U.S. Fish & Wildlife Service

2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

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Performing the Nonexclusive Functions and Duties of the Director

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The U.S. Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated Island Communities. The mission of the Department's U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, and their habitats for the continuing benefit of the American people. The Service is responsible for national programs of vital importance to our natural resources, including administration of the Wildlife and Sport Fish Restoration Programs. These two programs provide financial assistance to the states for projects to enhance and protect fish and wildlife resources and to assure their availability to the public for recreational purposes. Multistate grants from these programs fund the National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

Suggested Citation

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Foreword

Over my nearly 40 years of hunting and fishing, I have been able to pursue a wide variety of fish and game in states across the nation. I've developed deep and enduring friendships through hunting and fishing, and marked the progress of my kids to adulthood with every passing season we spent together in the field and on the water.

I've been fortunate to pursue species ranging from mule deer to elk, waterfowl to wild turkeys—and had some of the best days of my life on those hunts. The same goes for fishing. There's nothing quite like standing in a mountain stream, casting into crystal clear waters and seeing the flash of a trout as it takes the fly.

I will carry these memories with me forever, and I'm far from alone. Millions of Americans have grown up hunting, fishing, and spending time in the outdoors with their parents and grandparents, in turn passing those skills on to their children and grandchildren.

Our challenge in today's rapidly urbanizing, fast-paced society is to help them continue to pursue these pastimes, while introducing new generations and communities of Americans to the joys of the outdoors. That's why the *2016 National Survey of Fishing, Hunting and Wildlife-Associated Recreation* is so important.

This final report provides a detailed snapshot of our nation's passion for wildlife and nature. And it serves as a road map to guide our efforts to reach more Americans and provide them with opportunities to hunt, fish, and otherwise enjoy America's wildlife and wild places.

The final 2016 findings largely confirm the positive indications gathered in our preliminary report issued last summer. These findings represent good news for everyone who cares about the health of our wildlife, natural landscapes, and people.

In 2016, more than 103 million Americans—a staggering 40 percent of the U.S. population 16 years and older—participated in some form of fishing, hunting, or other wildlife-associated recreation such as birdwatching or outdoor photography. And in doing so, we spent an estimated $156.9 billion on equipment, travel, licenses, and fees. These expenditures represent almost 1 percent of the nation's Gross Domestic Product—creating and supporting thousands of jobs and communities across the nation.

More than 35.8 million Americans went fishing in 2016, while 11.5 million hunted and 86 million watched wildlife. This means that 14 percent of Americans 16 years of age or older fished, 4 percent hunted and 34 percent participated in wildlife watching.

These pastimes aren't just important for the nation's economy. Revenues from the sale of licenses and tags, as well as excise taxes paid by hunters, anglers, and shooters continue to support vital wildlife and habitat conservation efforts in every state. And on a personal level, a growing body of scientific research supports what so many of us have experienced ourselves—that we're all healthier, happier and better off in myriad ways when we spend time in nature.

The National Survey is the result of close coordination with state wildlife agencies—which recommended financial support through the Multi-State Conservation Grant Programs—the Association of Fish and Wildlife Agencies and a number of major national conservation organizations. I want to express my deep gratitude to these organizations for their commitment and leadership. We look forward to continuing to work closely with our partners to continue this robust and vital survey as we have every five years since 1955.

We also owe thanks to thousands of survey respondents from households across America. Because of you, this Survey continues to serve as the nation's definitive wildlife-related recreation database, a crucial source of accurate information on participation rates, demographics, and purchases nationwide.

We plan to work with our state partners and the broader conservation community to release a series of detailed special reports that further refine and analyze the data we've gathered. This invaluable information will help the Service and our partners effectively engage and connect millions more Americans with the natural world over the next several years.

If you're reading this report, chances are you care deeply about sharing this heritage with your friends, neighbors, and family. Success begins with you! Take the time to mentor a young person in the outdoors, or schedule that long-delayed fishing trip with your college buddies.

The connections and memories you make will last a lifetime. And our nation will be stronger for it.

Gregory J. Sheehan,
Principal Deputy Director,
U.S. Fish and Wildlife Service

Survey Background and Method

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

Preparations for the 2016 Survey began in 2013 when the Association of Fish and Wildlife Agencies (AFWA) asked the Fish and Wildlife Service to coordinate the thirteenth National Survey of wildlife-related recreation. Funding came from the Multistate Conservation Grant Programs, authorized by Sport Fish and Wildlife Restoration Acts, as amended.

A working group consisting of state agency employees and survey experts was set up under the auspices of AFWA to redesign the Survey. The U.S. Census Bureau was contracted to do a national-only survey, and a private contractor did a 50-State survey.

We consulted with state and federal agencies and nongovernmental organizations such as the American Sportfishing Association and National Shooting Sports Foundation to determine survey content. Other sportspersons' organizations and conservation groups, industry representatives, and researchers also provided valuable advice. Target shooting and archery questions were added to the screening interview.

Data collection for the Survey was carried out in two phases by the Census Bureau. The first phase consisted of a prescreen interview and a screen interview. The prescreen began in January 2016 and was designed to collect household telephone numbers and screen out nonparticipant households. The full screening interview, designed to get full demographics and 2015 activity, began in April 2016. During the first phase, the Census Bureau interviewed a sample of 22,725 households nationwide to determine who in the household had fished, hunted, or wildlife watched in 2015, and who had engaged or planned to engage in those activities in 2016. In most cases, one adult household member provided information for all members. The prescreen and screen primarily covered 2015 activities. For more information on the 2015 data, refer to Appendix B.

The second phase of data collection covered 2016 activities in detail and consisted of three detailed interview waves. The first detailed interview ran concurrent with the screen interview in April 2016, the second detailed interview in September 2016, and the last in January 2017. Interviews were conducted with samples of likely anglers, hunters, and wildlife watchers who were identified in the initial screening phase. Interviews were conducted both by telephone and in-person. Respondents in the second survey phase were limited to those who were at least 16 years old. Each respondent provided information pertaining only to his or her activities and expenditures. Sample sizes were designed to provide statistically reliable results at the national level. Altogether, interviews were completed for 3,931 anglers and hunters and 3,997 wildlife watchers. More detailed information on sampling procedures and response rates is found in Appendix D.

Comparability With Previous Surveys

The 2016 Survey's questions and methodology were similar to those used in the 2011, 2006, 2001, 1996, and 1991 Surveys. Therefore, the estimates are comparable.

The methodology for these Surveys differs significantly from the 1955 to 1985 Surveys, so these estimates are not directly comparable to those of earlier Surveys. Changes in methodology included reducing the recall period over which respondents had to report their activities and expenditures. Previous Surveys used a 12-month recall period which resulted in greater reporting bias. Research found that the amount of activity and expenditures reported in 12-month recall surveys was overestimated in comparison with that reported using shorter recall periods.

Highlights

Introduction

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation reports results from interviews with U.S. residents about their fishing, hunting, and wildlife watching. This report focuses on 2016 participation and expenditures of persons 16 years and older.

However, in addition to 2016 numbers, we also provide recent trend information in the Highlights sections and Appendix C of the report. The 2016 numbers reported can be compared with those in the 1991, 1996, 2001, 2006, and 2011 Survey reports because these Surveys used similar methodologies. However, the 2016 estimates should not be directly compared with results from Surveys conducted earlier than 1991 because of changes in methodology. These changes were made to improve accuracy.

The report also provides information on participation in wildlife-related recreation in 2015, particularly of persons 6 to 15 years of age. The 2015 information is provided in Appendix B. Appendix B includes estimates for archery and target shooting with firearms. For the first time, the 2016 Survey included participation questions for these recreational activities. Appendix C has a summary of regional trends and the significant methodological changes from previous Surveys. Information about the scope and coverage of the 2016 Survey can be found in Appendix D. The remainder of this section defines important terms used in the Survey.

Wildlife-Associated Recreation

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

Fishing and Hunting

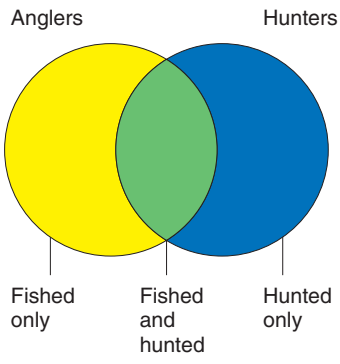
This Survey reports information about residents of the United States who fished or hunted in 2016, regardless of whether they were licensed. The fishing and hunting sections report information for three groups: (1) sportspersons, (2) anglers, and (3) hunters.

Sportspersons

Sportspersons are those who fished or hunted. Individuals who fished or hunted commercially in 2016 are reported as sportspersons *only* if they also fished or hunted for recreation. The sportspersons group is composed of the three subgroups shown in the diagram below: (1) those that fished and hunted, (2) those that only fished, and (3) those that only hunted.

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

Sportspersons



Anglers

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

Hunters

Hunters are sportspersons who only hunted plus those who hunted and fished. Hunters include not only licensed hunters using rifles and shotguns, but also those who have no license and those who engage in hunting with archery equipment, muzzleloaders, other primitive firearms, or pistols or handguns. Four types of hunting reported are: (1) big game, (2) small game, (3) migratory bird, and (4) other animals. Since many hunters participated in more than one type of hunting, the sum of hunters for big game, small game, migratory bird, and other animals exceeds the total number of hunters.

Wildlife Watchers

Since 1980, the National Survey has included information on wildlife-watching activities in addition to fishing and hunting. However, unlike the 1980 and 1985 Surveys, the National Surveys since 1991 have

collected data only for those activities where the primary purpose was wildlife watching (observing, photographing, or feeding wildlife).

The 2016 Survey uses a strict definition of wildlife watching. Participants must either take a "special interest" in wildlife around their homes or take a trip for the "primary purpose" of wildlife watching. Secondary wildlife watching, such as incidentally observing wildlife while pleasure driving, is not included. Two types of wildlife-watching activity are reported: (1) away-from-home (formerly nonresidential) activities and (2) around-the-home (formerly residential) activities. Because some people participated in more than one type of wildlife-watching, the sum of participants in each type will be greater than the total number of wildlife watchers. Only those engaged in activities whose *primary* purpose was wildlife watching are included in the Survey. The two types of wildlife-watching activity are defined below.

Away-From-Home

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

Around-the-Home

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

Summary

The *2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* revealed that over 103 million U.S. residents 16 years and older participated in wildlife-related recreation. During that year, 35.8 million people fished, 11.5 million hunted, and 86.0 million participated in at least one type of wildlife-watching activity including observing, feeding, or photographing fish and other wildlife in the United States.

The focus of the National Survey is to estimate participation and expenditures of persons 16 years and older in a single year. These estimates are based on data collected in the detailed phase of the 2016 Survey. They are comparable to the estimates of the 1991, 1996, 2001, 2006, and 2011 Surveys but not to earlier Surveys because of changes in methodology. A complete explanation is in Appendix C.

While the focus of the Survey is to estimate wildlife-related recreationists 16 years and older and their associated expenditures in a single year, information collected in the Survey screen can be used to estimate the number of anglers and hunters who were active over a 5-year period. Because many do not participate every year, the following estimates may be more representative of the number of individuals considered to be anglers and hunters in the United States: 53.6 million individuals fished and 17.6 million hunted over the 5 years from 2011 to 2015.

The Survey screen also provides some information about 6- to 15-year-olds' participation which was calculated by using data from the Survey screen. The following are estimates of their participation in 2016—of the 40.5 million 6- to 15-year-olds in the United States, 1.4 million hunted and 8.1 million fished. The number of 6- to 15-year-old wildlife watchers cannot be estimated due to a change in Survey screening questions. More information about this age group is provided in Appendix B. For the rest of this report, all information pertains to participants 16 years and older, unless otherwise indicated.

For the first time, the number of target shooters who used a firearm and the number of recreational archers were estimated. The questions were in the screening questionnaire, which is asked of a household respondent and covers a year's worth of activity—this results in an unknown amount of overestimation in the estimate due to recall bias. With that caveat, an estimated total of 32.0 million people 6 years and older went target shooting with firearms in 2015. Approximately 12 percent of them (3.8 million) were children 6 to 15 years old, and the remaining 28.2 million were 16 years and older. That means over a tenth of adult Americans (11 percent) went target shooting, either at a range or more informally in the field. As for archery, 12.4 million Americans 6 years and older engaged in archery in 2015. An estimated 21 percent of them (2.6 million) were 6 to 15 years old. About 79 percent (9.8 million) were adults 16 years and older. Their participation rate was 4 percent.

There was a considerable overlap in activities among anglers, hunters, and wildlife watchers. In 2016, 67 percent of hunters also fished, and 21 percent of anglers hunted. Approximately 56 percent of anglers and 55 percent of

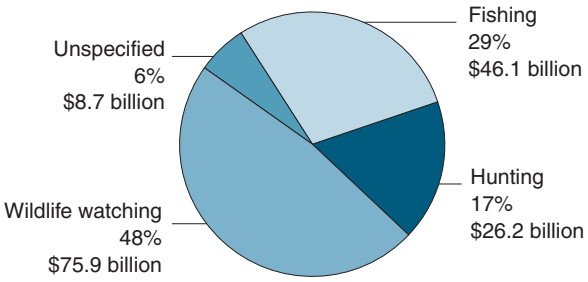
Total Wildlife-Related Recreation

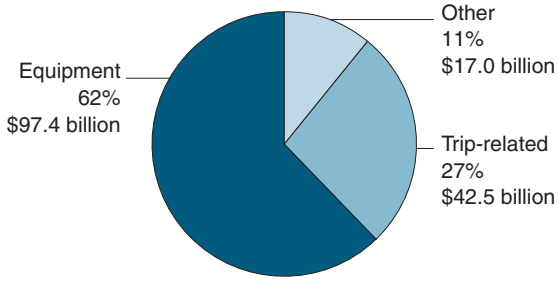
Participants	103.7 million
Expenditures	$156.9 billion
Sportspersons	
Total participants*	39.6 million
Anglers	35.8 million
Hunters	11.5 million
Total days	643 million
Fishing	459 million
Hunting	184 million
Total expenditures	$81.0 billion
Fishing	46.1 billion
Hunting	26.2 billion
Unspecified	8.7 billion
Wildlife Watchers	
Total participants**	86.0 million
Around the home	81.1 million
Away from home	23.7 million
Total expenditures	$75.9 billion

* 7.7 million both fished and hunted.

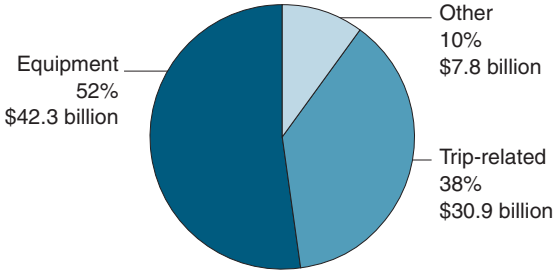
** 18.8 million wildlife watched both around the home and away from home.

Expenditures for Wildlife-Related Recreation
(Total expenditures: $156.9 billion)

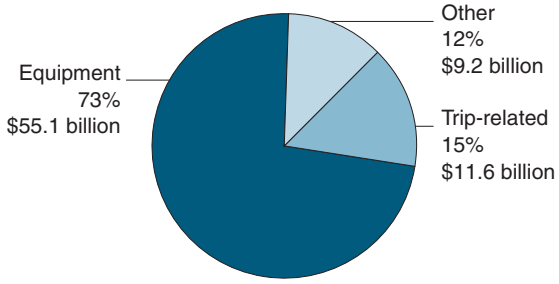




Expenditures by Sportspersons
(Total expenditures: $81.0 billion)



Expenditures by Wildlife-Watching Participants
(Total expenditures: $75.9 billion)



hunters wildlife watched, while 25 percent of all wildlife watchers reported hunting and/or fishing during the year.

Wildlife recreationists' avidity also is reflected in the $157 billion they spent in 2016 on their activities, which was almost 1 percent of the Gross Domestic Product. Of the total amount spent, $42.5 billion was trip-related, $97.4 billion was spent on equipment, and $17.3 billion was spent on other items such as licenses and land leasing and ownership.

Sportspersons spent a total of $81.0 billion in 2016—$46.1 billion on fishing, $26.2 billion on hunting, and $8.7 billion on items used for both hunting and fishing. Wildlife watchers spent $75.9 billion on their activities around the home and on trips away from home.

Fishing and Hunting

In 2016, 39.6 million U.S. residents 16 years and older went fishing and/or hunting. This includes 35.8 million[1] who fished and 11.5 million who hunted. Nearly 7.7 million both fished and hunted.

In 2016, expenditures by sportspersons totaled $81.0 billion. Trip-related expenditures, including those for food, lodging, and transportation, were $30.9 billion—38 percent of all fishing and hunting expenditures. Total equipment expenditures amounted to $42.3 billion,[2] 52 percent of the total. Other expenditures—magazines, membership dues, contributions, land leasing and ownership, and licenses, stamps, tags, and permits—accounted for $7.8 billion or 10 percent of all sportsperson expenditures.

[1] The difference between people 16 years and older who fished and/or hunted versus people who fished only is not significant.

[2] The difference between the estimates of trip-related expenditures and equipment expenditures was not statistically significant.

Wildlife-Watching Recreation

Closely observing, feeding, or photographing wildlife was enjoyed by 86.0 million people 16 years and older in 2016. Of this group, 23.7 million people took trips away from home for the purpose of enjoying wildlife, while 81.1 million[3] stayed within a mile of home to participate in wildlife-watching activities.

In 2016, wildlife watchers spent $75.9 billion. Trip-related expenses, including food, lodging, and transportation, totaled $11.6 billion (15 percent of all expenditures). A total of $55.1 billion[4] was spent on equipment, 73 percent of all wildlife-watching expenses. The

[3] The difference between the estimates of total participants of wildlife watching and wildlife-watching participants who stayed within a mile of home was not significant.

[4] The difference between the estimates of total expenditures and total equipment expenditures was not statistically significant.

remaining $9.2 billion[5] (12 percent of the total) was spent on magazines, membership dues and contributions made to conservation or wildlife-related organizations, land leasing and owning, and plantings.

2011 and 2016 Comparison

A 5-year comparison of estimates from 2011 to 2016 shows a 16 percent increase in the total number of people 16 years and older participating in wildlife-related recreation activities in the United States. The increase was primarily among those who wildlife watched.

[5] The difference between the estimates of total trip-related expenditures and total expenditures for magazines, books, DVDs, land leasing and ownership, membership dues and contributions, and plantings was not statistically significant.

Sportspersons rose from 37.4 million in 2011 to 39.6 million[6] in 2016, and expenditures fell from $96.1 billion (in 2016 dollars) in 2011 to $81.0 billion[7] in 2016.

In 2016, 35.8 million fished and 11.5 million hunted compared with 33.1 million[8] who fished and 13.7 million who hunted in 2011. Overall expenditures on fishing increased[9] and expenditures on hunting decreased,[10] in line with their participation numbers. The 62 percent decrease in land leasing and owning expenditures was the single biggest percentage drop in hunting expenditures. The category with the biggest increase in expenditures for angling was auxiliary equipment, which more than doubled.

From 2011 to 2016, the number of wildlife watchers and their expenditures increased 20 percent and 29 percent,[11] respectively. Around-the-home photographing was the participation category and special equipment was the expenditure category that increased the most.

[6] The difference between the estimates of total sportspersons in 2011 and 2016 was not statistically significant.

[7] The difference between the estimates of sportsperson expenditures in 2011 and 2016 was not statistically significant.

[8] The difference between estimates of total anglers in 2011 and 2016 was not statistically significant.

[9] The increase in fishing expenditures from 2011 to 2016 was not statistically significant.

[10] The decrease in hunting expenditures from 2011 to 2016 was not statistically significant.

[11] The increase in wildlife-watching expenditures from 2011 to 2016 was not statistically significant.

2011–2016 Wildlife-Associated Recreation Comparison of Participants

(Numbers in thousands)

	2011		2016	
	Number	Percent	Number	Percent
Total wildlife-related recreationists	**90,108**	**100**	**103,694**	**100**
Total sportspersons	**37,397**	**42**	**39,553**	**38**
Anglers	33,112	37	35,754	34
Hunters	13,674	15	11,453	11
Total wildlife-watching participants.	**71,776**	**80**	**86,042**	**83**
Around the home	68,598	76	81,128	78
Away from home	22,496	25	23,720	23

2011–2016 Wildlife-Associated Recreation Comparison of Expenditures

(Numbers in billions of 2016 dollars)

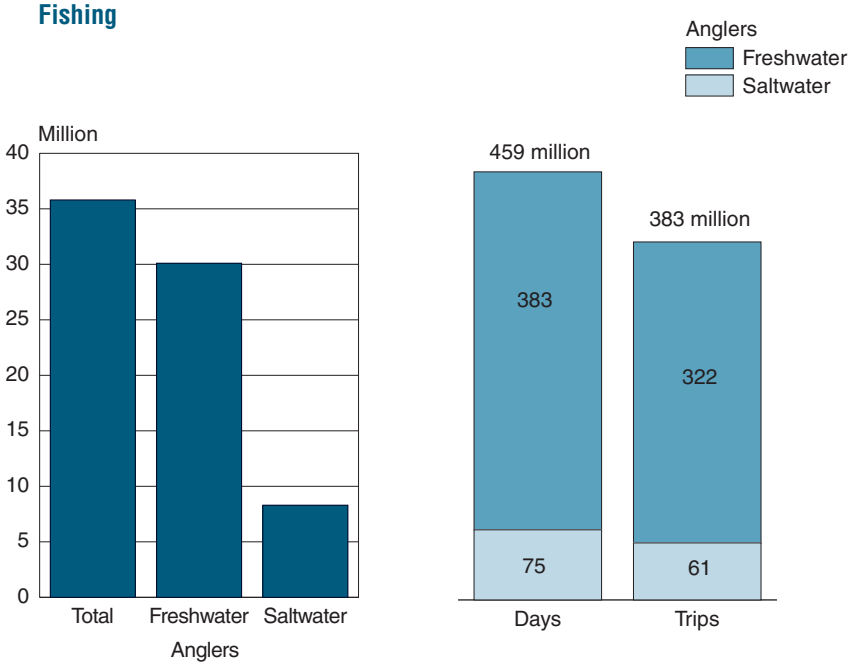
	2011		2016	
	Number	Percent	Number	Percent
Total, wildlife-related recreation expenditures . . .	**154.8**	**100**	**156.9**	**100**
Total, fishing and hunting expenditures.	**96.1**	**100**	**81.0**	**100**
Fishing expenditures, total	**44.7**	**100**	**46.1**	**100**
Trip-related.	23.3	52	21.7	47
Equipment, total.	16.6	37	21.1	46
Fishing equipment	6.5	15	7.4	16
Auxiliary equipment.	1.2	3	3.2	7
Special equipment	8.9	20	10.5	23
Other	4.8	11	3.3	7
Hunting expenditures, total.	**36.1**	**100**	**26.2**	**100**
Trip-related.	11.1	31	9.2	35
Equipment, total.	15.0	41	12.8	49
Hunting equipment	8.2	23	7.4	28
Auxiliary equipment	1.9	5	2.0	8
Special equipment.	4.7	13	3.4	13
Other	10.0	28	4.2	16
Wildlife-watching expenditures, total	**58.7**	**100**	**75.9**	**100**
Trip-related.	18.5	31	11.6	15
Equipment, total.	29.1	49	55.1	73
Wildlife-watching equipment	12.1	21	12.1	16
Auxiliary equipment	1.7	3	1.0	1
Special equipment.	15.3	26	41.9	55
Other	11.2	19	9.2	12


Fishing

Fishing Highlights

In 2016, 35.8 million residents 16 years and older enjoyed a variety of fishing opportunities throughout the United States. Anglers fished 459 million days and took 383 million fishing trips. They spent over $46.1 billion in fishing-related expenses during the year. Freshwater anglers numbered 30.1 million. They fished 383 million days and took 322 million trips to freshwater in 2016. Freshwater anglers spent $29.9 billion on freshwater fishing trips and equipment. Saltwater fishing attracted 8.3 million anglers who enjoyed 61 million trips on 75 million days. They spent $11.2 billion on their trips and equipment.

Fishing



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

Total Fishing

Anglers	**35.8 million**
Freshwater	30.1 million
Saltwater	8.3 million
Days	**459 million**
Freshwater	383 million
Saltwater	75 million
Trips	**383 million**
Freshwater	322 million
Saltwater	61 million
Expenditures	**$46.1 billion**
Freshwater	29.9 billion
Saltwater	11.2 billion
Nonspecific	5.0 billion

Note: Freshwater and saltwater expenditures only include trip-related and equipment expenditures.

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

Source: Tables 1, 12, 13, and 16.

Fishing Expenditures

Anglers spent $46.1 billion in 2016, including $21.7 billion on trip-related items—47 percent of all fishing expenditures. Food and lodging accounted for $7.8 billion dollars, 36 percent of all trip-related costs. Spending on transportation totaled $5.0 billion, 23 percent of trip-related expenditures.[12] Other trip-related expenditures such as land use fees, guide fees, equipment rental, boating expenses, and bait cost anglers $8.8 billion—41 percent of all trip expenses.[13]

Equipment expenditures totaled $21.1 billion, 46 percent of all fishing expenditures. Anglers spent $7.4 billion on fishing equipment such as rods, reels, tackle boxes, depth finders, and artificial lures and flies. This amounted to 35 percent of all equipment expenditures. Auxiliary equipment expenditures, which include camping equipment, binoculars, and special fishing clothing, totaled $3.2 billion—15 percent of equipment costs. Expenditures for special equipment such as boats, vans, and cabins were $10.5 billion—50 percent of all equipment costs.[14]

Anglers also spent a considerable amount on other fishing-related items, such as land leasing and ownership, membership dues, contributions, licenses, stamps, and permits. Land leasing and ownership spending totaled $2.4 billion, which is 5 percent of all expenditures. Expenditures on magazines, books, DVDs, membership dues and contributions,[15] licenses, stamps, tags, and permits were $0.9 billion.

[12] The difference between estimates of food and lodging expenditures and transportation expenditures was not statistically significant.

[13] The difference between estimates of food and lodging expenditures and other trip-related expenditures was not statistically significant.

[14] The difference between estimates of fishing equipment expenditures and special equipment expenditures was not statistically significant.

[15] The difference between the estimates of expenditures for magazines, books, and DVDs and membership dues and contributions was not statistically significant.

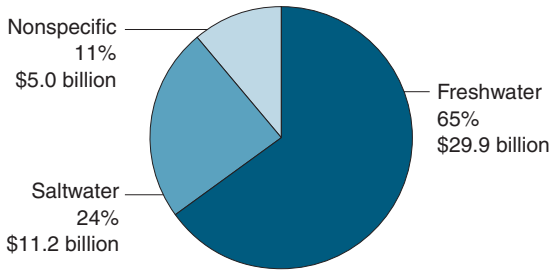
Total Fishing Expenditures

Total fishing expenditures	**$46.1 billion**
Total trip-related expenditures	**$21.7 billion**
Food and lodging	7.8 billion
Transportation	5.0 billion
Other trip costs	8.8 billion
Total equipment expenditures	**$21.1 billion**
Fishing equipment	7.4 billion
Auxiliary equipment	3.2 billion
Special equipment	10.5 billion
Total other fishing expenditures	**$3.3 billion**
Magazines, books, and DVDs	0.1 billion
Membership dues and contributions	0.2 billion
Land leasing and ownership	2.4 billion
Licenses, stamps, tags, and permits	0.6 billion

Source: Table 12.

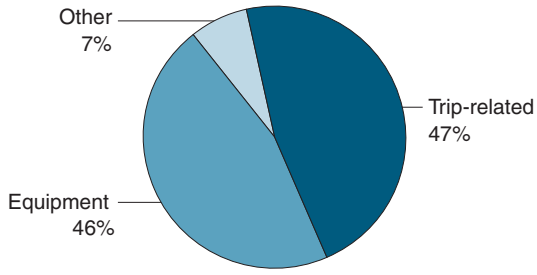
Fishing Expenditures by Type of Fishing

(Total expenditures: $46.1 billion)



Percent of Total Fishing Expenditures

(Total expenditures: $46.1 billion)



Freshwater Fishing

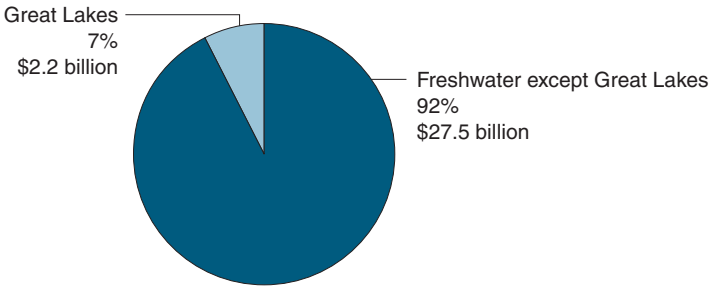
Anglers	**30.1 million**
Freshwater except Great Lakes	29.5 million
Great Lakes	1.8 million
Days	**383 million**
Freshwater except Great Lakes	373 million
Great Lakes	13 million
Trips	**322 million**
Freshwater except Great Lakes	311 million
Great Lakes	11 million
Trip and equipment expenditures	**$29.9 billion**
Freshwater except Great Lakes	27.5 billion
Great Lakes	2.2 billion

Note: Detail does not add to total because of multiple response and nonresponse. For trip and equipment expenditures, the total is greater than the sum because some anglers bought equipment for an activity in which they did not participate.

Source: Tables 1, 13, 14, and 15.

Freshwater Fishing Trip and Equipment Expenditures

(Total expenditures: $29.9 billion)



Note: The total is greater than the sum because some anglers bought equipment for an activity in which they did not participate.

Freshwater Fishing Highlights

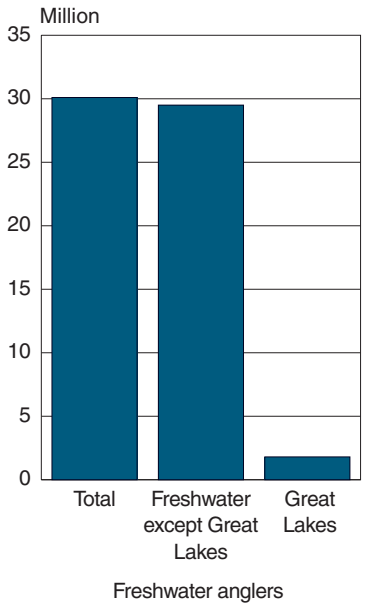
Freshwater fishing was the most popular type of fishing. In 2016, 30.1 million Americans fished 383 million days and took 322 million trips. Their expenditures for trips and equipment totaled $29.9 billion for the year. Excluding those who fished the Great Lakes, freshwater anglers numbered 29.5 million, 82 percent of all anglers. Freshwater anglers in their non-Great Lakes fishing took 311 million trips on 373 million days and spent $27.5 billion on trips and equipment for an average of $933 per angler.

Over 1.8 million anglers enjoyed 13 million days and 11 million trips fishing on the Great Lakes. Their trip and equipment expenditures, $2.2 billion, were 7 percent of the total freshwater trip and equipment expenditures. Great Lakes anglers averaged $1,232 for the year.

Freshwater Fishing Expenditures

Trip and equipment expenditures for freshwater fishing (excluding the Great Lakes) totaled $27.5 billion in 2016. Total trip-related expenditures came to $13.5 billion. Food and lodging amounted to $5.1 billion, 38 percent of all trip costs. Transportation costs were

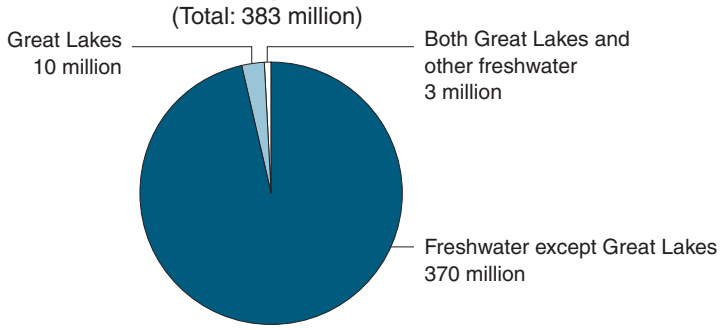
Freshwater Fishing



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

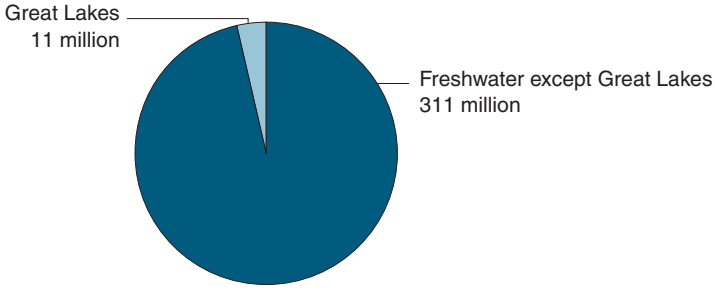
Days

(Total: 383 million)



Trips

(Total: 322 million)



$3.6 billion, 27 percent of trip costs. Other trip-related expenses amounted to $4.8 billion and included guide fees, equipment rental, and bait.[16]

Over $14.0 billion was spent on equipment for freshwater fishing, excluding the Great Lakes. Non-Great Lakes freshwater anglers purchased $4.2 billion of fishing equipment such as rods and reels, tackle boxes, depth finders, and artificial lures and flies. Expenditures for auxiliary equipment, including camping equipment and binoculars, totaled $2.8 billion for the year. Expenditures for special equipment such as boats, vans, and cabins accounted for $7.0 billion.[17]

Great Lakes anglers spent $2.2 billion on trips and equipment in 2016. Trip-related expenses totaled $2.1 billion. Of these expenditures, $474 million was spent on food and lodging, 23 percent of trip costs; $306 million went for transportation, 15 percent of trip costs[18]; and $1.3 billion was spent on other items such as guide fees, equipment rental, and bait, 62 percent of trip costs.[19]

Great Lakes anglers spent $184 million on equipment. They bought $158 million worth of fishing equipment (rods, reels, etc.). The remaining $26 million was spent on auxiliary and special equipment.[20]

[16] The differences among estimates of food and lodging expenditures, transportation expenditures, and other trip-related expenditures were not statistically significant.

[17] The differences among estimates of fishing equipment expenditures, auxiliary equipment expenditures, and special equipment expenditures were not statistically significant.

[18] The difference between estimates of food and lodging expenditures and transportation expenditures was not statistically significant.

[19] The difference between estimates of food and lodging expenditures and other item expenditures was not statistically significant.

[20] The difference between estimates of fishing equipment expenditures and auxiliary and special equipment expenditures was not statistically significant.

Saltwater Fishing

Anglers	8.3 million
Days	75 million
Trips	61 million
Trips and equipment expenditures	$11.2 billion

Source: Tables 1 and 16.

Saltwater Fishing Highlights

In 2016, 8.3 million anglers enjoyed saltwater fishing on 61 million trips, totaling 75 million days. Overall, they spent $11.2 billion during the year on trips and equipment. Of their expenditures, trip-related costs garnered the largest portion, $6.2 billion. Food and lodging cost $2.3 billion, 37 percent of trip expenditures; transportation costs totaled $1.1 billion, 18 percent of trip costs; and other trip costs such as equipment rental, bait, and guide fees were $2.8 billion.[21]

Anglers spent a total of $5.0 billion on equipment for saltwater fishing.[22] Of the $5.0 billion, $2.7 billion was for fishing equipment (rods, reels, etc.), $291 million for auxiliary equipment (camping equipment, binoculars, etc.), and $2.1 billion for special equipment (boats, vans, etc.).[23]

[21] The difference between estimates of food and lodging expenditures and other trip cost expenditures was not statistically significant.

[22] The difference between estimates of trip-related expenditures and equipment expenditures was not statistically significant.

[23] The difference between estimates of fishing equipment expenditures and special equipment expenditures was not statistically significant.

Comparative Fishing Highlights

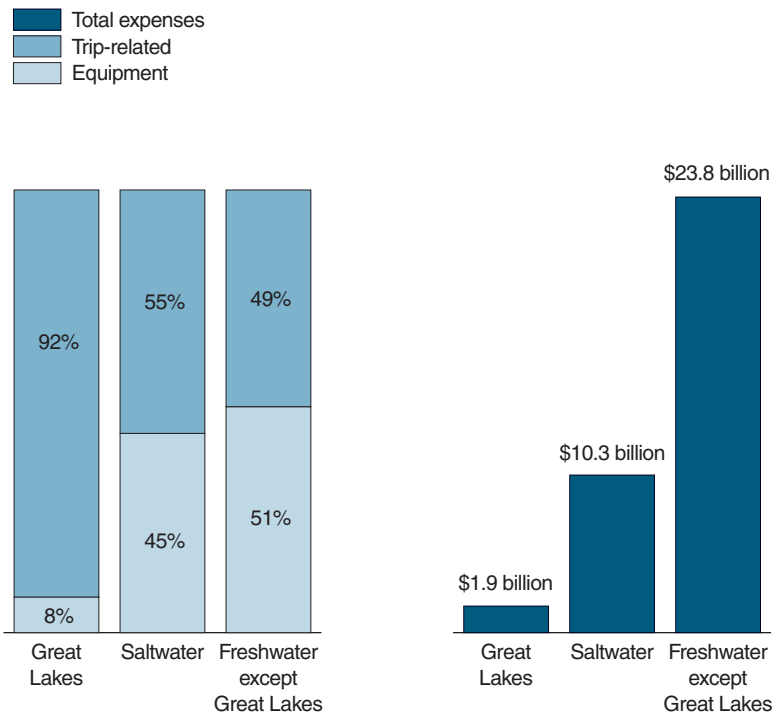
In 2016, anglers spent an average of 13 days fishing and took an average of 11 fishing trips. Freshwater, non-Great Lakes anglers averaged 13 days fishing and 11 trips, while Great Lakes anglers averaged 7 days fishing and 6 trips. Saltwater anglers fished 9 days on average and averaged 7 trips.[24]

Overall, anglers spent an average of $1,290 on fishing-related expenses in 2016. They averaged $608 per angler for their trip-related costs, a daily average of $47. Freshwater anglers, excluding the Great Lakes, averaged $458 per participant for their trips in 2016, equaling $36 per day. Great Lakes anglers spent an average of $1,131 on trip-related expenses, $153 per day, the highest average amount. Saltwater anglers had an average expenditure amount of $739, an average of $82 per day.[25]

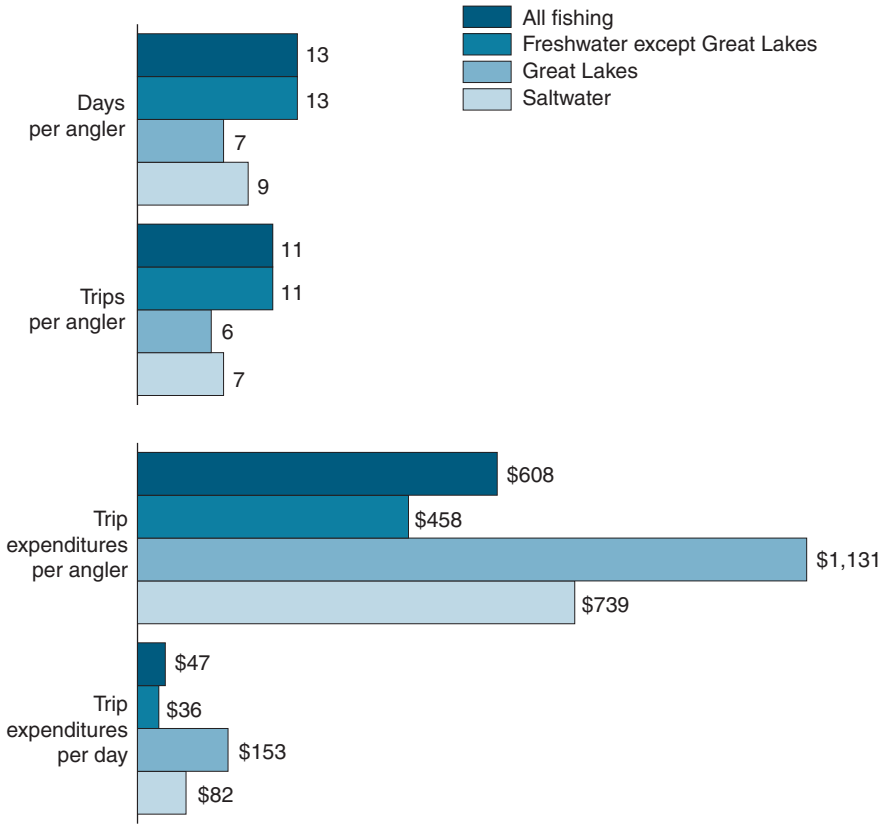
[24] The differences between the estimates of days and trips for Great Lakes and saltwater anglers were not statistically significant.

[25] The differences between average per angler and average per day for Great Lakes and saltwater anglers were not statistically significant.

Comparative Trip and Equipment Expenditures



Comparative Fishing by Type of Fishing



Selected Fish by Type of Fishing

(In millions)

Type of fishing	Anglers	Days
Freshwater except Great Lakes, total	**29.5**	**373**
Black bass	9.6	117
Panfish	8.4	110
Trout	7.8	63
Catfish/bullhead	8.1	74
Crappie	7.8	107
White bass, striped bass, and striped bass hybrids	5.0	72
Great Lakes, total	**1.8**	**13**
Walleye, sauger	0.5	3
Salmon	0.9	6
Steelhead	0.4	2
Saltwater, total	**8.3**	**75**
Red drum (redfish)	2.1	21
Striped bass	1.1	10
Flatfish (flounder, halibut)	1.0	11
Sea trout (weakfish)	0.7	5
Bluefish	0.6	4
Salmon	0.4	4

Source: Tables 3, 4, and 5.

