Old

The 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was carried out in two phases. The first (or screening) phase began in April 2001. 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 wildlife-watching 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 2000. 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 reported here from the 2001 screening questionnaires relates to activity only up to and including 2000.

Also, these data were based on long-term recall (at least 12-month recall was required for most of these tables) and were reported, in most cases, by one household respondent speaking for all household members rather than the shorter term recall of the actual participant, as in the case of the 2001 detailed phase.

Tables C-1 to C-3 report data on participants 6 to 15 years old in 2000. Detailed expenditures and recreational activity data were not gathered for the 6- to 15-year-old participants.

Because of the difference in methodologies of the screening phase and the detailed phase of the 2001 Survey, the data 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. The screening interviews were 1-year recall. The shorter recall period of the detailed phase had better 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 C-1. California Residents 6 to 15 Years Old Participating in Fishing and Hunting: 2000**

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

| Sportspersons                    | Sportspersons 6 to 15 years old |                          |                       |
|----------------------------------|---------------------------------|--------------------------|-----------------------|
|                                  | Number                          | Percent of sportspersons | Percent of population |
| <b>Total sportspersons</b> ..... | <b>1,145</b>                    | <b>100</b>               | <b>22</b>             |
| <b>Total anglers</b> .....       | <b>1,145</b>                    | <b>100</b>               | <b>22</b>             |
| Fished only .....                | 1,099                           | 96                       | 21                    |
| Fished and hunted .....          | ...                             | ...                      | ...                   |
| <b>Total hunters</b> .....       | ...                             | ...                      | ...                   |
| Hunted only .....                | ...                             | ...                      | ...                   |
| Hunted and fished .....          | ...                             | ...                      | ...                   |

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

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

**Table C-2. Selected Characteristics of California Resident Anglers and Hunters 6 to 15 Years Old: 2000**

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

| Characteristic                             | Population   |            | Sportspersons<br>(fished or hunted) |                          |                          | Anglers      |                          |                    | Hunters |                          |                    |
|--|--------------|------------|-------------------------------------|--------------------------|--------------------------|--------------|--------------------------|--------------------|---------|--------------------------|--------------------|
|  | Number       | Percent    | Number                              | Percent who participated | Percent of sportspersons | Number       | Percent who participated | Percent of anglers | Number  | Percent who participated | Percent of hunters |
| <b>Total persons</b> .....                 | <b>5,239</b> | <b>100</b> | <b>1,145</b>                        | <b>22</b>                | <b>100</b>               | <b>1,145</b> | <b>22</b>                | <b>100</b>         | ...     | ...                      | ...                |
| <b>Population Density of Residence</b>     |              |            |                                     |                          |                          |              |                          |                    |         |                          |                    |
| Urban .....                                | 4,772        | 91         | 987                                 | 21                       | 86                       | 987          | 21                       | 86                 | ...     | ...                      | ...                |
| Rural .....                                | 467          | 9          | *159                                | *34                      | *14                      | *159         | *34                      | *14                | ...     | ...                      | ...                |
| <b>Population Size of Residence</b>        |              |            |                                     |                          |                          |              |                          |                    |         |                          |                    |
| Metropolitan statistical areas (MSA) ..... | 5,210        | 99         | 1,131                               | 22                       | 99                       | 1,131        | 22                       | 99                 | ...     | ...                      | ...                |
| 1,000,000 or more .....                    | 4,130        | 79         | 871                                 | 21                       | 76                       | 871          | 21                       | 76                 | ...     | ...                      | ...                |
| 250,000 to 999,999 .....                   | 639          | 12         | *136                                | *21                      | *12                      | *136         | *21                      | *12                | ...     | ...                      | ...                |
| 50,000 to 249,999 .....                    | 441          | 8          | *123                                | *28                      | *11                      | *123         | *28                      | *11                | ...     | ...                      | ...                |
| Outside MSA .....                          | ...          | ...        | ...                                 | ...                      | ...                      | ...          | ...                      | ...                | ...     | ...                      | ...                |
| <b>Sex</b>                                 |              |            |                                     |                          |                          |              |                          |                    |         |                          |                    |
| Male .....                                 | 2,685        | 51         | 805                                 | 30                       | 70                       | 805          | 30                       | 70                 | ...     | ...                      | ...                |
| Female .....                               | 2,554        | 49         | 340                                 | 13                       | 30                       | 340          | 13                       | 30                 | ...     | ...                      | ...                |
| <b>Age</b>                                 |              |            |                                     |                          |                          |              |                          |                    |         |                          |                    |
| 6 to 8 years .....                         | 1,503        | 29         | 329                                 | 22                       | 29                       | 329          | 22                       | 29                 | ...     | ...                      | ...                |
| 9 to 11 years .....                        | 1,687        | 32         | 356                                 | 21                       | 31                       | 356          | 21                       | 31                 | ...     | ...                      | ...                |
| 12 to 15 years .....                       | 2,049        | 39         | 461                                 | 22                       | 40                       | 461          | 22                       | 40                 | ...     | ...                      | ...                |
| <b>Ethnicity</b>                           |              |            |                                     |                          |                          |              |                          |                    |         |                          |                    |
| Hispanic .....                             | 1,985        | 38         | 301                                 | 15                       | 26                       | 301          | 15                       | 26                 | ...     | ...                      | ...                |
| Non-Hispanic .....                         | 3,255        | 62         | 845                                 | 26                       | 74                       | 845          | 26                       | 74                 | ...     | ...                      | ...                |
| <b>Race</b>                                |              |            |                                     |                          |                          |              |                          |                    |         |                          |                    |
| White .....                                | 4,266        | 81         | 981                                 | 23                       | 86                       | 981          | 23                       | 86                 | ...     | ...                      | ...                |
| Black .....                                | 369          | 7          | ...                                 | ...                      | ...                      | ...          | ...                      | ...                | ...     | ...                      | ...                |
| All others .....                           | 605          | 12         | *121                                | *20                      | *11                      | *121         | *20                      | *11                | ...     | ...                      | ...                |
| <b>Annual Household Income</b>             |              |            |                                     |                          |                          |              |                          |                    |         |                          |                    |
| Less than \$10,000 .....                   | 265          | 5          | ...                                 | ...                      | ...                      | ...          | ...                      | ...                | ...     | ...                      | ...                |
| \$10,000 to \$19,999 .....                 | 434          | 8          | *70                                 | *16                      | *6                       | *70          | *16                      | *6                 | ...     | ...                      | ...                |
| \$20,000 to \$29,999 .....                 | 847          | 16         | *159                                | *19                      | *14                      | *159         | *19                      | *14                | ...     | ...                      | ...                |
| \$30,000 to \$39,999 .....                 | 460          | 9          | ...                                 | ...                      | ...                      | ...          | ...                      | ...                | ...     | ...                      | ...                |
| \$40,000 to \$49,999 .....                 | 430          | 8          | *111                                | *26                      | *10                      | *111         | *26                      | *10                | ...     | ...                      | ...                |
| \$50,000 to \$74,999 .....                 | 903          | 17         | 266                                 | 29                       | 23                       | 266          | 29                       | 23                 | ...     | ...                      | ...                |
| \$75,000 or more .....                     | 1,235        | 24         | 428                                 | 35                       | 37                       | 428          | 35                       | 37                 | ...     | ...                      | ...                |
| Not reported .....                         | 665          | 13         | ...                                 | ...                      | ...                      | ...          | ...                      | ...                | ...     | ...                      | ...                |

\* Estimate based on a small sample size. ... Sample size too small to report data reliably.

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

**Table C-3. California Residents 6 to 15 Years Old Participating in Wildlife Watching: 2000**

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

| Participants                             | Number       | Percent of participants | Percent of population |
|--|--------------|-------------------------|-----------------------|
| <b>Total participants</b> .....          | <b>1,589</b> | <b>100</b>              | <b>30</b>             |
| Nonresidential .....                     | 742          | 47                      | 14                    |
| Residential .....                        | 1,339        | 84                      | 26                    |
| Observe wildlife.....                    | 1,056        | 66                      | 20                    |
| Photograph wildlife .....                | *167         | *11                     | *3                    |
| Feed wild birds or other wildlife .....  | 593          | 37                      | 11                    |
| Maintain plantings or natural areas..... | 287          | 18                      | 5                     |

\* Estimate based on a small sample size.

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



# *Appendix D*



# Appendix D.

## Sample Design and Statistical Accuracy

This Appendix is presented in two parts. The first part is the U.S. Census Bureau Source and Accuracy Statement. This statement describes the sampling design for the 2001 Survey and highlights the steps taken to produce estimates from the completed questionnaires. The statement explains the use of standard errors and confidence intervals. It also provides comprehensive information about errors characteristic of surveys, and formulas and parameters to calculate an approximate standard error or confidence interval for each number published in this report. The second part reports approximate standard errors (S.E.s) for selected measures of participation and expenditures for wildlife-related recreation. Tables D-1 to D-3 show common estimates by state with their estimated standard errors. Tables D-4 to D-9 provide parameters for computing standard errors.