Fishing for Selected Fish

The most popular fish species among the 29.5 million anglers who fished freshwater, other than the Great Lakes, was black bass. Nearly 9.6 million anglers spent 117 million days fishing for black bass. Panfish were sought by 8.4 million anglers on 110 million days. Catfish and bullheads drew 8.1 million anglers on 74 million days. Trout fishing attracted 7.8 million anglers on 63 million days. Approximately 7.8 million anglers fished for crappie on 107 million days. Almost 5 million anglers fished for white bass and striped bass on 72 million days.[26] Freshwater anglers also commonly fished for walleye, northern pike, sauger, salmon, and steelhead. "Anything" was also a common response of anglers.

In 2016, 1.8 million anglers fished the Great Lakes. Salmon, the most commonly sought fish for these waters, attracted 862 thousand anglers, fishing 6 million days. Walleye and sauger drew 508 thousand anglers for 3 million days of fishing. There were 422 thousand steelhead anglers, fishing 2 million days.[27] Great Lakes anglers also fished for northern pike, pickerel, and muskie, as well as black bass and lake trout.

Of the 8.3 million saltwater anglers, 2.4 million fished for anything for 13 million days. Over 2.1 million fished for red drum (redfish) for 21 million days. Over 1.1 million anglers fished for striped bass on 10 million days. One million anglers fished for flatfish, which includes flounder and halibut, on 11 million days. Also popular were sea trout (weakfish) with 712 thousand anglers who fished 5.3 million days.[28] Other prominent saltwater species sought were bluefish with 610 thousand anglers, tuna with 614 thousand anglers, mackerel with 442 thousand

[26] None of the differences between the number of anglers was statistically significant except for white bass/striped bass anglers and each of black bass, panfish, catfish/bullheads, trout, and crappie angler estimates. None of the differences between the days estimates were statistically significant, except for the black bass days and trout days.

[27] None of the differences between the angler estimates or days estimates were statistically significant.

[28] The differences between estimates of fishing days for anything, red drum, striped bass, flatfish, and sea trout were not statistically significant, except for red drum and sea trout.

anglers, and mahi mahi (dolphinfish) with 261 thousand anglers.[29]

Participation by Geographic Division

In 2016, 255 million people 16 years and older lived in the United States and 1 of 7 of these U.S. residents went fishing. While the national participation rate was 14 percent, the regional rates ranged from 8 percent in the Pacific to 20 percent in the East South Central Region. The East South Central, West North Central, East North Central, West South Central, South Atlantic, and Mountain Regions all reported participation rates above the national rate.[30] The New England, Middle Atlantic, and Pacific Regions fell below the national rate.[31]

Fishing in State of Residence and in Other States

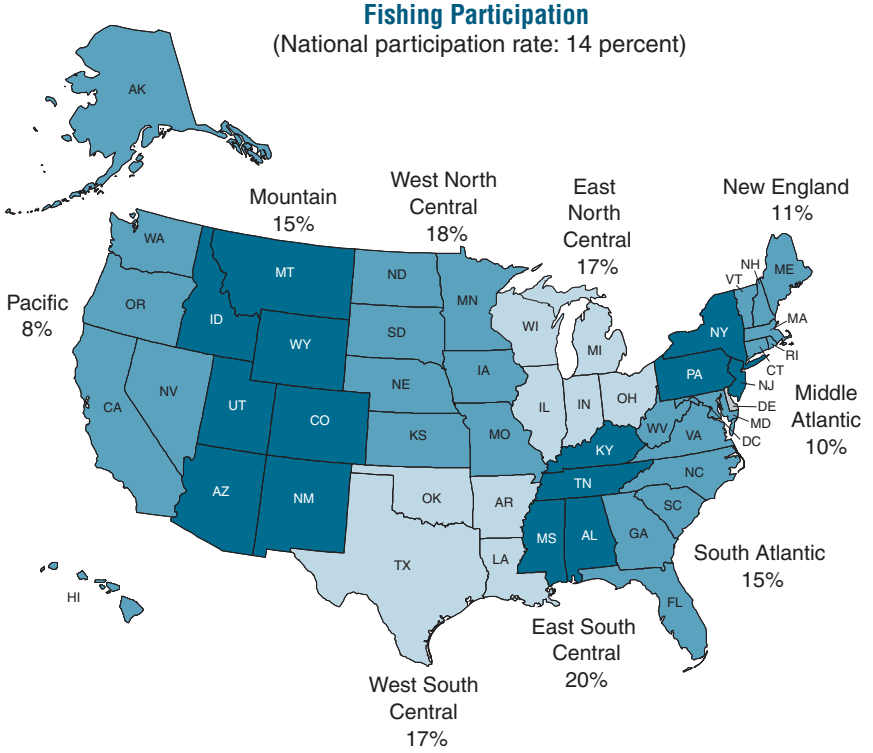
A large majority of the 35.8 million anglers who fished in 2016 did so within their home state. Approximately 32.1 million participants, 90 percent of all anglers, fished in their resident state. Over 8.8 million, 25 percent, fished out-of-state. Percentages do not add to 100 because those anglers who fished both in state and out of state were included in both categories.

Of the 29.5 million non-Great Lakes freshwater anglers, 92 percent (27.3 million) fished within their resident state. Nearly 6.1 million (21 percent) of these freshwater anglers fished out of state.

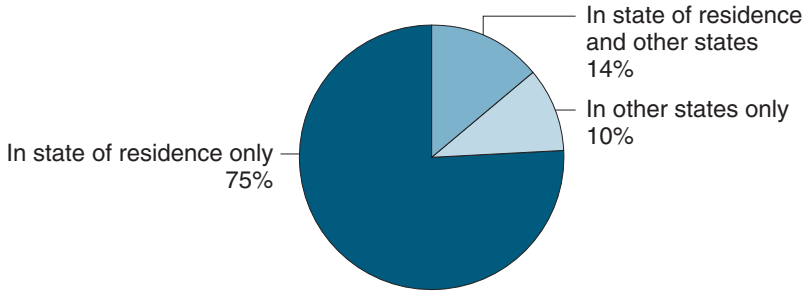
An estimated 70 percent (1.3 million) of all Great Lakes anglers enjoyed fishing within their home state in 2016. Approximately 36 percent (0.7 million) of all Great Lakes anglers fished out of state.[32]

Approximately 27 percent of saltwater anglers fished outside their resident state. The percentage fishing within their resident state was 81 percent. Nonresident saltwater anglers numbered 2.2 million and resident anglers 6.7 million.

Fishing Participation
(National participation rate: 14 percent)



Percent of All Fishing in State of Residence and in Other States
(Total: 35.8 million participants)



Fishing in State of Residence and in Other States

(In millions)

	In state	Out of state
Total anglers	**32.1**	**8.8**
Freshwater except Great Lakes	27.3	6.1
Great Lakes	1.3	0.7
Saltwater	6.7	2.2

Source: Table 2.

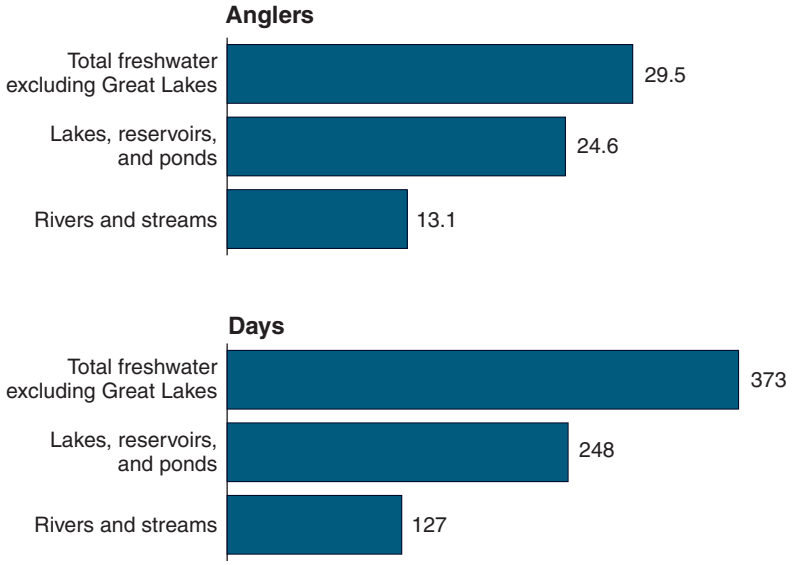
[29] The differences between estimates of the number of anglers for anything, red drum, striped bass, flatfish, sea trout, bluefish, tuna, mackerel, and mahi mahi were not statistically significant, except for anything and striped bass, anything and flatfish, anything and sea trout, anything and bluefish, anything and tuna, anything and mackerel, anything and mahi mahi, red drum and flatfish, red drum and sea trout, red drum and bluefish, red drum and tuna, red drum and mackerel, red drum and mahi mahi, striped bass and mahi mahi, and flatfish and mahi mahi.

[30] None of the participation rates for resident anglers of the East South Central, West North Central, East North Central, West South Central, South Atlantic, and Mountain Regions were statistically significantly different from the national rate.

[31] The difference between the national rate and New England's rate was not statistically significant.

[32] The difference between the number of Great Lakes anglers fishing in their home state and the number fishing out of state was not statistically significant.

Types of Freshwater Fished, Excluding Great Lakes
(In millions)



Great Lakes Fishing

	Anglers (thousands)	Percentage of all Great Lakes anglers
Total, all Great Lakes	**1,824**	**100**
Lake Michigan	1,087	60
Lake Erie	390	21
Lake Ontario	117	6

Source: Table 26.
Note: Other Great Lakes and tributaries not listed due to small sample sizes.

Types of Freshwater Fished, Excluding Great Lakes

Excluding the Great Lakes, 83 percent or 24.6 million of all freshwater anglers fished in reservoirs, lakes, and ponds; 45 percent or 13.1 million fished in rivers and streams. They spent 248 million days fishing in lakes, reservoirs, and ponds and 127 million days fishing in rivers and streams.

Great Lakes Anglers

Great Lakes fishing includes not only the Great Lakes, but also their tributaries—bodies of water that connect the Great Lakes, and the St. Lawrence River south of the bridge at Cornwall. The most popular of the Lakes among anglers was Lake Michigan, attracting 60 percent of all Great Lakes anglers. They averaged 9 days of fishing in Lake Michigan during 2016. Lake Erie ranked second in popularity, hosting 21 percent of Great Lakes anglers with an average of 7 days per angler.[33] Lake Ontario drew 6 percent of all Great Lakes anglers in 2016. Anglers fished an average of 4 days in Lake Ontario.[34] The remaining lakes and tributaries have estimates that are too small to report due to small sample sizes.

[33] The differences in the number of Lake Michigan and Lake Erie anglers and their average days were not statistically significant.

[34] The difference in the number of Lake Erie and Lake Ontario anglers was not statistically significant. The difference in the average days estimates for Lake Michigan and Lake Erie was not statistically significant, nor was the difference for Lake Ontario and Lake Erie anglers.

Sex and Age of Anglers

Although more men than women fished in 2016, a substantial number of women, 9.8 million, fished. Approximately 21 percent of all males 16 years and older went fishing, while 7 percent of all females fished. Of the 35.8 million anglers who fished in the United States, 73 percent (26.0 million) were male and 27 percent were female.

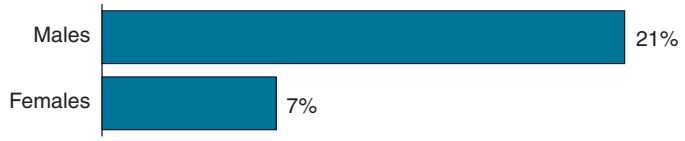
Turning to age categories, 7.1 million anglers were 45 to 54 years old. They composed 20 percent of all anglers and had a participation rate of 17 percent. The 25- to 34-year-old age group accounted for 5.0 million anglers, 14 percent of all anglers. They had 11 percent participation. Nearly 6.6 million anglers, 18 percent of all anglers, were 35 to 44 years old. Their participation rate was 16 percent of the U.S. population in that age group. The 6.7 million 55- to 64-year-olds who fished composed 19 percent of all anglers and had a participation rate of 16 percent. The 2.2 million anglers 18 to 24 years old made up 6 percent of the angler population and had a participation rate of 8 percent. Anglers 75 years and older numbered 2.0 million, 6 percent of all anglers, and had a participation rate of 10 percent. The 16- and 17-year-olds added 1.1 million

Anglers by Sex and Age

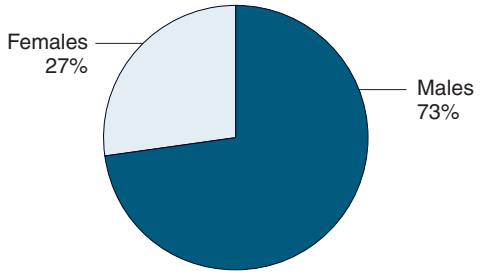
Total, both sexes . .	**35.8 million**
Male	26.0 million
Female	9.8 million
Total, all ages	**35.8 million**
16 and 17	1.1 million
18 to 24	2.2 million
25 to 34	5.0 million
35 to 44	6.6 million
45 to 54	7.1 million
55 to 64	6.7 million
65 and older	7.1 million

Source: Table 9.

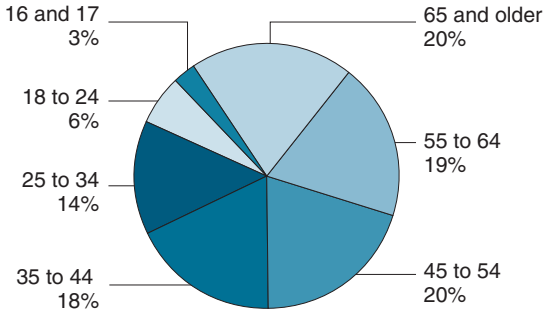
Percent of Males and Females Who Fished in the United States



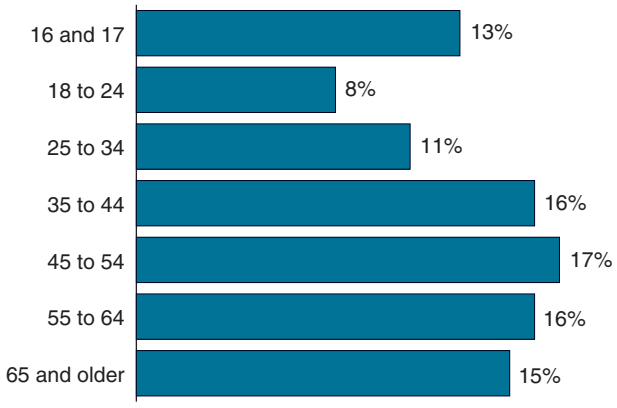
Percent of Anglers by Sex



Percent of Anglers by Age

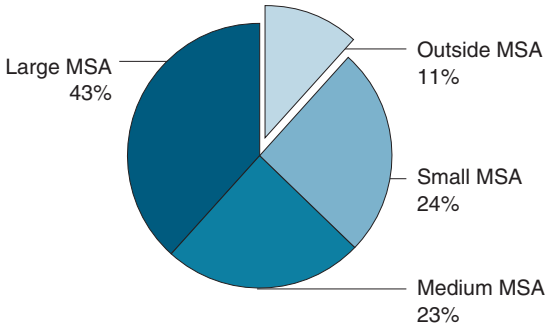


Percent of U.S. Population Who Fished by Age



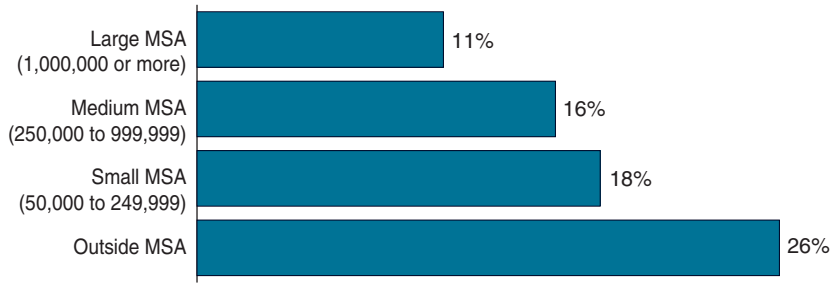
Percent of Anglers by Residence

(Angler population: 35.8 million)

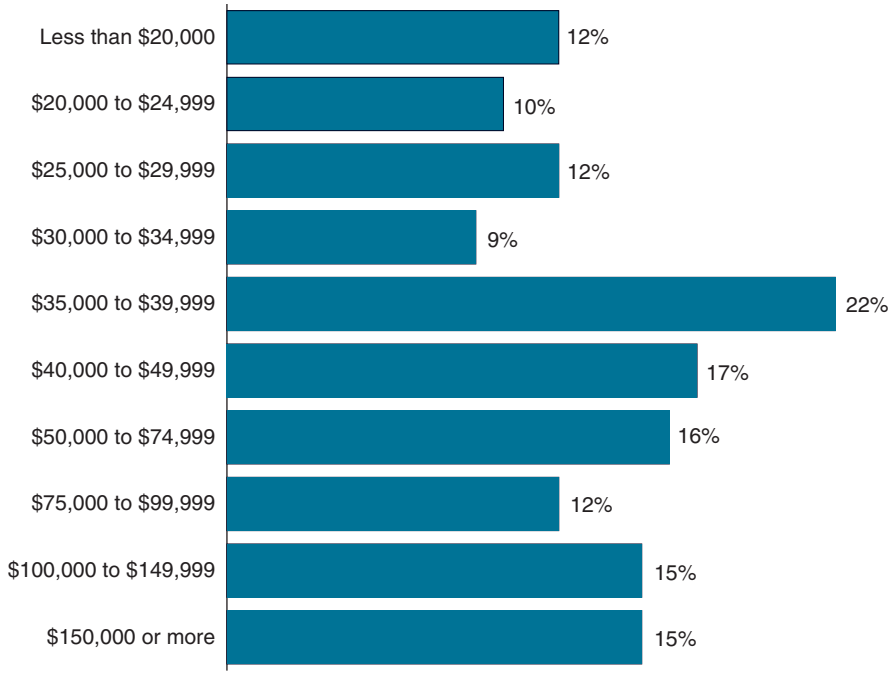


Percent of U.S. Population Who Fished by Residence

(Total U.S. population that fished: 14 percent)



Percent of U.S. Population Who Fished by Household Income



individuals to the angler population.[35] They made up 3 percent of all anglers and had a 13 percent participation rate.[36]

Metropolitan and Nonmetropolitan Anglers

While residents of metropolitan statistical areas (MSA)[37] had lower participation rates in fishing than non-MSA residents, they still accounted for the majority of anglers. An estimated 13 percent of all MSA residents fished in 2016, but they composed 89 percent of all anglers. By comparison, non-MSA residents composed 11 percent of all anglers, but their participation rate was twice as high at 26 percent.

Larger MSAs had lower participation rates in fishing than smaller MSAs but composed more of the angler population. Large MSAs with populations of 1,000,000 or more had the lowest participation rate at 11 percent, but they made up 43 percent of all anglers. Medium MSAs with a population of 250,000 to 999,999 had a 16 percent participation rate and made up 23 percent of all anglers. Those MSAs with a population less than 250,000 had a participation rate of 18 percent and composed 24 percent of all anglers.[38]

[35] The differences between estimates of the number of anglers by the following age groups were not statistically significant: 75+ years old and 16- and 17-year-olds; 75+ years old and 18- to 24-year–olds; 25- to 34-year-olds and 35- to 44-year-olds; 25- to 34-year-olds and 55- to 64-year-olds; 35- to 44-year-olds and 45- to 54-year- olds; 35- to 44-year-olds and 55- to 64-year-olds; 35- to 44-year-olds and 65+ years old; 45- to 54-year-olds and 55- to 64-year-olds; 45- to 54-year-olds and 65+ years old; and 55- to 64-year-olds and 65+ years old.

[36] The differences between estimates of the participation rates of 16- and 17-year-olds, 18- to 24-year-olds, 25- to 34-year-olds, 35- to 44-year-olds, 45- to 54-year-olds, 55- to 64-year-olds, and 65+ and 75+ years old were not statistically significant, except for the following age groups: 18- to 24- and 35- to 44-year-olds; 18- to 24- and 45-to 54-year-olds; 18- to 24- and 55- to 64-year-olds; 18- to 24-year-olds and 65+ years old; 25- to 34- and 35- to 44-year-olds; 25- to 34- and 45- to 54-year-olds; 25- to 34- and 55- to 64-year-olds; 75+ years old and 35- to 44-year-olds; 75+ years old and 45- to 54-year-olds; and 75+ years old and 55- to 64-year-olds.

[37] See Appendix A for definition of metropolitan statistical area.

[38] The differences between the participation rates and percentages of total of anglers living in medium and small MSAs were not statistically significant.

Household Income of Anglers

The participation rate in fishing peaked with U.S. households with incomes of $35,000 to $39,999. The participation rate is the percentage of each income group that fished. The rate of those who reported incomes of $35,000 to $39,999 was the highest at 22 percent. Those with incomes of $40,000 to $49,999 had the next highest rate of 17 percent.[39] Generally, the participation rate was slightly below 16 percent as income increased beyond the median. Those with incomes in the four income categories less than $34,999 had participation rates ranging from 9 to 12 percent.[40]

The majority of anglers had household incomes of $74,999 or less. Of those who reported income, 56 percent had incomes less than $75,000. Among anglers who reported income, 45 percent were from households with incomes of $75,000 or more.

[39] The difference between the participation rates for anglers with household incomes of $35,000 to $39,999 and anglers with incomes of $40,000 to $49,999 was not statistically significant.

[40] The differences in participation rates among the four income categories less than $34,999 were not statistically significant.

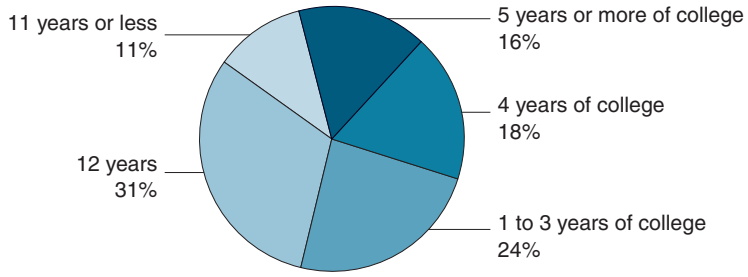
Anglers by Education, Race, and Ethnicity

(In millions)

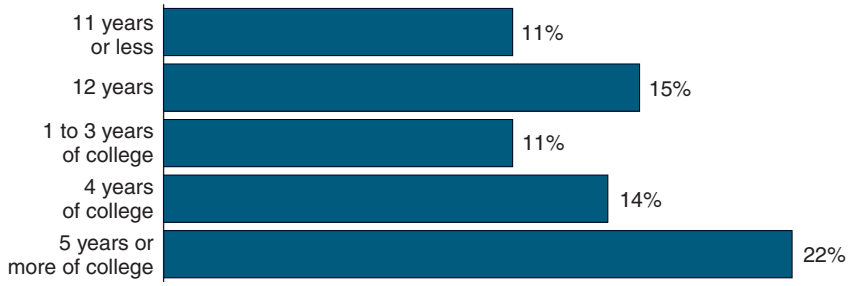
Total anglers	**35.8**
Education	
11 years or less	3.8
12 years	11.2
1 to 3 years of college	8.6
4 years of college	6.3
5 years or more of college	5.9
Race	
White	30.9
African American	3.1
Asian	0.7
Other	1.0
Ethnicity	
Hispanic	3.1
Non-Hispanic	32.7

Source: Table 9.

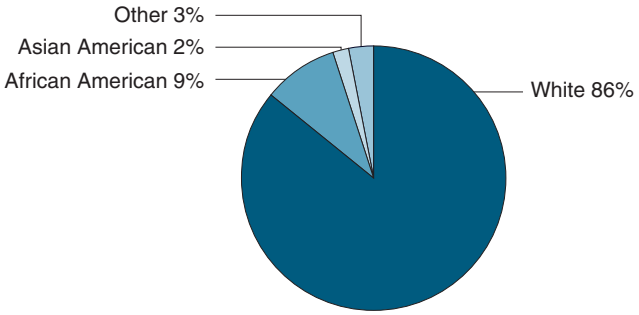
Percent of Anglers by Education



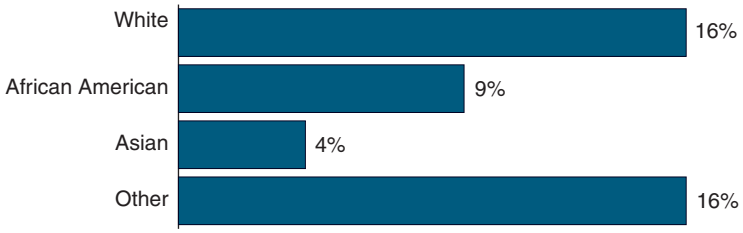
Percent of U.S. Population Who Fished by Education



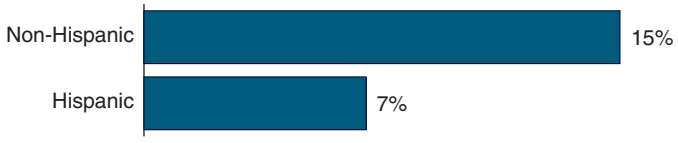
Percent of Anglers by Race



Percent of U.S. Population Who Fished by Race



Percent of U.S. Population Who Fished by Ethnicity



Education, Race, and Ethnicity

People with the highest level of education had the highest participation rate. Those with 11 years of education or less and 1 to 3 years of college had a participation rate of 11 percent. Those with 12 years of education had a participation rate of 15 percent. Those with 4 years of college had a participation rate of 14 percent.[41] The highest participation rate, 22 percent, was held by those with 5 years or more of college.

While the highest participation rate is among those with 5 years or more of college, participants with 12 years of education made up the largest share of anglers. Of all anglers, 31 percent (11.2 million anglers) had 12 years of education.

[41] The differences between the participation rates of anglers with 11 years of education or less and 1 to 3 years of college and anglers with 4 years of college were not significantly different, nor was the difference between the rates of anglers with 4 years of college and those with 12 years of education.

Fishing was most popular among Whites and "All Others," (i.e., Native Americans, Pacific Islanders, and those of mixed races). Whites and All Others participated at a 16 percent rate.[42] African Americans participated at a 9 percent rate.[43] Asians participated at a 4 percent rate. Of all anglers, 86 percent were White, 9 percent were African American, 3 percent were All Others, and 2 percent were Asian.[44]

2006–2016 Comparison of Fishing Activity

In 2016, the number of people fishing was 8 percent higher than in 2011, although this was not a statistically significant increase. All participation categories of freshwater fishing tended to be higher, although again these are not statistically significant changes. Saltwater fishing participation tended down, not significantly though. Days fishing, similarly, did not have statistically significant changes for any type of fishing, but the estimates tended to be less in 2016 than in 2011.

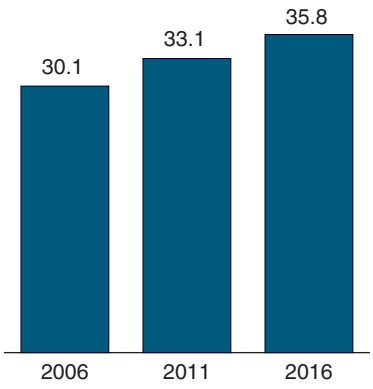
Comparing fishing in 2016 to that in 2006, there was a large increase in the number of freshwater anglers, particularly the number of non-Great Lakes anglers. Saltwater angling tended up, but not significantly so. The number of fishing days tended down, but not significantly. The increase in participants and the lack of increase in days means the days on the water of the average angler went down from 2006 to 2016. The 2006 to 2016 trend for total expenditures also mirrored the 2011 to 2016 trend, with no significant change.

[42] The difference between the participation rates of Whites and "All Others" was not statistically significant.

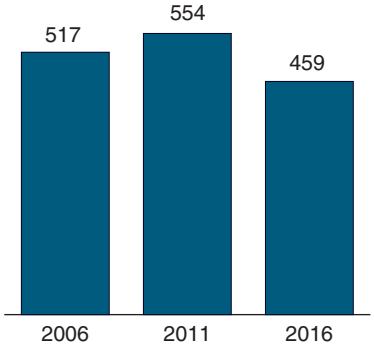
[43] The difference between the participation rates of African Americans and All Others was not statistically significant.

[44] The difference between the percentage of All Others and the percentage of Asian was not statistically significant.

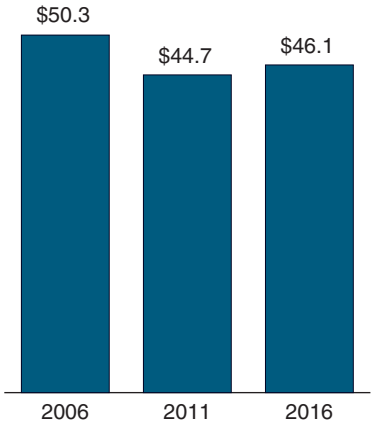
Number of Anglers
(Millions)



Days of Fishing
(Millions)



Fishing Expenditures
(Billions of 2016 dollars)



2011–2016 Fishing Participants, Days, and Expenditures

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

	2011		2016		2011–2016
	Number	Percent	Number	Percent	percent change
Anglers, total	**33,112**	**100**	**35,754**	**100**	***8**
All freshwater	27,547	83	30,137	84	*9
Freshwater, except Great Lakes	27,060	82	29,490	82	*9
Great Lakes	1,665	5	1,824	5	*10
Saltwater	8,889	27	8,320	23	*–6
Days, total	**553,841**	**100**	**459,341**	**100**	***–17**
All freshwater	455,862	82	383,192	83	*–16
Freshwater, except Great Lakes	443,223	80	372,660	81	*–16
Great Lakes	19,661	4	13,440	3	*–32
Saltwater	99,474	18	75,392	16	*–24
Fishing, total (2016 dollars)	**$44,714,162**	**100**	**$46,115,118**	**100**	***3**
Trip-related	23,314,728	52	21,729,778	47	*–7
Equipment, total	16,591,883	37	21,077,638	46	*27
Fishing equipment	6,571,828	15	7,430,662	16	*13
Auxiliary equipment	1,184,346	3	3,163,575	7	167
Special equipment	8,835,710	20	10,483,401	23	*19
Other	4,807,550	11	3,307,702	7	–31

* Not statistically different from zero at the 95 percent confidence level.

2006–2016 Fishing Participants, Days, and Expenditures

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

	2006		2016		2006–2016
	Number	Percent	Number	Percent	percent change
Anglers, total	**29,952**	**100**	**35,754**	**100**	**19**
All freshwater	25,431	85	30,137	84	19
Freshwater, except Great Lakes	25,035	84	29,490	82	18
Great Lakes	1,420	5	1,824	5	*28
Saltwater	7,717	26	8,320	23	*8
Days, total	**516,781**	**100**	**459,341**	**100**	***–11**
All freshwater	433,337	84	383,192	83	*–12
Freshwater, except Great Lakes	419,942	81	372,660	81	*–11
Great Lakes	18,016	3	13,440	3	*–25
Saltwater	85,663	17	75,392	16	*–12
Fishing, total (2016 dollars)	**$50,346,131**	**100**	**$46,115,118**	**100**	***–8**
Trip-related	21,425,666	42	21,729,778	47	*1
Equipment, total	22,478,832	44	21,077,638	46	*–6
Fishing equipment	6,390,349	13	7,430,662	16	*16
Auxiliary equipment	933,242	2	3,163,575	7	239
Special equipment	15,155,240	30	10,483,401	23	*–31
Other	6,441,633	13	3,307,702	7	–49

* Not statistically different from zero at the 95 percent confidence level.


Hunting

Hunting Highlights

In 2016, 11.5 million people 16 years and older enjoyed hunting a variety of animals within the United States. They hunted 184 million days and took 147 million trips. Hunting expenditures totaled $26.2 billion.

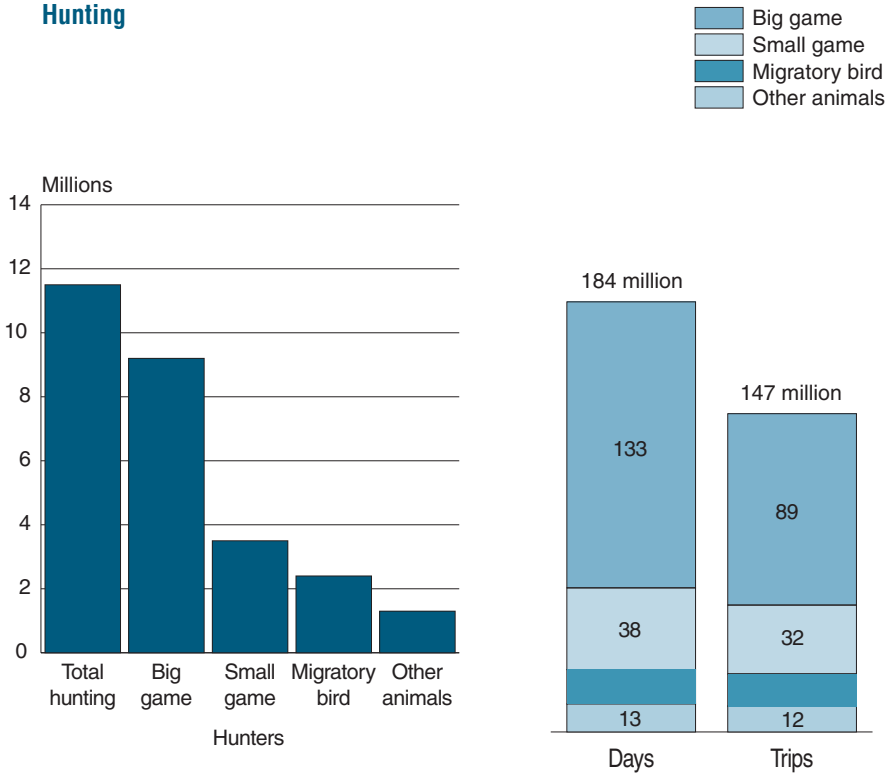
Big game hunting was the most popular type of hunting. There were 9.2 million hunters who pursued big game such as deer and elk on 133 million days. Big game-related expenditures for trips and equipment totaled $14.9 billion. There were 3.5 million hunters of small game including squirrels and rabbits. They hunted small game on 38 million days and spent $1.7 billion on small game hunting trips and equipment. Migratory bird hunters numbered 2.4 million.[45] They spent 16 million days hunting birds such as waterfowl and doves.

Migratory bird-related trip and equipment expenditures totaled $2.3 billion. About 1.3 million[46] hunters sought other animals such as raccoons and feral pigs on 13 million days, and their expenditures for trips and equipment were $755 million.

[45] The difference between the estimates for migratory bird hunters and small game hunters was not statistically significant.

[46] The difference between the estimates for other animal hunters and migratory bird hunters was not statistically significant.

Hunting



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

Total Hunting

Hunters	**11.5 million**
Big game	9.2 million
Small game	3.5 million
Migratory bird	2.4 million
Other animal	1.3 million
Days	**184 million**
Big game	133 million
Small game	38 million
Migratory bird	16 million
Other animal	13 million
Trips	**147 million**
Big game	89 million
Small game	32 million
Migratory bird	15 million
Other animal	12 million
Expenditures	**$26.2 billion**
Big game	$14.9 billion
Small game	$1.7 billion
Migratory bird	$2.3 billion
Other animal	$0.8 billion
Nonspecific	$6.5 billion

Source: Tables 1 and 17-21.

Hunting Expenditures

Of the $26.2 billion spent by hunters in 2016, 35 percent, $9.2 billion, was spent on trip-related expenses. Food and lodging totaled $3.1 billion, 34 percent of all trip-related expenses. Transportation spending was $3.2 billion, 35 percent of trip expenditures. Other trip expenses such as guide fees, land use fees, and equipment rental were $2.9 billion[47] or 32 percent of all trip-related expenses.

Total equipment expenditures for hunting were $12.8 billion[48] in 2016, 49 percent of all hunting expenses. Hunting equipment, such as guns and rifles, telescopic sights, and ammunition, totaled $7.4 billion, or 58 percent of all equipment costs. Expenditures for auxiliary equipment—including camping equipment, binoculars, and special hunting clothing—accounted for $2.0 billion or 16 percent of all equipment expenses. Special equipment, such as campers or all-terrain vehicles, amounted to $3.4 billion[49] or 26 percent of all equipment expenditures.

All other hunting expenditures totaled $4.2 billion. Land leasing and ownership for hunting was the largest other expenditure category. Hunters spent $2.9 billion on land leasing and ownership, which was 11 percent of all hunting-related expenditures. Expenditures for magazines, books, membership dues, contributions, licenses, tags, and permits totaled $1.2 billion[50] or 4 percent. Expenditures for plantings, $165 million, was 1 percent of all hunting expenditures.

[47] The differences between the estimates for expenditures of food and lodging, transportation, and other trip expenses were not statistically significant.

[48] The difference between the estimates for total equipment expenditures and trip-related expenditures was not statistically significant.

[49] The differences between the estimates for hunting equipment and special equipment and between the estimates for auxiliary equipment and special equipment were not statistically significant.

[50] The difference between the estimates for expenditures for magazines, books, licenses, and land leasing and owning was not statistically significant.

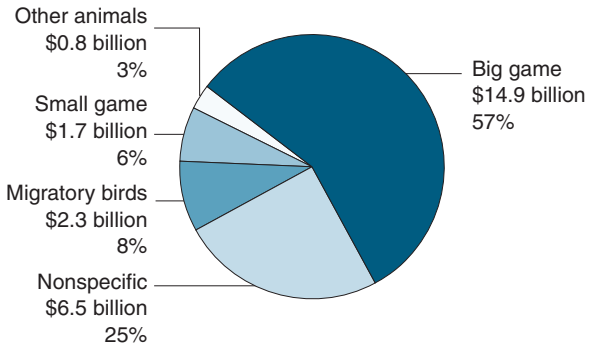
Total Hunting Expenditures

Total hunting expenditures	**$26.2 billion**
Total trip-related expenditures	**$9.2 billion**
Food and lodging	3.1 billion
Transportation	3.2 billion
Other trip costs	2.9 billion
Total equipment expenditures	**$12.8 billion**
Hunting equipment	7.4 billion
Auxiliary equipment	2.0 billion
Special equipment	3.4 billion
Total other hunting expenditures	**$4.2 billion**
Magazines, books, and DVDs	0.2 billion
Membership dues and contributions	0.2 billion
Land leasing and ownership	2.9 billion
Licenses, stamps, tags, and permits	0.8 billion
Plantings	0.2 billion

Source: Table 17.

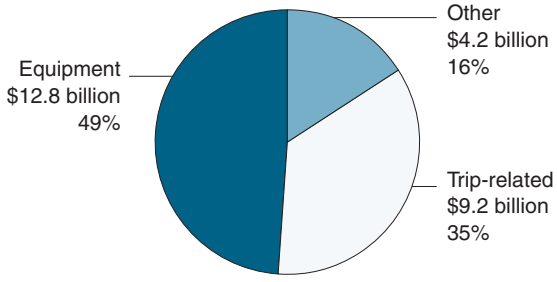
Hunting Expenditures by Type of Hunting

(Total expenditures: $26.2 billion)



Percent of Total Hunting Expenditures

(Total expenditures: $26.2 billion)



Big Game Hunting

In 2016, a majority of hunters, 9.2 million, devoted 133 million days to hunting big game including deer, elk, bear, and wild turkey. They took 89 million trips and spent an average of 14 days hunting big game.

Trip and equipment expenditures for big game hunting totaled $14.9 billion. Trip-related expenses were $6.2 billion, 42 percent of the total spent for trip-related and equipment expenditures. Of that amount, food and lodging accounted for $1.9 billion or 30 percent of all trip-related costs. Transportation costs were $2.3 billion, 37 percent of trip costs. Other trip-related expenses amounted to $2.1 billion[51] or 33 percent of trip costs.

Approximately 58 percent of big game-related expenditures were on equipment, which totaled $8.7 billion.[52] Hunting equipment—including firearms, ammunition, and bows and arrows—accounted for $4.3 billion or 50 percent of all equipment. Purchases of auxiliary equipment such as tents and binoculars totaled $1.1 billion (13 percent). Special equipment such as campers and all-terrain vehicles accounted for $3.2 billion[53] (37 percent).

[51] The differences between the estimates for food and lodging, transportation and other trip-related expenditures for big game hunting were not statistically significant.

[52] The difference between the estimates for total big game equipment expenditures and total big game trip-related expenditures was not statistically significant.

Small Game Hunting

Small game such as rabbits, squirrels, pheasants, quail, and grouse was also popular with hunters. Just over 3.5 million hunters pursued small game for a total of 38 million days. They took 32 million trips and averaged 11 days in the field hunting small game.

These hunters spent $1.7 billion on trips and equipment for small game hunting. Trip expenditures totaled $1.1 billion. Spending on food and lodging was $459 million or 44 percent of trip expenditures. Transportation costs totaled $315 million or 30 percent of small game trip expenses. Other trip-related expenditures were $277 million[54] or 26 percent of all trip costs.

Equipment expenditures for small game hunting were $603 million. For the pursuit of small game, hunters spent $548 million on hunting equipment (firearms, ammunition, etc.) and $56 million on auxiliary equipment, 91 and 9 percent, respectively.

[53] The difference between the estimates for expenditures on big game hunting equipment and special equipment was not statistically significant. Also, the difference between the estimates on expenditures for big game auxiliary equipment and special equipment was not statistically significant.

[54] The differences between the estimates for expenditures on food and lodging, transportation, and other trip-related expenditures of small game hunting were not statistically significant.

Migratory Bird Hunting

In 2016, 2.4 million migratory bird hunters devoted 16 million days on 15 million trips for hunting birds such as doves, ducks, and geese. Hunters averaged 7 days pursuing migratory birds for the year.

Migratory bird-related spending for trips and equipment was $2.3 billion in 2016. Of this amount, $1.3 billion was spent on hunting trips. An estimated $528 million or 41 percent of all trip expenditures were on food and lodging, and $484 million (38 percent) were on transportation. Other trip expenses were $272 million[55] (21 percent) of the total trip-related expenditures for migratory bird hunters.

Equipment purchases for migratory bird hunting totaled $1.0 billion in 2016. Of this amount, $754 million was spent on hunting equipment (firearms, ammunition, etc.) and $160 million on auxiliary equipment, 78 and 16 percent of total equipment purchases, respectively.

[55] The differences between the estimates for expenditures on food and lodging, transportation, and other trip-related expenditures of migratory bird hunting were not statistically significant.

Big Game

Hunters	9.2 million
Days	133 million
Trips	89 million
Trips and equipment expenditures	$14.9 billion

Source: Tables 1 and 18.

Small Game

Hunters	3.5 million
Days	38 million
Trips	32 million
Trips and equipment expenditures	$1.7 billion

Source: Tables 1 and 19.

Big Game Trip and Equipment Expenditures

(Total expenditures: $14.9 billion)

Small Game Trip and Equipment Expenditures

(Total expenditures: $1.7 billion)

Hunting Other Animals

Over 1.3 million hunters reported spending 13 million days on 12 million trips pursuing other animals such as groundhogs, feral pigs, raccoons, foxes, and coyotes. They averaged 10 days of hunting.

These hunters spent $755 million in 2016 on trips and equipment for the pursuit of other animals. Trip-related costs totaled $648 million. Of that, food and lodging were $264 million or 41 percent of all trip costs. Transportation was $97 million,[56] 15 percent of trip expenses. The estimate for other trip expenses is not reportable due to a small sample size.

Equipment expenditures for hunting other animals totaled $107 million. For the pursuit of other animals, hunters spent $97 million on hunting equipment (firearms, ammunition, etc.), 91 percent of total equipment expenditures. Estimates for auxiliary and special equipment are not reportable due to small sample sizes.

Comparative Hunting Highlights

Big game hunters pursued big game an average of 14 days on 10 trips in 2016. Small game hunters pursued small game an average of 11 days on 9 trips.[57] Migratory bird hunters hunted migratory birds an average of 7 days on 6 trips.[58] Individuals hunting other animals did so an average of 10 days on 9 trips.[59]

Average spending on trips and equipment was higher for big game hunting than for any other type of hunting. While hunting big game, participants spent an average of $1,616 in 2016. By comparison, spending on migratory bird hunting by participants averaged $958;[60] spending on other animal hunting by participants averaged $574;[61] and spending on small game hunting averaged $472.[62]

Trip-related expenditures for all hunting averaged $803 per hunter, a daily average of $50, during 2016. In pursuit of migratory birds, hunters spent an average of $546 ($82 per day). Other animal hunters averaged $493[63] ($49 per day[64]). Big game hunters averaged trip-related expenditures of $675,[65] which was $47 per day.[66] Hunters spent an average of $300[67] while seeking small game ($27 per day[68]).

Hunting for Selected Game

Among big game species, deer was the most popular animal pursued, attracting 8.1 million hunters for 115 million days. Wild turkey attracted 2.0 million hunters for 13 million days, while elk drew 712 thousand for 6 million[69] days,

[56] The difference between the estimates for expenditures on food and lodging and transportation for hunting other animals was not statistically significant.

[57] The differences between the estimates of average days and average trips for small game and big game hunters were not statistically significant.

[58] The differences between the estimates of average days and average trips for migratory bird and small game hunters were not statistically significant.

[59] The differences between the estimates of average days and average trips for other animal hunters and each of big game, small game, and migratory bird hunters were not statistically significant.

[60] The difference between the summed estimates of trip-related and equipment expenditures by migratory bird hunters and big game hunters was not statistically significant.

[61] The difference between the summed estimates of trip-related and equipment expenditures by other animal hunters and migratory bird hunters was not statistically significant.

[62] The difference between the summed estimates of trip-related and equipment expenditures by small game hunters and other animal hunters was not statistically significant.

[63] The difference between the estimates of average trip-related expenditures by other animal hunters and migratory bird hunters was not statistically significant.

[64] The difference between the estimates of average trip-related expenditures per day by other animal hunters and migratory bird hunters was not statistically significant.

[65] The differences between the estimates of average trip-related expenditures by big game hunters and each of expenditures by migratory bird hunters and other animal hunters were not statistically significant.

[66] The differences between the estimates of average trip-related expenditures by day by big game hunters and each of expenditures by migratory bird hunters and other animal hunters were not statistically significant.

[67] The differences between the estimates of average trip-related expenditures by small game hunters and each of expenditures by migratory bird hunters and other animal hunters were not statistically significant.

[68] The difference between the estimates of average trip-related expenditures per day by small game hunters and other animal hunters was not statistically significant.

[69] The difference between the estimates of elk hunting days and wild turkey hunting days was not statistically significant.

Migratory Bird

Hunters	2.4 million
Days	16 million
Trips	15 million
Trips and equipment expenditures	$2.3 billion

Source: Tables 1 and 20.

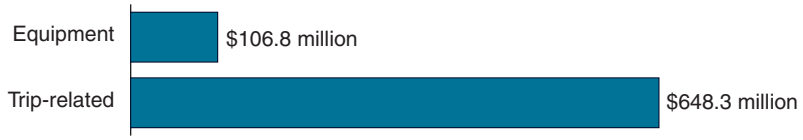
Other Animals

Hunters	1.3 million
Days	13 million
Trips	12 million
Trips and equipment expenditures	$755.1 million

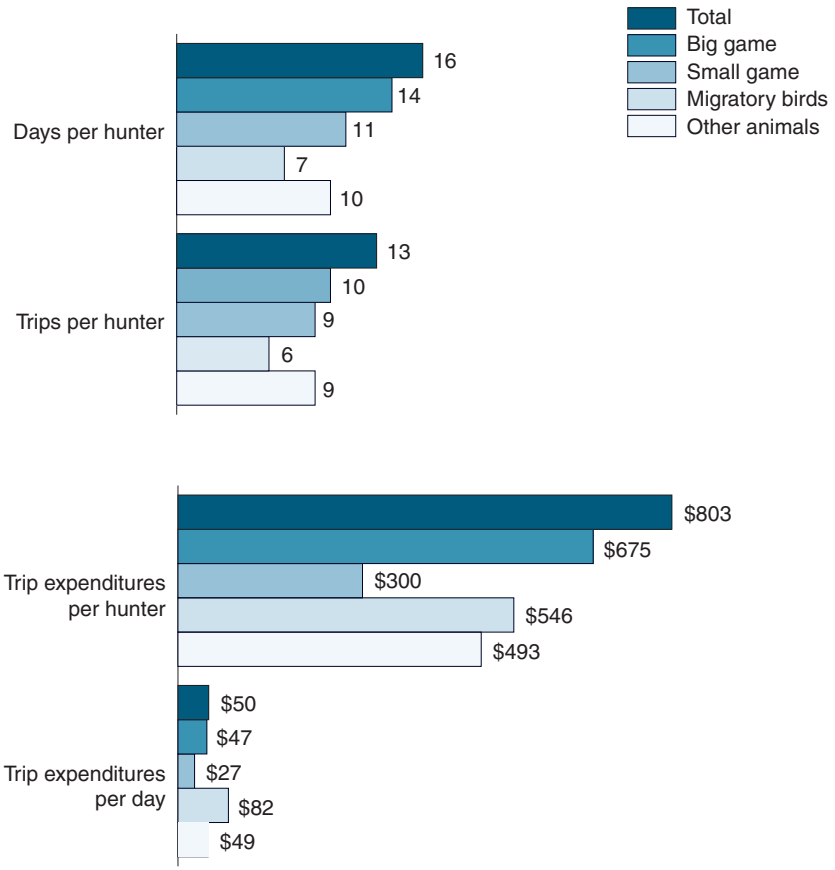
Source: Tables 1 and 21.

Migratory Bird Trip and Equipment Expenditures
(Total expenditures: $2.3 billion)

Trip and Equipment Expenditures for Hunting Other Animals
(Total expenditures: $755.1 million)



Comparative Hunting by Type of Hunting



Selected Game by Type of Hunting

(In millions)

Type of hunting	Hunters	Days
Big game, total	**9.2**	**133**
Deer	8.1	115
Wild Turkey	2.0	13
Elk	0.7	6
Bear	0.2	1
Small game, total	**3.5**	**38**
Squirrel	1.5	11
Rabbit and hare	1.3	20
Quail	1.0	7
Ptarmigan	...	5
Grouse/prairie chicken	0.4	4
Migratory birds, total	**2.4**	**16**
Ducks	1.2	9
Doves	1.2	5
Geese	0.8	5

Source: Table 7.
… Sample size too small (less than 10) to report estimate reliably.

and bear 187 thousand[70] for 1 million[71] days. In addition, 386 thousand[72] hunters spent 2 million[73] days hunting other big game animals.

Among small game species, squirrels were the most popular quarry with 1.5 million small game hunters hunting them 11 million days in 2016. Rabbits were hunted by 1.3 million[74] participants for 20 million[75] days. Quails were flushed by 958 thousand[76] hunters on 7 million[77] days, while pheasants were hunted by 726 thousand[78] hunters on 5 million[79] days. Grouse and/or prairie chicken were pursued by 438 thousand[80] hunters on 4 million[81] days. In addition, 131 thousand[82] hunters spent 726 thousand[83] days hunting other small game animals.

Among those hunting migratory birds, 1.2 million pursued ducks for 9 million days. There were 1.2 million[84] hunters

[70] The difference between the estimates of elk and bear hunters was not statistically significant.
[71] The difference between the estimates of elk hunting days and bear hunting days was not statistically significant.
[72] The differences between the estimates of other big game hunters and each of elk hunters and bear hunters were not statistically significant.
[73] The differences between the estimates of other big game hunting days and each of elk hunting days and bear hunting days were not statistically significant.
[74] The difference between the estimates of rabbit hunters and squirrel hunters was not statistically significant.
[75] The difference between the estimates for rabbit hunting days and squirrel hunting days was not statistically significant.
[76] The differences between the estimates of quail hunters and each of rabbit hunters and squirrel hunters were not statistically significant.
[77] The differences between the estimates for quail hunting days and each of squirrel hunting days and rabbit hunting days were not statistically significant.
[78] The differences between the estimates of pheasant hunters and each of squirrel hunters, rabbit hunters, and quail hunters were not statistically significant.
[79] The differences between the estimates of pheasant hunting days and each of squirrel hunting days, rabbit hunting days, and quail hunting days were not statistically significant.
[80] The differences between the estimates of grouse/prairie chicken hunters and each of quail hunters and pheasant hunters were not statistically significant.
[81] The differences between the estimates of grouse/prairie chicken hunting days and each of squirrel hunting days, rabbit hunting days, quail hunting days, and pheasant hunting days were not statistically significant.
[82] The differences between the estimates of other small game hunters and each of squirrel hunters, rabbit hunters, quail hunters, pheasant hunters, and grouse/prairie chicken hunters were not statistically significant.
[83] The differences between the estimates of other small game hunting days and each of pheasant hunting days and grouse/prairie chicken hunting days were not statistically significant.
[84] The difference between estimates of duck hunters and dove hunters was not statistically significant.

who pursued dove on 5 million[85] days. On 5 million[86] days, 793 thousand[87] hunters hunted geese in 2016.

Participation by Geographic Divisions

Regionally, participation rates in hunting ranged from 2 percent in the New England and Pacific Divisions to 8 percent in the West North Central and East South Central Divisions. The East North Central, West South Central, and Mountain Divisions also had participation rates above the national average of 4 percent.[88] Divisions with participation rates below the national rate were New England, Middle Atlantic, South Atlantic, and Pacific.[89]

[85] The difference between the estimates of dove hunting days and duck hunting days was not statistically significant.

[86] The differences between the estimates of goose hunting days and each of duck hunting days and dove hunting days were not statistically significant.

[87] The differences between the estimates of goose hunters and each of duck hunters and dove hunters were not statistically significant.

[88] The differences between the estimates of the national average percentage and each of East North Central, West South Central, South Atlantic, and Mountain Divisions' percentages were not statistically significant.

[89] The differences between the estimates of the national average percentage and each of New England, Middle Atlantic, and Pacific Regions' percentages were not statistically significant.

Hunting in State of Residence and in Other States

A large majority of participants, 96 percent or 10.9 million, hunted within their resident state in 2016. Only 1.8 million, 16 percent, hunted in another state. Percentages do not add to 100 because those who hunted both in state and out of state were included in both categories.

The overall resident/nonresident pattern is relatively constant across all types of hunting. Over 8.6 million big game hunters—94 percent of all big game hunters—hunted within their state of residence, while 14 percent (1.3 million people) traveled to another state to hunt big game. Almost 3.3 million small game hunters—93 percent[90] of all small game hunters—pursued game in their resident state. An estimated 374 thousand small game hunters (11 percent[91]) ventured across state lines to hunt small game. As for migratory bird hunters, 2.3 million[92] of them—98 percent[93] of all migratory bird hunters—hunted within their resident state. An estimated 9 percent[94] or 202 thousand[95] hunted out of state. Among sportspersons who hunted other animals, 95 percent[96] (1.2 million[97]) hunted in state.

[90] The difference between the estimates of the percentage of small game hunters and big game hunters who hunted in their resident state was not statistically significant.

[91] The difference between the estimates of the percentage of small game hunters and big game hunters who hunted in nonresident states was not statistically significant.

[92] The difference between the estimates of the number of migratory bird hunters and small game hunters hunting in their resident state was not statistically significant.

[93] The differences between the estimates of the percentage of migratory bird hunters and each of the percentages of big game and small game hunters who hunted in their resident state were not statistically significant.

[94] The differences between the estimates of the percentage of migratory bird hunters and each of the percentages of big game and small game hunters who hunted in nonresident states were not statistically significant.

[95] The difference between the estimates of the number of migratory bird hunters and small game hunters hunting in nonresident states was not statistically significant.

[96] The differences between the estimates of the percentage of other animal hunters and each of the percentages of big game, small game, and migratory bird hunters who hunted in their resident state were not statistically significant.

[97] The difference between the estimates of the number of other animal hunters and migratory bird hunters hunting in their resident state was not statistically significant. Also, the difference between estimates of the number of other animal hunters in the resident state and big game hunters in nonresident states was not statistically significant.

Hunting in State of Residence and in Other States

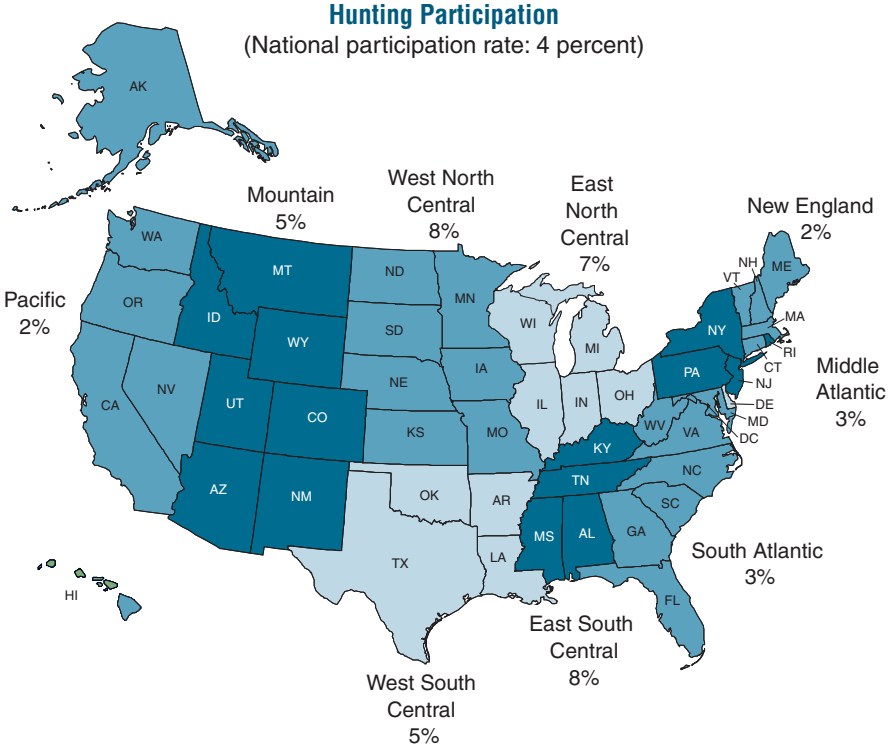
(In millions)

	In state	Out of state
All hunters	**10.9**	**1.8**
Big game	8.6	1.3
Small game.	3.3	0.4
Migratory bird . . .	2.3	0.2
Other animals. . . .	1.2	…

Source: Table 6.
... Sample size too small (less than 10) to report estimate reliably.

Hunting Participation

(National participation rate: 4 percent)



Hunting on Public and Private Lands

In 2016, 11.5 million hunters 16 years and older hunted on public land, private land, or both. Of this number, 3.9 million or 34 percent hunted on publicly-owned lands compared to 9.7 million or 85 percent who hunted on privately-owned land. Some hunters hunted exclusively on public land and others hunted exclusively on private land—1.5 million (13 percent of all hunters) used public lands only, and 7.3 million hunted only on private land (64 percent of all hunters). Over 2.4 million[98] hunters (21 percent[99]), hunted on both public and private lands.

During 2016, 3.9 million hunters used public lands on 36 million days, which represents 19 percent of all hunting days. Almost 32 percent of big game hunters (2.9 million) pursued big game on public land for 26 million days. About 24 percent[100] of all small game hunters (0.9 million) pursued small game on public land for 5 million days. An estimated 1.1 million migratory bird hunters (49 percent[101]) hunted migratory birds on public lands for 7 million[102] days.

Turning to hunting on private land, 81 percent of big game hunters hunted on private land, which compares to 86 percent[103] seeking small game, 68 percent[104] seeking migratory birds, and 99 percent seeking other animals.

Of all days hunting, 79 percent (145 million hunting days) were on private land. The percentage of hunting days on private land varied in the same pattern as the percentage of hunters. Approximately 79 percent of big game hunting days, 86 percent[105] of small game hunting days, 45 percent[106] of migratory bird hunting days, and 91 percent[107] of other animal hunting days were on private land. Total hunting days pursuing these species on private land were as follows: big game 105 million, small game 33 million, migratory bird 7 million, and other animals 12 million.[108]

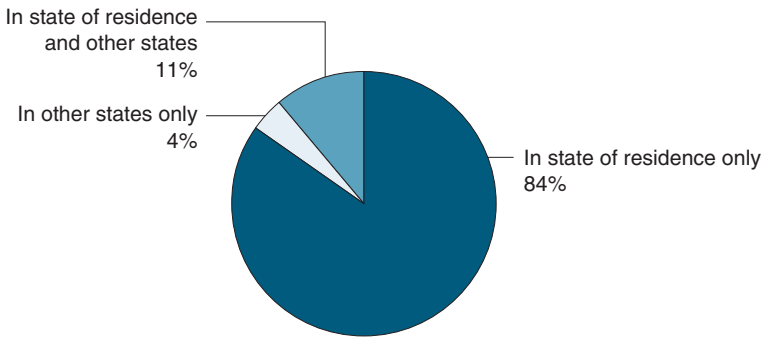
[98] The difference between the estimates of hunters using both public and private lands and hunters using public land only was not statistically significant.

[99] The difference between the estimates of percentages of hunters using both public and private lands and percentages of hunters using public land only was not statistically significant.

[100] The difference between the estimates of percentages of small game hunters and big game hunters using public land was not statistically significant.

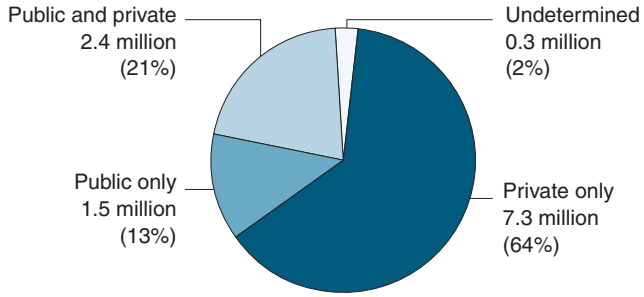
Percent of All Hunting in State of Residence and in Other States

(Total: 11.5 million participants)



People Hunting on Public and Private Lands

(Total: 11.5 million participants)



Sex and Age

Of the U.S. population 16 years and older, 8 percent of males and 1 percent of females enjoyed hunting in 2016. Of the 11.5 million participants who hunted, 90 percent (10.3 million) were male and 10 percent (1.1 million) were female.

The participation rate in hunting tended to increase with age until individuals reached 65 years of age, and thereafter it declined. During 2016, 3 percent or 228

[101] The difference between the estimates of percentages of migratory bird hunters and big game hunters using public land was not statistically significant.

[102] The difference between the estimates of days of migratory bird hunting and small game hunting on public land was not statistically significant.

[103] The difference between the estimates of percentages of small game hunters and big game hunters using private land was not statistically significant.

[104] The differences between the estimates of the percentage of migratory bird hunters and each of the percentages of big game and small game hunters who hunted on private land were not statistically significant.

[105] The difference between the estimates of percentages of hunting days of small game and big game hunters using private land was not statistically significant.

[106] The difference between the estimates of percentages of hunting days of migratory bird and small game hunters using private land was not statistically significant.

[107] The difference between the estimates of percentages of hunting days of migratory bird and small game hunters using private land was not statistically significant.

[108] The difference between the estimates of the number of other animal and migratory bird hunting days on private land was not statistically significant.

thousand 16- and 17-year-olds hunted. The participation rate was 4 percent[109] for 18- to 24-year-olds, 25- to 34-year-olds, and 35- to 44-year-olds. The rate rose to 6 percent[110] for 45- to 54-year-olds and 55- to 64-year-olds. People 65 years and older had a participation rate of 3 percent.[111] However, of the 65 years and older group, those who were 65 to 74 years of age had a 4 percent[112] hunting participation rate, while those who were 75 years and older had a 2 percent[113] rate.

The age group that contributed the most hunters was the 55 to 64 years' group. Approximately 2.7 million hunters (24 percent of all hunters) were 55- to 64-year-olds. Individuals 45 to 54 years were close in total number of hunters at 2.5 million.[114]

[109] The differences between estimates of hunting participation rates of groups 18- to 24-year-olds, 25- to 34-year-olds, 35- to 44-year-olds, and 16- to 17-year-olds were not statistically significant.

[110] The differences between estimates of hunting participation rates of groups 45- to 54-year-olds, 55- to 64-year-olds, 18- to 24-year-olds, 25- to 34-year-olds, and 35- to 44-year-olds were not statistically significant. The difference between estimates of 45- to 54-year-olds and 16- to 17-year-olds was not statistically significant.

[111] The differences between estimates of hunting participation rates of people 65 years and older and rates of groups 16- to 17-year-olds, 18- to 24-year-olds, 25- to 34-year-olds, 35- to 44-year-olds, 65- to 74-year-olds, and 75 years and older were not statistically significant.

[112] The differences between estimates of hunting participation rates of people 65 to 74 years and rates of each of groups 16 to 17 years, 18 to 24 years, 25 to 34 years, 35 to 44 years, 45 to 54 years, and 55 to 64 years were not statistically significant.

[113] The differences between estimates of hunting participation rates of people 75 years and older and rates of groups 16 to 17 years, 18 to 24 years, 25 to 34 years, 35 to 44 years, and 65 to 74 years were not statistically significant.

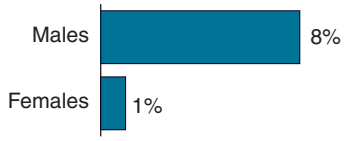
[114] The difference between estimates of the number of hunters 45 to 54 years and 55 to 64 years was not statistically significant.

Hunters by Sex and Age

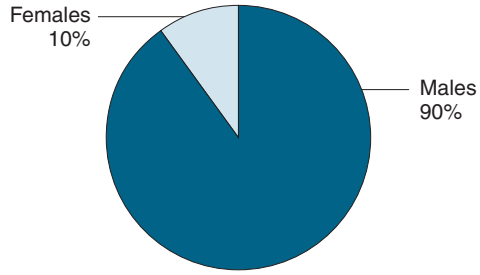
Total, both sexes . .	**11.5 million**
Male	10.3 million
Female	1.1 million
Total, all ages	**11.5 million**
16 and 17	0.2 million
18 to 24	1.0 million
25 to 34	1.8 million
35 to 44	1.6 million
45 to 54	2.5 million
55 to 64	2.7 million
65 and older	1.6 million

Source: Table 10.

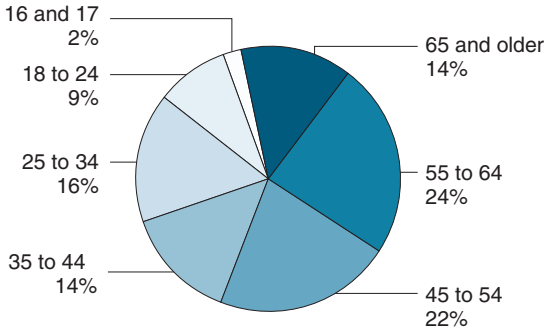
Percent of Males and Females Who Hunted in the United States



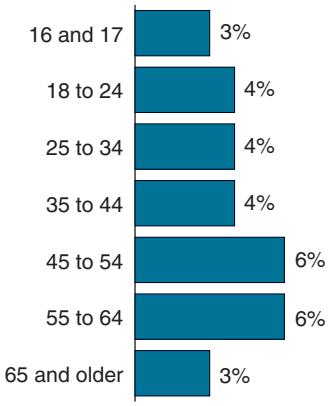
Percent of Hunters by Sex



Percent of Hunters by Age

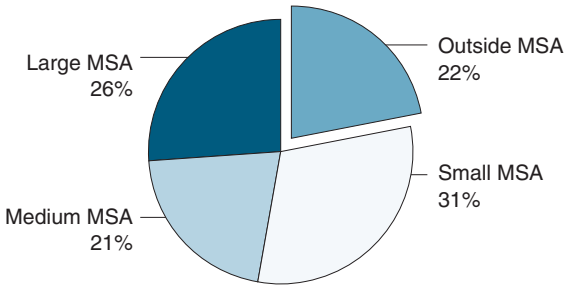


Percent of U.S. Population Who Hunted by Age



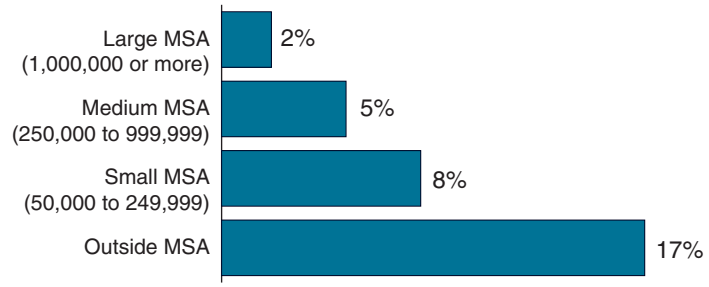
Percent of Hunters by Residence

(Hunter population: 11.5 million)

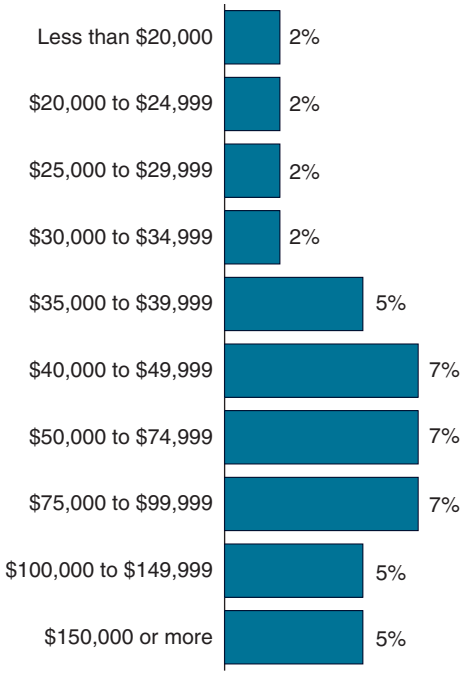


Percent of U.S. Population Who Hunted by Residence

(Total U.S. population that hunted: 4 percent)



Percent of U.S. Population Who Hunted by Household Income



Metropolitan and Nonmetropolitan Hunters

As was the case for fishing, participation rates for hunting were the lowest among residents of the largest

Metropolitan Statistical Areas (MSAs)[115] and were the highest among non-MSA residents. Residents of the MSAs with a population of 1 million or more hunted at a 2 percent rate, which compares to 17 percent of those who resided outside MSAs. The smaller the MSA, the higher the participation rate. The rate among residents of MSAs of 50,000 to 249,000 was 8 percent and among residents of MSAs with 250,000–999,999 inhabitants, the rate was 5 percent.

Despite the lower participation rates among MSA residents, they still made up the majority of hunters. Over 8.9 million hunters lived in an MSA, compared to 2.6 million who were nonmetropolitan residents.

Household Income of Hunters

The participation rate in hunting increased as household income increased until it reached incomes of $100,000 or more. The participation was highest among those with incomes of $40,000 to $49,999; $50,000 to $74,999; and $75,000 to $99,999 at 7 percent. Participation rates for those who reported incomes of $35,000 to $39,999; $100,000 to $149,999; and $150,000 or more were lower at 5 percent.[116] A participation rate of 2 percent[117] was reported for the following four income groups: less

[115] See Appendix A for definition.

[116] The differences between estimates of participation rates for each of those groups who reported incomes of $35,000 to $39,999; $100,000 to $149,999; and $150,000 or more and each of those groups who reported incomes of $40,000 to $49,999; $50,000 to $74,999; and $75,000 to $99,999 were not statistically significant. The differences between estimates of rates for the $40,000 to $49,999; $50,000 to $74,999; and $75,000 to $99,999 groups were not statistically significant.

[117] The differences between estimates of participation rates for groups who reported incomes of less than $20,000; $20,000 to $24,999; $25,000 to $29,999; $30,000 to $34,999; $35,000 to $39,999; $100,000 to $149,999; and $150,000 or more were not statistically significant. An exception is the difference between the estimates of the participation rates of the groups with income less than $20,000 and $100,000 to $149,999; that difference was significantly different.

than $20,000; $20,000 to $24,999; $25,000 to $29,999; and $30,000 to $34,999.

The number of hunters was evenly split between those with household incomes of $75,000 or more and $74,999 or less. Among hunters who reported income, 51 percent had household incomes of $74,999 or less, and 49 percent[118] had household incomes greater than $75,000.

Education, Race, and Ethnicity of Hunters

Participation rates in hunting in 2016 were similar among people with different levels of educational attainment. The highest rate attained was 5 percent for the following three levels of attainment: 12 years of school, 4 years of college, and 5 or more years of college. The next highest rate, 4 percent,[119] was attained by people with 1 to 3 years of college. And the lowest

[118] The difference between estimates of percentages of hunters with incomes of $74,999 or less and $75,000 or more was not statistically significant.

[119] The differences between the estimates of hunting participation rates of people with 1 to 3 years of college, 12 years of school, 4 years of college, and 5 or more years of college were not statistically significant.

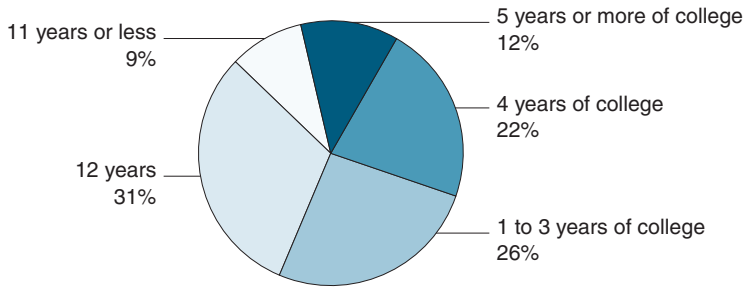
Hunters by Education, Race, and Ethnicity

(In millions)

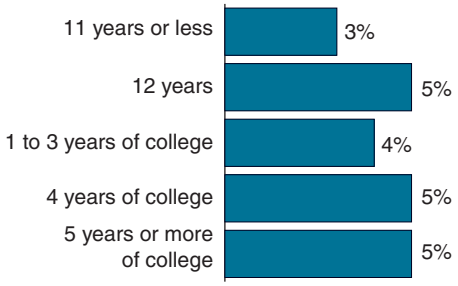
Total hunters	**11.5**
Education	
11 years or less	1.1
12 years	3.6
1 to 3 years of college	3.0
4 years of college	2.5
5 years or more of college	1.4
Race	
White	11.1
African American	…
Asian	…
Other	0.2
Ethnicity	
Hispanic	0.4
Non-Hispanic	11.1

Source: Table 10.
… Sample size too small (less than 10) to report estimate reliably.

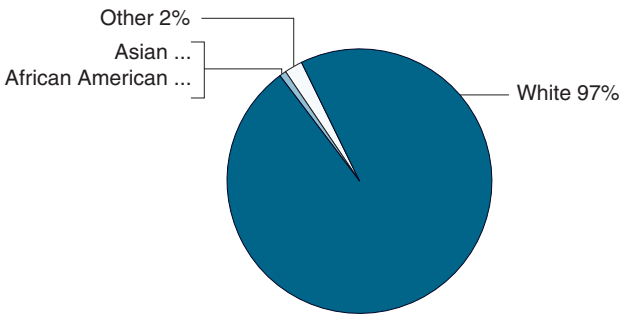
Percent of Hunters by Education



Percent of U.S. Population Who Hunted by Education

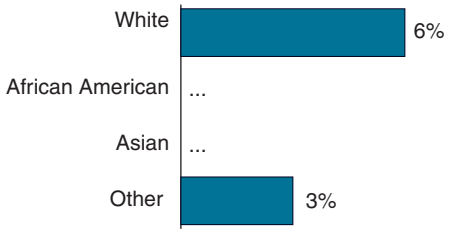


Percent of Hunters by Race



...Sample size too small (less than 10) to report estimate reliably.

Percent of U.S. Population Who Hunted by Race



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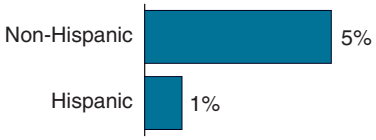
Percent of U.S. Population Who Hunted by Ethnicity



rate, 3 percent,[120] was for those people with an educational attainment of 11 years or less.

The largest category of education was 12 years. This group was composed of 31 percent of all hunters. Those with 1 to 3 years of college composed 26 percent[121] of all hunters, and those with 4 years of college composed 22 percent[122] of all hunters. Individuals with 5 years or more of college made up 12 percent of all hunters. Hunters with 11 years or less of education made up 9 percent[123] of all hunters.

While people of all races participate in hunting, the majority are White. About 6 percent of the nation's White population (11.1 million) went hunting in 2016.

Hispanics, who represent a growing percentage of the U.S. population, hunted at a much lower rate than non-Hispanics. Just under 1 percent of all Hispanics hunted in 2016 compared to 5 percent of non-Hispanics. The 379 thousand Hispanics who hunted in 2016 constituted 3 percent of all hunters.

2006, 2011, and 2016 Comparison of Hunting Activity

The number of hunters decreased 16 percent from 2011 to 2016. The number of big game hunters decreased 20 percent and other animal hunters decreased 39 percent. The differences in the total number of small game and migratory bird hunters were not statistically significant. Total days of hunting went down 35 percent, primarily due to a 37 percent decrease in big game hunting days. The decrease in other animal hunting days was also worthy of notice. The difference in the number of small game and migratory bird hunting days was not statistically significant. Trip-related, equipment, and other expenditures went down 26 percent (although this was not a statistically significant difference). No expenditure category differed significantly, except for other expenditures such as land leasing and owning, which decreased 56 percent.

Comparing 2006 and 2016 estimates reveal no statistically significant differences in the number of any category of hunters, except for small game hunting, which dropped 27 percent. There were no statistically significant differences in the number of days and all expenditures, except for "other expenditures" such as land leasing and owning, which went down 38 percent.

The decrease in 2016 hunting participation and day estimates run counter to the 2006 to 2011 upward trend, but aligns with the 2006 Survey estimates. Also, from 1991 to 2006, hunting participation had dropped 11 percent and the number of hunting days had not significantly changed; therefore, the 2011 to 2016 drop is a continuation of that trend. The level of hunting in 2016 puts it at the lowest level in at least the past 25 years.

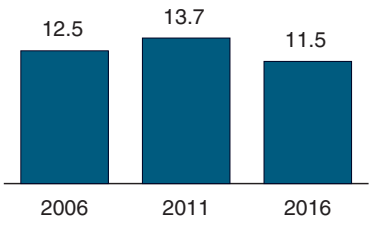
[120] The differences between the estimates of hunting participation rates of people with 11 years or less of school and the rates of each of the groups of educational attainment of 12 years, 1 to 3 years of college, 4 years of college, and 5 or more years of college were not statistically significant.

[121] The difference between the estimates of the percentage of total hunters who had 1 to 3 years of college and hunters who had 12 years of school was not statistically significant.

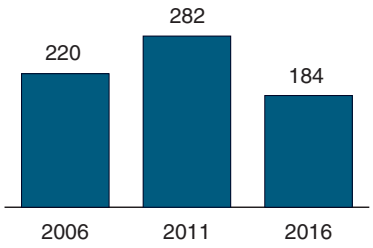
[122] The differences between the estimates of the percentage of total hunters who had 4 years of college and each of the groups of hunters who had 12 years of school and 1 to 3 years of college were not statistically significant.

[123] The difference between the estimates of the percentage of total hunters who had 11 years or less of education and 5 years or more of college was not statistically significant.

Number of Hunters
(Millions)



Days of Hunting
(Millions)



Hunting Expenditures
(Billions of 2016 dollars)

2011–2016 Hunting Participants, Days, and Expenditures

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

	2011		2016		2011–2016
	Number	Percent	Number	Percent	percent change
Hunters, total	**13,674**	**100**	**11,453**	**100**	**–16**
Big game	11,570	85	9,208	80	–20
Small game	4,506	33	3,505	31	*–22
Migratory bird	2,583	19	2,353	21	*–9
Other animal	2,168	16	1,315	11	–39
Days, total	**281,884**	**100**	**184,021**	**100**	**–35**
Big game	212,116	75	132,665	72	–37
Small game	50,884	18	38,306	21	*–25
Migratory bird	23,263	8	15,621	8	*–33
Other animal	34,434	12	13,275	7	–61
Hunting, total (2016 dollars)	****$35,309,375**	**100**	****$26,025,056**	**100**	***–26**
Trip-related	11,150,672	32	9,196,245	35	*–18
Equipment, total	14,950,564	42	12,755,917	49	*–15
Hunting equipment	8,280,007	23	7,383,871	28	*–11
Auxiliary equipment	1,974,022	6	2,018,696	8	*2
Special equipment	4,696,536	13	3,353,350	13	*–29
Other	**9,208,141	26	**4,072,894	16	–56

* Not statistically different from zero at the 95 percent confidence level.

** Note: 2011 was the first year plantings were included. Planting expenditures are not included in the Other category to maintain comparability to Survey years prior to 2011.

2006–2016 Hunting Participants, Days, and Expenditures

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

	2006		2016		2006–2016
	Number	Percent	Number	Percent	percent change
Hunters, total	**12,510**	**100**	**11,453**	**100**	***–8**
Big game	10,682	85	9,208	80	*–14
Small game	4,797	38	3,505	31	–27
Migratory bird	2,293	18	2,353	21	*3
Other animal	1,128	9	1,315	11	*17
Days, total	**219,925**	**100**	**184,021**	**100**	***–16**
Big game	164,061	75	132,665	72	*–19
Small game	52,395	24	38,306	21	*–27
Migratory bird	19,770	9	15,621	8	*–21
Other animal	15,205	7	13,275	7	*–13
Hunting, total (2016 dollars)	**$27,435,158**	**100**	****$26,025,056**	**100**	***–5**
Trip-related	**8,003,651**	29	9,196,245	35	*15
Equipment, total	12,860,631	47	12,755,917	49	*–1
Hunting equipment	6,431,042	23	7,383,871	28	*15
Auxiliary equipment	1,594,131	6	2,018,696	8	*27
Special equipment	4,835,457	18	3,353,350	13	*–31
Other	6,570,876	24	**4,072,894	16	–38

*Not statistically different from zero at the 95 percent confidence level.

** Note: 2011 was the first year plantings were included. Planting expenditures are not included in the Other category to maintain comparability to Survey years prior to 2011.


Wildlife Watching

Wildlife Watching Highlights

A third of the U.S. population 16 years and older enjoyed wildlife watching in 2016. Wildlife watching is defined here as closely observing, feeding, and photographing wildlife, visiting parks and natural areas around the home because of wildlife, and maintaining plantings and natural areas around the home for the benefit of wildlife. These activities are categorized as around the home (within 1 mile of home) or away from home (at least 1 mile from home).

The 2016 Survey counts wildlife-watching as recreational activities in which the primary objective was to watch wildlife, as defined above. Secondary or incidental participation, such as observing wildlife while doing something else, was not included in the Survey.

During 2016, 86.0 million U.S. residents, 34 percent of the U.S. population 16 years or older, participated in wildlife-watching activities. People who took an interest in wildlife around their homes numbered 81.1 million, while those who took trips away from their homes to wildlife watch numbered 23.7 million people.

Wild Bird Observers

Of all the wildlife in the United States, birds attracted the biggest following. Approximately 45.1 million people observed birds around the home and on trips in 2016. A large majority, 86 percent (38.7 million), observed wild birds around the home, while 36 percent (16.3 million) took trips away from home to observe wild birds. Participants averaged a startling 96 days of birding in 2016, primarily due to the 105 days[124] of around-the-home birders. Away-from-home birders averaged 16 days.

[124] The difference between the estimates of all average birding days and around-the-home average birding days was not statistically significant.

Wildlife-Watching Participants by Activity

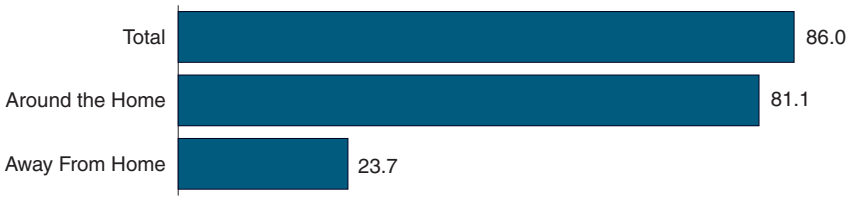
(In millions)

Total wildlife-watching participants	**86.0**
Away from home	**23.7**
Observers	19.6
Photographers	13.7
Feeders	4.9
Around the home	**81.1**
Feeders	59.1
Observers	43.8
Photographers	30.5
Maintainers of plantings or natural areas	11.0
Visitors of public parks or natural areas	11.4

Source: Table 34.