### Source and Accuracy Statement for the California State Report of the 2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

#### Source of Data

The estimates in this report are based on data collected in the *2001 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* (FHWAR).

The 2001 FHWAR Survey was designed to provide state-level estimates of the number of participants in recreational hunting and fishing, and in wildlife-watching activities (e.g., wildlife observation). Information was collected on the number of participants, where and how often they participated, the type of wildlife encountered, and the amounts of money spent on wildlife-related recreation.

The survey was conducted in two stages: an initial screening of households to

identify likely sportspersons and wildlife-watching participants, and a series of follow-up interviews of selected persons to collect detailed data about their wildlife-related recreation during 2001.

The 2001 FHWAR state samples were selected from expired samples of the Current Population Survey (CPS).

### Sample Design

#### A. CPS - Current Population Survey

The expired CPS samples used for the 2001 FHWAR had been selected initially from 1990 decennial 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 sample addresses were located in 754 geographic areas consisting of a county or several contiguous counties.

#### B. The FHWAR Screening Sample

The screening sample consisted of households identified from the above sources. In California, 3,434 household interviews were assigned to be interviewed. Of these, 7.6 percent were found to be vacant or otherwise not enumerated. Of the remaining households, about 22.8 percent could not be enumerated because the occupants were not found at home after repeated calls or were unavailable for some other reason.

Overall, **2,407** completed household interviews were obtained for a state response rate of **77.2** percent. The field representatives asked screening questions for all household members 6 years old and older. Interviewing for the screen was conducted during April, May, and June of 2001.

Data for the FHWAR sportspersons sample and wildlife-watchers sample were collected in three waves. The first wave started in April 2001, the second in September 2001, and the third in January 2002. In the sportspersons sample, all persons who hunted or fished in 2001 by the time of the screening interview were interviewed in the first wave. The remaining sportspersons sample were interviewed in the second wave. All sample persons (from both the first and second waves) were interviewed in the third wave.

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

#### C. The Detailed Samples

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

##### 1. Sportspersons

The Census Bureau selected the state detailed samples based on information reported during the screening phase. Every person 16 years old and older in the FHWAR screening sample was assigned to a sportspersons stratum based on time devoted to hunting/fishing in the past and time expected to be devoted to hunting/fishing in the future.

The four sportspersons categories were:

*Active* - a person who had already participated in hunting/fishing in 2001 at the time of the screener interview.

*Likely* - a person who had not participated in 2001 at the time of the screener but had participated in 2000 OR said they were likely to participate in 2001.

*Inactive* - a person who had not participated in 2000 or 2001 AND said they were somewhat unlikely to participate in 2001.

*Nonparticipant* - a person who had not participated in 2000 or 2001 AND said they were very unlikely to participate in 2001.

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

Active sportspersons were given the detailed interview twice—at the same time of the screening interview (April-June 2001) and again in January/February 2002. Likely sportspersons and a subsample of the inactive sportspersons were also interviewed twice—first in September/October 2001, then in January/February 2002. If Census field representatives were not able to obtain the first interview, they attempted to interview the person in the final interviewing period with the reference period being the entire year. Persons in the nonparticipant group were not eligible for a detailed interview.

About **752** persons were designated for interviews in California. Overall, **602** detailed sportspersons interviews were completed for a response rate of **80.1** percent.

## 2. Wildlife Watchers

The wildlife-watching state detailed sample also 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 wildlife-watching activities in previous years, participation in 2001 by the time of the screening interview, and intentions to participate in activities during the remainder of 2001.

Each person was placed into one of the following five groups based on their past participation:

*Active* - a person who had already participated in 2001 at the time of the screening interview.

*Avid* - a person who had not yet participated in 2001 but in 2000 had taken trips to participate in wildlife-watching activities for 21 or more days or had spent \$300 or more.

*Average* - a person who had not yet participated in 2001 but in 2000 had taken trips to wildlife-watch for less than 21 days and had spent less than \$300 OR had not participated in wildlife-watching activities but said they were very likely to in the remainder of 2001.

*Infrequent* - a person who had not participated in 2000 or 2001 but said they were somewhat likely or somewhat unlikely to participate in the remainder of 2001.

*Nonparticipant* - a person who had not participated in 2000 or 2001 and said they were very unlikely to participate during the remainder of 2001.

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

Wildlife-watching participants were given the detailed interview twice. Some received their first detailed interview at the same

time as the screening interview (April-June 2001). The rest received their first detailed interview in September/October 2001. All wildlife-watching participants received their second interview in January/February 2002. If Census field representatives were not able to obtain the first interview, they attempted to interview the person in the final interviewing period with the reference period being the entire year.

About **530** persons were designated for interviews in California. Overall, **418** detailed wildlife-watching participant interviews were completed for a response rate of **78.9** percent.

## Estimation Procedure

Several stages of adjustments were used to derive the final 2001 FHWAR person weights. A brief description of the major components of the weights 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 came from both the screening and detailed interviews. Estimates which came from the screening sample are presented in Appendix C.

### 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 inflated 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 754 areas designated for our samples were selected from over 2,000 such areas of the United States.

Some sample areas represent only themselves and are referred to as self-representing. The remaining areas represent other areas similar in selected characteristics and are thus designated nonself-representing. The first-stage factor reduces the component of variation arising from 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. Sportspersons Sample

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

1. *Screening Weight.* This is the individual's final weight from the screening sample.
2. *Sportspersons Stratum Adjustment.* This factor inflated the weights of persons selected for the detailed sample to account for the subsampling done within each sportsperson's stratum.
3. *Sportspersons Noninterview Adjustment.* This factor adjusts the weights of the interviewed sportspersons to account for sportspersons selected for the detailed sample for whom no interview was obtained. A person was considered a noninterview if he/she were not interviewed in the third wave of interviewing.
4. *Sportspersons Ratio Adjustment Factor.* This is a ratio adjustment of the detailed sample to the screening sample within sportspersons sampling stratum. This adjustment brings the population estimates of persons age 16 years old or older from the detailed sample into agreement with the same estimates from the screening sample, which was a much larger sample.

## C. Wildlife-Watchers Sample

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

1. *Screening Weight.* This is the individual's final weight from the screening sample.
2. *Wildlife-Watchers Stratum Adjustment.* This factor inflated the weights of persons selected for the detailed sample to account for the subsampling done within each wildlife-watcher stratum.
3. *Wildlife-Watchers Noninterview Adjustment.* This factor adjusts the weights of the interviewed wildlife-watching participants to account for wildlife watchers selected for the detailed sample for which no interview was obtained. A person was considered a noninterview if he/she were not interviewed in the third wave of interviewing.
4. *Wildlife-Watchers Ratio Adjustment Factor.* This is a ratio adjustment of the detailed sample to the screening sample within wildlife-watchers sampling strata. This adjustment brings the population estimates of persons age 16 years old or older from the detailed sample into agreement with the same estimates from the screening sample, which was a much larger sample.

### Accuracy of the Estimates

Since the 2001 estimates came from a sample, they may differ from figures from a complete census using the same questionnaires, instructions, and enumerators. 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 2001 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 estimate 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 older in the United States. Chances are we will not correctly estimate every parameter under consideration (for example, the proportion of people who fished). 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 the processing of data.
- Errors made in estimating values for missing data.
- Failure to represent all units with the sample (undercoverage).

Overall CPS undercoverage is estimated to be about 8 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.

*Comparability of Data.* Data obtained from the 2001 FHWAR 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 B).

*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 base smaller than 100,000. 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 sample used for the 2001 FHWAR Survey is one of a large number of all possible 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 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 characteristics are different at the 0.10 level of significance, the absolute value of the estimated difference between characteristics must be greater than or equal to 1.645 times the standard error of the difference.

This report uses 90-percent confidence intervals and 0.10 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 sportspersons, anglers, and wildlife watchers.

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

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.

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

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 37,805,000 persons 16+ either fished or hunted in the United States in 2001. Using formula (1) with the parameters  $a = -0.000020$  and  $b = 4,289$  from table D-5, the approximate standard error of the estimates number of 37,805,000 sportspersons 16+ is

$$s_x = \sqrt{(-0.000020)(37,805,000)^2 + (4,289)(37,805,000)} = 365,500$$

The 90-percent confidence interval for the estimated number of sportspersons 16+ is from 37,203,800 to 38,406,200, i.e.,  $37,805,000 \pm 1.645 \times 365,500$ . 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 13,034,300 hunters 16+ engaged in 228,367,800 days of participation in 2001 in the United States. Using formula (2) with the parameters  $a = 0.000168$ ,  $b = -11,904$ , and  $c = 12,496$  from table D-7, the approximate standard error on 228,367,800 estimated days on an estimated base of 13,034,300 hunters is

$$s_x = \sqrt{0.000168 \times 228,367,800^2 + (-11,904) \times 228,367,800 + \frac{12,496 \times 228,367,800^2}{13,034,300}} = 7,486,100$$

The 90-percent confidence interval on the estimate of 228,367,800 days is from 216,053,200 to 240,682,400, i.e.,  $228,367,800 \pm 1.645 \times 7,486,100$ . Again, a conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 90 percent of all possible samples.