Wildlife-Watching Participants

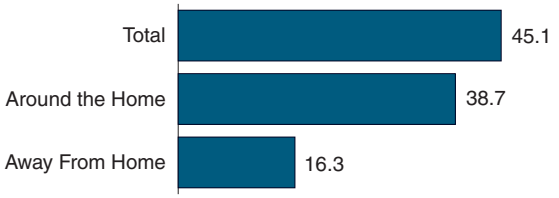
(In millions)



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

Bird Watchers

(In millions)



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

Wildlife-Watching Expenditures

Approximately 48 percent of all the dollars spent in 2016 for wildlife-related recreation was due to wildlife watching. Wildlife-watching participants 16 years or older spent $75.9 billion, an average of $1,193 per spender. An estimated 75 percent of all wildlife watchers spent money on their avocation.

Wildlife watchers spent $11.6 billion on trips pursuing their activities. Food and lodging accounted for $6.1 billion (52 percent of all trip-related expenditures), transportation expenses totaled $4.2 billion[125] (36 percent), and other trip costs, such as land use fees and equipment rental, amounted to $1.3 billion (11 percent) for the year.

These recreationists purchased $55.1 billion worth of equipment for wildlife watching. They spent $12.1 billion (22 percent of all equipment expenditures) on wildlife-watching equipment including binoculars, cameras, bird food, and special clothing. Expenditures for auxiliary equipment, such as tents and backpacking equipment, totaled $1.0 billion (2 percent) for the year. Participants spent $41.9 billion[126] (76 percent) on special equipment, including off-road vehicles, campers, and boats.

Also for the year, wildlife watchers spent $4.2 billion on land leasing and ownership; $0.9 billion[127] on plantings for the benefit of wildlife; $3.8 billion[128] on membership dues and contributions; and $0.2 billion on magazines, books, and DVDs.

[125] The difference between the estimates for expenditures on food and lodging and transportation was not statistically significant.

[126] The difference between the estimates of total equipment expenditures and special equipment expenditures was not statistically significant.

[127] The difference between the estimates of the expenditures for plantings and land leasing and owning was not statistically significant.

[128] The difference between the estimates of the expenditures for membership dues and contributions and land leasing and owning was not statistically significant.

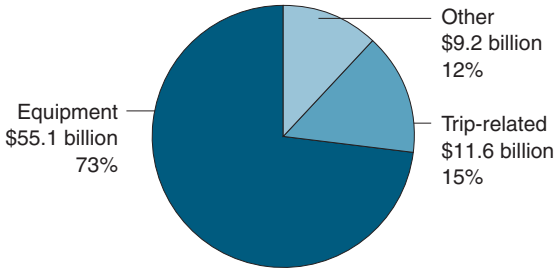
Total Wildlife-Watching Expenditures

Total wildlife-watching expenditures	**$75.9 billion**
Total trip-related	**$11.6 billion**
Food and lodging	6.1 billion
Transportation	4.2 billion
Other trip costs	1.3 billion
Total equipment expenditures	**$55.1 billion**
Wildlife-watching equipment	12.1 billion
Auxiliary equipment	1.0 billion
Special equipment	41.9 billion
Total other expenses	**$9.2 billion**
Land leasing and owning	4.2 billion
Plantings	0.9 billion
Membership dues and contributions	3.8 billion
Magazines, books, and DVDs	0.2 billion

Source: Table 39.

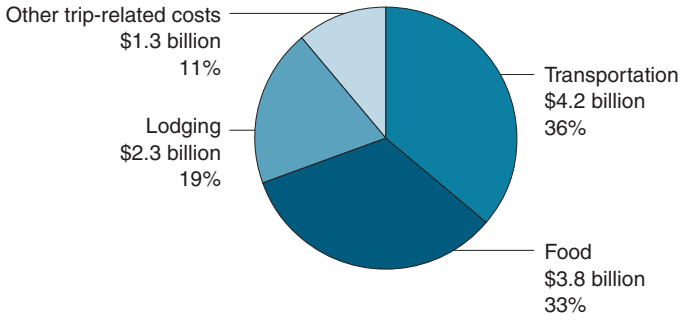
Wildlife-Watching Expenditures

(Total expenditures: $75.9 billion)



Trip-Related Expenditures

(Total expenditures: $11.6 billion)



Around-the-Home Wildlife-Watching Highlights

In 2016, around-the-home participants 16 years and older numbered 81.1 million—94 percent of all wildlife-watching recreationists. The most popular activity, feeding birds and other wildlife, accounted for 59.1 million wildlife watchers, 73 percent of all around-the-home participants. Over 43.8 million people observed wildlife, representing 54 percent of all around-the-home participants.

Approximately 30.5 million recreationists (38 percent of all around-the-home wildlife watchers) photographed wildlife. About 11.0 million maintained plantings or natural areas for the benefit of wildlife. They made up 14 percent of all around-the-home participants. Finally, 11.4 million[129] people visited parks or natural areas within 1 mile of their homes for wildlife watching. They comprised 14 percent of all around-the-home participants. The sum of the percentages exceeds 100 percent because people participated in more than one category.

[129] The difference between the estimates of the number of participants who maintained plantings or natural areas for the benefit of wildlife and the number of participants who visited parks or natural areas within 1 mile of their homes was not statistically significant.

Around-the-Home Participants

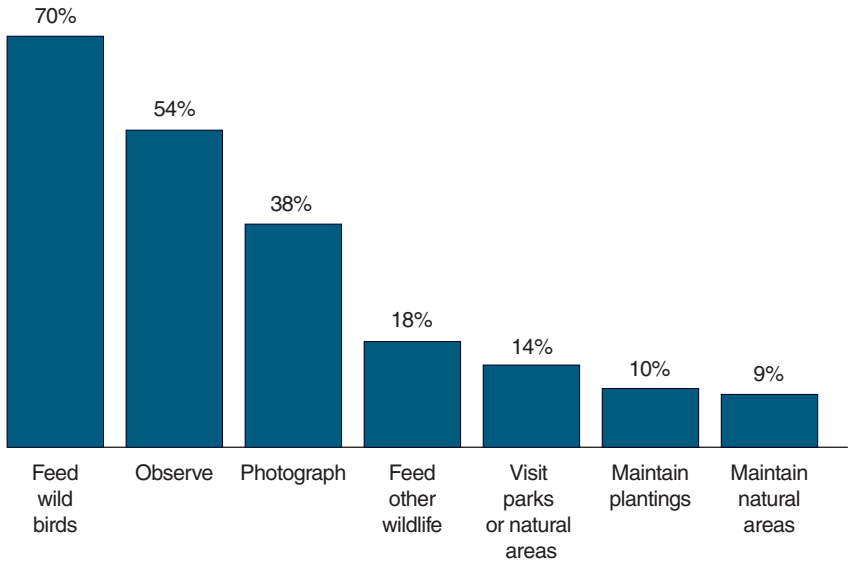
(In millions)

Total participants	**81.1**
Feed wildlife	59.1
Observe wildlife	43.8
Photograph wildlife	30.5
Visits parks or natural areas	11.4
Maintains natural areas	7.5
Maintains plantings	7.8

Source: Table 36.
Note: Detail does not add to total because of multiple responses and nonresponse.

Percent of Total Around-the-Home Participants by Activity

(Total: 81.1 million participants)



Wildlife Fed, Observed, or Photographed by Around-the-Home Participants

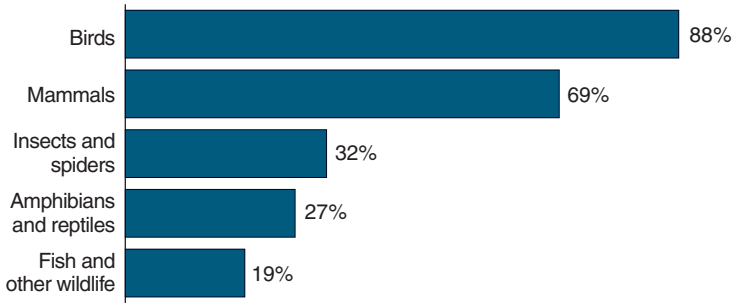
Of the 59.1 million people feeding wildlife around their homes in 2016, 97 percent (57.2 million) fed wild birds, while 25 percent (14.5 million) fed other wildlife.

Approximately 43.8 million participants closely observed wildlife around their homes, of which 38.7 million[130] observed birds. Observing mammals was undertaken by 30.1 million participants. Insects and spiders attracted the attention of 13.9 million people; 11.6 million[131] observed amphibians or reptiles; and 8.2 million[132] people observed fish and other wildlife. The median number of days for around-the-home observations for all animals was a little over 50 days in 2016.

About 30.5 million people photographed wildlife around their homes. The median number of days people took pictures of wildlife around their homes in 2016 was 4 days, although 3.4 million people (11 percent) photographed wildlife 21 days or more.

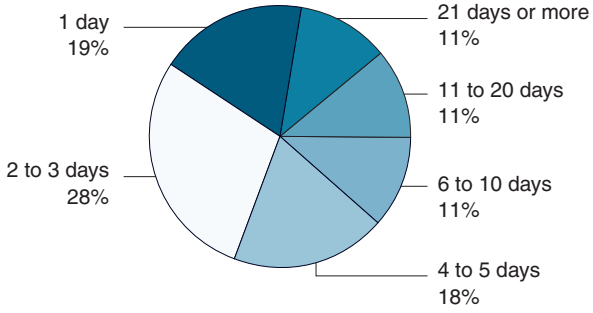
Percent of Around-the-Home Observers by Type of Wildlife Observed

(Total wildlife observers: 43.8 million)



Percent of Around-the-Home Photographers by Days Spent Photographing Wildlife

(Total wildlife photographers: 30.5 million)



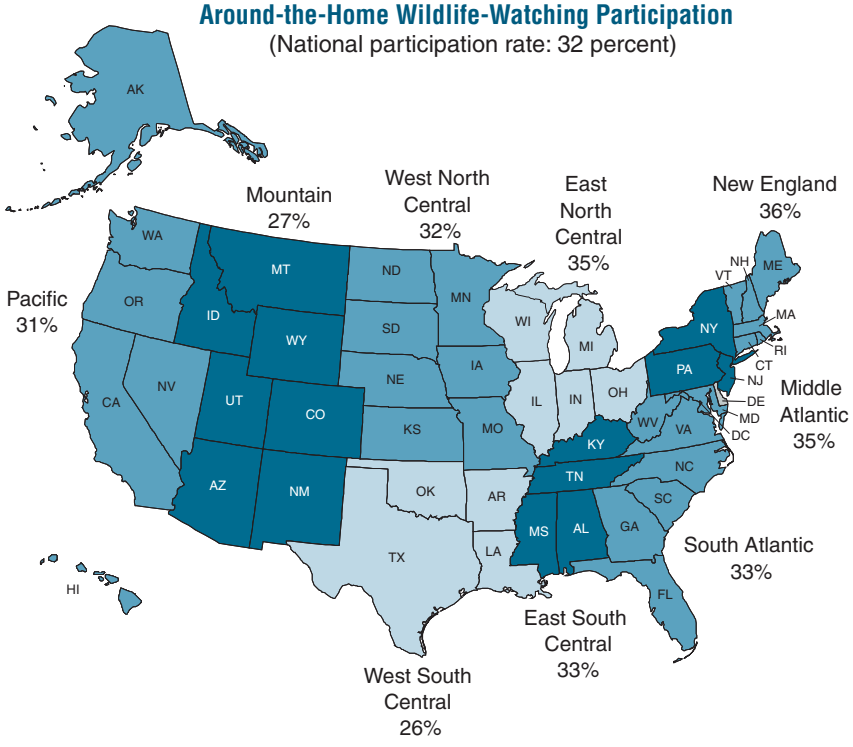
Around-the-Home Wildlife Watchers by Geographic Region

In 2016, nearly 255 million people 16 years or older lived in the United States. Of those, 32 percent wildlife watched around their homes. The participation rates of these around-the-home participants varied by region.

The percentages of regional populations that wildlife watched around their homes ranged from 26 percent in the West South Central region to 36 percent[133] in the New England region. The New

Around-the-Home Wildlife-Watching Participation

(National participation rate: 32 percent)



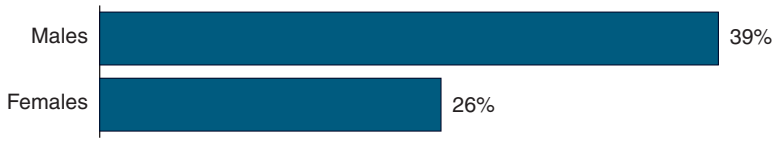
[130] The difference between the estimates of total participants who observed wildlife around their homes and participants who observed birds around their homes was not statistically significant.

[131] The difference between the estimates of the number of participants who observed insects and spiders and the number of participants who observed amphibians or reptiles was not statistically significant.

[132] The difference between the estimates of the number of participants who observed amphibians or reptiles and the number of people who observed fish and other wildlife was not statistically significant.

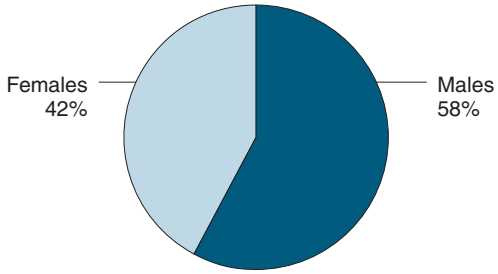
[133] The differences between the estimates of the participation rates of participants in all regions were not statistically significant, except for the Middle Atlantic and West South Central comparison.

Percent of Males and Females Who Participated Around-the-Home



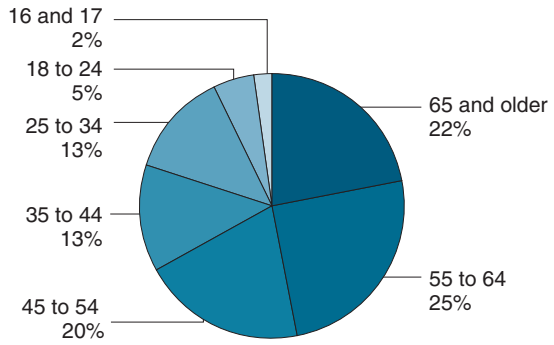
Percent of Around-the-Home Wildlife Watchers by Sex

(Total participants: 81.1 million)

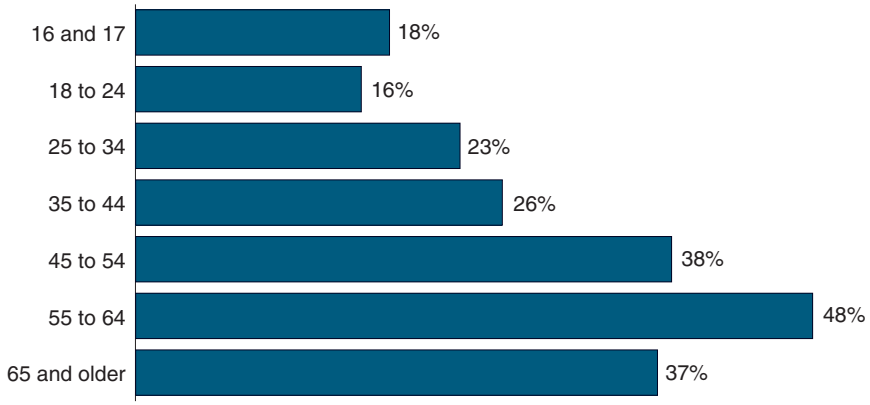


Percent of Around-the-Home Wildlife Watchers by Age

(Total participants: 81.1 million)



Percent of U.S. Population Who Participated Around-the-Home by Age



England, Middle Atlantic, East North Central, South Atlantic, and East South Central had participation rates above the national average of 32 percent.

The single region that had the highest number of around-the-home wildlife watchers was the South Atlantic (16.5 million participants).[134]

Sex and Age of Around-the-Home Wildlife Watchers

In a change from previous Survey findings, males had a higher participation rate than females for around-the-home wildlife watching. In 2016, 39 percent of males and 26 percent of females enjoyed around-the-home activities. Of the 81.1 million around-the-home wildlife watchers, 58 percent (47.2 million) were males and 42 percent (33.9 million) were females.

People in the 55- to 64-year-old age group were most likely to participate at 48 percent[135] (20.1 million). People in the 18- to 24-year-old age group were the least likely to participate, with 16 percent[136] (4.4 million). The disparity in participation rates between people 16 to 34 years old (20 percent) and those 35 years and older (37 percent) is striking.

[134] The differences between the estimates of the number of participants in all regions were not statistically significant.

[135] The difference between the estimates of the participation rates of 55- to 64-year-olds and 65- to 74-year-olds was not statistically significant.

[136] The difference between the estimates of the participation rates of 18- to 24-year-olds and 16- to 17-year-olds was not statistically significant.

Around-the-Home Participants by Sex and Age

(In millions)

Total, both sexes . . .	**81.1 million**
Male	47.2 million
Female.	33.9 million
Total, all ages	**81.1 million**
16 and 17.	1.5 million
18 to 24	4.4 million
25 to 34	10.3 million
35 to 44	10.6 million
45 to 54	16.2 million
55 to 64	20.1 million
65 and older.	18.0 million

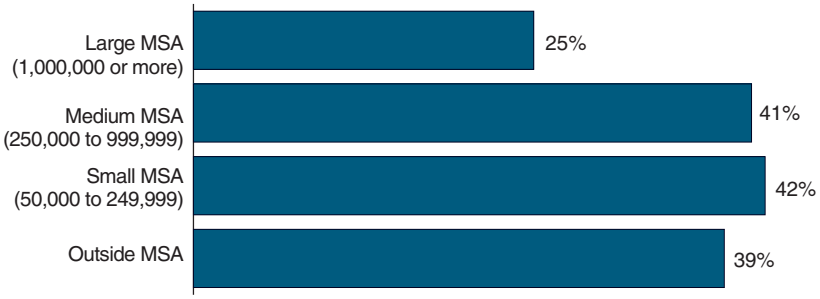
Source: Table 41.

Metropolitan and Nonmetropolitan Around-the-Home Participants

Approximately 93 percent of around-the-home wildlife watchers lived in metropolitan areas, as defined by the Census Bureau. Metropolitan Statistical Areas, or MSAs,[137] with populations of 1 million or more had a participation rate of 25 percent, lower than any smaller MSA or non-MSA. Nonetheless, recreationists from the most populous MSAs comprised 44 percent of all around-the-home wildlife watchers. In MSAs of 250,000 to 999,999, the participation rate was 41 percent and they made up 25 percent of all around-the-home recreationists. An estimated 24 percent[138] of around-the-home wildlife watchers lived in MSAs with a population from 50,000 to 249,999. The population of these areas had a participation rate of 42 percent.[139]

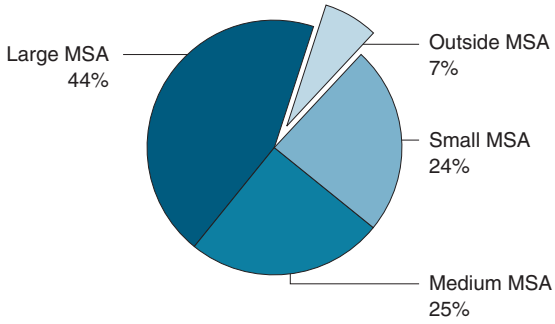
The participation rate for populations who lived outside MSAs was 39 percent.[140] Approximately 6 percent of the total U.S. population lived outside MSAs in 2016 and constituted 7 percent of all around-the-home wildlife watchers.

Percent of U.S. Population Who Participated Around-the-Home by Residence



Percent of Around-the-Home Wildlife Watchers by Residence

(Total participants: 81.1million)



[137] See Appendix A for a definition of Metropolitan Statistical Areas (MSAs).

[138] The difference between estimates of the percentages of all around-the-home participants who lived in MSAs with a population of 50,000 to 249,999 and in MSAs of 250,000 to 999,999 was not statistically significant.

[139] The difference between estimates of the participation rates of participants who lived in MSAs with a population of 50,000 to 249,999 and in MSAs of 250,000 to 999,999 was not statistically significant.

[140] The differences between estimates of the participation rates of participants who lived outside MSAs and each of the estimates of participation rates of participants who lived in MSAs of 250,000 to 999,999 and in MSAs with a population of 50,000 to 249,999 were not statistically significant.

Household Income of Around-the-Home Participants

Participation rates ranged from 18 percent among U.S. residents living in households earning $35,000 to $39,999 per year to 40 percent of those living in households earning $100,000 to $149,999 annually. These participants made up 2 percent and 16 percent, respectively, of the 81.1 million around-the-home wildlife watchers in 2016.

Participants in households earning $100,000 to $149,999 a year constituted the largest number, 12.8 million (excluding the 14.4 million[141] participants who did not report their income). The income group with the next largest number of participants was $150,000 or more. This group contributed 11.3 million and had a 37 percent participation rate. The number of around-the-home recreationists contributed by other income groups ranged from 1.6 million participants with $35,000 to $39,999 household incomes to 10.8 million[142] participants for both the $50,000 to $74,999 and the $75,000 to $99,999 groups, with 30 percent[143] and 39 percent[144] participation rates, respectively.

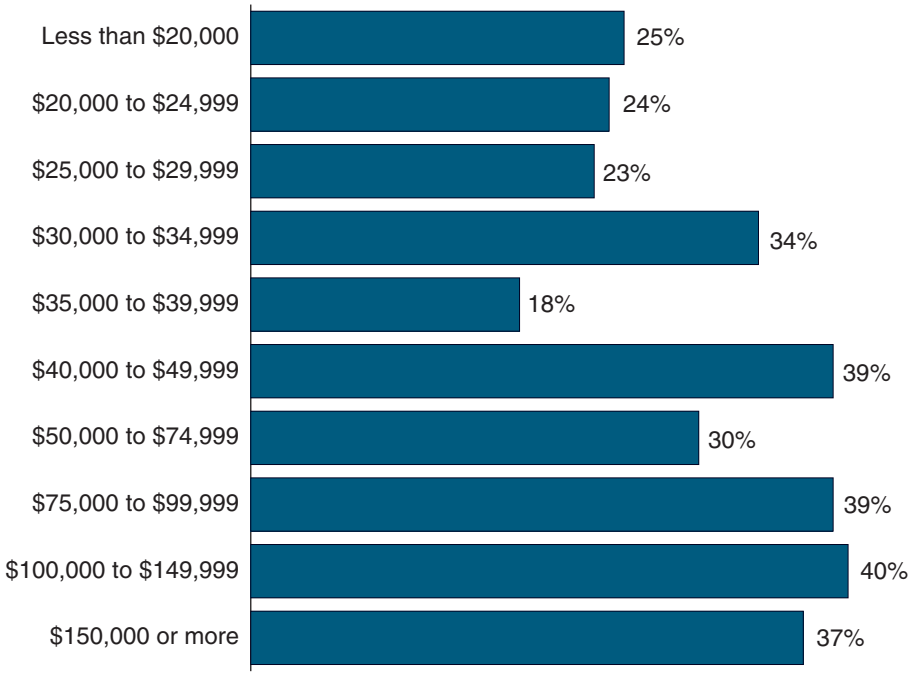
[141] The difference between estimates of the number of participants with $100,000 to $149,999 and the number of participants who did not report their income was not statistically significant.

[142] The differences between estimates of the number of participants with $50,000 to $74,999, $75,000 to $99,999, $100,000 to $149,999, $150,000 or more in income, and participants who did not report income were not statistically significant.

[143] The difference between estimates of the participation rates of participants with $50,000 to $74,999 in income and $150,000 or more in income was not statistically significant.

[144] The differences between estimates of the participation rates of participants with $75,000 to $99,999 in income and each of the estimates of participation rates of participants with $150,000 or more and $50,000 to $74,999 in income were not statistically significant.

Percent of U.S. Population Who Participated Around-the-Home by Household Income



Education, Race, and Ethnicity of Around-the-Home Participants

Looking at the educational background of participants, it was found that the rate of participation in around-the-home wildlife watching generally increased with more education. The highest participation rate was among recreationists with 5 years or more of college, 52 percent. They made up 17 percent of all around-the-home wildlife watchers. The lowest participation rate, 22 percent, was among people with 11 years or less of education—9 percent of all participants. Recreationists with 12 years of education, 30 percent of all around-the-home participants, had a participation rate of 33 percent. Participants with 1 to 3 years of college, 23 percent of all participants, had a participation rate of 25 percent.[145]

[145] The difference between estimates of the participation rates of participants with 1 to 3 years of college and 11 years or less of education was not statistically significant.

Around-the-Home Participants by Education, Race, and Ethnicity

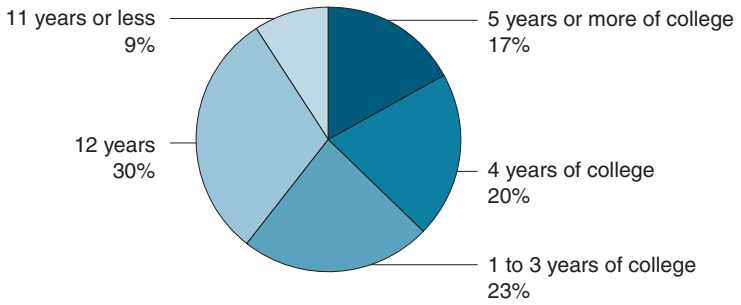
(In millions)

Total participants	**81.1**
Education	
11 years of less	7.6
12 years	24.0
1 to 3 years of college	19.0
4 years of college	16.5
5 years or more of college	14.0
Race	
White	69.9
African American	7.4
Asian	0.7
Other	3.1
Ethnicity	
Hispanic	5.0
Non-Hispanic	76.2

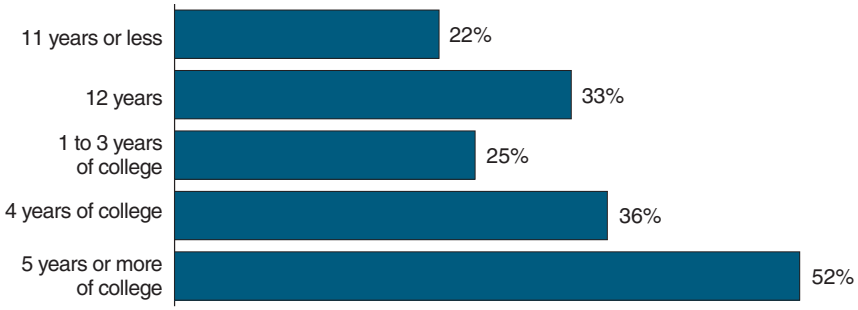
Source: Table 41.

Percent of Around-the-Home Wildlife Watchers by Education

(Total: 81.1 million participants)

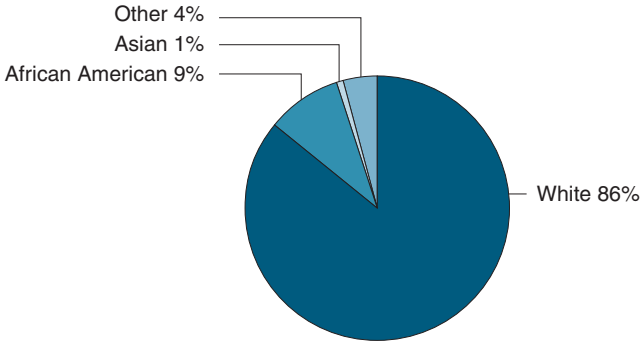


Percent of U.S. Population Who Participated Around-the-Home by Education

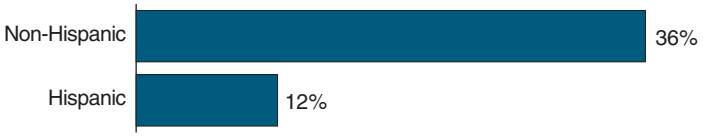


Percent of Around-the-Home Wildlife Watchers by Race

(Total: 81.1 million participants)



Percent of U.S. Population Who Participated Around-the-Home by Ethnicity



Recreationists with 4 years of college, 20 percent[146] of all participants, had a participation rate of 36 percent.[147]

A wide range of participation rates were found among the different races and ethnic groups. Approximately 35 percent of the White population engaged in around-the-home wildlife watching, contrasted with 22 percent of the African American population, 4 percent of the Asian population, and 52 percent[148] of individuals comprising the "all others" race category. Of the total number of around-the-home participants, 86 percent were White, 9 percent were African Americans, 1 percent was Asian, and 4 percent were all other races.

An estimated 12 percent of the U.S. Hispanic population engaged in wildlife watching around their homes in comparison with 36 percent of the non-Hispanic population. The 76.2 million non-Hispanic participants comprised 94 percent of all around-the-home wildlife watchers and the 5.0 million Hispanic participants made up 6 percent.

Away-From-Home Wildlife-Watching Highlights

In 2016, 23.7 million people 16 years and older took trips away from home to feed, observe, or photograph wildlife. They comprised 28 percent of all wildlife watchers. Most popular with away-from-home participants was closely observing wildlife. About 19.6 million[149] participants, 8 percent of the U.S. population, observed wildlife an average of 16 days in 2016. Photographing wildlife was enjoyed by 13.7 million people, 5 percent of the U.S. population. They averaged 11 days per photographer. Approximately 4.9 million people fed wildlife an average of 15 days[150] and comprised 2 percent of the U.S. population.

About 79 percent of all away-from-home participants took trips within their resident state to participate in

[146] The differences between estimates of the percentages of participants with 4 years of college and each of the groups with 1–3 years of college and 5 years or more of college were not statistically significant.

[147] The difference between estimates of the participation rates of participants with 4 years of college and 12 years of education was not statistically significant.

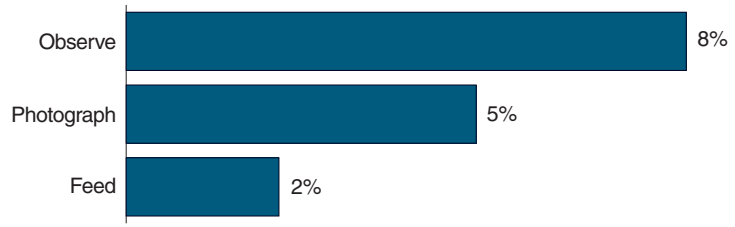
[148] The difference between estimates of the participation rates of the "other" race category and the White category was not statistically significant.

[149] The difference between estimates of total away-from-home wildlife watchers and wildlife observers was not statistically significant.

[150] The differences between estimates of average days of participation for away-from-home feeders and each of the average day estimates for away-from-home observers and away-from-home photographers were not significant.

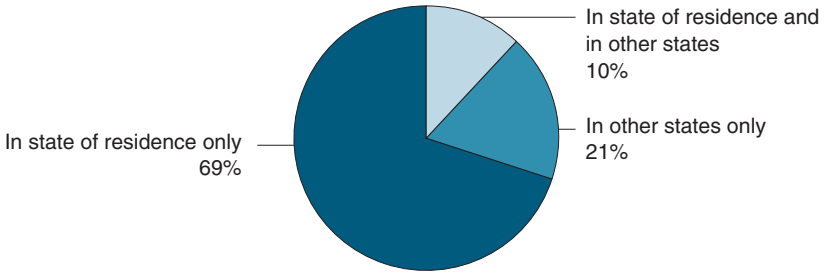
Percent of U.S. Population Who Participated Away-From-Home by Type of Activity

(Total: 23.7 million participants)



Percent of Away-From-Home Wildlife Watchers in State of Residence and Other States

(Total participants: 23.7 million)



Away-From-Home Participants

(In millions)

Total participants	**23.7**
Observers	19.6
Photographers	13.7
Feeders	4.9
Total days	**386**
Observers	309
Photographers	152
Feeders	71

Source: Table 35.

Away-From-Home Participants By Type of Wildlife Observed, Fed, or Photographed

(In millions)

Total participants	**23.7**
Birds, total	**17.0**
Songbirds	10.5
Birds of prey	11.5
Waterfowl	11.5
Other water birds	8.8
Other birds	7.1
Land mammals, total	**14.0**
Small land mammals	10.6
Large land mammals	11.8
Fish	**4.3**
Marine mammals	**2.5**
Other (turtles, butterflies, etc.)	**8.7**

Source: Table 37.

wildlife watching. Approximately 69 percent took trips only in their resident state, 10 percent took trips both inside and outside their resident state, and 21 percent took trips only to other states. Altogether, 31 percent of all away-from-home participants took at least some of their trips to other states.

Wildlife Observed, Fed, or Photographed by Away-From-Home Participants

Wild birds attracted the most interest from wildlife watchers on their trips—17.0 million people or 72 percent of all away-from-home participants. The two most-watched birds, waterfowl (ducks and geese, primarily) and birds of prey, were both watched by 11.5 million[151] people. Next on the list of most watched were songbirds with 10.5 million[152] watchers. Herons, shore birds, and other water birds attracted 8.8 million[153] recreationists. Lastly, other birds, such as road runners and turkeys, attracted 7.1 million[154] wildlife watchers.

Land mammals, such as deer, bears, and coyotes, were observed, fed, or photographed by 14.0 million people—59 percent of all away-from-home participants. Fish attracted the attention of 4.3 million people or 18 percent of all away-from-home recreationists.

About 2.5 million[155] people or 10 percent of all away-from-home participants observed, fed, or photographed marine mammals, such as whales, seals, and dolphins. Other wildlife, such as butterflies, snakes, and turtles, appealed to 8.7 million[156] people or 37 percent of all away-from-home wildlife-watchers.

[151] The difference between estimates of the number of birds of prey and waterfowl watchers was not statistically significant.

[152] The differences between estimates of the number of songbird watchers and each of the estimates of waterfowl watchers and birds of prey watchers were not statistically significant.

[153] The differences between estimates of the number of water bird watchers and each of the estimates of waterfowl watchers, birds of prey watchers, and songbird watchers were not statistically significant.

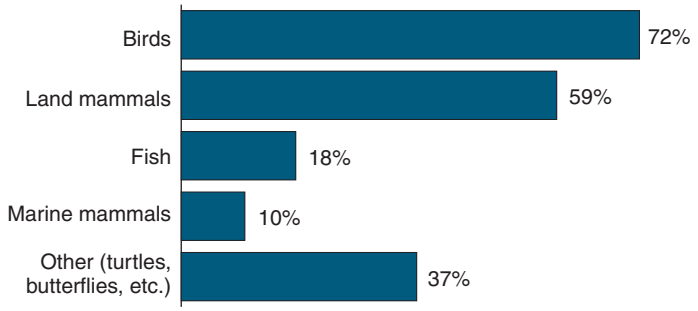
[154] The difference between estimates of the number of other bird watchers and water bird watchers was not statistically significant.

[155] The difference between estimates of the number of marine mammal watchers and fish watchers was not statistically significant.

[156] The differences between estimates of the number of other wildlife watchers and each of the estimates of songbird watchers, birds of prey watchers, waterfowl watchers, water bird watchers, and other bird watchers were not statistically significant.

Percent of Away-From-Home Wildlife Watchers Who Observed, Fed, or Photographed Wildlife

(Total: 23.7 million participants)



Area Visited by Away-From-Home Participants

In 2016, the most visited areas for Americans to observe, feed, or photograph wildlife were publicly owned. Approximately 79 percent of all trip-taking wildlife watchers used public areas, while just 29 percent visited private areas. About 19 percent of all away-from-home participants, 4.4 million, visited both public and private areas. Approximately 14.1 million, 60 percent, visited only public areas to engage in their activities, while 2.3 million, 10 percent, visited only private areas.

Away-From-Home Participants By Public and Private Land

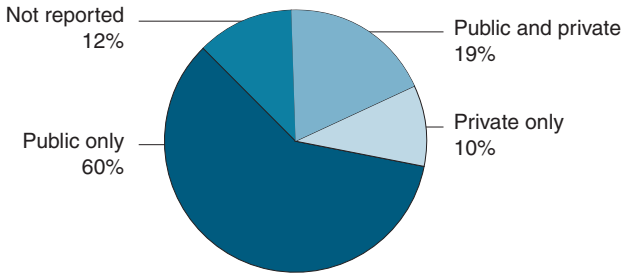
(In millions)

Total participants	**23.7**
Public land only	14.1
Private land only	2.3
Public and private land	4.4
Not reported	2.9

Source: Table 35.

Percent of Away-From-Home Wildlife Watchers by Public and Private Land

(Total participants: 23.7 million)



Away-From-Home Wildlife Watchers by Geographic Region

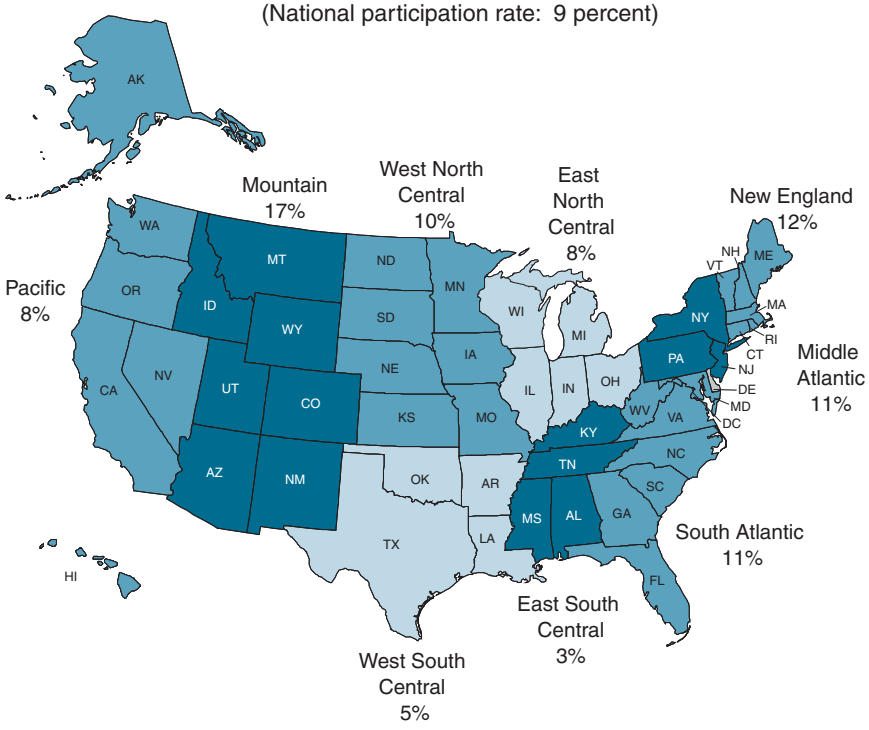
In 2016, 255 million people 16 years and older lived in the United States—9 percent of whom took trips to wildlife watch.

Away-from-home participation rates ranged from 3 percent in the East South Central Division to 17 percent in the Mountain Division. The divisions that had participation rates higher than the national average were New England, Middle Atlantic, West North Central, South Atlantic, and Mountain.[157]

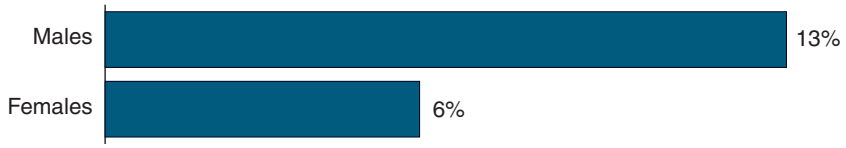
[157] The differences between estimates of regional participation rates and the national average were not statistically significant for the New England, Middle Atlantic, West North Central, and South Atlantic Divisions.

Away-From-Home Wildlife-Watchers by Geographic Region

(National participation rate: 9 percent)

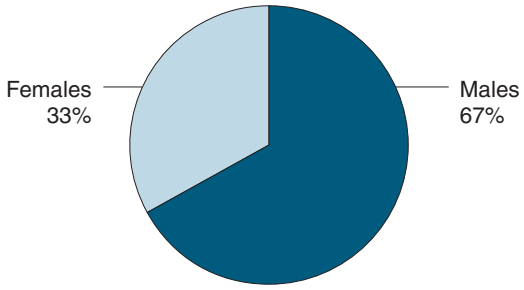


Percent of Males and Females Who Participated Away-From-Home

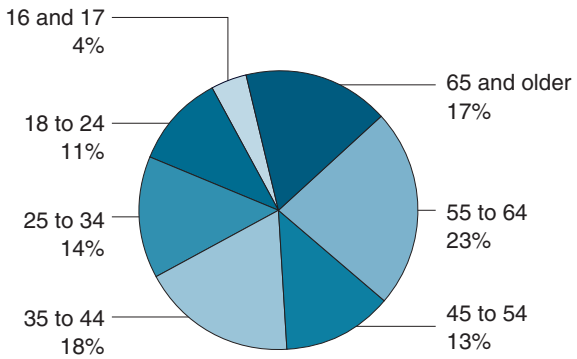


Percent of Away-From-Home Wildlife Watchers by Sex

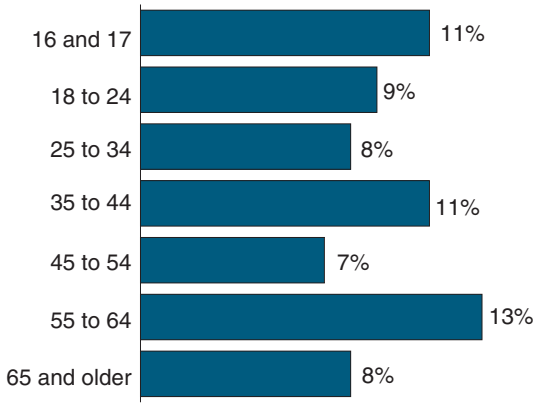
(Total participants: 23.7 million)



Percent of Away-From-Home Wildlife Watchers by Age



Percent of U.S. Population Who Participated Away-From-Home by Age



Sex and Age of Away-From-Home Wildlife Watchers

Twice as many males participated in away-from-home wildlife watching as did females in 2016. Approximately 67 percent (15.8 million) of all participants were males and 33 percent (7.9 million) were females. Thirteen percent of males and 6 percent of females in the United States enjoyed observing, feeding, or photographing wildlife away from home.

The 55- to 64-year-old age group had the most away-from-home recreationists, 5.4 million. This age group, the 55- to 64-year-olds, also had the highest participation rate, 13 percent. Three age groups had the next highest participation rate, 11 percent[158]: the 16- and 17-year-olds, the 35- to 44-year-olds, and the 65- to 74-year-olds. The 75 years and older group had the lowest participation rate at 4 percent.[159]

[158] The differences among estimates of the participation rates for 55- to 64-year-olds, 16- to 17-year-olds, 35- to 44-year-olds, and 65- to 74-year-olds were not statistically significant.

[159] The difference between estimates of the participation rates for 16- to 17-year-olds and people 75 years and older was not statistically significant.

Away-From-Home Participants by Sex and Age

(In millions)

Total, both sexes	**23.7**
Male	15.8
Female	7.9
Total, all ages	**23.7**
16 and 17	1.0
18 to 24	2.6
25 to 34	3.3
35 to 44	4.3
45 to 54	3.0
55 to 64	5.4
65 and older	4.0

Source: Table 40.

Metropolitan and Nonmetropolitan Away-From-Home Participants

In 2016, 9 percent of all people living in MSAs (see Appendix A for definition) took trips primarily to enjoy wildlife. MSA residents comprised 93 percent of all away-from-home participants. In contrast, 11 percent[160] of all people outside an MSA watched wildlife away from home.

As was the case with around-the-home wildlife watching, the biggest MSA had both the lowest participation rate and the highest number of participants. Residents of non-MSAs made up 7 percent of both away-from-home and around-the-home participants.

Household Income of Away-From-Home Participants

Participation rates ranged from 4 percent for those in households earning $25,000 to $29,999 per year to 13 percent[161] for those households earning $20,000 to $24,999; $35,000 to $39,999; and $100,000 to $149,999. The income group that had the most participants was $100,000 to $149,999, with 4.1 million recreationists.

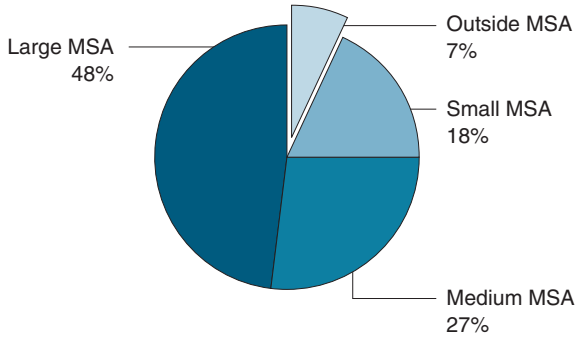
Median income was higher for away-from-home participants than for Americans as a whole, almost $79,000 for recreationists compared to about $71,000 for the U.S. population.

[160] The difference between estimates of the participation rates for people living in MSAs and people living outside MSAs was not statistically significant.

[161] The differences between estimates of the participation rates for people with incomes of $20,000 to $24,999; $25,000 to $29,999; $35,000 to $39,999; and $100,000 to $149,999 were not statistically significant, except for the people with incomes of $25,000 to $29,999 and $100,000 to $149,999.

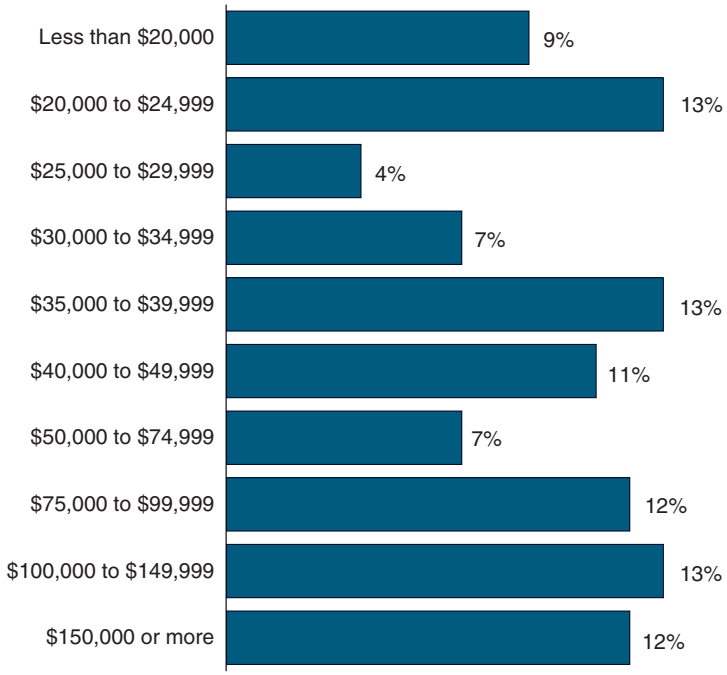
Percent of Away-From-Home Wildlife Watchers by Residence

(Total participants: 23.7 million)



Percent of U.S. Population Who Participated by Residence

Percent of U.S. Population Who Participated Away-From-Home by Household Income



Education, Race, and Ethnicity of Away-From-Home Participants

Educational achievement and participation in away-from-home wildlife watching have a direct correlation—the higher the education level, the more likely the participation. About 4 percent of the U.S. population with 11 years of education or less participated, compared to 20 percent of the population with 5 years or more of college. The educational cohort with the most participants was 1 to 3 years of college, with 6.3 million recreationists. The educational cohort with the fewest recreationists was 11 years or less, with 1.4 million.

The participation rates by race varied greatly. Approximately 11 percent of Whites took trips to wildlife watch. In contrast, 2 percent of African Americans and 1 percent[162] of Asians participated. Finally, 6 percent[163] of all other races took trips to wildlife watch. Of the total 23.7 million away-from-home participants, 95 percent

[162] The difference between estimates of the African American and Asian participation rates was not statistically significant.

[163] The estimate of the participation rate of other races was not statistically different from the estimated rates of the three other race categories.

Away-From-Home Participants by Education, Race, and Ethnicity

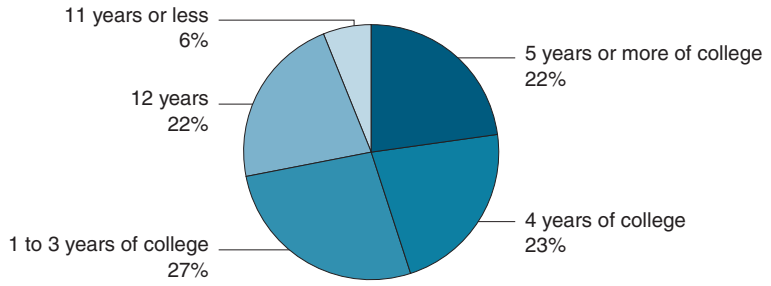
(In millions)

Total participants	**23.7**
Education	
11 years or less	1.4
12 years	5.1
1 to 3 years of college	6.3
4 years of college	5.5
5 years or more of college	5.3
Race	
White	22.6
African American	0.6
Asian	0.2
Other	0.4
Ethnicity	
Hispanic	2.3
Non-Hispanic	21.5

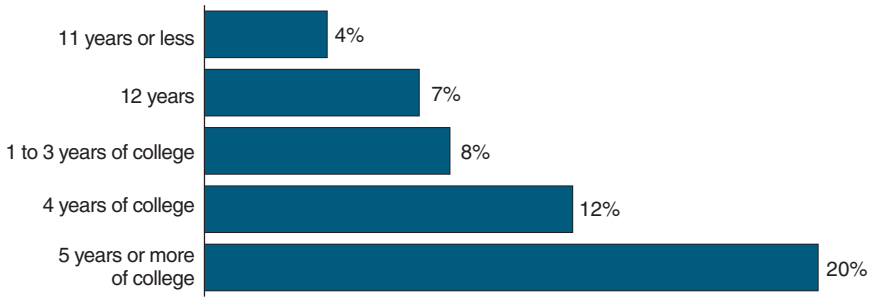
Source: Table 40.

Percent of Away-From-Home Wildlife Watchers by Education

(Total participants: 23.7 million)

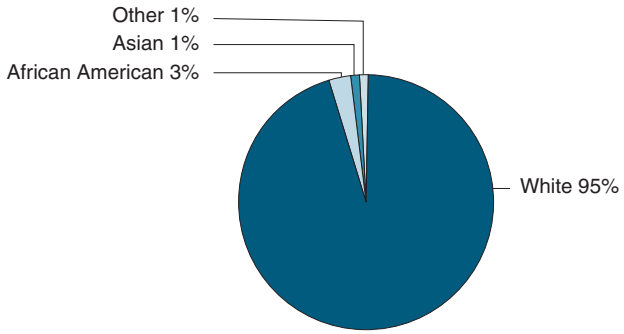


Percent of U.S. Population Who Participated Away-From-Home by Education

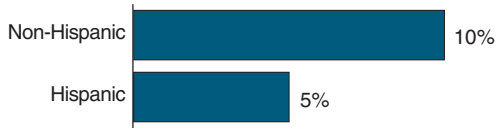


Percent of Away-From-Home Wildlife Watchers by Race

(Total participants: 23.7 million)



Percent of U.S. Population Who Participated Away-From-Home by Ethnicity



were White, 3 percent were African American, 1 percent were Asian, and 1 percent[164] were "all other" races.

About 2.3 million recreationists were Hispanic, 10 percent of all participants. Approximately 5 percent of the U.S. Hispanic population took trips to engage in wildlife watching. Of the non-Hispanic population, 10 percent (21.5 million participants) took trips to wildlife watch. They composed 90 percent of all away-from-home wildlife watchers.

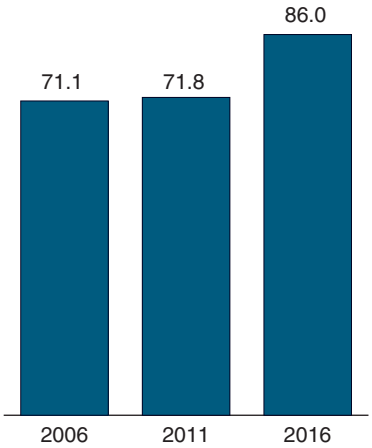
[164] The differences between estimates of the African American, Asian, and "other" races percentages were not statistically significant.

2006–2016 Comparison of Wildlife-Watching Participation

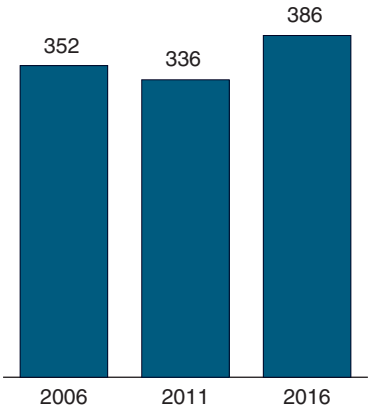
Comparing 2011 and 2016 wildlife-watching measures shows a greatly increased number of total participants and equipment expenditures, 20 percent and 90 percent, respectively. The increase in participants is due to increased photographing and feeding wildlife around the home. Away-from-home wildlife watching stayed level at 9 percent of Americans, 16 years and older. Similarly, the differences in the number of days of away-from-home wildlife watching were not significant for any category. The increase in equipment expenditures was due to a 175 percent increase in special equipment (i.e., high cost items such as off-road vehicles and boats).

The trend from 2006 to 2016 copies the trend from 2011 to 2016: an increase by a fifth in the number of participants and a near doubling of equipment expenditures. The participation increase is due almost entirely to photographing around the home. Overall, away-from-home wildlife watching participant numbers stayed level, as did the number of away-from-home days. Equipment purchases, the largest component of wildlife-watching expenditures, increased solely due to special equipment purchases. All other categories of equipment purchases did not have notable increases or decreases.

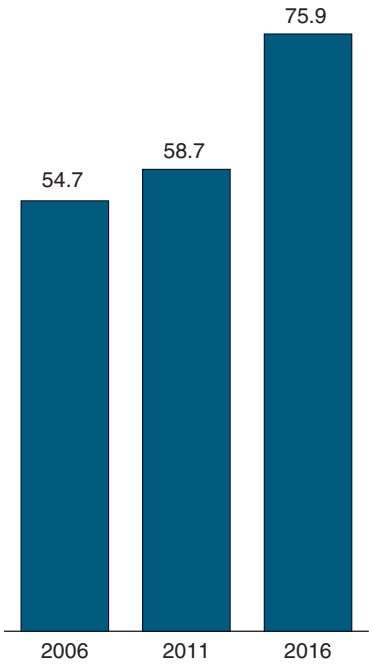
Number of Wildlife Watchers
(Millions)



Days of Away-From-Home Wildlife Watching
(Millions)



Wildlife-Watching Expenditures
(Billions of 2016 dollars)



2011–2016 Wildlife-Watching Participants, Days, and Expenditures

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

	2011		2016		2011–2016
	Number	Percent	Number	Percent	percent change
Wildlife-watching participants, total	**71,776**	**100**	**86,042**	**100**	**20**
Around the home	68,598	96	81,128	94	18
Observers	45,046	63	43,829	51	*–3
Photographers	25,370	35	30,473	35	20
Feeders	52,817	74	59,083	69	12
Visitors of parks or natural areas	12,311	17	11,359	13	*–8
Maintainers of planting or natural areas	13,399	19	11,024	13	*–18
Away from home	22,496	31	23,720	28	*5
Observers	19,808	28	19,583	23	*–1
Photographers	12,354	17	13,721	16	*11
Feeders	5,399	8	4,869	6	*–10
Days, away form home	335,625	100	386,045	100	*15
Observers	268,798	80	308,769	80	*15
Photographers	110,459	33	151,559	39	*37
Feeders	59,255	18	70,846	18	*20
Wildlife-watching expenditures, total (2016 dollars)	**$58,732,591**	**100**	**$75,867,134**	**100**	***29**
Trip-related	$18,483,902	31	$11,587,870	15	–37
Equipment, total	$29,051,485	49	$55,083,300	73	90
Wildlife-watching equipment	$12,115,802	21	$12,105,745	16	*Z
Auxiliary equipment	$1,664,250	3	$1,043,932	1	*–37
Special equipment	$15,271,434	26	$41,933,623	55	175
Other	$11,197,204	19	$9,195,965	12	*–18

* Not statistically different from zero at the 95 percent confidence level.
Z is less than 0.5 percent.

2006–2016 Wildlife-Watching Participants, Days, and Expenditures

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

	2006		2016		2006–2016
	Number	Percent	Number	Percent	percent change
Wildlife-watching participants, total	**71,132**	**100**	**86,042**	**100**	**21**
Around the home	67,756	95	81,128	94	20
Observers	44,467	36	43,829	51	*-1
Photographers	18,763	26	30,473	35	62
Feeders	55,512	78	59,083	69	*6
Visitors of parks or natural areas	13,271	19	11,359	13	*–14
Maintainers of planting or natural areas	14,508	20	11,024	13	–24
Away from home	22,977	32	23,720	28	*3
Observers	21,546	30	19,583	23	*–9
Photographers	11,708	16	13,721	16	*17
Feeders	7,084	10	4,869	6	–31
Days, away form home	352,070	100	386,045	100	*10
Observers	291,027	83	308,769	80	*6
Photographers	103,872	30	151,559	39	*46
Feeders	77,329	22	70,846	18	*–8
Wildlife-watching expenditures, total (2016 dollars)	**$54,712,904**	**100**	**$75,867,134**	**100**	***39**
Trip-related	$15,429,582	28	$11,587,870	15	*–25
Equipment, total	$27,771,785	51	$55,083,300	73	98
Wildlife-watching equipment	$11,827,881	22	$12,105,745	16	*2
Auxiliary equipment	$1,238,019	2	$1,043,932	1	*–16
Special equipment	$14,705,885	27	$41,933,623	55	185
Other	$11.511.537	21	$9.195.965	12	*–20

* Not statistically different from zero at the 95 percent confidence level.

Tables

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 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, 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 national totals do not include participation by those who were not U.S. residents or who were U.S. citizens residing outside the United States.

Comparability of Previous Surveys

The numbers reported can be compared with those in the 1991, 1996, 2001, 2006, and 2011 Survey Reports. The methodology used in 2016 was similar to that used in those Surveys. These results should not be directly compared to results from Surveys earlier than 1991 due to major changes in methodology. These changes beginning with the 1991 Survey were made to improve accuracy in the information provided. Trends further back than 1991 are presented in Appendix C. These trends were developed using parts of the Surveys that were comparable.

Coverage of an Individual Table

Since the Survey covers many activities in various places by participants of different ages, all table titles, headnotes, stubs, and footnotes are designed to identify and articulate each item being reported in the table. For example, the title of Table 1 shows that estimates of anglers and hunters, their days of participation, and their number of trips are reported by type of activity. By contrast, the title of Table 3 indicates that it contains data on freshwater anglers and the days they fished for different species.

Percentages Reported in the Table

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 percentages add to 100 percent (plus or minus a rounding error). For example, Table 1 reports the number of trips taken by big game hunters (60 percent), those taken by small game hunters (22 percent), those taken by migratory bird hunters (10 percent), and those taken by hunters pursuing other animals (8 percent). These comprise 100 percent because they are exclusive categories.

Percentages should not add to 100 when nonexclusive groups are being reported. Using Table 1 as an example again, note that adding the percentages associated with the total number of big game hunters (80 percent), total small game hunters (31 percent), total migratory bird hunters (21 percent), and total hunters of other animals (11 percent) will not yield total hunters (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 6 reports three percentages with different bases: one for the number of hunters, one for the number of trips, and one for days of hunting. A footnote is used to clarify the bases of the reported percentages.

Footnotes to the Tables

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

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

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

W Less than 0.5 dollars.

Z Less than 0.5 percent.

X Not applicable.

NA Not available.

Estimates based upon fewer than ten responses are regarded as being based on a sample size that is too small for reliable reporting. An estimate based upon at least ten but fewer than 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 each of their totals. Yet each angler is represented only once in the "Total, all fishing" column. Similarly, in Table 6, those who hunt for big game and small game are counted only once as a hunter in the "Total, all hunting" column. Therefore, totals will be smaller than the sum of subcategories when multiple responses exist.

"Nonresponse" exists because the Survey questions were answered voluntarily, and some respondents did not or could not answer all the questions. The effect of nonresponse is illustrated in Table 27, where the total for days of hunting on all land is greater than the sum of days of hunting on public land and days on private land. This occurs because some respondents did not answer the "days on public/days on private land" questions. As a result, it is known how many days hunters were in the field due to an earlier question, but not known if how many days were on public or private land. In this case, totals are greater than the sum of subcategories when nonresponses have occurred.

Table 1. Anglers and Hunters 16 Years Old and Older, Days of Participation, and Trips by Type of Fishing and Hunting: 2016

(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
Total sportspersons	**39,553**	**100**	**643,362**	**100**	**530,167**	**100**
FISHING						
Total, all fishing	**35,754**	**100**	**459,341**	**100**	**383,296**	**100**
Total, all freshwater	30,137	84	383,192	83	322,266	84
Freshwater, except Great Lakes	29,490	82	372,660	81	311,237	81
Great Lakes	1,824	5	13,440	3	11,029	3
Saltwater	8,320	23	75,392	16	61,030	16
HUNTING						
Total, all hunting	**11,453**	**100**	**184,021**	**100**	**146,871**	**100**
Big game	9,208	80	132,665	72	88,561	60
Small game	3,505	31	38,306	21	31,772	22
Migratory birds	2,353	21	15,621	8	14,548	10
Other animals	1,315	11	13,275	7	11,989	8

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

Table 2. Anglers, Trips, and Days of Fishing by Type of Fishing: 2016

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

Anglers, trips, and days of fishing	Total, all fishing		Freshwater						Saltwater	
			Total, all freshwater		Freshwater, except Great Lakes		Great Lakes			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
ANGLERS										
Total in United States	**35,754**	**100**	**30,137**	**100**	**29,490**	**100**	**1,824**	**100**	**8,320**	**100**
In state of residence	32,089	90	27,504	91	27,259	92	*1,284	*70	6,722	81
In other states	8,826	25	6,678	22	6,065	21	*655	*36	2,230	27
TRIPS										
Total in United States	**383,296**	**100**	**322,266**	**100**	**311,237**	**100**	**11,029**	**100**	**61,030**	**100**
In state of residence	349,211	91	300,098	93	290,868	93	*9,230	*84	49,113	80
In other states	34,085	9	22,168	7	20,370	7	*1,798	*16	11,917	20
DAYS OF FISHING										
Total in United States	**459,341**	**100**	**383,192**	**100**	**372,660**	**100**	**13,440**	**100**	**75,392**	**100**
In state of residence	418,461	91	353,045	92	345,178	93	*10,550	*78	62,107	82
In other states	45,981	10	31,297	8	28,544	8	*2,890	*22	14,274	19
Average days per angler	13	X	13	X	13	X	7	X	9	X

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

Note: Detail for participants does not add to total because of multiple responses. Percents shown are based on the respective "Total in United States" rows.

Table 3. Freshwater Anglers and Days of Fishing by Type of Fish: 2016

(Population 16 years old and older. Numbers in thousands. Excludes Great Lakes fishing)

Type of fish	Anglers		Days of fishing		Average days per angler
	Number	Percent	Number	Percent	
Total, all types of fish	**29,490**	**100**	**372,660**	**100**	**13**
Black bass (largemouth, smallmouth, etc.)	9,595	33	116,911	31	12
White bass, striped bass, and striped bass hybrids	4,969	17	72,173	19	15
Panfish	8,409	29	109,744	29	13
Crappie	7,802	26	106,527	29	14
Catfish and Bullheads	8,144	28	74,235	20	9
Walleye	3,353	11	72,463	19	22
Sauger	...	...	...	...	...
Northern pike, pickerel, muskie, muskie hybrids	1,736	6	47,850	13	28
Trout	7,845	27	63,285	17	8
Salmon	905	3	8,641	2	10
Steelhead	*447	*2	*4,283	*1	*10
Anything[1]	3,895	13	26,168	7	7
Another type of freshwater fish	1,499	5	7,168	2	5

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

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

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

Table 4. Great Lakes Anglers and Days of Fishing by Type of Fish: 2016

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

Type of fish	Anglers		Days of fishing		Average days per angler
	Number	Percent	Number	Percent	
Total, all types of fish	**1,824**	**100**	**13,440**	**100**	**7**
Black bass (largemouth, smallmouth, etc.)	...	...	...	...	...
Walleye, Sauger	*508	*28	*2,608	*19	*5
Northern pike, pickerel, muskie, muskie hybrids	...	...	...	...	...
Perch	...	...	...	...	...
Salmon	*862	*47	*6,383	*47	*7
Steelhead	*422	*23	*1,707	*13	*4
Lake trout	...	...	...	...	...
Other trout	...	...	...	...	...
Anything[1]	...	...	...	...	...
Another type of Great Lakes fish	...	...	...	...	...

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

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

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

Table 5. Saltwater Anglers and Days of Fishing by Type of Fish: 2016

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

Type of fish	Anglers		Days of fishing		Average days per angler
	Number	Percent	Number	Percent	
Total, all types of fish	**8,320**	**100**	**75,392**	**100**	**9**
Salmon	*376	*5	*3,665	*5	*10
Striped bass	1,122	13	9,631	13	9
Flatfish (flounder, halibut)	989	12	11,430	15	12
Bluefish	610	7	4,133	5	7
Red drum (redfish)	2,140	26	20,981	28	10
Sea trout (weakfish)	712	9	5,316	7	7
Mackerel	*442	*5	*5,743	*8	*13
Mahi Mahi (dolphinfish)	*261	*3	*4,450	*6	*17
Tuna	*614	*7	*7,667	*10	*12
Shellfish	1,027	12	4,092	5	4
Anything[1]	2,412	29	13,238	18	5
Another type of saltwater fish	2,410	29	33,188	44	14

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

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

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

Table 6. Hunters, Trips, and Days of Hunting by Type of Hunting: 2016

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

Hunters, trips, and days of hunting	Total, all hunting		Big game		Small game		Migratory birds		Other animals	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
HUNTERS										
Total in United States	**11,453**	**100**	**9,208**	**100**	**3,505**	**100**	**2,353**	**100**	**1,315**	**100**
In state of residence	10,942	96	8,649	94	3,267	93	2,300	98	1,248	95
In other states	1,816	16	1,297	14	*374	*11	*202	*9	...	...
TRIPS										
Total in United States	**146,871**	**100**	**88,561**	**100**	**31,772**	**100**	**14,548**	**100**	**11,989**	**100**
In state of residence	137,446	94	82,586	93	30,533	96	12,760	88	11,566	96
In other states	9,425	6	5,975	7	*1,239	*4	*1,788	*12	...	...
DAYS OF HUNTING										
Total in United States	**184,021**	**100**	**132,665**	**100**	**38,306**	**100**	**15,621**	**100**	**13,275**	**100**
In state of residence	161,058	88	113,272	85	36,775	96	13,248	85	12,618	95
In other states	23,617	13	19,730	15	*1,684	*4	*2,373	*15	...	...
Average days per hunter	16	X	14	X	11	X	7	X	10	X

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

Note: Detail does not add to total because of multiple responses. Percents shown are based on the respective "Total in United States" rows.

Table 7. Hunters and Days of Hunting by Type of Game: 2016

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

Type of game	Hunters		Days of hunting		Average days per hunter
	Number	Percent	Number	Percent	
Total, all big game	**9,208**	**100**	**132,665**	**100**	**14**
Deer	8,147	88	115,042	87	14
Elk	712	8	5,664	4	8
Bear	*187	*2	*1,105	*1	*6
Wild turkey	2,037	22	13,115	10	6
Moose	...	...	...	...	...
Other big game	*386	*4	*2,005	*2	*5
Total, all small game	**3,505**	**100**	**38,306**	**100**	**11**
Rabbit, hare	1,264	36	20,344	53	16
Quail	*958	*27	*7,159	*19	*7
Grouse/prairie chicken	438	13	4,126	11	9
Squirrel	1,508	43	11,248	29	7
Pheasant	726	21	4,973	13	7
Ptarmigan	...	...	...	...	...
Other small game	*131	*4	*726	*2	*6
Total, all migratory birds	**2,353**	**100**	**15,621**	**100**	**7**
Waterfowl (geese and/or ducks)	1,236	53	9,883	63	8
Geese	793	34	*5,335	*34	*7
Ducks	1,189	51	8,962	57	8
Doves	1,235	52	4,503	29	4
Other migratory birds	...	...	...	...	...
Total, all other animals (fox, raccoon, groundhog, alligator, etc.)	**1,315**	**100**	**13,275**	**100**	**10**

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

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

Table 8. Selected Characteristics of Anglers and Hunters: 2016

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

Characteristic	U.S. population		Sportspersons (fished or hunted)			Fished only		
	Number	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**254,686**	**100**	**39,553**	**16**	**100**	**28,092**	**11**	**100**
Population Density of Residence								
Urban	208,695	82	25,943	12	66	20,510	10	73
Rural	45,991	18	13,610	30	34	7,582	16	27
Population Size of Residence								
Metropolitan Statistical Area (MSA)	239,722	94	34,836	15	88	25,926	11	92
1,000,000 or more	144,070	57	15,967	11	40	13,038	9	46
250,000 to 999,999	49,208	19	8,991	18	23	6,616	13	24
50,000 to 249,999	46,443	18	9,879	21	25	6,272	14	22
Outside MSA	14,964	6	4,717	32	12	2,166	14	8
Census Geographic Division								
New England	12,018	5	1,485	12	4	1,188	10	4
Middle Atlantic	33,368	13	3,793	11	10	2,909	9	10
East North Central	36,893	14	7,097	19	18	4,360	12	16
West North Central	16,502	6	3,487	21	9	2,123	13	8
South Atlantic	50,611	20	8,181	16	21	6,458	13	23
East South Central	14,968	6	3,386	23	9	*2,130	*14	*8
West South Central	30,094	12	5,694	19	14	4,137	14	15
Mountain	18,364	7	2,941	16	7	1,995	11	7
Pacific	41,869	16	3,489	8	9	2,792	7	10
Age								
16 to 17 years	8,541	3	1,271	15	3	*1,043	*12	*4
18 to 24 years	28,351	11	2,444	9	6	1,435	5	5
25 to 34 years	43,977	17	5,932	13	15	4,148	9	15
35 to 44 years	40,455	16	6,836	17	17	5,227	13	19
45 to 54 years	42,969	17	7,930	18	20	5,389	13	19
55 to 64 years	42,022	16	7,499	18	19	4,796	11	17
65 years and older	48,372	19	7,641	16	19	6,054	13	22
65 to 74 years	28,895	11	5,484	19	14	4,276	15	15
75 and older	19,477	8	2,158	11	5	1,778	9	6
Sex								
Male, total	121,775	48	29,373	24	74	19,026	16	68
16 to 17 years	4,248	2	948	22	2	*795	*19	*3
18 to 24 years	14,235	6	1,814	13	5	868	6	3
25 to 34 years	21,621	8	4,316	20	11	2,693	12	10
35 to 44 years	19,614	8	4,504	23	11	3,308	17	12
45 to 54 years	20,748	8	5,579	27	14	3,199	15	11
55 to 64 years	20,054	8	5,633	28	14	3,053	15	11
65 years and older	21,253	8	6,579	31	17	5,108	24	18
65 to 74 years	13,306	5	4,628	35	12	3,503	26	12
75 and older	7,947	3	1,951	25	5	1,606	20	6
Female, total	132,911	52	10,180	8	26	9,067	7	32
16 to 17 years	4,293	2	...	...	...	...	...	...
18 to 24 years	14,116	6	*630	*4	*2	*567	*4	*2
25 to 34 years	22,356	9	1,615	7	4	1,455	7	5
35 to 44 years	20,841	8	2,332	11	6	1,920	9	7
45 to 54 years	22,220	9	2,352	11	6	2,189	10	8
55 to 64 years	21,967	9	1,866	8	5	1,743	8	6
65 years and older	27,118	11	1,062	4	3	946	3	3
65 to 74 years	15,589	6	855	5	2	773	5	3
75 and older	11,530	5	...	...	...	...	...	...
Ethnicity								
Hispanic	42,603	17	3,250	8	8	2,871	7	10
Non-Hispanic	212,083	83	36,303	17	92	25,221	12	90
Race								
White	199,086	78	34,669	17	88	23,538	12	84
African American	33,358	13	3,151	9	8	3,059	9	11
Asian	16,153	6	*738	*5	*2	*708	*4	*3
All others	6,089	2	996	16	3	*788	*13	*3
Annual Household Income								
Less than $20,000	22,269	9	2,948	13	7	2,513	11	9
$20,000 to $24,999	8,821	3	976	11	2	*815	*9	*3
$25,000 to $29,999	8,889	3	1,121	13	3	976	11	3
$30,000 to $34,999	9,442	4	897	10	2	743	8	3
$35,000 to $39,999	8,909	3	2,028	23	5	1,572	18	6
$40,000 to $49,999	16,174	6	2,869	18	7	1,768	11	6
$50,000 to $74,999	36,512	14	6,420	18	16	3,771	10	13
$75,000 to $99,999	27,409	11	3,985	15	10	2,112	8	8
$100,000 to $149,999	32,485	13	5,425	17	14	3,889	12	14
$150,000 or more	30,217	12	5,159	17	13	3,751	12	13
Not reported	53,559	21	7,724	14	20	6,182	12	22
Education								
11 years or less	33,987	13	4,420	13	11	3,334	10	12
12 years	72,726	29	12,308	17	31	8,746	12	31
1 to 3 years of college	75,352	30	9,512	13	24	6,527	9	23
4 years of college	45,769	18	7,038	15	18	4,564	10	16
5 years or more of college	26,852	11	6,275	23	16	4,921	18	18

See footnotes at end of table.

Table 8. Selected Characteristics of Anglers and Hunters: 2016—Continued

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

Characteristic	Hunted only			Fished and hunted		
	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**3,799**	**1**	**100**	**7,654**	**3**	**100**
Population Density of Residence						
Urban	1,974	1	52	3,451	2	45
Rural	1,825	4	48	4,203	9	55
Population Size of Residence						
Metropolitan Statistical Area (MSA)	3,047	1	80	5,856	2	77
1,000,000 or more	757	1	20	2,165	2	28
250,000 to 999,999	921	2	24	1,454	3	19
50,000 to 249,999	1,369	3	36	2,237	5	29
Outside MSA	752	5	20	1,798	12	23
Census Geographic Division						
New England	152	1	4	145	1	2
Middle Atlantic	*322	*1	*8	*562	*2	*7
East North Central	*761	*2	*20	1,976	5	26
West North Central	*445	*3	*12	919	6	12
South Atlantic	787	2	21	929	2	12
East South Central	...	...	...	*932	*6	*12
West South Central	*487	*2	*13	1,069	4	14
Mountain	*254	*1	*7	*692	*4	*9
Pacific	*266	*1	*7	*432	*1	*6
Age						
16 to 17 years	...	...	...	...	...	...
18 to 24 years	...	...	...	*773	*3	*10
25 to 34 years	*975	*2	*26	808	2	11
35 to 44 years	*241	*1	*6	1,368	3	18
45 to 54 years	800	2	21	1,742	4	23
55 to 64 years	779	2	21	1,923	5	25
65 years and older	586	1	15	994	2	13
65 to 74 years	*438	*2	*12	763	3	10
75 and older	*148	*1	*4	*231	*1	*3
Sex						
Male, total	3,398	3	89	6,943	6	91
16 to 17 years	...	...	...	...	...	...
18 to 24 years	...	...	...	*710	*5	*9
25 to 34 years	*896	*4	*24	727	3	9
35 to 44 years	*166	*1	*4	1,030	5	13
45 to 54 years	731	4	19	1,649	8	22
55 to 64 years	733	4	19	1,847	9	24
65 years and older	527	2	14	936	4	12
65 to 74 years	*379	*3	*10	739	6	10
75 and older	*148	*2	*4	*197	*2	*3
Female, total	*402	*Z	*11	*711	*1	*9
16 to 17 years	...	...	...	...	...	...
18 to 24 years	...	...	...	...	...	...
25 to 34 years	...	...	...	...	...	...
35 to 44 years	...	...	...	...	...	...
45 to 54 years	...	...	...	...	...	...
55 to 64 years	...	...	...	...	...	...
65 years and older	...	...	...	...	...	...
65 to 74 years	...	...	...	...	...	...
75 and older	...	...	...	...	...	...
Ethnicity						
Hispanic	...	...	...	...	...	...
Non-Hispanic	3,629	2	96	7,446	4	97
Race						
White	3,748	2	99	7,375	4	96
African American	...	...	...	...	...	...
Asian	...	...	...	...	...	...
All others	...	...	...	*179	*3	*2
Annual Household Income						
Less than $20,000	...	...	...	...	...	...
$20,000 to $24,999	...	...	...	...	...	...
$25,000 to $29,999	...	...	...	*130	*1	*2
$30,000 to $34,999	...	...	...	...	...	...
$35,000 to $39,999	...	...	...	*360	*4	*5
$40,000 to $49,999	...	...	...	955	6	12
$50,000 to $74,999	*723	*2	*19	1,925	5	25
$75,000 to $99,999	*637	*2	*17	1,236	5	16
$100,000 to $149,999	594	2	16	942	3	12
$150,000 or more	*576	*2	*15	832	3	11
Not reported	*503	*1	*13	1,031	2	13
Education						
11 years or less	*580	*2	*15	*506	*1	*7
12 years	1,137	2	30	2,417	3	32
1 to 3 years of college	930	1	24	2,054	3	27
4 years of college	727	2	19	1,748	4	23
5 years or more of college	*425	*2	*11	929	3	12

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

Note: Percent who participated columns show the percent of each row's population who participated in the activity named by the column. Percent columns show the percent of each column's participants who are described by the row heading. Demographic variables we could include but haven't are (1) relationship to head of household, (2) marital status, (3) whether or not participant has a job, and (4) whether or not participant is going to school, keeping house, or retired.

Table 9. Selected Characteristics of Anglers by Type of Fishing: 2016

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

Characteristic	U.S. population		Total, all fishing			Total freshwater		
	Number	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**254,686**	**100**	**35,754**	**14**	**100**	**30,137**	**12**	**100**
Population Density of Residence								
Urban	208,695	82	23,968	11	67	19,574	9	65
Rural	45,991	18	11,785	26	33	10,563	23	35
Population Size of Residence								
Metropolitan Statistical Area (MSA)	239,722	94	31,789	13	89	26,264	11	87
1,000,000 or more	144,070	57	15,210	11	43	12,350	9	41
250,000 to 999,999	49,208	19	8,070	16	23	6,498	13	22
50,000 to 249,999	46,443	18	8,509	18	24	7,416	16	25
Outside MSA	14,964	6	3,965	26	11	3,872	26	13
Census Geographic Division								
New England	12,018	5	1,333	11	4	1,001	8	3
Middle Atlantic	33,368	13	3,471	10	10	2,419	7	8
East North Central	36,893	14	6,336	17	18	6,074	16	20
West North Central	16,502	6	3,042	18	9	3,002	18	10
South Atlantic	50,611	20	7,394	15	21	4,779	9	16
East South Central	14,968	6	3,061	20	9	2,924	20	10
West South Central	30,094	12	5,206	17	15	4,768	16	16
Mountain	18,364	7	2,687	15	8	2,601	14	9
Pacific	41,869	16	3,224	8	9	2,568	6	9
Age								
16 to 17 years	8,541	3	1,089	13	3	*945	*11	*3
18 to 24 years	28,351	11	2,208	8	6	1,761	6	6
25 to 34 years	43,977	17	4,956	11	14	4,245	10	14
35 to 44 years	40,455	16	6,595	16	18	6,182	15	21
45 to 54 years	42,969	17	7,131	17	20	6,014	14	20
55 to 64 years	42,022	16	6,719	16	19	5,048	12	17
65 years and older	48,372	19	7,055	15	20	5,942	12	20
65 to 74 years	28,895	11	5,046	17	14	4,276	15	14
75 and older	19,477	8	2,010	10	6	1,666	9	6
Sex								
Male	121,775	48	25,975	21	73	22,327	18	74
Female	132,911	52	9,778	7	27	7,810	6	26
Ethnicity								
Hispanic	42,603	17	3,080	7	9	2,806	7	9
Non-Hispanic	212,083	83	32,674	15	91	27,331	13	91
Race								
White	199,086	78	30,921	16	86	26,120	13	87
African American	33,358	13	3,145	9	9	2,708	8	9
Asian	16,153	6	*721	*4	*2	*495	*3	*2
All others	6,089	2	967	16	3	814	13	3
Annual Household Income								
Less than $20,000	22,269	9	2,659	12	7	2,385	11	8
$20,000 to $24,999	8,821	3	841	10	2	*788	*9	*3
$25,000 to $29,999	8,889	3	1,106	12	3	1,021	11	3
$30,000 to $34,999	9,442	4	813	9	2	516	5	2
$35,000 to $39,999	8,909	3	1,932	22	5	1,791	20	6
$40,000 to $49,999	16,174	6	2,723	17	8	2,468	15	8
$50,000 to $74,999	36,512	14	5,697	16	16	4,814	13	16
$75,000 to $99,999	27,409	11	3,348	12	9	2,363	9	8
$100,000 to $149,999	32,485	13	4,830	15	14	4,139	13	14
$150,000 or more	30,217	12	4,583	15	13	3,702	12	12
Not reported	53,559	21	7,221	13	20	6,151	11	20
Education								
11 years or less	33,987	13	3,840	11	11	3,459	10	11
12 years	72,726	29	11,171	15	31	9,718	13	32
1 to 3 years of college	75,352	30	8,582	11	24	7,160	10	24
4 years of college	45,769	18	6,311	14	18	5,120	11	17
5 years or more of college	26,852	11	5,850	22	16	4,680	17	16

See footnotes at end of table.