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

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

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

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

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

Suppose that a table shows that of the 13,034,300 hunters 16+ in the United States, 22.7 percent hunted migratory birds. From table D-5, the appropriate  $b$  parameter is 3,793. Using formula (3), the approximate standard error on the estimate of 22.7 percent is

$$s_{x,p} = \sqrt{\frac{3,793 \times 22.7 \times (100 - 22.7)}{13,034,300}} = 0.71$$

Consequently, the 90-percent confidence interval for the estimate percentage of migratory bird hunters 16+ is from 21.5 percent to 23.9 percent, i.e.  $22.7 \pm 1.645 \times 0.71$ .

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

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

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 13,034,300 hunters in the United States, 9,985,100 were licensed hunters, and 1,689,300 were exempt from a hunting license. The corresponding percentages are 76.6 percent and 13.0 percent, respectively. The apparent difference between the percent of licensed hunters and hunters who are exempt from a license is 63.6 percent. Using formula (3) and the appropriate  $b$  parameter from Table D-5, the approximate standard errors of 76.6 percent and 13.0 percent are 0.83 and 1.59, respectively. Using formula (4), the approximate standard error of the estimated difference of 63.6 percent is

$$s_{x-y} = \sqrt{0.72^2 + 0.57^2} = 0.92$$

The 90-percent confidence interval on the difference between licensed hunters and those who were exempt from a hunting license is from 62.1 to 65.1 percent, i.e.,  $63.6 \pm 1.645 \times 0.92$ . Since the interval does not contain zero, we can conclude with 90 percent confidence that the percentage of licensed hunters is greater than the percentage of hunters who are exempt from a hunting license.

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

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

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

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

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 angler 16 years old or older for all fishing was 16.4 days. Using formulas (1) and (2) above, we compute the standard error on total days, 557,393,900, and total anglers, 34,071,100, to be 8,726,000 and 350,600, respectively. The approximate standard error on the estimated average of 16.4 days is

$$s_{x/y} = \frac{557,393,900}{34,071,100} \sqrt{\left[\frac{8,726,000}{557,393,900}\right]^2 + \left[\frac{350,600}{34,071,100}\right]^2 - 2 \times 0.7 \times \frac{8,726,000 \times 350,600}{557,393,900 \times 34,071,100}} = 0.18$$

therefore, the 90-percent confidence interval on the estimated average of 16.4 days is from 16.1 to 16.7, i.e.,  $16.4 \pm 1.645 \times 0.18$ .

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

(Numbers in thousands)

| State          | Participation |                | Days     |                | Expenditures in dollars |                |
|----------------|---------------|----------------|----------|----------------|-------------------------|----------------|
|                | Estimate      | Standard error | Estimate | Standard error | Estimate                | Standard error |
| Alabama        | 634           | 28             | 10,841   | 452            | \$600,364               | \$83,099       |
| Alaska         | 185           | 8              | 2,445    | 262            | \$213,781               | \$18,009       |
| Arizona        | 394           | 23             | 4,327    | 510            | \$326,068               | \$59,815       |
| Arkansas       | 546           | 31             | 11,776   | 1,296          | \$386,164               | \$50,245       |
| California     | 2,389         | 124            | 27,878   | 3,138          | \$2,162,620             | \$362,896      |
| Colorado       | 626           | 31             | 7,639    | 638            | \$772,537               | \$105,782      |
| Connecticut    | 324           | 17             | 5,496    | 631            | \$327,787               | \$33,697       |
| Delaware       | 89            | 5              | 1,341    | 213            | \$92,474                | \$20,799       |
| Florida        | 2,109         | 91             | 43,439   | 4,318          | \$3,426,795             | \$420,930      |
| Georgia        | 1,043         | 52             | 15,559   | 1,799          | \$612,414               | \$87,929       |
| Hawaii         | 113           | 7              | 2,662    | 554            | \$97,707                | \$18,656       |
| Idaho          | 261           | 15             | 3,097    | 330            | \$230,006               | \$25,225       |
| Illinois       | 1,415         | 73             | 21,603   | 1,814          | \$1,147,325             | \$186,223      |
| Indiana        | 833           | 41             | 15,537   | 1,865          | \$469,379               | \$80,663       |
| Iowa           | 524           | 28             | 8,534    | 672            | \$319,087               | \$37,612       |
| Kansas         | 431           | 21             | 6,426    | 907            | \$331,195               | \$46,971       |
| Kentucky       | 630           | 36             | 12,135   | 1,041          | \$551,378               | \$64,270       |
| Louisiana      | 763           | 44             | 12,130   | 1,412          | \$648,285               | \$61,451       |
| Maine          | 216           | 13             | 3,449    | 397            | \$158,533               | \$25,580       |
| Maryland       | 531           | 31             | 7,112    | 1,027          | \$495,458               | \$63,380       |
| Massachusetts  | 500           | 23             | 8,387    | 789            | \$460,207               | \$71,626       |
| Michigan       | 1,039         | 66             | 18,869   | 3,090          | \$960,469               | \$172,980      |
| Minnesota      | 1,345         | 59             | 29,344   | 3,270          | \$1,251,828             | \$159,542      |
| Mississippi    | 475           | 28             | 9,325    | 1,652          | \$317,408               | \$47,936       |
| Missouri       | 982           | 46             | 12,396   | 859            | \$757,928               | \$93,775       |
| Montana        | 221           | 11             | 3,656    | 468            | \$202,751               | \$25,563       |
| Nebraska       | 265           | 13             | 3,378    | 281            | \$179,878               | \$27,770       |
| Nevada         | 180           | 12             | 2,230    | 387            | \$235,599               | \$39,457       |
| New Hampshire  | 164           | 8              | 2,974    | 305            | \$186,436               | \$29,039       |
| New Jersey     | 639           | 30             | 10,973   | 1,632          | \$712,797               | \$90,138       |
| New Mexico     | 215           | 13             | 2,407    | 358            | \$196,661               | \$30,674       |
| New York       | 1,340         | 79             | 23,167   | 2,932          | \$921,777               | \$169,508      |
| North Carolina | 894           | 45             | 14,615   | 1,280          | \$924,937               | \$105,704      |
| North Dakota   | 142           | 6              | 2,584    | 217            | \$182,746               | \$19,235       |
| Ohio           | 1,390         | 65             | 22,014   | 1,944          | \$905,650               | \$97,445       |
| Oklahoma       | 685           | 35             | 13,228   | 1,554          | \$493,616               | \$62,689       |
| Oregon         | 551           | 27             | 8,720    | 1,081          | \$590,738               | \$64,749       |
| Pennsylvania   | 1,270         | 80             | 21,417   | 2,271          | \$762,242               | \$69,554       |
| Rhode Island   | 95            | 5              | 1,638    | 179            | \$117,842               | \$15,812       |
| South Carolina | 604           | 28             | 10,321   | 946            | \$496,974               | \$58,949       |
| South Dakota   | 146           | 8              | 2,414    | 289            | \$101,893               | \$15,767       |
| Tennessee      | 803           | 40             | 15,451   | 1,519          | \$468,841               | \$92,443       |
| Texas          | 2,381         | 137            | 34,148   | 5,143          | \$2,129,921             | \$258,534      |
| Utah           | 424           | 17             | 5,346    | 344            | \$400,214               | \$36,948       |
| Vermont        | 104           | 7              | 1,969    | 212            | \$72,326                | \$10,954       |
| Virginia       | 888           | 47             | 14,774   | 1,198          | \$688,844               | \$103,105      |
| Washington     | 873           | 37             | 13,520   | 1,142          | \$966,874               | \$89,559       |
| West Virginia  | 273           | 16             | 4,346    | 349            | \$146,288               | \$19,717       |
| Wisconsin      | 981           | 56             | 19,360   | 2,175          | \$844,539               | \$115,997      |
| Wyoming        | 121           | 6              | 1,901    | 220            | \$135,280               | \$20,747       |