Table 9. Selected Characteristics of Anglers by Type of Fishing: 2016—Continued

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

Characteristic	Freshwater						Saltwater		
	Freshwater, except Great Lakes			Great Lakes					
	Number	Percent who participated	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**29,490**	**12**	**100**	**1,824**	**1**	**100**	**8,320**	**3**	**100**
Population Density of Residence									
Urban	19,135	9	65	1,229	1	67	6,258	3	75
Rural	10,355	23	35	...	...	...	2,062	4	25
Population Size of Residence									
Metropolitan Statistical Area (MSA)	25,677	11	87	1,718	1	94	8,008	3	96
1,000,000 or more	11,862	8	40	*1,240	*1	*68	4,401	3	53
250,000 to 999,999	6,461	13	22	...	...	...	2,094	4	25
50,000 to 249,999	7,354	16	25	...	...	...	1,514	3	18
Outside MSA	3,813	25	13	...	...	...	*312	*2	*4
Census Geographic Division									
New England	995	8	3	...	...	...	612	5	7
Middle Atlantic	2,356	7	8	*310	*1	*17	*780	*2	*9
East North Central	5,618	15	19	*1,315	*4	*72	...	...	...
West North Central	2,904	18	10	...	...	...	...	...	...
South Atlantic	4,756	9	16	...	...	...	3,628	7	44
East South Central	2,924	20	10	...	...	...	...	...	...
West South Central	4,768	16	16	...	...	...	*1,458	*5	*18
Mountain	2,601	14	9	...	...	...	...	...	...
Pacific	2,568	6	9	...	...	...	1,251	3	15
Age									
16 to 17 years	*945	*11	*3	...	...	...	*305	*4	*4
18 to 24 years	1,761	6	6	...	...	...	*453	*2	*5
25 to 34 years	4,245	10	14	...	...	...	1,220	3	15
35 to 44 years	6,053	15	21	...	...	...	1,225	3	15
45 to 54 years	5,809	14	20	...	...	...	1,599	4	19
55 to 64 years	4,858	12	16	*470	*1	*26	2,176	5	26
65 years and older	5,818	12	20	*235	*Z	*13	1,342	3	16
65 to 74 years	4,176	14	14	...	...	...	1,002	3	12
75 and older	1,642	8	6	...	...	...	*340	*2	*4
Sex									
Male	21,826	18	74	1,647	1	90	5,142	4	62
Female	7,664	6	26	...	...	...	3,178	2	38
Ethnicity									
Hispanic	2,806	7	10	...	...	...	*324	*1	*4
Non-Hispanic	26,684	13	90	1,824	1	100	7,996	4	96
Race									
White	25,602	13	87	1,370	1	75	6,923	3	83
African American	2,708	8	9	...	...	...	*697	*2	*8
Asian	*367	*2	*1	...	...	...	*285	*2	*3
All others	814	13	3	...	...	...	*416	*7	*5
Annual Household Income									
Less than $20,000	2,385	11	8	...	...	...	*452	*2	*5
$20,000 to $24,999	*788	*9	*3	...	...	...	...	...	...
$25,000 to $29,999	1,021	11	3	...	...	...	...	...	...
$30,000 to $34,999	516	5	2	...	...	...	...	...	...
$35,000 to $39,999	1,767	20	6	...	...	...	*316	*4	*4
$40,000 to $49,999	2,409	15	8	...	...	...	*346	*2	*4
$50,000 to $74,999	4,745	13	16	*513	*1	*28	1,415	4	17
$75,000 to $99,999	2,244	8	8	...	...	...	1,170	4	14
$100,000 to $149,999	3,923	12	13	...	...	...	1,582	5	19
$150,000 or more	3,671	12	12	...	...	...	1,257	4	15
Not reported	6,022	11	20	*408	*1	*22	1,083	2	13
Education									
11 years or less	3,459	10	12	...	...	...	*600	*2	*7
12 years	9,629	13	33	...	...	...	2,872	4	35
1 to 3 years of college	7,031	9	24	*536	*1	*29	1,842	2	22
4 years of college	4,730	10	16	*528	*1	*29	1,656	4	20
5 years or more of college	4,641	17	16	...	...	...	1,350	5	16

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

Note: Percent who participated columns show the percent of each row's population who participated in the activity named by the column. Percent columns show the percent of each column's participants who are described by the row heading. Demographic variables we could include but haven't are (1) relationship to head of household, (2) marital status, (3) whether or not participant has a job, and (4) whether or not participant is going to school, keeping house, or retired.

Table 10. Selected Characteristics of Hunters by Type of Hunting: 2016

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

Characteristic	U.S. population		Total, all hunting			Big game		
	Number	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**254,686**	**100**	**11,453**	**4**	**100**	**9,208**	**4**	**100**
Population Density of Residence								
Urban	208,695	82	5,425	3	47	4,100	2	45
Rural	45,991	18	6,028	13	53	5,108	11	55
Population Size of Residence								
Metropolitan Statistical Area (MSA)	239,722	94	8,903	4	78	6,982	3	76
1,000,000 or more	144,070	57	2,922	2	26	2,100	1	23
250,000 to 999,999	49,208	19	2,375	5	21	1,750	4	19
50,000 to 249,999	46,443	18	3,606	8	31	3,132	7	34
Outside MSA	14,964	6	2,551	17	22	2,226	15	24
Census Geographic Division								
New England	12,018	5	297	2	3	213	2	2
Middle Atlantic	33,368	13	884	3	8	*764	*2	*8
East North Central	36,893	14	2,737	7	24	2,548	7	28
West North Central	16,502	6	1,364	8	12	1,058	6	11
South Atlantic	50,611	20	1,716	3	15	1,469	3	16
East South Central	14,968	6	*1,256	*8	*11	*959	*6	*10
West South Central	30,094	12	1,556	5	14	978	3	11
Mountain	18,364	7	946	5	8	*617	*3	*7
Pacific	41,869	16	697	2	6	601	1	7
Age								
16 to 17 years	8,541	3	*228	*3	*2	*195	*2	*2
18 to 24 years	28,351	11	1,009	4	9	888	3	10
25 to 34 years	43,977	17	1,783	4	16	1,165	3	13
35 to 44 years	40,455	16	1,609	4	14	1,437	4	16
45 to 54 years	42,969	17	2,542	6	22	2,263	5	25
55 to 64 years	42,022	16	2,702	6	24	2,058	5	22
65 years and older	48,372	19	1,580	3	14	1,201	2	13
65 to 74 years	28,895	11	1,201	4	10	916	3	10
75 and older	19,477	8	*379	*2	*3	*285	*1	*3
Sex								
Male	121,775	48	10,340	8	90	8,325	7	90
Female	132,911	52	1,113	1	10	883	1	10
Ethnicity								
Hispanic	42,603	17	*379	*1	*3	...	...	...
Non-Hispanic	212,083	83	11,075	5	97	8,842	4	96
Race								
White	199,086	78	11,123	6	97	8,930	4	97
African American	33,358	13	...	...	...	...	...	...
Asian	16,153	6	...	...	...	...	...	...
All others	6,089	2	*208	*3	*2	*173	*3	*2
Annual Household Income								
Less than $20,000	22,269	9	*436	*2	*4	*304	*1	*3
$20,000 to $24,999	8,821	3	*161	*2	*1	*148	*2	*2
$25,000 to $29,999	8,889	3	*145	*2	*1	*145	*2	*2
$30,000 to $34,999	9,442	4	*154	*2	*1	*154	*2	*2
$35,000 to $39,999	8,909	3	*456	*5	*4	*379	*4	*4
$40,000 to $49,999	16,174	6	1,101	7	10	*936	*6	*10
$50,000 to $74,999	36,512	14	2,649	7	23	2,071	6	22
$75,000 to $99,999	27,409	11	1,873	7	16	1,652	6	18
$100,000 to $149,999	32,485	13	1,536	5	13	1,289	4	14
$150,000 or more	30,217	12	1,408	5	12	881	3	10
Not reported	53,559	21	1,534	3	13	1,248	2	14
Education								
11 years or less	33,987	13	1,086	3	9	*1,043	*3	*11
12 years	72,726	29	3,555	5	31	3,041	4	33
1 to 3 years of college	75,352	30	2,984	4	26	2,496	3	27
4 years of college	45,769	18	2,474	5	22	1,589	3	17
5 years or more of college	26,852	11	1,354	5	12	1,039	4	11

See footnotes at end of table.

Table 10. Selected Characteristics of Hunters by Type of Hunting: 2016—Continued

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

Characteristic	Small game			Migratory birds			Other animals		
	Number	Percent who participated	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**3,505**	**1**	**100**	**2,353**	**1**	**100**	**1,315**	**1**	**100**
Population Density of Residence									
Urban	1,585	1	45	1,348	1	57	*459	*Z	*35
Rural	1,920	4	55	1,005	2	43	856	2	65
Population Size of Residence									
Metropolitan Statistical Area (MSA)	2,460	1	70	1,847	1	78	862	Z	66
1,000,000 or more	1,115	1	32	936	1	40	*237	*Z	*18
250,000 to 999,999	720	1	21	*586	*1	*25	*337	*1	*26
50,000 to 249,999	625	1	18	*325	*1	*14	*288	*1	*22
Outside MSA	1,044	7	30	*506	*3	*22	*453	*3	*34
Census Geographic Division									
New England	*120	*1	*3	...	...	...	...	...	...
Middle Atlantic	...	...	...	...	...	...	...	...	...
East North Central	*726	*2	*21	*746	*2	*32	...	...	...
West North Central	532	3	15	*283	*2	*12	...	...	...
South Atlantic	392	1	11	*126	*Z	*5	*189	*Z	*14
East South Central	*666	*4	*19	...	...	...	...	...	...
West South Central	*486	*2	*14	*581	*2	*25	...	...	...
Mountain	*232	*1	*7	*396	*2	*17	...	...	...
Pacific	...	...	...	...	...	...	...	...	...
Age									
16 to 17 years	...	...	...	...	...	...	...	...	...
18 to 24 years	...	...	...	...	...	...	...	...	...
25 to 34 years	*364	*1	*10	*544	*1	*23	...	...	...
35 to 44 years	*727	*2	*21	*534	*1	*23	...	...	...
45 to 54 years	925	2	26	*339	*1	*14	*252	*1	*19
55 to 64 years	872	2	25	*433	*1	*18	*287	*1	*22
65 years and older	*444	*1	*13	*280	*1	*12	...	...	...
65 to 74 years	*319	*1	*9	...	...	...	...	...	...
75 and older	...	...	...	...	...	...	...	...	...
Sex									
Male	3,142	3	90	2,180	2	93	1,148	1	87
Female	*362	*Z	*10	...	...	...	...	...	...
Ethnicity									
Hispanic	...	...	...	...	...	...	...	...	...
Non-Hispanic	3,380	2	96	2,353	1	100	1,315	1	100
Race									
White	3,376	2	96	2,340	1	99	1,274	1	97
African American	...	...	...	...	...	...	...	...	...
Asian	...	...	...	...	...	...	...	...	...
All others	...	...	...	...	...	...	...	...	...
Annual Household Income									
Less than $20,000	...	...	...	...	...	...	...	...	...
$20,000 to $24,999	...	...	...	...	...	...	...	...	...
$25,000 to $29,999	...	...	...	...	...	...	...	...	...
$30,000 to $34,999	...	...	...	...	...	...	...	...	...
$35,000 to $39,999	...	...	...	...	...	...	...	...	...
$40,000 to $49,999	*448	*3	*13	...	...	...	...	...	...
$50,000 to $74,999	*818	*2	*23	*1,139	*3	*48	...	...	...
$75,000 to $99,999	*623	*2	*18	...	...	...	*310	*1	*24
$100,000 to $149,999	*410	*1	*12	*186	*1	*8	...	...	...
$150,000 or more	*550	*2	*16	*471	*2	*20	*223	*1	*17
Not reported	*540	*1	*15	*317	*1	*13	...	...	...
Education									
11 years or less	...	...	...	...	...	...	...	...	...
12 years	1,135	2	32	*412	*1	*18	*494	*1	*38
1 to 3 years of college	811	1	23	*748	*1	*32	*385	*1	*29
4 years of college	827	2	24	*610	*1	*26	*286	*1	*22
5 years or more of college	654	2	19	*426	*2	*18	...	...	...

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

Note: Percent who participated columns show the percent of each row's population who participated in the activity named by the column. Percent columns show the percent of each column's participants who are described by the row heading. Demographic variables we could include but haven't are (1) relationship to head of household, (2) marital status, (3) whether or not participant has a job, and (4) whether or not participant is going to school, keeping house, or retired.

Table 11. Summary of Expenditures for Fishing and Hunting: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per sportsperson (dollars)[1]	Number (thousands)	Percent of sportspersons	Average per spender (dollars)[1]
Total, all items	**81,035,416**	**2,049**	**37,045**	**94**	**2,188**
TRIP-RELATED EXPENDITURES					
Total trip-related	**30,926,023**	**782**	**35,300**	**89**	**876**
Food and lodging, total	**10,962,927**	**277**	**30,859**	**78**	**355**
Food	7,266,256	184	30,598	77	237
Lodging	3,696,672	93	9,922	25	373
Transportation, total	**8,233,085**	**208**	**30,215**	**76**	**272**
Public	736,002	19	3,667	9	201
Private	7,497,083	190	29,583	75	253
Other trip costs[2]	**11,730,011**	**297**	**27,574**	**70**	**425**
EQUIPMENT EXPENDITURES					
Fishing equipment	7,445,695	188	22,584	57	330
Hunting equipment	7,996,132	202	10,128	26	789
Auxiliary equipment[3]	6,082,746	154	9,723	25	626
Special equipment[4]	20,791,143	526	3,943	10	5,273
OTHER EXPENDITURES					
Magazines, books, DVDs	383,617	10	5,382	14	71
Membership dues and contributions	574,450	15	4,305	11	133
Land leasing and ownership	5,257,433	133	2,434	6	2,160
Licenses, stamps, tags, and permits	1,412,745	36	21,942	55	64
Plantings (for hunting)	*165,432	*4	*1,020	*3	*162

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

[1] Average expenditures are annual estimates.

[2] Other trip costs include guide fees, pack trip or package fees, public and private land use fees, equipment rental, boating costs (which include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel), bait, ice, and heating and cooking fuel.

[3] Auxiliary equipment includes camping equipment, binoculars, special fishing and hunting clothing, processing and taxidermy costs, foul weather gear, boots, waders, field glasses, telescopes, and electronic equipment such as a GPS device.

[4] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

Note: Detail does not add to total because of multiple responses. Detail in subsequent tables may not add to totals shown here because the primary purpose of the purchase is both fishing and hunting and cannot be attributed to just fishing or hunting.

Table 12. Expenditures for Fishing: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per angler (dollars)[1]	Number (thousands)	Percent of anglers	Average per spender (dollars)[1]
Total, all items	**46,115,118**	**1,290**	**32,511**	**91**	**1,418**
TRIP-RELATED EXPENDITURES					
Total trip-related	**21,729,778**	**608**	**31,260**	**87**	**695**
Food and lodging, total	**7,848,993**	**220**	**27,127**	**76**	**289**
Food	4,759,403	133	26,867	75	177
Lodging	3,089,591	86	8,625	24	358
Transportation, total	**5,048,606**	**141**	**26,337**	**74**	**192**
Public	542,917	15	2,852	8	190
Private	4,505,689	126	25,622	72	176
Other trip costs, total	**8,832,179**	**247**	**26,212**	**73**	**337**
Guide fees, pack trip or package fees	924,974	26	3,431	10	270
Public land use fees	305,360	9	6,304	18	48
Private land use fees	493,951	14	2,901	8	170
Equipment rental	308,162	9	3,045	9	101
Boating costs[2]	4,536,646	127	5,876	16	772
Bait	1,517,912	42	20,681	58	73
Ice	585,384	16	13,535	38	43
Heating and cooking fuel	159,791	4	4,187	12	38
EQUIPMENT EXPENDITURES					
Fishing equipment, total	**7,430,662**	**208**	**22,393**	**63**	**332**
Rods, reels, poles, and rodmaking components	2,463,525	69	11,021	31	224
Lines and leaders	782,801	22	13,682	38	57
Artificial lures, flies, baits, and dressing for flies or lines	1,078,932	30	16,024	45	67
Hooks, sinkers, swivels, and other items attached to a line except lures and baits	584,280	16	15,408	43	38
Tackle boxes	296,906	8	4,215	12	70
Creels, stringers, fish bags, landing nets, and gaff hooks	146,478	4	2,433	7	60
Minnow traps, seines, and bait containers	137,447	4	2,769	8	50
Depth finders, fish finders, and other electronic fishing devices	1,092,287	31	1,593	4	686
Ice fishing equipment	181,867	5	693	2	263
Other fishing equipment	666,140	19	4,208	12	158
Auxiliary equipment, total	**3,163,575**	**88**	**4,522**	**13**	**700**
Camping equipment	2,581,833	72	1,878	5	1,375
Binoculars, field glasses, telescopes, etc.	*38,378	*1	*295	*1	*130
Special fishing clothing, rubber boots, waders, and foul weather gear	457,369	13	2,923	8	156
Processing and taxidermy costs	...	...	...	...	...
Other	*79,344	*2	*415	*1	*191
Special equipment[3]	**10,483,401**	**293**	**2,291**	**6**	**4,576**
OTHER EXPENDITURES					
Magazines, books, DVDs	147,465	4	3,142	9	47
Membership dues and contributions	214,485	6	1,741	5	123
Land leasing and ownership	2,358,811	66	1,019	3	2,315
Licenses, stamps, tags, and permits, total	586,941	16	15,647	44	38
Licenses	535,256	15	15,052	42	36
Stamps, tags, and permits	51,685	1	3,035	8	17

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Average expenditures are annual estimates.

[2] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

[3] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

Note: Detail does not add to total because of multiple responses. Detail in Tables 13 to 16 may not add to totals shown here because the primary purpose of the purchase is for general fishing activity and cannot be attributed to just one fishing classification (freshwater, Great Lakes, or saltwater).

Table 13. Trip and Equipment Expenditures for Freshwater Fishing: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per angler (dollars)[1]	Number (thousands)	Percent of anglers	Average per spender (dollars)[1]
Total, all items	**29,896,064**	**992**	**28,291**	**94**	**1,057**
TRIP-RELATED EXPENDITURES					
Total trip-related	**15,579,130**	**517**	**27,608**	**92**	**564**
Food and lodging, total	**5,581,863**	**185**	**23,757**	**79**	**235**
Food	3,484,236	116	23,499	78	148
Lodging	2,097,626	70	7,345	24	286
Transportation, total	**3,926,849**	**130**	**23,261**	**77**	**169**
Public	246,229	8	2,207	7	112
Private	3,680,620	122	22,812	76	161
Other trip costs, total	**6,070,418**	**201**	**22,864**	**76**	**266**
Guide fees, pack trip or package fees	403,732	13	2,102	7	192
Public land use fees	242,143	8	5,439	18	45
Private land use fees	429,760	14	2,685	9	160
Equipment rental	215,714	7	2,440	8	88
Boating costs[2]	2,954,605	98	4,832	16	612
Bait	1,234,432	41	18,328	61	67
Ice	443,653	15	11,862	39	37
Heating and cooking fuel	146,379	5	3,950	13	37
EQUIPMENT EXPENDITURES					
Fishing equipment, total	**4,528,597**	**150**	**18,474**	**61**	**245**
Rods, reels, poles, and rodmaking components	1,439,170	48	8,601	29	167
Lines and leaders	536,284	18	10,533	35	51
Artificial lures, flies, baits, and dressing for flies or lines	852,443	28	13,346	44	64
Hooks, sinkers, swivels, and other items attached to a line except lures and baits	367,274	12	11,411	38	32
Tackle boxes	93,327	3	2,652	9	35
Creels, stringers, fish bags, landing nets, and gaff hooks	73,610	2	1,621	5	45
Minnow traps, seines, and bait containers	81,064	3	1,729	6	47
Depth finders, fish finders, and other electronic fishing devices	459,015	15	652	2	704
Ice fishing equipment	181,867	6	693	2	263
Other fishing equipment	444,544	15	2,387	8	186
Auxiliary equipment, total	**2,813,525**	**93**	**2,959**	**10**	**951**
Camping equipment	2,506,596	83	1,552	5	1,616
Binoculars, field glasses, telescopes, etc	...	...	...	...	...
Special fishing clothing, rubber boots, waders, and foul weather gear	269,851	9	1,505	5	179
Processing and taxidermy costs	...	...	...	...	...
Other	*20,287	*1	*246	*1	*82
Special equipment[3]	**6,974,811**	**231**	**1,306**	**4**	**5,340**

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Average expenditures are annual estimates.

[2] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

[3] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

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

Table 14. Trip and Equipment Expenditures for Freshwater Fishing, Except Great Lakes: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per angler (dollars)[1]	Number (thousands)	Percent of anglers	Average per spender (dollars)[1]
Total, all items	**27,518,014**	**933**	**27,723**	**94**	**993**
TRIP-RELATED EXPENDITURES					
Total trip-related	**13,516,757**	**458**	**27,080**	**92**	**499**
Food and lodging, total	**5,108,155**	**173**	**23,205**	**79**	**220**
Food	3,155,727	107	22,954	78	137
Lodging	1,952,427	66	7,088	24	275
Transportation, total	**3,620,748**	**123**	**22,785**	**77**	**159**
Public	237,542	8	2,082	7	114
Private	3,383,207	115	22,336	76	151
Other trip costs, total	**4,787,854**	**162**	**22,375**	**76**	**214**
Guide fees, pack trip or package fees	354,335	12	2,012	7	176
Public land use fees	224,501	8	5,216	18	43
Private land use fees	376,021	13	2,455	8	153
Equipment rental	183,284	6	2,393	8	77
Boating costs[2]	1,933,272	66	4,361	15	443
Bait	1,173,287	40	18,171	62	65
Ice	409,025	14	11,485	39	36
Heating and cooking fuel	134,128	5	3,653	12	37
EQUIPMENT EXPENDITURES					
Fishing equipment, total	**4,248,150**	**144**	**17,820**	**60**	**238**
Rods, reels, poles, and rodmaking components	1,330,122	45	7,975	27	167
Lines and leaders	491,494	17	9,688	33	51
Artificial lures, flies, baits, and dressing for flies or lines	789,412	27	12,656	43	62
Hooks, sinkers, swivels, and other items attached to a line except lures and baits	351,011	12	10,624	36	33
Tackle boxes	77,763	3	2,288	8	34
Creels, stringers, fish bags, landing nets, and gaff hooks	70,707	2	1,589	5	45
Minnow traps, seines, and bait containers	77,238	3	1,570	5	49
Depth finders, fish finders, and other electronic fishing devices	452,190	15	618	2	732
Ice fishing equipment	179,850	6	684	2	263
Other fishing equipment	428,363	15	2,341	8	183
Auxiliary equipment, total	**2,780,025**	**94**	**2,752**	**9**	**1,010**
Camping equipment	2,502,615	85	1,540	5	1,626
Binoculars, field glasses, telescopes, etc.	...	...	...	...	...
Special fishing clothing, rubber boots, waders, and foul weather gear	246,064	8	1,369	5	180
Processing and taxidermy costs	...	...	...	...	...
Other	*14,555	*Z	*188	*1	*78
Special equipment[3]	**6,973,082**	**236**	**1,297**	**4**	**5,375**

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

[1] Average expenditures are annual estimates.

[2] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

[3] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

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

Table 15. Trip and Equipment Expenditures for Great Lakes Fishing: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per angler (dollars)[1]	Number (thousands)	Percent of anglers	Average per spender (dollars)[1]
Total, all items	**2,246,114**	**1,232**	**1,656**	**91**	**1,357**
TRIP-RELATED EXPENDITURES					
Total trip-related	**2,062,373**	**1,131**	**1,656**	**91**	**1,246**
Food and lodging, total	**473,708**	**260**	**1,631**	**89**	**290**
Food	328,509	180	1,609	88	204
Lodging	*145,199	*80	*378	*21	*384
Transportation, total	**306,101**	**168**	**1,437**	**79**	**213**
Public	...	...	...	...	...
Private	297,413	163	1,437	79	207
Other trip costs, total	**1,282,564**	**703**	**1,566**	**86**	**819**
Guide fees, pack trip or package fees	*49,397	*27	*301	*16	*164
Public land use fees	*17,642	*10	*460	*25	*38
Private land use fees	...	...	...	...	...
Equipment rental	...	...	...	...	...
Boating costs[2]	*1,021,333	*560	*845	*46	*1,208
Bait	*61,145	*34	*708	*39	*86
Ice	*34,628	*19	*899	*49	*39
Heating and cooking fuel	...	...	...	...	...
EQUIPMENT EXPENDITURES					
Fishing equipment, total	***157,573**	***86**	***610**	***33**	***259**
Rods, reels, poles, and rodmaking components	...	...	...	...	...
Lines and leaders	...	...	...	...	...
Artificial lures, flies, baits, and dressing for flies or lines	...	...	...	...	...
Hooks, sinkers, swivels, and other items attached to a line except lures and baits	*14,239	*8	*443	*24	*32
Tackle boxes	...	...	...	...	...
Creels, stringers, fish bags, landing nets, and gaff hooks	...	...	...	...	...
Minnow traps, seines, and bait containers	...	...	...	...	...
Depth finders, fish finders, and other electronic fishing devices	...	...	...	...	...
Ice fishing equipment	...	...	...	...	...
Other fishing equipment	...	...	...	...	...
Auxiliary equipment, total	**...**	**...**	**...**	**...**	**...**
Camping equipment	...	...	...	...	...
Binoculars, field glasses, telescopes, etc.	...	...	...	...	...
Special fishing clothing, rubber boots, waders, and foul weather gear	...	...	...	...	...
Processing and taxidermy costs	...	...	...	...	...
Other	...	...	...	...	...
Special equipment[3]	**...**	**...**	**...**	**...**	**...**

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Average expenditures are annual estimates.

[2] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

[3] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

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

Table 16. Trip and Equipment Expenditures for Saltwater Fishing: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per angler (dollars)[1]	Number (thousands)	Percent of anglers	Average per spender (dollars)[1]
Total, all items	**11,199,380**	**1,346**	**7,266**	**87**	**1,541**
TRIP-RELATED EXPENDITURES					
Total trip-related	**6,150,648**	**739**	**7,255**	**87**	**848**
Food and lodging, total	**2,267,131**	**272**	**6,415**	**77**	**353**
Food	1,275,167	153	6,413	77	199
Lodging	991,964	119	2,466	30	402
Transportation, total	**1,121,756**	**135**	**6,018**	**72**	**186**
Public	296,687	36	780	9	380
Private	825,069	99	5,628	68	147
Other trip costs, total	**2,761,761**	**332**	**6,330**	**76**	**436**
Guide fees, pack trip or package fees	521,242	63	1,486	18	351
Public land use fees	63,217	8	1,156	14	55
Private land use fees	*64,191	*8	*254	*3	*252
Equipment rental	92,448	11	750	9	123
Boating costs[2]	1,582,041	190	1,246	15	1,270
Bait	283,480	34	4,383	53	65
Ice	141,731	17	3,321	40	43
Heating and cooking fuel	*13,412	*2	*585	*7	*23
EQUIPMENT EXPENDITURES					
Fishing equipment, total	**2,695,069**	**324**	**3,784**	**45**	**712**
Rods, reels, poles, and rodmaking components	938,877	113	2,052	25	458
Lines and leaders	218,805	26	2,686	32	81
Artificial lures, flies, baits, and dressing for flies or lines	190,815	23	2,144	26	89
Hooks, sinkers, swivels, and other items attached to a line except lures and baits	193,586	23	2,911	35	67
Tackle boxes	*196,813	*24	*1,387	*17	*142
Creels, stringers, fish bags, landing nets, and gaff hooks	*67,851	*8	*689	*8	*98
Minnow traps, seines, and bait containers	*55,921	*7	*902	*11	*62
Depth finders, fish finders, and other electronic fishing devices	*622,801	*75	*911	*11	*683
Other fishing equipment	209,599	25	1,579	19	133
Auxiliary equipment, total	**290,973**	**35**	**1,358**	**16**	**214**
Camping equipment	...	...	...	...	...
Binoculars, field glasses, telescopes, etc.	...	...	...	...	...
Special fishing clothing, rubber boots, waders, and foul weather gear	*157,512	*19	*1,202	*14	*131
Processing and taxidermy costs	...	...	...	...	...
Other	...	...	...	...	...
Special equipment[3]	***2,062,691**	***248**	***858**	***10**	***2,403**

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Average expenditures are annual estimates.

[2] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

[3] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

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

Table 17. Expenditures for Hunting: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per hunter (dollars)[1]	Number (thousands)	Percent of hunters	Average per spender (dollars)[1]
Total, all items	**26,190,488**	**2,287**	**10,992**	**96**	**2,383**
TRIP-RELATED EXPENDITURES					
Total trip-related	**9,196,245**	**803**	**9,984**	**87**	**921**
Food and lodging, total	**3,113,934**	**272**	**9,065**	**79**	**344**
Food	2,506,853	219	9,053	79	277
Lodging	607,081	53	1,775	16	342
Transportation, total	**3,184,479**	**278**	**9,047**	**79**	**352**
Public	193,085	17	912	8	212
Private	2,991,394	261	8,937	78	335
Other trip costs, total	**2,897,832**	**253**	**3,664**	**32**	**791**
Guide fees, pack trip or package fees	658,436	57	943	8	698
Public land use fees	18,577	2	685	6	27
Private land use fees	1,813,913	158	1,024	9	1,771
Equipment rental	*204,577	*18	*617	*5	*332
Boating costs[2]	*99,058	*9	*344	*3	*288
Heating and cooking fuel	103,271	9	1,872	16	55
EQUIPMENT EXPENDITURES					
Hunting equipment, total	**7,383,871**	**645**	**8,413**	**73**	**878**
Firearms	2,913,826	254	2,557	22	1,140
Rifles	1,190,129	104	885	8	1,345
Shotguns	553,149	48	1,120	10	494
Muzzleloaders, primitive firearms	*109,984	*10	*183	*2	*601
Pistols, handguns	1,060,564	93	1,533	13	692
Bows, arrows, archery equipment	1,613,690	141	2,088	18	773
Telescopic sights	220,273	19	677	6	325
Decoys and game calls	204,297	18	2,069	18	99
Ammunition	1,413,839	123	6,652	58	213
Hand loading equipment	228,889	20	783	7	292
Hunting dogs and associated costs	448,563	39	1,070	9	419
Other	340,494	30	2,742	24	124
Auxiliary equipment, total	**2,018,696**	**176**	**4,436**	**39**	**455**
Camping equipment	466,096	41	612	5	762
Binoculars, field glasses, telescopes, etc	165,382	14	637	6	260
Special hunting clothing, rubber boots, waders, and foul weather gear	589,103	51	2,488	22	237
Processing and taxidermy costs	684,858	60	1,694	15	404
Other	*113,257	*10	*561	*5	*202
Special equipment[3]	***3,353,350**	***293**	***396**	***3**	***8,461**
OTHER EXPENDITURES					
Magazines, books, DVDs	166,451	15	1,130	10	147
Membership dues and contributions	182,016	16	1,403	12	130
Land leasing and ownership	2,898,622	253	1,845	16	1,571
Licenses, stamps, tags, and permits, total	825,805	72	8,668	76	95
Licenses	698,254	61	8,172	71	85
Federal duck stamps	37,136	3	1,485	13	25
Stamps, tags, and permits	90,415	8	2,164	19	42
Plantings	*165,432	*14	*1,020	*9	*162

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

[1] Average expenditures are annual estimates.

[2] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

[3] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

Note: Detail does not add to total because of multiple responses and nonresponse. Detail in Tables 18 to 21 may not add to totals shown here because the primary purpose of the purchase is for general hunting activity and cannot be attributed to just one hunting classification (big game, small game, migratory bird, or other animals).

Table 18. Trip and Equipment Expenditures for Big Game Hunting: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per hunter (dollars)[1]	Number (thousands)	Percent of hunters	Average per spender (dollars)[1]
Total, all items	**14,878,550**	**1,616**	**8,632**	**94**	**1,724**
TRIP-RELATED EXPENDITURES					
Total trip-related	**6,213,380**	**675**	**8,009**	**87**	**776**
Food and lodging, total	**1,863,156**	**202**	**7,137**	**78**	**261**
Food	1,665,030	181	7,125	77	234
Lodging	198,126	22	1,087	12	182
Transportation, total	**2,288,658**	**249**	**7,157**	**78**	**320**
Public	139,104	15	620	7	225
Private	2,149,554	233	7,016	76	306
Other trip costs, total	**2,061,566**	**224**	**2,640**	**29**	**781**
Guide fees, pack trip or package fees	*509,955	*55	*647	*7	*789
Public land use fees	*6,040	*1	*393	*4	*15
Private land use fees	*1,250,947	*136	*806	*9	*1,552
Equipment rental	*200,715	*22	*531	*6	*378
Boating costs[2]	...	...	...	...	...
Heating and cooking fuel	89,828	10	1,661	18	54
EQUIPMENT EXPENDITURES					
Hunting equipment, total	**4,328,210**	**470**	**5,417**	**59**	**799**
Firearms	1,580,760	172	1,168	13	1,353
Rifles	980,175	106	609	7	1,610
Shotguns	...	...	...	...	...
Muzzleloaders, primitive firearms	*109,984	*12	*180	*2	*611
Pistols, handguns	*339,904	*37	*303	*3	*1,121
Bows, arrows, archery equipment	1,605,974	174	1,992	22	806
Telescopic sights	144,535	16	552	6	262
Decoys and game calls	69,984	8	1,176	13	59
Ammunition	574,040	62	3,445	37	167
Hand loading equipment	71,799	8	556	6	129
Hunting dogs and associated costs	...	...	...	...	...
Other	227,606	25	1,880	20	121
Auxiliary equipment, total	**1,141,785**	**124**	**3,288**	**36**	**347**
Camping equipment	*79,730	*9	*435	*5	*183
Binoculars, field glasses, telescopes, etc.	147,730	16	587	6	252
Special hunting clothing, rubber boots, waders, and foul weather gear	292,111	32	1,636	18	179
Processing and taxidermy costs	551,622	60	1,522	17	363
Other	*70,592	*8	*330	*4	*214
Special equipment[3]	***3,195,176**	***347**	***287**	***3**	***11,147**

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Average expenditures are annual estimates.

[2] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

[3] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

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

Table 19. Trip and Equipment Expenditures for Small Game Hunting: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per hunter (dollars)[1]	Number (thousands)	Percent of hunters	Average per spender (dollars)[1]
Total, all items	**1,653,408**	**472**	**3,131**	**89**	**528**
TRIP-RELATED EXPENDITURES					
Total trip-related	**1,050,190**	**300**	**2,778**	**79**	**378**
Food and lodging, total	**458,502**	**131**	**2,365**	**67**	**194**
Food	378,662	108	2,365	67	160
Lodging	*79,840	*23	*304	*9	*263
Transportation, total	**315,162**	**90**	**2,142**	**61**	**147**
Public	...	...	...	...	...
Private	297,108	85	2,142	61	139
Other trip costs, total	***276,525**	***79**	***608**	***17**	***455**
Guide fees, pack trip or package fees	*82,740	*24	*189	*5	*438
Public land use fees	...	...	...	...	...
Private land use fees	...	...	...	...	...
Equipment rental	...	...	...	...	...
Boating costs[2]	...	...	...	...	...
Heating and cooking fuel	*5,950	*2	*181	*5	*33
EQUIPMENT EXPENDITURES					
Hunting equipment, total	**547,639**	**156**	**1,679**	**48**	**326**
Firearms	*216,170	*62	*283	*8	*765
Rifles	...	...	...	...	...
Shotguns	...	...	...	...	...
Muzzleloaders, primitive firearms	...	...	...	...	...
Pistols, handguns	...	...	...	...	...
Bows, arrows, archery equipment	...	...	...	...	...
Telescopic sights	...	...	...	...	...
Decoys and game calls	*17,320	*5	*361	*10	*48
Ammunition	98,229	28	1,262	36	78
Hand loading equipment	...	...	...	...	...
Hunting dogs and associated costs	*152,600	*44	*173	*5	*883
Other	...	...	...	...	...
Auxiliary equipment, total	***55,580**	***16**	***389**	***11**	***143**
Camping equipment	...	...	...	...	...
Binoculars, field glasses, telescopes, etc.	...	...	...	...	...
Special hunting clothing, rubber boots, waders, and foul weather gear	*30,287	*9	*185	*5	*164
Processing and taxidermy costs	...	...	...	...	...
Other	...	...	...	...	...
Special equipment[3]	**...**	**...**	**...**	**...**	**...**

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Average expenditures are annual estimates.

[2] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

[3] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

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

Table 20. Trip and Equipment Expenditures for Migratory Bird Hunting: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per hunter (dollars)[1]	Number (thousands)	Percent of hunters	Average per spender (dollars)[1]
Total, all items	**2,253,939**	**958**	**2,208**	**94**	**1,021**
TRIP-RELATED EXPENDITURES					
Total trip-related	**1,284,351**	**546**	**2,157**	**92**	**596**
Food and lodging, total	**528,344**	**225**	**2,069**	**88**	**255**
Food	313,083	133	2,069	88	151
Lodging	*215,260	*91	*434	*18	*496
Transportation, total	**483,581**	**206**	**1,593**	**68**	**304**
Public	...	...	...	...	...
Private	447,654	190	1,593	68	281
Other trip costs, total	***272,426**	***116**	***853**	***36**	***319**
Guide fees, pack trip or package fees	...	...	...	...	...
Public land use fees	...	...	...	...	...
Private land use fees	...	...	...	...	...
Equipment rental	...	...	...	...	...
Boating costs[2]	...	...	...	...	...
Heating and cooking fuel	...	...	...	...	...
EQUIPMENT EXPENDITURES					
Hunting equipment, total	**753,769**	**320**	**1,282**	**54**	**588**
Firearms	...	...	...	...	...
Rifles	...	...	...	...	...
Shotguns	...	...	...	...	...
Muzzleloaders, primitive firearms	...	...	...	...	...
Pistols, handguns	...	...	...	...	...
Bows, arrows, archery equipment	...	...	...	...	...
Telescopic sights	...	...	...	...	...
Decoys and game calls	*45,609	*19	*190	*8	*240
Ammunition	*416,205	*177	*1,136	*48	*366
Hand loading equipment	...	...	...	...	...
Hunting dogs and associated costs	...	...	...	...	...
Other	...	...	...	...	...
Auxiliary equipment, total	***159,753**	***68**	***376**	***16**	***425**
Camping equipment	...	...	...	...	...
Binoculars, field glasses, telescopes, etc	...	...	...	...	...
Special hunting clothing, rubber boots, waders, and foul weather gear	*129,820	*55	*364	*15	*356
Processing and taxidermy costs	...	...	...	...	...
Other	...	...	...	...	...
Special equipment[3]	**...**	**...**	**...**	**...**	**...**

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Average expenditures are annual estimates.

[2] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

[3] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

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

Table 21. Trip and Equipment Expenditures for Hunting Other Animals: 2016

(Population 16 years old and older)

Expenditure item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per hunter (dollars)[1]	Number (thousands)	Percent of hunters	Average per spender (dollars)[1]
Total, all items	**755,073**	**574**	**1,052**	**80**	**718**
TRIP-RELATED EXPENDITURES					
Total trip-related	**648,325**	**493**	**1,052**	**80**	**617**
Food and lodging, total	**263,933**	**201**	**928**	**71**	**284**
Food	150,078	114	928	71	162
Lodging	...	...	...	...	...
Transportation, total	***97,078**	***74**	***683**	***52**	***142**
Public	...	...	...	...	...
Private	*97,078	*74	*683	*52	*142
Other trip costs, total	**...**	**...**	**...**	**...**	**...**
Guide fees, pack trip or package fees	...	...	...	...	...
Public land use fees	...	...	...	...	...
Private land use fees	...	...	...	...	...
Equipment rental	...	...	...	...	...
Boating costs[2]	...	...	...	...	...
Heating and cooking fuel	...	...	...	...	...
EQUIPMENT EXPENDITURES					
Hunting equipment, total	***96,992**	***74**	***326**	***25**	***297**
Firearms	...	...	...	...	...
Rifles	...	...	...	...	...
Shotguns	...	...	...	...	...
Muzzleloaders, primitive firearms	...	...	...	...	...
Pistols, handguns	...	...	...	...	...
Bows, arrows, archery equipment	...	...	...	...	...
Telescopic sights	...	...	...	...	...
Decoys and game calls	...	...	...	...	...
Ammunition	...	...	...	...	...
Hand loading equipment	...	...	...	...	...
Hunting dogs and associated costs	...	...	...	...	...
Other	...	...	...	...	...
Auxiliary equipment, total	**...**	**...**	**...**	**...**	**...**
Camping equipment	...	...	...	...	...
Binoculars, field glasses, telescopes, etc.	...	...	...	...	...
Special hunting clothing, rubber boots, waders, and foul weather gear	...	...	...	...	...
Processing and taxidermy costs	...	...	...	...	...
Other	...	...	...	...	...
Special equipment[3]	**...**	**...**	**...**	**...**	**...**

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Average expenditures are annual estimates.

[2] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

[3] Special equipment includes boats, campers, cabins, trail bikes, dune buggies, 4 x 4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, recreational vehicles (RVs), and other special equipment.

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

Table 22. Special Equipment Expenditures for Fishing and Hunting: 2016

(Population 16 years old and older)

Special equipment item	Expenditures		Spenders		
	Amount (thousands of dollars)	Average per sportsperson (dollars)[1]	Number (thousands)	Percent of sportspersons	Average per spender (dollars)[1]
Total, all items	**20,791,143**	**526**	**3,943**	**10**	**5,273**
Motor boat (other than bass boat)	*1,201,229	*30	*234	*1	*5,142
Bass boat	...	...	...	...	...
Canoe, other nonmotor boat	*658,059	*17	*1,356	*3	*485
Boat motor, trailer or hitch, or other boat accessories	2,051,141	52	1,460	4	1,405
Travel or tent trailer, pickup, camper, van, motor home, recreational vehicle (RV), house trailer	12,479,702	316	927	2	13,464
Cabin	...	...	...	...	...
Trail bike, dune buggy, 4x4 vehicle, 4-wheeler, snowmobile	*1,407,311	*36	*681	*2	*2,066
Other	*160,073	*4	*650	*2	*246

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Average expenditures are annual estimates.

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

Table 23. Anglers and Hunters Who Purchased Licenses or Were Exempt: 2016

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

Sportspersons	Anglers		Hunters	
	Number	Percent	Number	Percent
Total sportspersons	**35,754**	**100**	**11,453**	**100**
Total license purchasers[1]	**20,407**	**57**	**8,982**	**78**
Sportspersons purchasing license				
In state of residence	18,149	51	8,611	75
In other states	4,017	11	1,368	12
Total exempt from purchasing licenses	**7,025**	**20**	**2,125**	**19**
Sportspersons exempt from license purchase				
In state of residence	6,421	18	2,113	18
In other states	963	3	...	...
Other[2]	**9,550**	**27**	**1,373**	**12**
Not reported	***721**	***2**	**...**	**...**

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Includes persons who had licenses bought for them. Does not include persons who purchased licenses and did not fish or hunt in 2016.

[2] Includes persons who engaged in activities requiring no licenses or exemptions and those who failed to buy a license for activities requiring a license.

Note: Detail does not add to total because of multiple responses and nonresponse. Respondents could have been licensed in one state and exempt in another.

Table 24. Selected Characteristics of Anglers and Hunters Who Purchased Licenses: 2016

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

Characteristic	Anglers						Hunters					
	Total		Purchased a license[1]		Did not purchase a license[2]		Total		Purchased a license[1]		Did not purchase a license[2]	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total persons	**35,754**	**100**	**20,407**	**57**	**15,346**	**43**	**11,453**	**100**	**8,982**	**78**	**2,472**	**22**
Population Density of Residence												
Urban	23,968	100	13,542	57	10,426	43	5,425	100	4,030	74	1,395	26
Rural	11,785	100	6,865	58	4,920	42	6,028	100	4,952	82	1,076	18
Population Size of Residence												
Metropolitan Statistical Area (MSA)	31,789	100	17,884	56	13,905	44	8,903	100	6,896	77	2,007	23
1,000,000 or more	15,210	100	8,659	57	6,551	43	2,922	100	2,196	75	725	25
250,000 to 999,999	8,070	100	4,338	54	3,732	46	2,375	100	1,801	76	*573	*24
50,000 to 249,999	8,509	100	4,887	57	3,622	43	3,606	100	2,898	80	708	20
Outside MSA	3,965	100	2,523	64	1,441	36	2,551	100	2,086	82	*465	*18
Census Geographic Division												
New England	1,333	100	783	59	549	41	297	100	222	75	*75	*25
Middle Atlantic	3,471	100	1,876	54	1,595	46	884	100	*608	*69	...	...
East North Central	6,336	100	4,250	67	*2,087	*33	2,737	100	2,509	92	...	...
West North Central	3,042	100	2,155	71	887	29	1,364	100	1,114	82	*250	*18
South Atlantic	7,394	100	2,898	39	4,497	61	1,716	100	1,211	71	504	29
East South Central	3,061	100	*1,309	*43	*1,752	*57	*1,256	*100	*941	*75	...	...
West South Central	5,206	100	3,147	60	2,059	40	1,556	100	*1,105	*71	*451	*29
Mountain	2,687	100	1,888	70	*799	*30	946	100	627	66	...	...
Pacific	3,224	100	2,102	65	1,122	35	697	100	644	92	...	...
Age												
16 to 17 years	1,089	100	*362	*33	*727	*67	*228	*100	...	...	...	...
18 to 24 years	2,208	100	1,357	61	*851	*39	1,009	100	*789	*78	*221	*22
25 to 34 years	4,956	100	2,705	55	2,252	45	1,783	100	1,204	68	*579	*32
35 to 44 years	6,595	100	3,879	59	2,716	41	1,609	100	1,450	90	*159	*10
45 to 54 years	7,131	100	4,652	65	2,478	35	2,542	100	2,073	82	*468	*18
55 to 64 years	6,719	100	4,023	60	2,697	40	2,702	100	2,241	83	*462	*17
65 years and older	7,055	100	3,430	49	3,626	51	1,580	100	1,156	73	424	27
65 to 74 years	5,046	100	2,675	53	2,371	47	1,201	100	871	73	*330	*27
75 and older	2,010	100	*754	*38	*1,255	*62	*379	*100	*285	*75	...	...
Sex												
Male	25,975	100	15,197	59	10,779	41	10,340	100	8,105	78	2,236	22
Female	9,778	100	5,210	53	4,568	47	1,113	100	877	79	*236	*21
Ethnicity												
Hispanic	3,080	100	1,431	46	*1,648	*54	*379	*100	...	...	...	...
Non-Hispanic	32,674	100	18,976	58	13,698	42	11,075	100	8,691	78	2,383	22
Race												
White	30,921	100	18,466	60	12,454	40	11,123	100	8,783	79	2,340	21
African American	3,145	100	1,205	38	*1,940	*62	...	...	...	...	...	...
Asian	*721	*100	*231	*32	*491	*68	...	...	...	...	...	...
All others	967	100	*505	*52	*462	*48	*208	*100	...	...	...	...
Annual Household Income												
Less than $20,000	2,659	100	*474	*18	*2,185	*82	*436	*100	*335	*77	...	...
$20,000 to $24,999	841	100	*633	*75	...	...	*161	*100	...	...	...	...
$25,000 to $29,999	1,106	100	*645	*58	*461	*42	*145	*100	...	...	...	...
$30,000 to $34,999	813	100	*412	*51	*401	*49	*154	*100	...	...	...	...
$35,000 to $39,999	1,932	100	1,059	55	*873	*45	*456	*100	*423	*93	...	...
$40,000 to $49,999	2,723	100	1,700	62	1,023	38	1,101	100	*637	*58	*464	*42
$50,000 to $74,999	5,697	100	3,503	61	2,194	39	2,649	100	2,102	79	*547	*21
$75,000 to $99,999	3,348	100	2,089	62	1,259	38	1,873	100	1,569	84	*304	*16
$100,000 to $149,999	4,830	100	3,037	63	1,794	37	1,536	100	1,303	85	*233	*15
$150,000 or more	4,583	100	2,973	65	1,610	35	1,408	100	981	70	*427	*30
Not reported	7,221	100	3,881	54	3,340	46	1,534	100	1,318	86	*216	*14
Education												
11 years or less	3,840	100	1,702	44	2,138	56	1,086	100	*774	*71	*312	*29
12 years	11,171	100	6,903	62	4,268	38	3,555	100	2,814	79	741	21
1 to 3 years of college	8,582	100	4,777	56	3,804	44	2,984	100	2,330	78	654	22
4 years of college	6,311	100	3,886	62	2,426	38	2,474	100	2,090	84	*384	*16
5 years or more of college	5,850	100	3,140	54	2,710	46	1,354	100	973	72	*380	*28
Days of Participation												
1 to 5 days	18,876	100	8,739	46	10,137	54	4,454	100	3,135	70	1,319	30
6 to 10 days	7,625	100	4,633	61	2,992	39	2,295	100	1,865	81	*430	*19
11 to 25 days	4,753	100	3,602	76	1,151	24	2,562	100	2,084	81	*478	*19
26 days or more	4,305	100	3,394	79	911	21	2,140	100	1,898	89	*242	*11

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Includes persons who purchased a license in 2016 in any state. Respondents could have been licensed in one state and exempt in another.

[2] Includes those persons who did not purchase a license in any state in 2016 and those who did not specify a license purchase in 2016.

Table 25. Freshwater Anglers and Days of Fishing by Type of Water: 2016

(Population 16 years old and older. Numbers in thousands. Excludes Great Lakes fishing)

Type of water	Anglers		Days of fishing	
	Number	Percent	Number	Percent
Total, all types of water	**29,490**	**100**	**372,660**	**100**
Lakes, reservoirs, and ponds	24,565	83	248,447	67
Rivers or streams	13,142	45	127,401	34

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

Table 26. Great Lakes Anglers and Days of Fishing by Great Lake: 2016

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

Great Lake	Anglers		Days of fishing	
	Number	Percent	Number	Percent
Total, all Great Lakes	**1,824**	**100**	**13,440**	**100**
Lake Ontario, including the Niagara River	*117	*6	*424	*3
Lake Erie, including the Detroit River	*390	*21	*2,625	*20
Lake Huron, including St. Mary's River System	...	...	...	...
Lake Michigan	*1,087	*60	*9,664	*72
Lake Superior	...	...	...	...
Lake St. Clair, including the St. Clair River	...	...	...	...
St. Lawrence River	...	...	...	...
Tributaries of the Great Lakes	...	...	...	...

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

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

Table 27. Hunters and Days of Hunting on Public and Private Land by Type of Hunting: 2016

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

Hunters and days of hunting	Total, all hunting		Big game		Small game		Migratory birds		Other animals	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
HUNTERS										
Total, all land	**11,453**	**100**	**9,208**	**100**	**3,505**	**100**	**2,353**	**100**	**1,315**	**100**
Public land, total	**3,907**	**34**	**2,928**	**32**	**852**	**24**	**1,144**	**49**	**...**	**...**
Public land only	1,459	13	1,490	16	*346	*10	*587	*25	...	...
Public and private land	2,448	21	1,438	16	506	14	*556	*24	...	...
Private land, total	**9,742**	**85**	**7,499**	**81**	**3,026**	**86**	**1,599**	**68**	**1,302**	**99**
Private land only	7,294	64	6,060	66	2,521	72	1,042	44	1,189	90
Private and public land	2,448	21	1,438	16	506	14	*556	*24	...	...
DAYS OF HUNTING										
Total, all land	**184,021**	**100**	**132,665**	**100**	**38,306**	**100**	**15,621**	**100**	**13,275**	**100**
Public land[1]	35,878	19	26,147	20	4,562	12	7,405	47	...	...
Private land[2]	144,974	79	104,736	79	32,850	86	7,060	45	12,086	91

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

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

[2] Days of hunting on private land include 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 28. Hunters and Days of Hunting on Public Land by Selected Characteristic: 2016

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

Characteristic	Hunters				Days of hunting			
	Total hunters, public and private land	Hunters on public land[1]			Total days, public and private land	Days on public land[2]		
		Number	Percent of total hunters	Percent of hunters using public land		Number	Percent of total days	Percent of days on public land
Total persons	**11,453**	**3,907**	**34**	**100**	**184,021**	**35,878**	**19**	**100**
Population Density of Residence								
Urban	5,425	2,270	42	58	70,997	19,137	27	53
Rural	6,028	1,637	27	42	113,024	16,742	15	47
Population Size of Residence								
Metropolitan Statistical Area (MSA)	8,903	3,353	38	86	127,729	28,957	23	81
1,000,000 or more	2,922	1,183	40	30	35,726	10,070	28	28
250,000 to 999,999	2,375	926	39	24	25,491	6,502	26	18
50,000 to 249,999	3,606	1,244	34	32	66,512	12,384	19	35
Outside MSA	2,551	554	22	14	56,292	6,922	12	19
Census Geographic Division								
New England	297	*100	*34	*3	3,918	*689	*18	*2
Middle Atlantic	884	*464	*52	*12	11,771	*4,759	*40	*13
East North Central	2,737	*658	*24	*17	59,131	*7,214	*12	*20
West North Central	1,364	*574	*42	*15	20,139	*6,883	*34	*19
South Atlantic	1,716	*361	*21	*9	20,210	*2,208	*11	*6
East South Central	*1,256	...	...	...	*36,040	...	...	...
West South Central	1,556	*183	*12	*5	17,498	*1,849	*11	*5
Mountain	946	*820	*87	*21	9,516	*7,671	*81	*21
Pacific	697	613	88	16	5,799	4,049	70	11
Age								
16 to 17 years	*228	...	...	...	*1,382	...	...	...
18 to 24 years	1,009	*381	*38	*10	30,087	*8,018	*27	*22
25 to 34 years	1,783	*879	*49	*23	19,000	*5,130	*27	*14
35 to 44 years	1,609	*544	*34	*14	37,055	*7,290	*20	*20
45 to 54 years	2,542	949	37	24	36,924	7,384	20	21
55 to 64 years	2,702	751	28	19	41,622	5,169	12	14
65 years and older	1,580	*371	*23	*9	17,952	*2,522	*14	*7
65 to 74 years	1,201	*278	*23	*7	13,622	*1,707	*13	*5
75 and older	*379	...	...	...	*4,331	...	...	...
Sex								
Male	10,340	3,772	36	97	170,159	35,066	21	98
Female	1,113	...	...	...	13,863	...	...	...
Ethnicity								
Hispanic	*379	...	...	...	*1,219	...	...	...
Non-Hispanic	11,075	3,798	34	97	182,803	35,694	20	99
Race								
White	11,123	3,794	34	97	180,066	35,099	19	98
African American	...	...	...	...	...	...	...	...
Asian	...	...	...	...	...	...	...	...
All others	*208	...	...	...	*2,210	...	...	...
Annual Household Income								
Less than $20,000	*436	...	...	...	*3,417	...	...	...
$20,000 to $24,999	*161	...	...	...	*737	...	...	...
$25,000 to $29,999	*145	...	...	...	*3,345	...	...	...
$30,000 to $34,999	*154	...	...	...	*2,106	...	...	...
$35,000 to $39,999	*456	...	...	...	*2,400	...	...	...
$40,000 to $49,999	1,101	*305	*28	*8	26,768	*3,413	*13	*10
$50,000 to $74,999	2,649	1,136	43	29	58,094	10,256	18	29
$75,000 to $99,999	1,873	614	33	16	29,239	5,672	19	16
$100,000 to $149,999	1,536	718	47	18	19,244	7,255	38	20
$150,000 or more	1,408	*210	*15	*5	14,787	*1,893	*13	*5
Not reported	1,534	*490	*32	*13	23,885	*5,078	*21	*14
Education								
11 years or less	1,086	*389	*36	*10	18,811	*5,881	*31	*16
12 years	3,555	863	24	22	67,788	7,039	10	20
1 to 3 years of college	2,984	1,265	42	32	53,135	10,433	20	29
4 years of college	2,474	904	37	23	31,516	9,247	29	26
5 years or more of college	1,354	486	36	12	12,772	3,279	26	9

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Hunters on public land include those who hunted on both public and private land.

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

Note: Percent of total hunters and percent of total days are based on the total hunters and total days columns for each row. Percent of hunters using public land and percent of days on public land are based on the total numbers of hunters on public land and total numbers of days on public land, respectively.

Table 29. Hunters and Days of Hunting on Private Land by Selected Characteristic: 2016

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

Characteristic	Hunters				Days of hunting			
	Total hunters, public and private land	Hunters on private land[1]			Total days, public and private land	Days on private land[2]		
		Number	Percent of total hunters	Percent of hunters using private land		Number	Percent of total days	Percent of days on private land
Total persons	**11,453**	**9,742**	**85**	**100**	**184,021**	**144,974**	**79**	**100**
Population Density of Residence								
Urban	5,425	4,580	84	47	70,997	51,973	73	36
Rural	6,028	5,162	86	53	113,024	93,001	82	64
Population Size of Residence								
Metropolitan Statistical Area (MSA)	8,903	7,477	84	77	127,729	92,842	73	64
1,000,000 or more	2,922	2,204	75	23	35,726	20,711	58	14
250,000 to 999,999	2,375	2,105	89	22	25,491	18,450	72	13
50,000 to 249,999	3,606	3,167	88	33	66,512	53,681	81	37
Outside MSA	2,551	2,266	89	23	56,292	52,132	93	36
Census Geographic Division								
New England	297	247	83	3	3,918	2,838	72	2
Middle Atlantic	884	*788	*89	*8	11,771	*7,521	*64	*5
East North Central	2,737	2,336	85	24	59,131	48,410	82	33
West North Central	1,364	1,008	74	10	20,139	14,954	74	10
South Atlantic	1,716	1,656	97	17	20,210	16,837	83	12
East South Central	*1,256	*1,256	*100	*13	*36,040	*33,704	*94	*23
West South Central	1,556	1,499	96	15	17,498	15,747	90	11
Mountain	946	*615	*65	*6	9,516	*2,781	*29	*2
Pacific	697	*338	*48	*3	5,799	*2,183	*38	*2
Age								
16 to 17 years	*228	*215	*94	*2	*1,382	*1,017	*74	*1
18 to 24 years	1,009	756	75	8	30,087	22,032	73	15
25 to 34 years	1,783	1,596	90	16	19,000	13,354	70	9
35 to 44 years	1,609	1,396	87	14	37,055	31,174	84	22
45 to 54 years	2,542	2,007	79	21	36,924	26,005	70	18
55 to 64 years	2,702	2,412	89	25	41,622	36,447	88	25
65 years and older	1,580	1,359	86	14	17,952	14,944	83	10
65 to 74 years	1,201	1,055	88	11	13,622	10,995	81	8
75 and older	*379	*304	*80	*3	*4,331	*3,949	*91	*3
Sex								
Male	10,340	8,767	85	90	170,159	133,221	78	92
Female	1,113	975	88	10	13,863	11,753	85	8
Ethnicity								
Hispanic	*379	*329	*87	*3	*1,219	...	...	...
Non-Hispanic	11,075	9,413	85	97	182,803	143,988	79	99
Race								
White	11,123	9,427	85	97	180,066	141,929	79	98
African American	...	...	...	...	...	...	...	...
Asian	...	...	...	...	...	...	...	...
All others	*208	*208	*100	*2	*2,210	*1,787	*81	*1
Annual Household Income								
Less than $20,000	*436	*400	*92	*4	*3,417	*2,681	*78	*2
$20,000 to $24,999	*161	...	...	...	*737	...	...	...
$25,000 to $29,999	*145	*132	*91	*1	*3,345	*2,153	*64	*1
$30,000 to $34,999	*154	*142	*92	*1	*2,106	*1,924	*91	*1
$35,000 to $39,999	*456	...	...	...	*2,400	...	...	...
$40,000 to $49,999	1,101	1,051	95	11	26,768	23,844	89	16
$50,000 to $74,999	2,649	1,967	74	20	58,094	44,092	76	30
$75,000 to $99,999	1,873	1,608	86	17	29,239	24,454	84	17
$100,000 to $149,999	1,536	1,394	91	14	19,244	13,847	72	10
$150,000 or more	1,408	1,293	92	13	14,787	12,672	86	9
Not reported	1,534	1,286	84	13	23,885	16,818	70	12
Education								
11 years or less	1,086	904	83	9	18,811	12,883	68	9
12 years	3,555	3,000	84	31	67,788	54,863	81	38
1 to 3 years of college	2,984	2,508	84	26	53,135	44,115	83	30
4 years of college	2,474	2,297	93	24	31,516	23,035	73	16
5 years or more of college	1,354	1,034	76	11	12,772	10,078	79	7

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

[1] Hunters on private land include those who hunted on both private and public land.

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

Note: Percent of total hunters and percent of total days are based on the total hunters and total days columns for each row. Percent of hunters using private land and percent of days on private land are based on the total numbers of hunters on private land and total numbers of days on private land, respectively.

Table 30. Anglers Fishing From Boats and Days of Participation by Type of Fishing: 2016

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

Participants and days of fishing	Total, all fishing		Freshwater, excludes Great Lakes		Great Lakes		Saltwater	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total anglers	**35,754**	**100**	**29,490**	**100**	**1,824**	**100**	**8,320**	**100**
Anglers fishing from boats	15,069	42	11,188	38	1,366	75	5,144	62
Total days of fishing	**459,341**	**100**	**372,660**	**100**	**13,440**	**100**	**75,392**	**100**
Days fishing from boats	197,338	43	138,938	37	10,344	77	48,056	64

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

Table 31. Participation in Ice Fishing and Fly-Fishing: 2016

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

Anglers and days	Number	Percent
Total anglers	**35,754**	**100**
Ice anglers	1,768	5
Fly-anglers	5,906	17
Total days of fishing	**459,341**	**100**
Days of ice fishing	18,175	4
Days of fly-fishing	40,959	9

Table 32. Hunters Using Bow and Arrow, Muzzleloader, or Other Firearm: 2016

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

Hunters	Number	Percent
Total hunters	**11,453**	**100**
Hunters using bow and arrow	3,630	32
Hunters using muzzleloader	1,367	12
Hunters using other firearm (e.g., shotgun, rifle)	10,009	87
Total days of hunting	**184,021**	**100**
With bow and arrow	58,491	32
With muzzleloader	10,287	6
With other firearm (e.g., shotgun, rifle)	97,348	53

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

Table 33. Land Owned or Leased for the Primary Purpose of Fishing or Hunting: 2016

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

Fishing and hunting	Number	Percent
LAND OWNERSHIP		
Sportspersons Owning Land		
Total sportspersons	**1,716**	**100**
Anglers	820	48
Hunters	1,172	68
Acres Owned		
Total acres owned	**162,019**	**100**
Acres for fishing	20,545	13
Acres for hunting	141,474	87
Expenditures for Land Owned		
Total expenditures	**2,845,975**	**100**
For fishing	*1,298,078	*46
For hunting	1,547,897	54
LAND LEASING		
Sportspersons Leasing Land		
Total sportspersons	**979**	**100**
Anglers	...	...
Hunters	901	92
Acres Leased		
Total acres leased	**136,833**	**100**
Acres for fishing	...	...
Acres for hunting	130,581	95
Expenditures for Land Leased		
Total expenditures	**2,411,458**	**100**
For fishing	...	...
For hunting	1,350,725	56

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

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

Table 34. Wildlife-Watching Participants by Type of Activity: 2016

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

Activity	Number	Percent
Total participants	**86,042**	**100**
Away from home	23,720	28
Observe wildlife	19,583	23
Photograph wildlife	13,721	16
Feed wildlife	4,869	6
Around the home	81,128	94
Observe wildlife	43,829	51
Photograph wildlife	30,473	35
Feed wildlife	59,083	69
Visit parks or natural areas[1]	11,359	13
Maintain plantings or natural areas	11,024	13

[1] Includes visits only to parks or natural areas within one mile of home.

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

Table 35. Participants, Area Visited, Trips, and Days of Participation in Wildlife Watching Away From Home: 2016

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

Participants, area visited, trips, and days of participation	Number	Percent
PARTICIPANTS		
Total participants	**23,720**	**100**
Observe wildlife	19,583	83
Photograph wildlife	13,721	58
Feed wildlife	4,869	21
AREA VISITED		
Total, all areas	**23,720**	**100**
Public only	14,126	60
Private only	2,314	10
Public and private	4,424	19
Not reported	2,857	12
TRIPS		
Total trips	**257,836**	**100**
Average days per trip	1	X
DAYS		
Total days	**386,045**	**100**
Observing wildlife	308,769	80
Photographing wildlife	151,559	39
Feeding wildlife	70,846	18
Average days per participant	**16**	**X**
Observing wildlife	16	X
Photographing wildlife	11	X
Feeding wildlife	15	X

X Not applicable.

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

Table 36. Participation in Wildlife-Watching Activities Around the Home: 2016

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

Activity	Number	Percent
Total around the home	**81,128**	**100**
Observe wildlife	43,829	54
Photograph wildlife	30,473	38
Feed wildlife	59,083	73
Visit parks or natural areas[1]	11,359	14
Maintain natural areas	7,514	9
Maintain plantings	7,752	10
OBSERVE WILDLIFE		
Participants observing:		
Total, all wildlife	**43,829**	**100**
Birds	38,741	88
Land mammals, all	30,065	69
Large mammals	19,671	45
Small mammals	26,080	60
Amphibians or reptiles	11,615	27
Insects or spiders	13,895	32
Fish or other wildlife	8,158	19
Participants observing:		
Total, 1 day or more	**43,829**	**100**
1 to 10 days	10,462	24
11 to 20 days	4,271	10
21 to 50 days	6,075	14
51 to 100 days	4,829	11
101 to 200 days	7,374	17
201 days or more	9,821	22
VISIT PARKS OR NATURAL AREAS[1]		
Participants visiting:		
Total, 1 day or more	**11,359**	**100**
1 to 5 days	4,467	39
6 to 10 days	1,703	15
11 days or more	5,146	45
PHOTOGRAPH WILDLIFE		
Participants photographing:		
Total, 1 day or more	**30,473**	**100**
1 day	5,929	19
2 to 3 days	8,641	28
4 to 5 days	5,423	18
6 to 10 days	3,477	11
11 to 20 days	3,310	11
21 days or more	3,359	11
FEED WILDLIFE		
Participants feeding:		
Total, all wildlife	**59,083**	**100**
Wild birds	57,194	97
Other wildlife	14,509	25
MAINTAIN NATURAL AREAS		
Participants maintaining:		
Total, all acreages	**7,514**	**100**
1 acre or less	4,932	66
2 to 10 acres	1,734	23
11 to 50 acres	590	8
More than 50 acres	*232	*3
MAINTAIN PLANTINGS		
Participants maintaining plantings	**7,752**	**100**
Participants spending:		
Less than $25	2,413	31
$25 to $75	1,667	22
More than $75	3,209	41
Average expenditure per participant for plantings[2]	122	X

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

[1] Includes visits only to parks or natural areas within one mile of home.

[2] Average expenditures are annual estimates.

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

Table 37. Away-From-Home Wildlife Watchers by Wildlife Observed, Photographed, or Fed and Place: 2016

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

Wildlife observed, photographed, or fed	Total participants		Participation by place					
			Total		In state of residence		In other states	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total, all wildlife	**23,720**	**100**	**23,720**	**100**	**18,772**	**79**	**7,396**	**31**
Total birds	**17,015**	**72**	**17,015**	**100**	**14,216**	**84**	**6,542**	**38**
Songbirds (cardinals, robins, etc.)	10,507	44	10,507	100	9,474	90	3,502	33
Birds of prey (hawks, eagles, etc.)	11,452	48	11,452	100	10,079	88	3,629	32
Waterfowl (ducks, geese, etc.)	11,488	48	11,488	100	10,087	88	3,682	32
Other water birds (shorebirds, herons, cranes, etc.)	8,798	37	8,798	100	7,717	88	2,804	32
Other birds (pheasants, turkeys, road runners, etc.)	7,123	30	7,123	100	5,372	75	2,461	35
Total land mammals	**14,018**	**59**	**14,018**	**100**	**12,289**	**88**	**4,644**	**33**
Large land mammals (deer, bears, etc.)	11,828	50	11,828	100	9,699	82	4,072	34
Small land mammals (squirrels, prairie dogs, etc.)	10,586	45	10,586	100	9,138	86	3,274	31
Fish (salmon, sharks, etc.)	4,270	18	4,270	100	2,910	68	1,759	41
Marine mammals (whales, dolphins, etc.)	2,485	10	2,485	100	1,365	55	1,224	49
Other wildlife (turtles, butterflies, etc.)	8,713	37	8,713	100	6,616	76	4,099	47

Note: Detail does not add to total because of multiple responses. Column showing percent of total participants is based on the "Total, all wildlife" numbers. "Participation by place" percent columns are based on the total numbers of participants for each type of wildlife.

Table 38. Wild Bird Observers and Days of Observation: 2016

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

Observers and days of observation	Number	Percent
OBSERVERS		
Total bird observers	**45,104**	**100**
Around-the-home observers	38,741	86
Away-from-home observers	16,275	36
DAYS		
Total days observing birds	**4,324,668**	**100**
Around the home	4,067,994	94
Away from home	256,673	6

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

Table 39. Expenditures for Wildlife Watching: 2016

(Population 16 years old and older)

Expenditure item	Expenditures (thousands of dollars)	Spenders		
		Number (thousands)	Percent of wildlife-watching participants[1]	Average per spender (dollars)[2]
Total, all items[3]	**75,867,134**	**63,578**	**74**	**1,193**
TRIP-RELATED EXPENDITURES				
Total trip-related	**11,587,870**	**20,235**	**85**	**573**
Food and lodging, total	**6,068,131**	**17,058**	**72**	**356**
Food	3,809,811	16,955	71	225
Lodging	2,258,320	6,331	27	357
Transportation, total	**4,228,568**	**19,018**	**80**	**222**
Public	1,232,678	3,052	13	404
Private	2,995,890	17,766	75	169
Other trip costs, total	**1,291,171**	**8,609**	**36**	**150**
Guide fees, pack trip or package fees	108,341	1,876	8	58
Public land use fees	169,750	5,461	23	31
Private land use fees	29,857	1,515	6	20
Equipment rental	274,867	2,814	12	98
Boating costs[4]	283,150	1,704	7	166
Heating and cooking fuel	425,205	2,985	13	142
EQUIPMENT AND OTHER EXPENSES				
Total	**64,279,264**	**57,496**	**67**	**1,118**
Wildlife-watching equipment, total	**12,105,745**	**50,302**	**58**	**241**
Binoculars, spotting scopes	1,835,510	4,765	6	385
Cameras, video cameras, special lenses, and other photographic equipment	3,575,323	7,152	8	500
Film and photo processing	73,561	1,679	2	44
Bird food, total	4,035,357	37,609	44	107
Commercially prepared and packaged wild bird food	3,269,158	36,026	42	91
Other bulk foods used to feed wild birds	766,200	12,673	15	60
Food for other wildlife	816,527	9,570	11	85
Nest boxes, bird houses, feeders, baths	959,643	17,868	21	54
Day packs, carrying cases, and special clothing	674,710	5,133	6	131
Other wildlife-watching equipment (such as field guides and maps)	135,113	4,317	5	31
Auxiliary equipment, total	**1,043,932**	**6,669**	**8**	**157**
Tents, tarps	364,298	3,176	4	115
Frame packs and backpacking equipment	225,326	2,471	3	91
Other camping equipment	209,087	1,911	2	109
Other auxiliary equipment (such as blinds and GPS devices)	245,221	765	1	321
Special equipment, total	**41,933,623**	**3,037**	**4**	**13,810**
Off-the-road vehicle	...	...	...	...
Travel or tent trailer, pickup, camper, van, motor home, house trailer, recreational vehicle (RV)	*35,684,266	*1,843	*2	*19,366
Boats, boat accessories	1,526,530	900	1	1,697
Cabins	...	...	...	...
Other	*56,439	*281	*Z	*201
Magazines, books, DVDs	236,696	7,022	8	34
Land leasing and ownership	4,196,305	1,195	1	3,512
Membership dues and contributions	3,817,276	10,076	12	379
Plantings	945,688	7,289	8	130

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

[1] Percent of wildlife-watching participants column is based on away-from-home participants for trip-related expenditures. For equipment and other expenditures the percent of wildlife-watching participants is based on total participants.

[2] Average expenditures are annual estimates.

[3] Information on trip-related expenditures was collected for away-from-home participants only. Equipment and other expenditures are based on information collected from both away-from-home and around-the-home participants.

[4] Boating costs include launching, mooring, storage, maintenance, insurance, pumpout fees, and fuel.

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

Table 40. Selected Characteristics of Participants of Wildlife-Watching Activities Away From Home: 2016

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

Characteristic	U.S. population		Total wildlife-watching participants			Total away-from-home participants		
	Number	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**254,686**	**100**	**86,042**	**34**	**100**	**23,720**	**9**	**100**
Population Density of Residence								
Urban	208,695	82	58,008	28	67	18,596	9	78
Rural	45,991	18	28,034	61	33	5,124	11	22
Population Size of Residence								
Metropolitan Statistical Area (MSA)	239,722	94	79,665	33	93	22,051	9	93
1,000,000 or more	144,070	57	38,458	27	45	11,380	8	48
250,000 to 999,999	49,208	19	20,928	43	24	6,460	13	27
50,000 to 249,999	46,443	18	20,279	44	24	4,211	9	18
Outside MSA	14,964	6	6,377	43	7	1,669	11	7
Census Geographic Division								
New England	12,018	5	4,430	37	5	1,499	12	6
Middle Atlantic	33,368	13	12,170	36	14	3,688	11	16
East North Central	36,893	14	13,348	36	16	2,847	8	12
West North Central	16,502	6	5,322	32	6	1,590	10	7
South Atlantic	50,611	20	17,832	35	21	5,530	11	23
East South Central	14,968	6	5,062	34	6	*498	*3	*2
West South Central	30,094	12	8,173	27	9	1,541	5	6
Mountain	18,364	7	6,257	34	7	3,119	17	13
Pacific	41,869	16	13,448	32	16	3,408	8	14
Age								
16 to 17 years	8,541	3	2,219	26	3	*980	*11	*4
18 to 24 years	28,351	11	4,873	17	6	2,598	9	11
25 to 34 years	43,977	17	11,260	26	13	3,313	8	14
35 to 44 years	40,455	16	11,509	28	13	4,336	11	18
45 to 54 years	42,969	17	17,115	40	20	3,038	7	13
55 to 64 years	42,022	16	20,910	50	24	5,447	13	23
65 years and older	48,372	19	18,155	38	21	4,008	8	17
65 to 74 years	28,895	11	12,154	42	14	3,191	11	13
75 and older	19,477	8	6,001	31	7	817	4	3
Sex								
Male, total	121,775	48	51,125	42	59	15,777	13	67
16 to 17 years	4,248	2	*1,130	*27	*1	*892	*21	*4
18 to 24 years	14,235	6	3,740	26	4	*2,012	*14	*8
25 to 34 years	21,621	8	6,853	32	8	2,176	10	9
35 to 44 years	19,614	8	6,717	34	8	3,047	16	13
45 to 54 years	20,748	8	9,516	46	11	2,025	10	9
55 to 64 years	20,054	8	12,977	65	15	3,618	18	15
65 years and older	21,253	8	10,191	48	12	2,008	9	8
65 to 74 years	13,306	5	7,063	53	8	1,619	12	7
75 and older	7,947	3	3,128	39	4	*389	*5	*2
Female, total	132,911	52	34,917	26	41	7,943	6	33
16 to 17 years	4,293	2	*1,088	*25	*1	…	…	…
18 to 24 years	14,116	6	1,133	8	1	*585	*4	*2
25 to 34 years	22,356	9	4,407	20	5	1,138	5	5
35 to 44 years	20,841	8	4,792	23	6	1,289	6	5
45 to 54 years	22,220	9	7,599	34	9	1,014	5	4
55 to 64 years	21,967	9	7,933	36	9	1,830	8	8
65 years and older	27,118	11	7,964	29	9	2,000	7	8
65 to 74 years	15,589	6	5,091	33	6	1,571	10	7
75 and older	11,530	5	2,873	25	3	*428	*4	*2
Ethnicity								
Hispanic	42,603	17	5,862	14	7	2,265	5	10
Non-Hispanic	212,083	83	80,181	38	93	21,456	10	90
Race								
White	199,086	78	74,710	38	87	22,552	11	95
African American	33,358	13	7,384	22	9	*612	*2	*3
Asian	16,153	6	757	5	1	*204	*1	*1
All others	6,089	2	3,191	52	4	*353	*6	*1
Annual Household Income								
Less than $20,000	22,269	9	5,782	26	7	2,003	9	8
$20,000 to $24,999	8,821	3	2,442	28	3	*1,175	*13	*5
$25,000 to $29,999	8,889	3	2,056	23	2	*390	*4	*2
$30,000 to $34,999	9,442	4	3,511	37	4	*683	*7	*3
$35,000 to $39,999	8,909	3	2,043	23	2	*1,157	*13	*5
$40,000 to $49,999	16,174	6	6,751	42	8	1,840	11	8
$50,000 to $74,999	36,512	14	11,444	31	13	2,671	7	11
$75,000 to $99,999	27,409	11	11,289	41	13	3,385	12	14
$100,000 to $149,999	32,485	13	14,004	43	16	4,148	13	17
$150,000 or more	30,217	12	12,120	40	14	3,489	12	15
Not reported	53,559	21	14,600	27	17	2,779	5	12
Education								
11 years or less	33,987	13	8,396	25	10	*1,400	*4	*6
12 years	72,726	29	24,987	34	29	5,132	7	22
1 to 3 years of college	75,352	30	20,034	27	23	6,348	8	27
4 years of college	45,769	18	17,824	39	21	5,507	12	23
5 years or more of college	26,852	11	14,802	55	17	5,333	20	22

See footnotes at end of table.

Table 40. Selected Characteristics of Participants of Wildlife-Watching Activities Away From Home: 2016—Continued

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

Characteristic	Away-from-home participants								
	Observe			Photograph			Feed		
	Number	Percent who participated	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**19,583**	**8**	**100**	**13,721**	**5**	**100**	**4,869**	**2**	**100**
Population Density of Residence									
Urban	15,704	8	80	11,007	5	80	3,757	2	77
Rural	3,879	8	20	2,714	6	20	1,112	2	23
Population Size of Residence									
Metropolitan Statistical Area (MSA)	18,392	8	94	12,975	5	95	4,378	2	90
1,000,000 or more	9,440	7	48	7,660	5	56	2,424	2	50
250,000 to 999,999	5,575	11	28	2,950	6	21	1,170	2	24
50,000 to 249,999	3,377	7	17	2,366	5	17	*784	*2	*16
Outside MSA	1,191	8	6	*745	*5	*5	*491	*3	*10
Census Geographic Division									
New England	1,322	11	7	924	8	7	*233	*2	*5
Middle Atlantic	3,283	10	17	1,210	4	9	*409	*1	*8
East North Central	2,401	7	12	1,435	4	10	*917	*2	*19
West North Central	1,460	9	7	697	4	5	...	...	...
South Atlantic	4,354	9	22	3,154	6	23	1,082	2	22
East South Central	...	...	...	...	...	...	...	...	...
West South Central	1,267	4	6	1,120	4	8	*627	*2	*13
Mountain	1,961	11	10	2,651	14	19	*796	*4	*16
Pacific	3,188	8	16	2,272	5	17	*422	*1	*9
Age									
16 to 17 years	*532	*6	*3	...	...	...	...	...	...
18 to 24 years	*2,306	*8	*12	*496	*2	*4	...	...	...
25 to 34 years	2,828	6	14	1,868	4	14	*1,237	*3	*25
35 to 44 years	3,683	9	19	3,312	8	24	*418	*1	*9
45 to 54 years	1,944	5	10	2,020	5	15	*480	*1	*10
55 to 64 years	4,586	11	23	3,249	8	24	1,244	3	26
65 years and older	3,704	8	19	2,225	5	16	1,077	2	22
65 to 74 years	3,001	10	15	1,950	7	14	965	3	20
75 and older	703	4	4	*275	*1	*2	...	...	...
Sex									
Male, total	12,259	10	63	8,794	7	64	3,182	3	65
16 to 17 years	*447	*11	*2	...	...	...	...	...	...
18 to 24 years	*1,841	*13	*9	...	...	...	...	...	...
25 to 34 years	1,699	8	9	1,149	5	8	*729	*3	*15
35 to 44 years	2,400	12	12	2,416	12	18	...	...	...
45 to 54 years	1,173	6	6	1,430	7	10	*308	*1	*6
55 to 64 years	2,929	15	15	2,062	10	15	*1,028	*5	*21
65 years and older	1,770	8	9	1,052	5	8	*670	*3	*14
65 to 74 years	1,451	11	7	966	7	7	*609	*5	*13
75 and older	*319	*4	*2	...	...	...	...	...	...
Female, total	7,324	6	37	4,926	4	36	1,687	1	35
16 to 17 years	...	...	...	...	...	...	...	...	...
18 to 24 years	*464	*3	*2	...	...	...	...	...	...
25 to 34 years	1,130	5	6	*719	*3	*5	*508	*2	*10
35 to 44 years	1,283	6	7	896	4	7	*222	*1	*5
45 to 54 years	772	3	4	590	3	4	...	...	...
55 to 64 years	1,657	8	8	1,187	5	9	*216	*1	*4
65 years and older	1,933	7	10	1,173	4	9	*407	*2	*8
65 to 74 years	1,550	10	8	984	6	7	*356	*2	*7
75 and older	*383	*3	*2	*189	*2	*1	...	...	...
Ethnicity									
Hispanic	1,683	4	9	*1,408	*3	*10	*893	*2	*18
Non-Hispanic	17,900	8	91	12,313	6	90	3,976	2	82
Race									
White	18,693	9	95	12,993	7	95	4,414	2	91
African American	*367	*1	*2	...	...	...	...	...	...
Asian	*202	*1	*1	*124	*1	*1	...	...	...
All others	*321	*5	*2	*204	*3	*1	*232	*4	*5
Annual Household Income									
Less than $20,000	*1,856	*8	*9	*279	*1	*2	*297	*1	*6
$20,000 to $24,999	*899	*10	*5	...	...	...	...	...	...
$25,000 to $29,999	*310	*3	*2	*159	*2	*1	...	...	...
$30,000 to $34,999	*643	*7	*3	*313	*3	*2	...	...	...
$35,000 to $39,999	*1,113	*12	*6	*594	*7	*4	...	...	...
$40,000 to $49,999	1,308	8	7	*1,018	*6	*7	...	...	...
$50,000 to $74,999	1,955	5	10	1,519	4	11	*486	*1	*10
$75,000 to $99,999	2,920	11	15	2,305	8	17	*1,029	*4	*21
$100,000 to $149,999	3,084	9	16	3,100	10	23	*314	*1	*6
$150,000 or more	2,879	10	15	2,393	8	17	*421	*1	*9
Not reported	2,615	5	13	1,473	3	11	*457	*1	*9
Education									
11 years or less	*708	*2	*4	*1,010	*3	*7	...	...	...
12 years	4,221	6	22	2,894	4	21	1,519	2	31
1 to 3 years of college	5,592	7	29	2,830	4	21	1,529	2	31
4 years of college	4,359	10	22	3,257	7	24	*898	*2	*18
5 years or more of college	4,703	18	24	3,730	14	27	*420	*2	*9

* Estimate based on a sample size of 10–29. … Sample size too small (less than 10) to report data reliably.

Note: Percent who participated columns show the percent of each row's population who participated in the activity named by the column. Percent columns show the percent of each column's participants who are described by the row heading. Demographic variables we could include but haven't are (1) relationship to head of household, (2) marital status, (3) whether or not participant has a job, and (4) whether or not participant is going to school, keeping house, or retired.