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

(Numbers in thousands)

| State          | Participation |                | Days     |                | Expenditures in dollars |                |
|----------------|---------------|----------------|----------|----------------|-------------------------|----------------|
|                | Estimate      | Standard error | Estimate | Standard error | Estimate                | Standard error |
| Alabama        | 316           | 22             | 7,262    | 1,047          | \$652,845               | \$132,117      |
| Alaska         | 74            | 5              | 982      | 174            | \$111,678               | \$18,869       |
| Arizona        | 124           | 13             | 1,649    | 345            | \$225,651               | \$74,606       |
| Arkansas       | 306           | 28             | 7,075    | 1,140          | \$387,489               | \$69,954       |
| California     | 278           | 43             | 3,695    | 1,076          | \$368,701               | \$136,459      |
| Colorado       | 168           | 18             | 1,982    | 338            | \$185,277               | \$39,453       |
| Connecticut    | 45            | 7              | 824      | 199            | \$69,359                | \$24,196       |
| Delaware       | 16            | 2              | 279      | 85             | \$18,424                | \$6,513        |
| Florida        | 270           | 39             | 5,865    | 1,370          | \$545,627               | \$130,063      |
| Georgia        | 377           | 32             | 7,882    | 1,023          | \$505,894               | \$88,503       |
| Hawaii         | 18            | 4              | 322      | 92             | \$17,266                | \$6,678        |
| Idaho          | 151           | 12             | 1,784    | 252            | \$168,088               | \$32,796       |
| Illinois       | 340           | 44             | 5,842    | 2,234          | \$527,776               | \$181,913      |
| Indiana        | 284           | 28             | 5,016    | 939            | \$279,670               | \$70,406       |
| Iowa           | 203           | 16             | 4,086    | 725            | \$185,082               | \$38,141       |
| Kansas         | 202           | 17             | 3,424    | 443            | \$223,192               | \$41,908       |
| Kentucky       | 271           | 23             | 4,538    | 482            | \$384,751               | \$59,977       |
| Louisiana      | 316           | 28             | 7,325    | 1,565          | \$528,155               | \$98,836       |
| Maine          | 123           | 10             | 2,169    | 366            | \$119,144               | \$23,982       |
| Maryland       | 124           | 14             | 1,992    | 352            | \$143,143               | \$33,553       |
| Massachusetts  | 79            | 10             | 1,727    | 406            | \$113,461               | \$24,955       |
| Michigan       | 725           | 54             | 8,784    | 1,080          | \$556,880               | \$131,109      |
| Minnesota      | 582           | 40             | 8,673    | 930            | \$601,497               | \$97,084       |
| Mississippi    | 257           | 23             | 6,977    | 1,283          | \$306,157               | \$74,399       |
| Missouri       | 413           | 37             | 6,715    | 1,184          | \$490,761               | \$115,416      |
| Montana        | 171           | 11             | 2,112    | 240            | \$161,239               | \$25,032       |
| Nebraska       | 128           | 10             | 1,963    | 203            | \$135,092               | \$28,074       |
| Nevada         | 49            | 6              | 558      | 104            | \$149,292               | \$38,530       |
| New Hampshire  | 53            | 5              | 1,300    | 169            | \$55,775                | \$11,739       |
| New Jersey     | 125           | 15             | 3,000    | 641            | \$156,786               | \$48,877       |
| New Mexico     | 114           | 13             | 1,594    | 371            | \$171,811               | \$39,225       |
| New York       | 642           | 51             | 13,124   | 1,611          | \$975,691               | \$202,696      |
| North Carolina | 313           | 33             | 8,372    | 1,717          | \$566,504               | \$124,764      |
| North Dakota   | 92            | 7              | 1,417    | 232            | \$78,745                | \$11,192       |
| Ohio           | 481           | 39             | 11,077   | 2,011          | \$645,875               | \$157,380      |
| Oklahoma       | 241           | 24             | 5,965    | 1,012          | \$323,215               | \$66,265       |
| Oregon         | 236           | 18             | 2,917    | 481            | \$432,628               | \$104,547      |
| Pennsylvania   | 867           | 68             | 14,091   | 1,656          | \$901,173               | \$144,957      |
| Rhode Island   | 11            | 2              | 193      | 61             | \$15,214                | \$6,679        |
| South Carolina | 232           | 21             | 4,657    | 810            | \$280,030               | \$52,190       |
| South Dakota   | 90            | 7              | 1,347    | 215            | \$112,448               | \$25,400       |
| Tennessee      | 320           | 31             | 6,962    | 1,248          | \$659,063               | \$122,182      |
| Texas          | 1,126         | 108            | 15,186   | 3,248          | \$1,467,034             | \$244,695      |
| Utah           | 178           | 13             | 2,512    | 386            | \$308,510               | \$53,000       |
| Vermont        | 75            | 6              | 1,460    | 195            | \$53,805                | \$8,476        |
| Virginia       | 308           | 32             | 5,819    | 866            | \$340,273               | \$64,904       |
| Washington     | 231           | 17             | 3,311    | 352            | \$339,470               | \$81,858       |
| West Virginia  | 235           | 16             | 4,791    | 637            | \$201,282               | \$39,066       |
| Wisconsin      | 591           | 41             | 9,305    | 1,151          | \$634,413               | \$119,195      |
| Wyoming        | 65            | 6              | 870      | 100            | \$62,958                | \$13,319       |

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

(Numbers in thousands)

| State          | Participation |                | Days     |                | Expenditures in dollars |                |
|----------------|---------------|----------------|----------|----------------|-------------------------|----------------|
|                | Estimate      | Standard error | Estimate | Standard error | Estimate                | Standard error |
| Alabama        | 280           | 40             | 3,782    | 746            | \$109,926               | \$24,800       |
| Alaska         | 118           | 12             | 1,766    | 316            | \$49,035                | \$11,646       |
| Arizona        | 329           | 45             | 3,537    | 571            | \$174,237               | \$34,239       |
| Arkansas       | 190           | 43             | 1,545    | 407            | \$70,811                | \$24,515       |
| California     | 2,191         | 254            | 25,134   | 4,024          | \$894,746               | \$175,803      |
| Colorado       | 531           | 61             | 6,555    | 1,258          | \$183,470               | \$45,064       |
| Connecticut    | 248           | 34             | 6,770    | 1,596          | \$82,766                | \$16,616       |
| Delaware       | 43            | 8              | 595      | 135            | \$15,727                | \$4,444        |
| Florida        | 1,279         | 171            | 20,371   | 4,477          | \$508,519               | \$118,715      |
| Georgia        | 302           | 67             | 5,175    | 1,581          | \$174,269               | \$55,270       |
| Hawaii         | 50            | 9              | 1,099    | 282            | \$32,319                | \$10,688       |
| Idaho          | 214           | 43             | 2,540    | 558            | \$58,842                | \$15,651       |
| Illinois       | 683           | 81             | 9,208    | 2,307          | \$254,698               | \$57,633       |
| Indiana        | 484           | 67             | 12,319   | 3,071          | \$140,460               | \$34,864       |
| Iowa           | 354           | 41             | 6,960    | 1,751          | \$77,012                | \$19,264       |
| Kansas         | 286           | 34             | 2,470    | 347            | \$81,231                | \$15,404       |
| Kentucky       | 329           | 40             | 6,365    | 2,093          | \$93,187                | \$24,333       |
| Louisiana      | 250           | 39             | 2,364    | 562            | \$53,259                | \$18,104       |
| Maine          | 174           | 21             | 3,384    | 614            | \$64,202                | \$16,036       |
| Maryland       | 413           | 53             | 5,959    | 1,226          | \$188,565               | \$47,258       |
| Massachusetts  | 427           | 59             | 10,992   | 2,658          | \$145,764               | \$30,650       |
| Michigan       | 747           | 122            | 13,192   | 2,762          | \$332,609               | \$90,218       |
| Minnesota      | 562           | 82             | 13,406   | 4,473          | \$124,187               | \$25,145       |
| Mississippi    | 103           | 22             | 3,466    | 1,449          | \$32,803                | \$13,539       |
| Missouri       | 581           | 129            | 12,028   | 3,251          | \$130,720               | \$32,074       |
| Montana        | 195           | 22             | 2,975    | 631            | \$75,050                | \$20,978       |
| Nebraska       | 150           | 21             | 1,853    | 405            | \$34,077                | \$7,859        |
| Nevada         | 128           | 20             | 1,108    | 199            | \$50,162                | \$13,058       |
| New Hampshire  | 139           | 21             | 1,641    | 371            | \$47,666                | \$11,395       |
| New Jersey     | 564           | 66             | 10,772   | 2,207          | \$230,096               | \$41,929       |
| New Mexico     | 205           | 26             | 5,375    | 1,059          | \$69,803                | \$29,473       |
| New York       | 1,112         | 138            | 21,423   | 4,045          | \$471,293               | \$128,063      |
| North Carolina | 367           | 62             | 5,458    | 1,857          | \$121,730               | \$30,272       |
| North Dakota   | 48            | 8              | 450      | 97             | \$6,946                 | \$2,453        |
| Ohio           | 887           | 94             | 20,687   | 5,732          | \$266,849               | \$54,800       |
| Oklahoma       | 340           | 55             | 3,834    | 1,079          | \$42,413                | \$9,434        |
| Oregon         | 561           | 68             | 7,288    | 981            | \$175,678               | \$25,285       |
| Pennsylvania   | 1,173         | 148            | 19,672   | 4,214          | \$445,924               | \$108,522      |
| Rhode Island   | 58            | 8              | 974      | 230            | \$9,876                 | \$2,638        |
| South Carolina | 282           | 56             | 4,458    | 1,374          | \$79,258                | \$21,827       |
| South Dakota   | 77            | 14             | 1,762    | 518            | \$14,195                | \$3,862        |
| Tennessee      | 375           | 57             | 3,601    | 663            | \$114,678               | \$29,348       |
| Texas          | 1,043         | 240            | 11,956   | 2,858          | \$689,729               | \$188,701      |
| Utah           | 323           | 35             | 3,651    | 1,162          | \$93,928                | \$24,813       |
| Vermont        | 109           | 17             | 2,081    | 526            | \$30,384                | \$6,397        |
| Virginia       | 581           | 84             | 9,599    | 2,345          | \$225,247               | \$59,484       |
| Washington     | 874           | 90             | 12,238   | 1,311          | \$433,951               | \$77,714       |
| West Virginia  | 166           | 22             | 2,494    | 599            | \$62,283                | \$16,816       |
| Wisconsin      | 769           | 85             | 14,215   | 3,348          | \$268,911               | \$43,219       |
| Wyoming        | 95            | 10             | 1,778    | 411            | \$27,150                | \$9,198        |

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

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

| State                      | 6 years old and over |              | 6-15 year olds only |              |
|----------------------------|----------------------|--------------|---------------------|--------------|
|                            | a                    | b            | a                   | b            |
| <b>United States</b> ..... | <b>-0.00017</b>      | <b>4,191</b> | <b>-0.000103</b>    | <b>4,052</b> |
| Alabama.....               | -0.000380            | 1,493        | -0.002270           | 1,417        |
| Alaska.....                | -0.000948            | 512          | -0.004485           | 489          |
| Arizona.....               | -0.000399            | 1,559        | -0.001931           | 1,303        |
| Arkansas.....              | -0.001069            | 2,456        | -0.006381           | 2,444        |
| California.....            | -0.000221            | 6,329        | -0.001083           | 5,240        |
| Colorado.....              | -0.000521            | 1,819        | -0.002707           | 1,551        |
| Connecticut.....           | -0.000336            | 996          | -0.002227           | 1,007        |
| Delaware.....              | -0.000428            | 283          | -0.002753           | 284          |
| Florida.....               | -0.000427            | 5,619        | -0.002768           | 5,390        |
| Georgia.....               | -0.000506            | 3,361        | -0.002856           | 3,156        |
| Hawaii.....                | -0.000659            | 705          | -0.003146           | 538          |
| Idaho.....                 | -0.001285            | 1,393        | -0.006911           | 1,424        |
| Illinois.....              | -0.000427            | 4,572        | -0.002310           | 4,043        |
| Indiana.....               | -0.000578            | 3,064        | -0.003388           | 2,867        |
| Iowa.....                  | -0.000803            | 2,084        | -0.004015           | 1,702        |
| Kansas.....                | -0.000659            | 1,528        | -0.004453           | 1,804        |
| Kentucky.....              | -0.000493            | 1,760        | -0.002857           | 1,623        |
| Louisiana.....             | -0.000874            | 3,461        | -0.004231           | 3,101        |
| Maine.....                 | -0.000903            | 1,035        | -0.005933           | 1,086        |
| Maryland.....              | -0.000463            | 2,151        | -0.002684           | 1,973        |
| Massachusetts.....         | -0.000193            | 1,065        | -0.001155           | 928          |
| Michigan.....              | -0.000606            | 5,281        | -0.003588           | 5,206        |
| Minnesota.....             | -0.001004            | 4,226        | -0.006232           | 4,574        |
| Mississippi.....           | -0.000955            | 2,368        | -0.005090           | 2,275        |
| Missouri.....              | -0.000681            | 3,305        | -0.004295           | 3,440        |
| Montana.....               | -0.001327            | 1,085        | -0.008909           | 1,292        |
| Nebraska.....              | -0.000479            | 714          | -0.002742           | 713          |
| Nevada.....                | -0.000588            | 845          | -0.003740           | 838          |
| New Hampshire.....         | -0.000455            | 482          | -0.002565           | 446          |
| New Jersey.....            | -0.000220            | 1,591        | -0.001309           | 1,434        |
| New Mexico.....            | -0.000887            | 1,389        | -0.004190           | 1,228        |
| New York.....              | -0.000298            | 4,907        | -0.001768           | 4,458        |
| North Carolina.....        | -0.000506            | 3,353        | -0.004040           | 4,161        |
| North Dakota.....          | -0.000994            | 581          | -0.007996           | 816          |
| Ohio.....                  | -0.000402            | 4,091        | -0.002543           | 4,199        |
| Oklahoma.....              | -0.000774            | 2,323        | -0.003822           | 2,007        |
| Oregon.....                | -0.000429            | 1,261        | -0.002347           | 1,105        |
| Pennsylvania.....          | -0.000563            | 6,176        | -0.004018           | 6,755        |
| Rhode Island.....          | -0.000327            | 291          | -0.002062           | 276          |
| South Carolina.....        | -0.000542            | 1,838        | -0.002857           | 1,566        |
| South Dakota.....          | -0.000788            | 522          | -0.005465           | 667          |
| Tennessee.....             | -0.000798            | 3,887        | -0.005230           | 3,954        |
| Texas.....                 | -0.000674            | 11,571       | -0.003386           | 10,479       |
| Utah.....                  | -0.000532            | 948          | -0.001723           | 667          |
| Vermont.....               | -0.001116            | 605          | -0.008013           | 697          |
| Virginia.....              | -0.000636            | 3,870        | -0.003336           | 3,090        |
| Washington.....            | -0.000190            | 956          | -0.001070           | 889          |
| West Virginia.....         | -0.000784            | 1,344        | -0.005315           | 1,323        |
| Wisconsin.....             | -0.000986            | 4,628        | -0.005562           | 4,461        |
| Wyoming.....               | -0.001599            | 718          | -0.007708           | 647          |



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

| State                     | Sportspersons and anglers 16+ |              | Hunters 16+      |              |
|---------------------------|-------------------------------|--------------|------------------|--------------|
|                           | a                             | b            | a                | b            |
| <b>United States.....</b> | <b>-0.000020</b>              | <b>4,289</b> | <b>-0.000018</b> | <b>3,793</b> |
| Alabama.....              | -0.000459                     | 1,570        | -0.000489        | 1,672        |
| Alaska.....               | -0.001213                     | 535          | -0.000986        | 435          |
| Arizona.....              | -0.000405                     | 1,492        | -0.000389        | 1,431        |
| Arkansas.....             | -0.001229                     | 2,452        | -0.001529        | 3,050        |
| California.....           | -0.000275                     | 7,111        | -0.000265        | 6,859        |
| Colorado.....             | -0.000602                     | 1,924        | -0.000649        | 2,075        |
| Connecticut.....          | -0.000385                     | 976          | -0.000429        | 1,086        |
| Delaware.....             | -0.000483                     | 288          | -0.000658        | 392          |
| Florida.....              | -0.000395                     | 4,789        | -0.000478        | 5,788        |
| Georgia.....              | -0.000512                     | 3,106        | -0.000472        | 2,858        |
| Hawaii.....               | -0.000509                     | 454          | -0.001043        | 930          |
| Idaho.....                | -0.001216                     | 1,176        | -0.001263        | 1,221        |
| Illinois.....             | -0.000487                     | 4,492        | -0.000648        | 5,979        |
| Indiana.....              | -0.000549                     | 2,501        | -0.000654        | 2,982        |
| Iowa.....                 | -0.000888                     | 1,953        | -0.000659        | 1,450        |
| Kansas.....               | -0.000642                     | 1,292        | -0.000832        | 1,673        |
| Kentucky.....             | -0.000835                     | 2,592        | -0.000679        | 2,110        |
| Louisiana.....            | -0.000991                     | 3,270        | -0.000831        | 2,743        |
| Maine.....                | -0.000954                     | 959          | -0.000937        | 942          |
| Maryland.....             | -0.000516                     | 2,087        | -0.000397        | 1,605        |
| Massachusetts.....        | -0.000252                     | 1,221        | -0.000278        | 1,344        |
| Michigan.....             | -0.000643                     | 4,874        | -0.000592        | 4,491        |
| Minnesota.....            | -0.001114                     | 4,105        | -0.000889        | 3,278        |
| Mississippi.....          | -0.001033                     | 2,169        | -0.001124        | 2,360        |
| Missouri.....             | -0.000678                     | 2,843        | -0.000857        | 3,597        |
| Montana.....              | -0.001195                     | 832          | -0.001299        | 904          |
| Nebraska.....             | -0.000676                     | 851          | -0.000707        | 890          |
| Nevada.....               | -0.000617                     | 893          | -0.000576        | 833          |
| New Hampshire.....        | -0.000501                     | 478          | -0.000547        | 522          |
| New Jersey.....           | -0.000252                     | 1,588        | -0.000305        | 1,918        |
| New Mexico.....           | -0.000711                     | 944          | -0.001259        | 1,672        |
| New York.....             | -0.000364                     | 5,159        | -0.000301        | 4,277        |
| North Carolina.....       | -0.000451                     | 2,646        | -0.000616        | 3,618        |
| North Dakota.....         | -0.000814                     | 389          | -0.001295        | 619          |
| Ohio.....                 | -0.000421                     | 3,638        | -0.000381        | 3,292        |
| Oklahoma.....             | -0.000954                     | 2,454        | -0.001042        | 2,679        |
| Oregon.....               | -0.000652                     | 1,715        | -0.000558        | 1,468        |
| Pennsylvania.....         | -0.000635                     | 5,902        | -0.000628        | 5,840        |
| Rhode Island.....         | -0.000423                     | 322          | -0.000510        | 389          |
| South Carolina.....       | -0.000527                     | 1,616        | -0.000696        | 2,133        |
| South Dakota.....         | -0.001088                     | 605          | -0.001013        | 563          |
| Tennessee.....            | -0.000577                     | 2,490        | -0.000749        | 3,232        |
| Texas.....                | -0.000603                     | 9,273        | -0.000733        | 11,259       |
| Utah.....                 | -0.000616                     | 955          | -0.000714        | 1,106        |
| Vermont.....              | -0.001086                     | 520          | -0.001184        | 567          |
| Virginia.....             | -0.000546                     | 2,930        | -0.000658        | 3,529        |
| Washington.....           | -0.000427                     | 1,913        | -0.000305        | 1,368        |
| West Virginia.....        | -0.000781                     | 1,133        | -0.000891        | 1,288        |
| Wisconsin.....            | -0.001026                     | 4,165        | -0.000832        | 3,378        |
| Wyoming.....              | -0.001209                     | 452          | -0.001693        | 633          |

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

| State                     | Sportspersons and anglers 16+ |                |               | Hunters 16+     |                 |               |
|---------------------------|-------------------------------|----------------|---------------|-----------------|-----------------|---------------|
|                           | a                             | b              | c             | a               | b               | c             |
| <b>United States.....</b> | <b>0.000209</b>               | <b>-81,938</b> | <b>16,935</b> | <b>0.000849</b> | <b>-338,404</b> | <b>16,347</b> |
| Alabama.....              | 0.009175                      | -61,525        | 5,860         | 0.024164        | -1,049          | 5,155         |
| Alaska.....               | -0.006112                     | -16,312        | 2,378         | 0.021402        | 39,475          | 489           |
| Arizona.....              | 0.026819                      | -7,817         | 2,578         | 0.092593        | -90,851         | 2,072         |
| Arkansas.....             | 0.004633                      | -23,748        | 6,426         | 0.014405        | -62,820         | 5,523         |
| California.....           | 0.021384                      | -70,276        | 15,458        | 0.113785        | -136,283        | 6,339         |
| Colorado.....             | 0.009864                      | -19,578        | 5,293         | 0.022718        | -94,581         | 3,887         |
| Connecticut.....          | 0.001877                      | -16,928        | 2,684         | 0.079125        | -34,580         | 1,895         |
| Delaware.....             | 0.040550                      | -7,042         | 809           | 0.105687        | -2,637          | 311           |
| Florida.....              | 0.007654                      | 20,508         | 14,478        | 0.023874        | -155,743        | 8,973         |
| Georgia.....              | 0.014008                      | -36,268        | 6,059         | 0.008831        | -95,649         | 7,863         |
| Hawaii.....               | 0.025846                      | -5,658         | 1,067         | 0.097125        | -938            | 788           |
| Idaho.....                | -0.002875                     | -29,463        | 3,878         | 0.016379        | -64,453         | 3,289         |
| Illinois.....             | 0.019572                      | 10,051         | 8,854         | 0.085878        | -549,762        | 11,311        |
| Indiana.....              | 0.022696                      | -22,961        | 5,102         | 0.033251        | -103,911        | 8,051         |
| Iowa.....                 | 0.005064                      | -20,998        | 4,528         | 0.016656        | -138,890        | 5,392         |
| Kansas.....               | 0.015860                      | 18,185         | 1,730         | 0.021785        | -50,528         | 2,671         |
| Kentucky.....             | 0.004591                      | -41,799        | 5,443         | 0.008079        | -58,497         | 4,208         |
| Louisiana.....            | -0.00040                      | -65,739        | 6,880         | 0.019445        | -21,541         | 4,669         |
| Maine.....                | 0.017717                      | -5,998         | 1,713         | 0.025284        | -13,157         | 1,841         |
| Maryland.....             | 0.008904                      | -8,843         | 3,522         | 0.032998        | -11,255         | 2,731         |
| Massachusetts.....        | 0.016262                      | -12,678        | 3,571         | 0.024064        | -1,953          | 1,922         |
| Michigan.....             | 0.019792                      | -127,849       | 11,921        | 0.040148        | -65,705         | 9,671         |
| Minnesota.....            | 0.008800                      | -47,947        | 9,688         | 0.014048        | -30,492         | 6,738         |
| Mississippi.....          | 0.016340                      | -3,615         | 2,838         | 0.048203        | -12,376         | 2,679         |
| Missouri.....             | 0.010252                      | -14,938        | 4,700         | 0.044792        | -43,432         | 4,274         |
| Montana.....              | 0.006249                      | 2,944          | 2,023         | 0.012939        | -22,671         | 1,865         |
| Nebraska.....             | 0.017333                      | -3,651         | 1,663         | 0.027267        | -39,668         | 2,043         |
| Nevada.....               | 0.018933                      | -14,263        | 1,569         | 0.031588        | -38,184         | 1,658         |
| New Hampshire.....        | 0.018219                      | -2,158         | 896           | 0.019369        | -16,561         | 1,337         |
| New Jersey.....           | 0.008872                      | -21,461        | 4,161         | 0.074090        | -47,814         | 2,925         |
| New Mexico.....           | 0.009851                      | -15,340        | 3,013         | 0.038148        | 4,904           | 1,576         |
| New York.....             | 0.026625                      | -55,537        | 8,963         | 0.021960        | -65,942         | 13,270        |
| North Carolina.....       | 0.002898                      | -52,854        | 8,564         | 0.027058        | -70,174         | 6,255         |
| North Dakota.....         | 0.005072                      | -1,310         | 842           | 0.013476        | 10,740          | 593           |
| Ohio.....                 | 0.006294                      | -16,259        | 6,658         | 0.032819        | -343,279        | 12,406        |
| Oklahoma.....             | 0.004660                      | -37,618        | 7,562         | 0.020499        | -34,984         | 4,891         |
| Oregon.....               | 0.003145                      | -20,997        | 4,657         | 0.039506        | -209,288        | 4,495         |
| Pennsylvania.....         | -0.001615                     | -16,424        | 12,085        | 0.015010        | -45,176         | 9,408         |
| Rhode Island.....         | 0.008233                      | -3,065         | 823           | 0.163731        | 1,552           | 318           |
| South Carolina.....       | 0.006577                      | -24,715        | 4,435         | 0.014150        | -45,230         | 4,751         |
| South Dakota.....         | 0.016156                      | -6,396         | 1,099         | 0.041242        | 13,567          | 850           |
| Tennessee.....            | 0.033971                      | -12,176        | 3,739         | 0.025020        | 25,879          | 2,858         |
| Texas.....                | 0.002571                      | -181,509       | 27,582        | 0.012511        | 228,353         | 16,609        |
| Utah.....                 | 0.001106                      | -2,243         | 3,125         | 0.011415        | -63,829         | 3,240         |
| Vermont.....              | 0.011747                      | -4,625         | 1,103         | 0.008540        | -5,531          | 1,212         |
| Virginia.....             | 0.016382                      | -12,594        | 5,152         | 0.014967        | -57,318         | 6,583         |
| Washington.....           | 0.003760                      | -21,018        | 4,033         | 0.047027        | -137,577        | 2,616         |
| West Virginia.....        | 0.006720                      | -9,550         | 2,878         | 0.031204        | -15,338         | 1,413         |
| Wisconsin.....            | 0.012407                      | -19,300        | 6,202         | 0.024061        | -96,808         | 6,607         |
| Wyoming.....              | 0.012293                      | -9,179         | 1,344         | 0.024311        | -20,666         | 1,350         |

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

| State                      | Sportspersons and anglers 16+ |                |               | Hunters 16+     |                |               |
|----------------------------|-------------------------------|----------------|---------------|-----------------|----------------|---------------|
|                            | a                             | b              | c             | a               | b              | c             |
| <b>United States</b> ..... | <b>-0.000359</b>              | <b>-10,379</b> | <b>21,216</b> | <b>0.000168</b> | <b>-11,904</b> | <b>12,496</b> |
| Alabama.....               | -0.014899                     | -1,645         | 10,642        | 0.010257        | -3,745         | 3,494         |
| Alaska.....                | 0.004232                      | -2,284         | 1,514         | 0.017337        | -1,630         | 1,174         |
| Arizona.....               | 0.009813                      | -504           | 1,658         | 0.025859        | -2,427         | 2,408         |
| Arkansas.....              | -0.000591                     | -4,532         | 7,151         | 0.005331        | -5,600         | 6,560         |
| California.....            | 0.005829                      | -32,577        | 19,133        | 0.046419        | -14,455        | 11,763        |
| Colorado.....              | -0.002514                     | -4,440         | 6,304         | 0.005304        | -3,344         | 4,269         |
| Connecticut.....           | 0.004894                      | -1,905         | 2,797         | 0.032365        | -208           | 1,179         |
| Delaware.....              | 0.019930                      | -260           | 493           | 0.042659        | -901           | 837           |
| Florida.....               | 0.004327                      | -8,388         | 12,123        | 0.023712        | -8,026         | 8,704         |
| Georgia.....               | 0.006853                      | -15,975        | 7,865         | 0.000498        | -4,557         | 6,375         |
| Hawaii.....                | 0.024692                      | -3,126         | 2,236         | -0.011390       | -629           | 1,711         |
| Idaho.....                 | -0.003745                     | -3,875         | 4,263         | 0.007761        | -1,392         | 1,956         |
| Illinois.....              | -0.001740                     | -10,299        | 13,115        | 0.116103        | -25,870        | 11,750        |
| Indiana.....               | 0.005471                      | -5,800         | 7,756         | 0.015379        | -6,119         | 5,928         |
| Iowa.....                  | -0.002638                     | -1,789         | 4,745         | 0.013073        | -5,442         | 4,003         |
| Kansas.....                | 0.016223                      | -605           | 1,633         | -0.005996       | -2,318         | 4,722         |
| Kentucky.....              | -0.001146                     | -3,831         | 5,559         | -0.008903       | -1,883         | 5,581         |
| Louisiana.....             | 0.005167                      | -9,551         | 6,990         | 0.031739        | -9,447         | 4,809         |
| Maine.....                 | -0.001145                     | -2,421         | 3,262         | 0.012469        | -2,544         | 2,121         |
| Maryland.....              | 0.015009                      | -1,757         | 3,235         | -0.000817       | -3,341         | 4,179         |
| Massachusetts.....         | 0.001279                      | -5,091         | 4,088         | 0.028210        | -2,953         | 2,268         |
| Michigan.....              | 0.014345                      | -13,184        | 13,688        | 0.005369        | -5,906         | 7,564         |
| Minnesota.....             | 0.003565                      | -17,781        | 12,718        | -0.002763       | -5,610         | 8,671         |
| Mississippi.....           | 0.019493                      | -15,942        | 6,461         | 0.014162        | -6,098         | 5,274         |
| Missouri.....              | -0.002128                     | -5,253         | 7,226         | 0.018480        | -8,909         | 5,746         |
| Montana.....               | 0.000449                      | -2,600         | 3,680         | 0.000401        | -1,984         | 2,302         |
| Nebraska.....              | -0.001914                     | -1,750         | 2,477         | -0.000535       | -295           | 1,450         |
| Nevada.....                | 0.021810                      | -2,046         | 1,649         | -0.001816       | -1,230         | 1,883         |
| New Hampshire.....         | 0.002071                      | -1,578         | 1,470         | 0.000312        | -511           | 902           |
| New Jersey.....            | 0.011720                      | -5,526         | 6,959         | 0.022081        | -3,488         | 3,096         |
| New Mexico.....            | 0.001275                      | -6,683         | 5,081         | 0.035962        | -4,491         | 2,409         |
| New York.....              | 0.006773                      | -19,672        | 13,519        | -0.006261       | -6,261         | 14,001        |
| North Carolina.....        | -0.003764                     | -7,850         | 10,700        | 0.005307        | -10,202        | 11,887        |
| North Dakota.....          | -0.000254                     | -1,046         | 1,099         | 0.013638        | -2,072         | 1,354         |
| Ohio.....                  | -0.002277                     | -12,642        | 14,807        | 0.014951        | -10,264        | 9,111         |
| Oklahoma.....              | 0.002908                      | -8,589         | 7,908         | -0.012896       | -7,384         | 10,343        |
| Oregon.....                | -0.004964                     | -10,252        | 11,849        | 0.014008        | -4,387         | 3,466         |
| Pennsylvania.....          | -0.000351                     | -9,506         | 15,294        | 0.001946        | -7,227         | 10,734        |
| Rhode Island.....          | 0.003515                      | -532           | 829           | 0.036010        | -680           | 752           |
| South Carolina.....        | 0.001822                      | -4,530         | 4,244         | 0.016996        | -2,924         | 3,226         |
| South Dakota.....          | 0.006727                      | -857           | 1,163         | 0.014473        | -561           | 1,029         |
| Tennessee.....             | -0.003393                     | -8,542         | 10,929        | 0.014450        | -5,875         | 5,933         |
| Texas.....                 | 0.008771                      | -62,115        | 37,457        | 0.026724        | -40,596        | 24,438        |
| Utah.....                  | -0.000945                     | -159           | 2,170         | 0.009900        | -3,490         | 2,684         |
| Vermont.....               | -0.003874                     | -1,213         | 1,671         | 0.001720        | -943           | 1,254         |
| Virginia.....              | -0.003305                     | -6,179         | 9,142         | 0.003533        | -4,262         | 5,955         |
| Washington.....            | 0.001423                      | -4,085         | 5,250         | -0.000778       | -1,826         | 2,912         |
| West Virginia.....         | -0.003294                     | -831           | 2,712         | 0.003483        | -2,510         | 3,463         |
| Wisconsin.....             | -0.000821                     | -11,365        | 13,762        | 0.002687        | -8,025         | 7,969         |
| Wyoming.....               | 0.001824                      | -978           | 1,466         | 0.000207        | 3,198          | 606           |

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

| State                      | Nonresidential users |               | Wildlife-watching participants <sup>1</sup> |              |
|----------------------------|----------------------|---------------|---|--------------|
|                            | a                    | b             | a   | b            |
| <b>United States</b> ..... | <b>-0.000076</b>     | <b>15,974</b> | <b>-0.000040</b>                            | <b>8,555</b> |
| Alabama.....               | -0.001806            | 6,172         | -0.000996                                   | 3,406        |
| Alaska.....                | -0.003984            | 1,757         | -0.003102                                   | 1,368        |
| Arizona.....               | -0.001862            | 6,858         | -0.001138                                   | 4,191        |
| Arkansas.....              | -0.005383            | 10,740        | -0.003708                                   | 7,397        |
| California.....            | -0.001245            | 32,229        | -0.000675                                   | 17,485       |
| Colorado.....              | -0.002666            | 8,521         | -0.001570                                   | 5,017        |
| Connecticut.....           | -0.002028            | 5,136         | -0.001170                                   | 2,963        |
| Delaware.....              | -0.003015            | 1,797         | -0.001488                                   | 887          |
| Florida.....               | -0.002113            | 25,612        | -0.001029                                   | 12,478       |
| Georgia.....               | -0.002607            | 15,802        | -0.001239                                   | 7,512        |
| Hawaii.....                | -0.001747            | 1,558         | -0.001508                                   | 1,345        |
| Idaho.....                 | -0.011466            | 11,088        | -0.002755                                   | 2,664        |
| Illinois.....              | -0.001118            | 10,311        | -0.001182                                   | 10,900       |
| Indiana.....               | -0.002301            | 10,485        | -0.001294                                   | 5,899        |
| Iowa.....                  | -0.002614            | 5,750         | -0.002397                                   | 5,274        |
| Kansas.....                | -0.002324            | 4,676         | -0.001200                                   | 2,414        |
| Kentucky.....              | -0.001720            | 5,341         | -0.001519                                   | 4,717        |
| Louisiana.....             | -0.002007            | 6,621         | -0.001352                                   | 4,459        |
| Maine.....                 | -0.003051            | 3,066         | -0.002046                                   | 2,056        |
| Maryland.....              | -0.001879            | 7,604         | -0.001100                                   | 4,449        |
| Massachusetts.....         | -0.001845            | 8,924         | -0.000791                                   | 3,824        |
| Michigan.....              | -0.002911            | 22,083        | -0.001385                                   | 10,506       |
| Minnesota.....             | -0.003859            | 14,226        | -0.002710                                   | 9,989        |
| Mississippi.....           | -0.002421            | 5,085         | -0.002331                                   | 4,896        |
| Missouri.....              | -0.007940            | 33,309        | -0.002372                                   | 9,949        |
| Montana.....               | -0.005126            | 3,568         | -0.003963                                   | 2,758        |
| Nebraska.....              | -0.002615            | 3,292         | -0.001558                                   | 1,961        |
| Nevada.....                | -0.002376            | 3,438         | -0.001641                                   | 2,375        |
| New Hampshire.....         | -0.003949            | 3,767         | -0.001860                                   | 1,774        |
| New Jersey.....            | -0.001349            | 8,490         | -0.000839                                   | 5,282        |
| New Mexico.....            | -0.003029            | 4,023         | -0.001796                                   | 2,385        |
| New York.....              | -0.001303            | 18,488        | -0.000811                                   | 11,505       |
| North Carolina.....        | -0.001908            | 11,203        | -0.001382                                   | 8,114        |
| North Dakota.....          | -0.003144            | 1,503         | -0.002659                                   | 1,271        |
| Ohio.....                  | -0.001298            | 11,210        | -0.000884                                   | 7,638        |
| Oklahoma.....              | -0.004011            | 10,317        | -0.002253                                   | 5,796        |
| Oregon.....                | -0.003939            | 10,356        | -0.001506                                   | 3,958        |
| Pennsylvania.....          | -0.002310            | 21,485        | -0.001198                                   | 11,142       |
| Rhode Island.....          | -0.001581            | 1,205         | -0.001226                                   | 934          |
| South Carolina.....        | -0.004009            | 12,288        | -0.001840                                   | 5,460        |
| South Dakota.....          | -0.005473            | 3,043         | -0.002845                                   | 1,582        |
| Tennessee.....             | -0.002163            | 9,330         | -0.001206                                   | 5,202        |
| Texas.....                 | -0.003860            | 59,315        | -0.001142                                   | 17,541       |
| Utah.....                  | -0.003023            | 4,685         | -0.002427                                   | 3,762        |
| Vermont.....               | -0.007125            | 3,413         | -0.003296                                   | 1,579        |
| Virginia.....              | -0.002550            | 13,684        | -0.001540                                   | 8,266        |
| Washington.....            | -0.002590            | 11,601        | -0.000842                                   | 3,773        |
| West Virginia.....         | -0.002233            | 3,226         | -0.001979                                   | 2,859        |
| Wisconsin.....             | -0.002881            | 11,690        | -0.002288                                   | 9,283        |
| Wyoming.....               | -0.004150            | 1,552         | -0.004075                                   | 1,524        |

<sup>1</sup> Use these parameters for total wildlife-watching participants and residential participants.

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

| State                     | Expenditures     |                |               | Days or trips   |                |               |
|---------------------------|------------------|----------------|---------------|-----------------|----------------|---------------|
|                           | a                | b              | c             | a               | b              | c             |
| <b>United States.....</b> | <b>-0.000286</b> | <b>-65,186</b> | <b>37,635</b> | <b>0.000052</b> | <b>543,738</b> | <b>10,948</b> |
| Alabama.....              | 0.030708         | -4,434         | 4,714         | -0.022833       | -34,485        | 19,838        |
| Alaska.....               | 0.041800         | -4,269         | 1,514         | -0.029715       | -14,349        | 8,241         |
| Arizona.....              | 0.015564         | -88,920        | 7,092         | -0.006753       | 8,600          | 9,994         |
| Arkansas.....             | 0.010470         | -232,312       | 19,942        | -0.016982       | -55,327        | 23,242        |
| California.....           | 0.018066         | -66,438        | 36,961        | 0.012283        | 199,721        | 11,847        |
| Colorado.....             | 0.038817         | -215,098       | 11,070        | -0.052385       | -41,128        | 50,721        |
| Connecticut.....          | 0.009671         | -39,324        | 6,004         | -0.041089       | -115,012       | 28,194        |
| Delaware.....             | 0.048255         | 793            | 1,135         | -0.017715       | -10,761        | 3,753         |
| Florida.....              | 0.037237         | 246,936        | 15,955        | -0.011904       | 368,712        | 53,853        |
| Georgia.....              | 0.049562         | -47,365        | 13,337        | -0.012828       | -66,122        | 35,936        |
| Hawaii.....               | 0.073902         | -7,392         | 1,428         | -0.107474       | -50,423        | 10,960        |
| Idaho.....                | 0.049578         | 3,816          | 4,179         | -0.012767       | 26,870         | 10,809        |
| Illinois.....             | 0.023791         | -91,738        | 15,163        | 0.017880        | -26,735        | 32,660        |
| Indiana.....              | 0.031176         | -6,949         | 11,644        | -0.031304       | -137,397       | 50,618        |
| Iowa.....                 | 0.027387         | -151,677       | 10,811        | -0.043626       | -36,375        | 39,705        |
| Kansas.....               | 0.014086         | -26,411        | 5,617         | -0.020112       | -42,505        | 16,304        |
| Kentucky.....             | 0.034724         | -14,328        | 9,748         | -0.100682       | -143,695       | 76,120        |
| Louisiana.....            | 0.077714         | -11,409        | 5,935         | -0.079705       | -145,421       | 49,422        |
| Maine.....                | 0.023033         | -44,469        | 5,406         | -0.017174       | -7,365         | 9,098         |
| Maryland.....             | 0.043571         | -70,123        | 6,923         | -0.033325       | -216,192       | 46,228        |
| Massachusetts.....        | 0.006810         | -178,680       | 12,400        | -0.031568       | -234,200       | 47,548        |
| Michigan.....             | 0.040492         | -319,042       | 19,607        | -0.018833       | -31,270        | 48,594        |
| Minnesota.....            | 0.014246         | -14,209        | 13,809        | -0.095678       | -560,553       | 139,828       |
| Mississippi.....          | 0.124078         | 18,562         | 3,885         | -0.030843       | -100,539       | 24,176        |
| Missouri.....             | 0.034639         | -25,636        | 11,799        | -0.010269       | 219,841        | 37,795        |
| Montana.....              | 0.057903         | -22,171        | 3,776         | -0.012332       | 5,559          | 10,812        |
| Nebraska.....             | 0.024994         | -4,237         | 3,539         | -0.038650       | -12,323        | 13,951        |
| Nevada.....               | 0.034440         | 22,068         | 4,012         | -0.005101       | -34,384        | 8,741         |
| New Hampshire.....        | 0.035666         | -13,208        | 2,568         | 0.022014        | -23,662        | 6,038         |
| New Jersey.....           | 0.013039         | -52,984        | 9,831         | -0.011200       | 215,547        | 18,712        |
| New Mexico.....           | 0.160478         | -37,219        | 3,245         | -0.041133       | -40,922        | 17,946        |
| New York.....             | 0.055761         | -88,911        | 14,702        | -0.018354       | -352,468       | 78,358        |
| North Carolina.....       | 0.016613         | -38,392        | 14,073        | -0.014391       | -150,974       | 57,926        |
| North Dakota.....         | 0.083798         | -1,532         | 1,564         | 0.000482        | -16,359        | 3,936         |
| Ohio.....                 | 0.013567         | -190,802       | 23,398        | 0.054816        | -205,827       | 28,294        |
| Oklahoma.....             | 0.016264         | -32,772        | 9,957         | 0.012938        | 93,047         | 14,288        |
| Oregon.....               | 0.006779         | -12,633        | 7,354         | -0.034862       | -36,621        | 32,540        |
| Pennsylvania.....         | 0.029900         | -197,526       | 29,144        | 0.024902        | 969,419        | -33,184       |
| Rhode Island.....         | 0.030265         | -1,717         | 1,486         | -0.069322       | -95,835        | 12,964        |
| South Carolina.....       | 0.053921         | 14,141         | 5,196         | -0.019706       | -230,401       | 46,919        |
| South Dakota.....         | 0.057120         | 7,343          | 999           | -0.031149       | -123,874       | 14,456        |
| Tennessee.....            | 0.037696         | -9,299         | 8,559         | 0.000581        | 38,507         | 8,480         |
| Texas.....                | 0.038651         | -443,322       | 33,784        | 0.005378        | 354,179        | 23,102        |
| Utah.....                 | 0.056421         | 9,481          | 4,059         | 0.045711        | -66,098        | 23,779        |
| Vermont.....              | 0.013746         | -43,820        | 3,010         | 0.010618        | -34,930        | 7,630         |
| Virginia.....             | 0.036266         | -105,349       | 16,055        | -0.016136       | -231,865       | 58,093        |
| Washington.....           | 0.018752         | -46,218        | 10,365        | -0.015432       | -108,529       | 31,269        |
| West Virginia.....        | 0.051192         | -2,708         | 2,632         | -0.035244       | -80,788        | 20,819        |
| Wisconsin.....            | -0.001127        | -25,290        | 18,720        | -0.064163       | -592,681       | 124,050       |
| Wyoming.....              | 0.097425         | -2,122         | 1,550         | -0.093805       | -13,385        | 14,702        |