Table 41. Selected Characteristics of Participants of Wildlife-Watching Activities Around the Home: 2016

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

Characteristic	U.S. population		Total wildlife-watching participants			Total around-the-home participants		
	Number	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**254,686**	**100**	**86,042**	**34**	**100**	**81,128**	**32**	**100**
Population Density of Residence								
Urban	208,695	82	58,008	28	67	54,094	26	67
Rural	45,991	18	28,034	61	33	27,034	59	33
Population Size of Residence								
Metropolitan Statistical Area (MSA)	239,722	94	79,665	33	93	75,240	31	93
1,000,000 or more	144,070	57	38,458	27	45	35,822	25	44
250,000 to 999,999	49,208	19	20,928	43	24	19,983	41	25
50,000 to 249,999	46,443	18	20,279	44	24	19,436	42	24
Outside MSA	14,964	6	6,377	43	7	5,888	39	7
Census Geographic Division								
New England	12,018	5	4,430	37	5	4,336	36	5
Middle Atlantic	33,368	13	12,170	36	14	11,838	35	15
East North Central	36,893	14	13,348	36	16	12,808	35	16
West North Central	16,502	6	5,322	32	6	5,249	32	6
South Atlantic	50,611	20	17,832	35	21	16,502	33	20
East South Central	14,968	6	5,062	34	6	4,907	33	6
West South Central	30,094	12	8,173	27	9	7,763	26	10
Mountain	18,364	7	6,257	34	7	4,883	27	6
Pacific	41,869	16	13,448	32	16	12,842	31	16
Age								
16 to 17 years	8,541	3	2,219	26	3	*1,548	*18	*2
18 to 24 years	28,351	11	4,873	17	6	4,449	16	5
25 to 34 years	43,977	17	11,260	26	13	10,307	23	13
35 to 44 years	40,455	16	11,509	28	13	10,569	26	13
45 to 54 years	42,969	17	17,115	40	20	16,184	38	20
55 to 64 years	42,022	16	20,910	50	24	20,085	48	25
65 years and older	48,372	19	18,155	38	21	17,987	37	22
65 to 74 years	28,895	11	12,154	42	14	12,021	42	15
75 and older	19,477	8	6,001	31	7	5,965	31	7
Sex								
Male, total	121,775	48	51,125	42	59	47,220	39	58
16 to 17 years	4,248	2	*1,130	*27	*1	*480	*11	*1
18 to 24 years	14,235	6	3,740	26	4	3,485	24	4
25 to 34 years	21,621	8	6,853	32	8	5,972	28	7
35 to 44 years	19,614	8	6,717	34	8	5,954	30	7
45 to 54 years	20,748	8	9,516	46	11	8,834	43	11
55 to 64 years	20,054	8	12,977	65	15	12,405	62	15
65 years and older	21,253	8	10,191	48	12	10,091	47	12
65 to 74 years	13,306	5	7,063	53	8	6,985	52	9
75 and older	7,947	3	3,128	39	4	3,106	39	4
Female, total	132,911	52	34,917	26	41	33,908	26	42
16 to 17 years	4,293	2	*1,088	*25	*1	*1,068	*25	*1
18 to 24 years	14,116	6	1,133	8	1	*964	*7	*1
25 to 34 years	22,356	9	4,407	20	5	4,334	19	5
35 to 44 years	20,841	8	4,792	23	6	4,615	22	6
45 to 54 years	22,220	9	7,599	34	9	7,351	33	9
55 to 64 years	21,967	9	7,933	36	9	7,680	35	9
65 years and older	27,118	11	7,964	29	9	7,896	29	10
65 to 74 years	15,589	6	5,091	33	6	5,036	32	6
75 and older	11,530	5	2,873	25	3	2,859	25	4
Ethnicity								
Hispanic	42,603	17	5,862	14	7	4,964	12	6
Non-Hispanic	212,083	83	80,181	38	93	76,164	36	94
Race								
White	199,086	78	74,710	38	87	69,925	35	86
African American	33,358	13	7,384	22	9	7,384	22	9
Asian	16,153	6	757	5	1	679	4	1
All others	6,089	2	3,191	52	4	3,141	52	4
Annual Household Income								
Less than $20,000	22,269	9	5,782	26	7	5,633	25	7
$20,000 to $24,999	8,821	3	2,442	28	3	2,132	24	3
$25,000 to $29,999	8,889	3	2,056	23	2	2,053	23	3
$30,000 to $34,999	9,442	4	3,511	37	4	3,233	34	4
$35,000 to $39,999	8,909	3	2,043	23	2	1,624	18	2
$40,000 to $49,999	16,174	6	6,751	42	8	6,303	39	8
$50,000 to $74,999	36,512	14	11,444	31	13	10,834	30	13
$75,000 to $99,999	27,409	11	11,289	41	13	10,814	39	13
$100,000 to $149,999	32,485	13	14,004	43	16	12,839	40	16
$150,000 or more	30,217	12	12,120	40	14	11,313	37	14
Not reported	53,559	21	14,600	27	17	14,351	27	18
Education								
11 years or less	33,987	13	8,396	25	10	7,638	22	9
12 years	72,726	29	24,987	34	29	24,015	33	30
1 to 3 years of college	75,352	30	20,034	27	23	19,036	25	23
4 years of college	45,769	18	17,824	39	21	16,462	36	20
5 years or more of college	26,852	11	14,802	55	17	13,977	52	17

See footnotes at end of table.

Table 41. Selected Characteristics of Participants of Wildlife-Watching Activities Around the Home: 2016—Continued

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

Characteristic	Around-the-home participants								
	Observe			Photograph			Feed wild birds		
	Number	Percent who participated	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**43,829**	**17**	**100**	**30,473**	**12**	**100**	**57,194**	**22**	**100**
Population Density of Residence									
Urban	28,560	14	65	23,463	11	77	35,752	17	63
Rural	15,269	33	35	7,010	15	23	21,443	47	37
Population Size of Residence									
Metropolitan Statistical Area (MSA)	40,072	17	91	28,729	12	94	52,274	22	91
1,000,000 or more	18,819	13	43	15,077	10	49	22,733	16	40
250,000 to 999,999	12,543	25	29	7,848	16	26	14,905	30	26
50,000 to 249,999	8,710	19	20	5,804	12	19	14,635	32	26
Outside MSA	3,756	25	9	1,744	12	6	4,920	33	9
Census Geographic Division									
New England	2,422	20	6	2,272	19	7	2,731	23	5
Middle Atlantic	8,013	24	18	4,772	14	16	7,301	22	13
East North Central	7,443	20	17	3,486	9	11	10,794	29	19
West North Central	3,164	19	7	1,928	12	6	4,029	24	7
South Atlantic	8,567	17	20	6,007	12	20	10,979	22	19
East South Central	2,537	17	6	*1,582	*11	*5	3,833	26	7
West South Central	3,203	11	7	2,038	7	7	6,941	23	12
Mountain	2,514	14	6	2,808	15	9	3,135	17	5
Pacific	5,966	14	14	5,580	13	18	7,451	18	13
Age									
16 to 17 years	*694	*8	*2	...	...	...	*927	*11	*2
18 to 24 years	3,534	12	8	2,335	8	8	996	4	2
25 to 34 years	2,892	7	7	4,030	9	13	6,776	15	12
35 to 44 years	5,435	13	12	3,618	9	12	6,544	16	11
45 to 54 years	8,758	20	20	5,917	14	19	12,821	30	22
55 to 64 years	10,307	25	24	8,401	20	28	13,849	33	24
65 years and older	12,208	25	28	5,875	12	19	15,280	32	27
65 to 74 years	8,250	29	19	4,371	15	14	9,707	34	17
75 and older	3,958	20	9	1,505	8	5	5,573	29	10
Sex									
Male, total	23,701	19	54	17,314	14	57	30,387	25	53
16 to 17 years	...	...	...	...	...	...	...	...	...
18 to 24 years	*2,885	*20	*7	*1,865	*13	*6	*518	*4	*1
25 to 34 years	1,318	6	3	2,063	10	7	3,473	16	6
35 to 44 years	3,261	17	7	1,596	8	5	3,052	16	5
45 to 54 years	4,246	20	10	3,409	16	11	6,545	32	11
55 to 64 years	5,026	25	11	4,893	24	16	8,380	42	15
65 years and older	6,632	31	15	3,323	16	11	8,183	39	14
65 to 74 years	4,474	34	10	2,466	19	8	5,330	40	9
75 and older	2,157	27	5	857	11	3	2,853	36	5
Female, total	20,128	15	46	13,159	10	43	26,807	20	47
16 to 17 years	...	...	...	...	...	...	...	...	...
18 to 24 years	*649	*5	*1	*470	*3	*2	*478	*3	*1
25 to 34 years	1,574	7	4	1,967	9	6	3,303	15	6
35 to 44 years	2,174	10	5	2,022	10	7	3,492	17	6
45 to 54 years	4,512	20	10	2,508	11	8	6,276	28	11
55 to 64 years	5,281	24	12	3,508	16	12	5,470	25	10
65 years and older	5,576	21	13	2,552	9	8	7,097	26	12
65 to 74 years	3,775	24	9	1,904	12	6	4,377	28	8
75 and older	1,801	16	4	648	6	2	2,720	24	5
Ethnicity									
Hispanic	3,939	9	9	1,316	3	4	3,638	9	6
Non-Hispanic	39,889	19	91	29,157	14	96	53,556	25	94
Race									
White	37,641	19	86	27,480	14	90	49,014	25	86
African American	3,267	10	7	*1,449	*4	*5	5,958	18	10
Asian	*272	*2	*1	*271	*2	*1	*223	*1	*Z
All others	2,649	44	6	*1,273	*21	*4	1,999	33	3
Annual Household Income									
Less than $20,000	4,698	21	11	2,627	12	9	3,894	17	7
$20,000 to $24,999	1,588	18	4	*566	*6	*2	1,496	17	3
$25,000 to $29,999	917	10	2	*702	*8	*2	1,337	15	2
$30,000 to $34,999	1,592	17	4	*602	*6	*2	2,304	24	4
$35,000 to $39,999	1,353	15	3	*484	*5	*2	1,315	15	2
$40,000 to $49,999	3,188	20	7	1,550	10	5	5,029	31	9
$50,000 to $74,999	4,914	13	11	5,733	16	19	5,731	16	10
$75,000 to $99,999	4,137	15	9	4,392	16	14	9,458	35	17
$100,000 to $149,999	7,273	22	17	4,377	13	14	8,598	26	15
$150,000 or more	5,928	20	14	4,627	15	15	6,016	20	11
Not reported	8,242	15	19	4,813	9	16	12,016	22	21
Education									
11 years or less	5,003	15	11	979	3	3	5,765	17	10
12 years	10,615	15	24	8,320	11	27	19,671	27	34
1 to 3 years of college	10,389	14	24	7,474	10	25	12,217	16	21
4 years of college	10,554	23	24	7,612	17	25	11,375	25	20
5 years or more of college	7,268	27	17	6,090	23	20	8,166	30	14

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

Note: Percent who participated columns show the percent of each row's population who participated in the activity named by the column. Percent columns show the percent of each column's participants who are described by the row heading. Demographic variables we could include but haven't are (1) relationship to head of household, (2) marital status, (3) whether or not participant has a job, and (4) whether or not participant is going to school, keeping house, or retired.

Table 42. Land Owned or Leased for the Primary Purpose of Wildlife Watching: 2016

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

Wildlife watching	Number	Average per person[1]
Land Ownership for Wildlife Watching		
Participants owning land	1,229	X
Acres owned	96,917	79
Expenditures for owned land	4,165,314	3,390
Land Leasing for Wildlife Watching		
Participants leasing land	...	X
Acres leased	...	...
Expenditures for leased land	...	...

… Sample size too small (less than 10) to report data reliably. X Not Applicable.

[1] Average expenditures are annual estimates.

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

Table 43. Participation of Wildlife-Watching Participants in Fishing and Hunting: 2016

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

Type of fishing and hunting	Total		Away from home		Around the home	
	Number	Percent	Number	Percent	Number	Percent
Total participants	**86,042**	**100**	**23,720**	**100**	**81,128**	**100**
Nonsportspersons	64,141	75	14,902	63	61,229	75
Sportspersons	21,901	25	8,818	37	19,899	25
Anglers	20,173	23	8,247	35	18,314	23
Hunters	6,281	7	2,670	11	5,527	7

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

Table 44. Participation of Sportspersons in Wildlife-Watching Activities: 2016

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

Wildlife-watching activity	Sportspersons		Anglers		Hunters	
	Number	Percent	Number	Percent	Number	Percent
Total sportspersons	**39,553**	**100**	**35,754**	**100**	**11,453**	**100**
Sportspersons who:						
Did not engage in wildlife-watching activities	17,652	45	15,581	44	5,172	45
Engaged in wildlife-watching activities	21,901	55	20,173	56	6,281	55
Away from home	8,818	22	8,247	23	2,670	23
Around the home	19,899	50	18,314	51	5,527	48

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

Table 45. Total Wildlife-Related Participants and Expenditures: 2016

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

Participants and Expenditures	Number
U.S. Population	**254,686**
PARTICIPANTS (thousands)	
Wildlife-related participants, total	**103,694**
Sportspersons	39,553
Fishing	35,754
Hunting	11,453
Wildlife watching	86,042
EXPENDITURES (thousands of dollars)	
Wildlife-related expenditures, total	**156,902,550**
Trip-related, total	42,513,893
Equipment, total	97,399,017
Other, total	16,989,641

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

Table 46. Total Wildlife-Watching Days Away From Home by State Residents Both Inside and Outside Their State of Residence: 2016

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

Wildlife-watching days away from home	Number	Percent
Total days, residents and nonresidents	**368,957**	**100**
Days by residents in state of residence	299,463	81
Days by residents in other states	85,653	23

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

Appendix A

Appendix A. Definitions

Annual household income—Total 2016 income of household members before taxes and other deductions.

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

Auxiliary equipment—Equipment owned primarily for wildlife-associated recreation. For the sportspersons section, these include sleeping bags, packs, duffel bags, tents, binoculars and field glasses, special fishing and hunting clothing, foul weather gear, boots and waders, maintenance and repair of equipment, and processing and taxidermy costs. For the wildlife-watching section, these include tents, tarps, frame packs, backpacking and other camping equipment, and blinds. For both sportspersons and wildlife watchers, it also includes electronic auxiliary equipment such as Global Positioning Systems.

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

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

Census Divisions

East North Central
Illinois
Indiana
Michigan
Ohio
Wisconsin

East South Central
Alabama
Kentucky
Mississippi
Tennessee

Middle Atlantic
New Jersey
New York
Pennsylvania

Mountain
Arizona
Colorado
Idaho
Montana
Nevada
New Mexico
Utah
Wyoming

New England
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

Pacific
Alaska
California
Hawaii
Oregon
Washington

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

West North Central
Kansas
Iowa
Minnesota
Missouri
Nebraska

North Dakota
South Dakota

West South Central
Arkansas
Louisiana
Oklahoma
Texas

Day—Any part of a day spent participating in a given activity. For example, if someone hunted 2 hours one day and 3 hours another day, it would be reported as 2 days of hunting. If someone hunted 2 hours in the morning and 3 hours in the afternoon 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 2016 for wildlife-related recreation trips in the United States, wildlife-related recreational equipment purchased in the United States, and other items. The "other items" were books and magazines, membership dues and contributions, land leasing or owning, hunting and fishing licenses, and plantings, all for the purpose of wildlife-related recreation. Expenditures included both money spent by participants for themselves and the value of gifts they received.

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

Fishing equipment—Items owned primarily for fishing:

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

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

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

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

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

Hunting equipment—Items owned primarily for hunting:

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

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

Maintain natural areas—To set aside 1/4 acre or more of natural environment, such as wood lots or open fields, for the primary purpose of benefiting wildlife.

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

Metropolitan Statistical Area (MSA)—A Metropolitan Statistical Area is a grouping of one or more counties or equivalent entities that contain at least one urbanized area of 50,000 or more inhabitants. The "Outside MSA" classification include census-defined Micropolitan Statistical Areas (or Micro areas). A Micro area is defined as a grouping of one or more counties or equivalent entities that contain at least one urban cluster of at least 10,000 but less than 50,000 inhabitants. Refer to <www.census.gov/population/metro/about/>, for a more detailed definition of the Metropolitan Statistical Area.

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

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

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

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

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

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

Participants—Individuals who engage in fishing, hunting, or a wildlife-watching activity. Unless otherwise stated, a person has to have hunted, fished, or wildlife watched in 2016 to be considered a participant.

Plantings—See "Maintain plantings."

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

Private land—Land owned by a business, nongovernmental organization, private individual, or a group of individuals such as an association or club.

Public land—Land that is owned by local governments (such as county parks and municipal watersheds), state governments (such as state parks and wildlife management areas), or the federal government (such as National Forests, Recreational Areas, and Wildlife Refuges).

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

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

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

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

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

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

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

Spenders—Individuals who spent money on fishing, hunting, or wildlife-watching activities or equipment and also participated in those activities.

Sportspersons—Individuals who engaged in fishing, hunting, or both.

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

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

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

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

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

Visit parks or natural areas—A visit to places accessible to the public and that are owned or leased by a governmental entity, nongovernmental organization, business, or a private individual or group such as an association or club.

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

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

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

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

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

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

Appendix B

Appendix B. Data From Screening Interviews: 2015 Participation of 6- to 15-Year-Olds and 2015 Participation in Target Shooting and Archery by Persons 6 Years Old and Older

The 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was carried out in two phases. The first (or screening) phase began in January 2016. The main purpose of this phase was to collect information about all persons 16 years and older in order to develop a sample of potential sportspersons and wildlife-watchers for the second (or detailed) phase. However, information was also collected on the number of persons 6 to 15 years who participated in wildlife-related recreation activities in 2015.

The information reported from the 2016 screen relates to activity only up to and including 2015. These data are reported by one household respondent speaking for all household members rather than each of the actual participants. These data are based on long-term recall (12-month recall or more), which has been found in Survey research (see Investigation of Possible Recall/ Reference Period Bias in National Surveys of Fishing, Hunting and Wildlife-Associated Recreation, December 1989, Westat, Inc.) to add bias to the resulting estimates. In general, longer recall periods result in over-estimating participation and expenditures for wildlife-related recreation.

Tables B-1 through B-4 report data on first-time participation and the most recent year of hunting and fishing for participants 6-15 years of age. Tables B-5 through B-7 report 2015 participation and demographic data for participants 6-15 years of age. Table B-8 presents the 1980-2015 trend data for 6-15 year olds. Finally, Table B-9 gives estimates for total recreational archery and target shooting by participants 6 years old and older.

Because of differences in methodologies of the screening and the detailed phases of the 2016 Survey, the estimates of the two phases are not comparable. Only participants 16 years and older were eligible for the detailed phase. The screening phase covered activity for 2015 or earlier; the detailed phase has estimates for only 2016. The detailed phase was a series of interviews of the actual participants conducted at 4- to 8-month intervals. The screening phase was a single interview of one household respondent who reported household events with 1 year or more recall. The shorter recall period of the detailed phase enabled better data accuracy.

Table B-1. Anglers and Hunters Participating for the First Time in 2015 by Age Group

(Population 6 to 15 years old. Numbers in thousands)

Age group	Total anglers in 2015	Fishing for first time		Total hunters in 2015	Hunting for first time	
		Number	Percent of anglers in age group		Number	Percent of hunters in age group
Total, all ages	**10,095**	**1,336**	**13**	**1,818**	***344**	***19**
6 to 8 years	3,535	749	21	*367	...	...
9 to 11 years	2,943	*303	*10	*481	...	...
12 to 15 years	3,616	*284	*8	970	*239	*25

* Estimate based on a sample size of 10–29. ... Sample size too small (less than 10) to report reliably.

Note: Data reported on this table are from screening interviews in which one adult household member responded for all household members. The screening interview required the respondent to recall 12 months worth of activity.

Table B-2. Anglers and Hunters Participating in 2014 but Not in 2015 by Age Group

(Population 6 to 15 years old. Numbers in thousands)

Age group	Anglers		Hunters	
	Number	Percent	Number	Percent
Total, all ages	**1,588**	**100**	**...**	**...**
6 to 8 years	*647	*41	...	...
9 to 11 years	*290	*18	...	...
12 to 15 years	651	41	...	...

* Estimate based on a sample size of 10–29. ... Sample size too small (less than 10) to report reliably.

Note: Data reported on this table are from screening interviews in which one adult household member responded for all household members. The screening interview required the respondent to recall 12 months or more of activity.

Table B-3. Most Recent Year of Hunting by Age Group

(Population 6 to 15 years old. Numbers in thousands)

Age group	Total, all persons 6 to 15 years old who hunted in 2015 or earlier year		Most recent year of hunting					
			2015		2014		2013	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total, all ages	**2,405**	**100**	**1,818**	**76**	**...**	**...**	**...**	**...**
6 to 8 years	*399	*100	*367	*92	...	...	...	...
9 to 11 years	*661	*100	*481	*73	...	...	...	...
12 to 15 years	1,345	100	970	72	...	...	...	...

Age group	Most recent year of hunting							
	2012		2011		2010		Before 2010	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total, all ages	**...**	**...**	**...**	**...**	**...**	**...**	**...**	**...**
6 to 8 years	...	...	...	...	...	...	...	...
9 to 11 years	...	...	...	...	...	...	...	...
12 to 15 years	...	...	...	...	...	...	...	...

* Estimate based on a sample size of 10–29. ... Sample size too small (less than 10) to report reliably.

Note: Data reported on this table are from screening interviews in which one adult household member responded for all household members. The screening interview required the respondent to recall 12 months or more of activity.

Table B-4. Most Recent Year of Fishing by Age Group

(Population 6 to 15 years old. Numbers in thousands)

Age group	Total, all persons 6 to 15 years old who fished in 2015 or earlier year		Most recent year of fishing					
			2015		2014		2013	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total, all ages	**12,728**	**100**	**10,095**	**79**	**1,588**	**12**	***52**	**Z**
6 to 8 years	4,408	100	3,535	80	*647	*15	...	...
9 to 11 years	3,475	100	2,943	85	*290	*8	...	...
12 to 15 years	4,845	100	3,616	75	651	13	...	...
	Most recent year of fishing							
	2012		2011		2010		Before 2010	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total, all ages	***286**	***2**	**...**	**...**	***152**	***1**	***329**	***3**
6 to 8 years	...	...	...	...	...	...	...	...
9 to 11 years	...	...	...	...	...	...	...	...
12 to 15 years	...	...	...	...	...	...	*212	*4

* Estimate based on a sample size of 10–29. ... Sample size too small (less than 10) to report reliably.

Note: Data reported on this table are from screening interviews in which one adult household member responded for all household members. The screening interview required the respondent to recall 12 months or more of activity.

Table B-5. Anglers and Hunters 6 to 15 Years Old: 2015

(Population 6 to 15 years old. Numbers in thousands)

Sportspersons	Total, 6 to 15 years old		12 to 15 years old		9 to 11 years old		6 to 8 years old	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total sportspersons, fished or hunted	**10,306**	**100**	**3,654**	**100**	**3,048**	**100**	**3,604**	**100**
Total anglers	**10,095**	**98**	**3,616**	**99**	**2,943**	**97**	**3,535**	**98**
Fished only	8,488	82	2,684	73	2,567	84	3,238	90
Fished and hunted	1,607	16	932	26	*377	*12	*298	*8
Total hunters	**1,818**	**18**	**970**	**27**	***481**	***16**	***367**	***10**
Hunted only	...	...	...	...	...	...	...	...
Hunted and fished	1,607	16	932	26	*377	*12	*298	*8

* Estimate based on a sample size of 10–29. ... Sample size too small (less than 10) to report reliably.

Note: Detail does not add to total because of multiple responses. Data reported on this table are from screening interviews in which one adult household member responded for all household members 6 to 15 years old. The screening interview required the respondent to recall 12 months worth of activity. Includes persons who fished or hunted only in other countries.

Table B-6. Selected Characteristics of Anglers and Hunters 6 to 15 Years Old: 2015

(Population 6 to 15 years old. Numbers in thousands)

Characteristic	U.S. population		Sportspersons, fished or hunted			Fished only		
	Number	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**40,542**	**100**	**10,306**	**25**	**100**	**8,488**	**21**	**100**
Population Density of Residence								
Urban	33,899	84	7,440	22	72	6,664	20	79
Rural	6,643	16	2,866	43	28	1,824	27	21
Population Size of Residence								
Metropolitan Statistical Area (MSA)	38,063	94	9,215	24	89	7,892	21	93
1,000,000 or more	22,026	54	4,922	22	48	4,407	20	52
250,000 to 999,999	8,502	21	1,841	22	18	1,533	18	18
50,000 to 249,999	7,535	19	2,452	33	24	1,952	26	23
Outside MSA	2,479	6	1,090	44	11	596	24	7
Census Geographic Division								
New England	1,657	4	373	22	4	355	21	4
Middle Atlantic	4,868	12	706	15	7	*586	*12	*7
East North Central	5,970	15	1,139	19	11	*1,051	*18	*12
West North Central	2,779	7	1,145	41	11	913	33	11
South Atlantic	7,828	19	2,280	29	22	1,873	24	22
East South Central	2,291	6	*996	*43	*10	*616	*27	*7
West South Central	5,427	13	1,531	28	15	1,263	23	15
Mountain	3,270	8	905	28	9	758	23	9
Pacific	6,454	16	1,230	19	12	1,073	17	13
Age								
6 to 8 years	12,296	30	3,604	29	35	3,238	26	38
9 to 11 years	12,579	31	3,048	24	30	2,567	20	30
12 to 15 years	15,667	39	3,654	23	35	2,684	17	32
Sex								
Male, total	20,433	50	6,496	32	63	5,097	25	60
6 to 8 years	6,266	15	2,418	39	23	2,159	34	25
9 to 11 years	6,312	16	1,844	29	18	1,465	23	17
12 to 15 years	7,856	19	2,234	28	22	1,472	19	17
Female, total	20,109	50	3,810	19	37	3,391	17	40
6 to 8 years	6,030	15	1,186	20	12	1,078	18	13
9 to 11 years	6,268	15	1,204	19	12	1,101	18	13
12 to 15 years	7,812	19	1,419	18	14	1,211	16	14
Ethnicity								
Hispanic	9,852	24	1,191	12	12	866	9	10
Non-Hispanic	30,691	76	9,114	30	88	7,622	25	90
Race								
White	29,297	72	9,176	31	89	7,411	25	87
African American	7,834	19	534	7	5	534	7	6
Asian	2,290	6	*169	*7	*2	*169	*7	*2
All others	1,121	3	*427	*38	*4	*375	*33	*4
Annual Household Income								
Less than $20,000	4,917	12	*316	*6	*3	*239	*5	*3
$20,000 to $24,999	1,692	4	*408	*24	*4	*352	*21	*4
$25,000 to $29,999	1,582	4	*340	*21	*3	*202	*13	*2
$30,000 to $34,999	1,411	3	*236	*17	*2	*226	*16	*3
$35,000 to $39,999	2,010	5	*349	*17	*3	*152	*8	*2
$40,000 to $49,999	3,403	8	957	28	9	*566	*17	*7
$50,000 to $74,999	5,260	13	1,352	26	13	1,058	20	12
$75,000 to $99,999	4,469	11	1,685	38	16	1,365	31	16
$100,000 to $149,999	5,444	13	1,920	35	19	1,784	33	21
$150,000 or more	4,143	10	1,684	41	16	1,577	38	19
Not reported	6,211	15	1,061	17	10	967	16	11

See footnotes at end of table.

Table B-6. Selected Characteristics of Anglers and Hunters 6 to 15 Years Old: 2015—Continued

(Population 6 to 15 years old. Numbers in thousands)

Characteristic	Hunted only			Fished and hunted		
	Number	Percent who participated	Percent	Number	Percent who participated	Percent
Total persons	**...**	**...**	**...**	**1,607**	**4**	**100**
Population Density of Residence						
Urban	...	...	...	699	2	43
Rural	...	...	...	908	14	57
Population Size of Residence						
Metropolitan Statistical Area (MSA)	...	...	...	1,114	3	69
1,000,000 or more	...	...	...	*446	*2	*28
250,000 to 999,999	...	...	...	*241	*3	*15
50,000 to 249,999	...	...	...	427	6	27
Outside MSA	...	...	...	*492	*20	*31
Census Geographic Division						
New England	...	...	...	...	...	...
Middle Atlantic	...	...	...	...	...	...
East North Central	...	...	...	...	...	...
West North Central	...	...	...	*232	*8	*14
South Atlantic	...	...	...	332	4	21
East South Central	...	...	...	...	...	...
West South Central	...	...	...	*268	*5	*17
Mountain	...	...	...	...	...	...
Pacific	...	...	...	...	...	...
Age						
6 to 8 years	...	...	...	*298	*2	*19
9 to 11 years	...	...	...	*377	*3	*23
12 to 15 years	...	...	...	932	6	58
Sex						
Male, total	...	...	...	1,283	6	80
6 to 8 years	...	...	...	*190	*3	*12
9 to 11 years	...	...	...	*341	*5	*21
12 to 15 years	...	...	...	752	10	47
Female, total	...	...	...	*324	*2	*20
6 to 8 years	...	...	...	...	...	...
9 to 11 years	...	...	...	...	...	...
12 to 15 years	...	...	...	*180	*2	*11
Ethnicity						
Hispanic	...	...	...	...	...	...
Non-Hispanic	...	...	...	1,406	5	87
Race						
White	...	...	...	1,554	5	97
African American	...	...	...	...	...	...
Asian	...	...	...	...	...	...
All others	...	...	...	...	...	...
Annual Household Income						
Less than $20,000	...	...	...	...	...	...
$20,000 to $24,999	...	...	...	...	...	...
$25,000 to $29,999	...	...	...	...	...	...
$30,000 to $34,999	...	...	...	...	...	...
$35,000 to $39,999	...	...	...	...	...	...
$40,000 to $49,999	...	...	...	*312	*9	*19
$50,000 to $74,999	...	...	...	*286	*5	*18
$75,000 to $99,999	...	...	...	*251	*6	*16
$100,000 to $149,999	...	...	...	...	...	...
$150,000 or more	...	...	...	...	...	...
Not reported	...	...	...	...	...	...

* Estimate based on a sample size of 10–29. ... Sample size too small (less than 10) to report reliably.

Note: Percent who participated columns show 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 only, etc.). Percent columns show the percent of each column's participants who are described by the row heading (the percent of those who fished only who lived in urban areas, etc.). Data reported on this table are from screening interviews in which one adult household member responded for all household members. The screening interview required the respondent to recall 12 months worth of activity.

Table B-7. Selected Characteristics of Wildlife-Watching Participants 6 to 15 Years Old: 2015

(Population 6 to 15 years old. Numbers in thousands)

Characteristic	U.S. population		Total wildlife-watching participants		
	Number	Percent	Number	Percent who participated	Percent
Total persons	**40,542**	**100**	**6,284**	**15**	**100**
Population Density of Residence					
Urban	33,899	84	4,973	15	79
Rural	6,643	16	1,310	20	21
Population Size of Residence					
Metropolitan Statistical Area (MSA)	38,063	94	5,654	15	90
1,000,000 or more	22,026	54	3,104	14	49
250,000 to 999,999	8,502	21	1,461	17	23
50,000 to 249,999	7,535	19	1,089	14	17
Outside MSA	2,479	6	629	25	10
Census Geographic Division					
New England	1,657	4	308	19	5
Middle Atlantic	4,868	12	*294	*6	*5
East North Central	5,970	15	*654	*11	*10
West North Central	2,779	7	746	27	12
South Atlantic	7,828	19	1,651	21	26
East South Central	2,291	6	...	...	...
West South Central	5,427	13	*820	*15	*13
Mountain	3,270	8	698	21	11
Pacific	6,454	16	817	13	13
Age					
6 to 8 years	12,296	30	2,096	17	33
9 to 11 years	12,579	31	1,604	13	26
12 to 15 years	15,667	39	2,584	16	41
Sex					
Male, total	20,433	50	3,406	17	54
6 to 8 years	6,266	15	1,102	18	18
9 to 11 years	6,312	16	1,024	16	16
12 to 15 years	7,856	19	1,280	16	20
Female, total	20,109	50	2,878	14	46
6 to 8 years	6,030	15	994	16	16
9 to 11 years	6,268	15	580	9	9
12 to 15 years	7,812	19	1,304	17	21
Ethnicity					
Hispanic	9,852	24	1,035	11	16
Non-Hispanic	30,691	76	5,249	17	84
Race					
White	29,297	72	5,364	18	85
African American	7,834	19	*535	*7	*9
Asian	2,290	6	*121	*5	*2
All others	1,121	3	...	...	...
Annual Household Income					
Less than $20,000	4,917	12	*321	*7	*5
$20,000 to $24,999	1,692	4	*452	*27	*7
$25,000 to $29,999	1,582	4	...	...	...
$30,000 to $34,999	1,411	3	*167	*12	*3
$35,000 to $39,999	2,010	5	*392	*19	*6
$40,000 to $49,999	3,403	8	*850	*25	*14
$50,000 to $74,999	5,260	13	704	13	11
$75,000 to $99,999	4,469	11	775	17	12
$100,000 to $149,999	5,444	13	970	18	15
$150,000 or more	4,143	10	804	19	13
Not reported	6,211	15	620	10	10

* Estimate based on a sample size of 10–29. ... Sample size too small (less than 10) to report reliably.

Note: Percent who participated columns show 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 only, etc.). Percent columns show the percent of each column's participants who are described by the row heading (the percent of those who fished only who lived in urban areas, etc.). Data reported on this table are from screening interviews in which one adult household member responded for all household members. The screening interview required the respondent to recall 12 months worth of activity.

Note: The wildlife-watching questions in the screening questionnaire were revised in 2016 such that the 2015 wildlife-watching estimates are not comparable with previous Survey estimates.

Table B-8. Participation by 6- to 15-year-olds in 1980, 1985, 1990, 1995, 2000, 2005, 2010, and 2015

(Numbers in thousands)

Participant	1980			1985			1990		
	Number of participants	Percent change from previous survey	Percent of 6- to 15-year-old population	Number of participants	Percent change from previous survey	Percent of 6- to 15-year-old population	Number of participants	Percent change from previous survey	Percent of 6- to 15-year-old population
Total sportspersons	**12,141**	**NA**	**34**	**12,558**	**3**	**36**	**14,011**	**12**	**39**
Anglers	11,787	NA	33	12,243	4	35	13,790	13	39
Hunters	1,962	NA	6	1,799	–8	5	1,730	–4	5
Total wildlife watchers	**NA**	**NA**	**NA**	**17,789**	**NA**	**51**	**17,136**	**–4**	**48**
Around the home	NA	NA	NA	16,151	NA	46	15,406	–5	43
Away from home	NA	NA	NA	6,615	NA	19	7,311	11	21

	1995			2000			2005		
	Number of participants	Percent change from previous survey	Percent of 6- to 15-year-old population	Number of participants	Percent change from previous survey	Percent of 6- to 15-year-old population	Number of participants	Percent change from previous survey	Percent of 6- to 15-year-old population
Total sportspersons	**15,019**	**7**	**39**	**13,369**	**–11**	**33**	**12,318**	**–8**	**30**
Anglers	14,808	7	38	13,145	–11	32	12,110	–8	30
Hunters	1,720	–1	4	1,741	1	4	1,773	2	4
Total wildlife watchers	**17,449**	**2**	**45**	**15,066**	**–1**	**37**	**13,587**	**–10**	**34**
Around the home	15,425	Z	40	13,542	–12	33	12,055	–11	30
Away from home	8,314	14	21	6,091	–27	15	5,850	–4	14

	2010			2015					
	Number of participants	Percent change from previous survey	Percent of 6- to 15-year-old population	Number of participants	Percent change from previous survey	Percent of 6- to 15-year-old population			
Total sportspersons	**11,673**	**–5**	**29**	**10,306**	**29**	**25**			
Anglers	11,379	–6	28	10,095	29	25			
Hunters	2,026	14	5	1,818	5	4			
Total wildlife watchers	**12,654**	**–7**	**31**	**6,284**	**NA**	**NA**			
Around the home	11,130	–8	27	NA	NA	NA			
Away from home	5,287	–11	13	NA	NA	NA			

NA Not Available. Z Less than 0.5 percent.

Note: The wildlife-watching questions in the screening questionnaire were revised in 2016 such that the 2015 wildlife-watching estimates are not comparable with previous Survey estimates.

Table B-9: Participants in Target Shooting and Archery by Age Group: 2015

(Population 6 years old and older. Numbers in thousands)

Shooting activity	Recreational shooters	
	Number	Percent
Total, target shooters	**32,047**	**100**
6 to 15 years old	3,841	12
16 years old and older	28,206	88
Total, archers	**12,398**	**100**
6 to 15 years old	2,642	21
16 years old and older	9,756	79

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

Appendix C

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

The 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (FHWAR) was designed to continue the data collection of the 1955 to 2006 Surveys. While complete comparability between any two Surveys cannot be achieved, this appendix compares major findings of all the Surveys and presents trends for the major categories of wildlife-related recreation where feasible. Differences among the Surveys are discussed in the following two sections.

The principal characteristics of the 1955 to 2016 Surveys are summarized in Table C-1. The table shows the scope and design of all 12 Surveys.

This appendix provides trend information in two sections (1991 to 2016 and 1955 to 1985). A significant change was made in 1991 in the recall period used in the detailed phase of the FHWAR Surveys. The recall period in 1991 was shortened from the 12 months used in previous Surveys to 4 months in order to improve the accuracy of the data collected. As a result of that change, the Surveys conducted since 1991 cannot be compared with those conducted earlier.

The 1955 to 1985 Surveys required respondents to recall their recreation activities for the survey year at the beginning of the following year. The 1991 to 2016 Surveys went to the respondents two or three times during the survey year to get their activity information. The change in the recall period was due to a study[1] of the effect of the respondent recall length on Survey estimates. The study found significant differences in FHWAR survey results using annual recall periods versus shorter recall periods. Longer recall periods lead to higher estimates. Even when everything else was held constant, such as questionnaire content and sample design, increasing the respondent's recall period resulted in significantly higher estimates for the same phenomenon.

The recall study also found that the extent of recall bias varied for different types of fishing and hunting participation and expenditures. For example, annual recall respondents gave an estimate of average annual days of saltwater fishing that was 46 percent higher than the trimester recall estimate, while the annual recall estimate of average annual saltwater fishing trips was 30 percent higher than the trimester recall estimate. This means there is no single correction factor for all survey estimates when calculating trends from surveys using different recall periods.

Reliable trends analysis needs to use data compiled from surveys in which the important elements, such as the sample design and recall period, are not significantly different.

[1] Investigation of Possible Recall/Reference Period Bias in National Surveys of Fishing, Hunting and Wildlife-Associated Recreation, December 1989, Westat, Inc.

1991 to 2016 Significant Methodological Differences

The most significant design differences in the five 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, 2001, 2006, and 2011 Survey data were collected by the use of computer-assisted interviews. The questionnaires were programmed into computers, and the interviewer keyed in the responses at the time of the interview.

2. The 1991 Survey screening phase was conducted in January and February of 1991, when a household member of the sample households was interviewed on behalf of the entire household. The screening interviews for the 1996, 2001, and 2006 Surveys were conducted April through June of their survey years in conjunction with the first wave of the detailed interviews. The 2011 Survey also conducted screening interviews and the first detailed interviews April through June of 2011, but furthermore had an additional screening and detailed effort from February 2012 to the end of May 2012. The April–June 2011 screening effort had a high noncontact rate because of poor results using sample telephone numbers obtained from a private firm. The Census Bureau went back to the noncontacted component of the original sample in February–May 2012 and interviewed a subsample, requiring annual recall for those respondents. The Wave 3 screen sample was 12,484 of the total 48,600 household screen sample. A modification of the 2011 sampling scheme was to oversample counties that had relatively high proportions of hunting license purchases.

The screening interviews for all five Surveys consisted primarily of demographic questions and wildlife-related recreation questions concerning activity in the previous year (1990, 1995, etc.) and intentions for recreating in the survey year.

In the 1991 Survey, an attempt was made to contact every sample person in all three detailed interview waves. In 1996, 2001, 2006, and 2011 respondents who were interviewed in the first detailed interview wave were not contacted again until the third wave (unless they were part of the other subsample, i.e., a respondent in both the sportsperson and wildlife watching subsamples could be in the

Table C-1. Major Characteristics of Surveys: 1955 to 2016

Characteristic	1955	1960	1965	1970	1975	1980	1985	1991	1996	2001	2006	2011	2016
Survey design:													
Prescreening interview mode and population of interest	X	X	X	X	X	X	X	X	X	X	X	X	Web/ paper, 6 years and older
Screening interview mode and population of interest	Combined with detailed phase	Personal interview, 12 years and older	Personal interview, 9 years and older	Mail questionnaire, 9 years and older	Telephone interview, 6 years and older	Telephone/ personal interview, 6 years and older	Telephone/ personal interview, 6 years and older	Telephone/ personal interview, 6 years and older	Telephone/ personal interview, 6 years and older	Telephone/ personal interview, 6 years and older	Telephone/ personal interview, 6 years and older	Telephone/ personal interview, 6 years and older	Telephone/ personal interview, 6 years and older
Detailed interview mode and population of interest	Personal interview, 12 years and older	Personal interview, 12 years and older. Substantial participants[1]	Personal interview, 12 years and older. Substantial participants[1]	Personal interview, 12 years and older. Substantial participants[2]	Mail questionnaire, 9 years and older	Personal interview, 16 years and older	Personal interview, 16 years and older	Telephone/ personal interview, 16 years and older	Telephone/ personal interview, 16 years and older	Telephone/ personal interview, 16 years and older	Telephone/ personal interview, 16 years and older	Telephone/ personal interview, 16 years and older	Telephone/ personal interview, 16 years and older
Respondent's recall period	1 year	1 year	1 year	1 year	1 year	1 year	1 year	4 months	4-8 months	4-8 months	4-8 months	4-12 months	4-12 months
Sample sizes:													
Prescreening phase (households)	X	X	X	X	X	X	X	X	X	X	X	X	22,725
Screening phase (households)	20,000	18,000	16,000	24,000	106,294	116,025	102,694	102,804	44,000	52,508	66,688	30,400	8,030
Detailed phase (individuals):													
Fishing and hunting	9,328	10,300	6,400	8,700	20,211	30,291	28,011	23,179	13,222	25,070	21,938	11,330	5,640
Wildlife watching[3]	X	X	X	X	X	5,997	26,671	22,723	9,802	15,303	11,279	9,329	6,079
Response rates:													
Screening phase	NA	NA	NA	NA	95 percent	95 percent	93 percent	95 percent	71 percent	75 percent	90 percent	77 percent	83 percent
Detailed phase:													
Fishing and hunting	NA	93 percent	NA	NA	37 percent	90 percent	92 percent	95 percent	80 percent	88 percent	77 percent	67 percent	67 percent
Wildlife watching[3]	X	X	X	X	X	95 percent	94 percent	95 percent	82 percent	90 percent	78 percent	66 percent	64 percent
Level of reporting	National	National	National	National	State and National	State and National	State and National	State and National	State and National	State and National	State and National	State and National	National
Data collection agent	Private contractor	U.S. Census Bureau	U.S. Census Bureau	U.S. Census Bureau	Private contractor	U.S. Census Bureau	U.S. Census Bureau	U.S. Census Bureau	U.S. Census Bureau	U.S. Census Bureau	U.S. Census Bureau	U.S. Census Bureau	U.S. Census Bureau

NA Not available. X Not applicable; wildlife watching (nonconsumptive) interviews were not conducted prior to 1980. Prescreening interview was introduced in 2016.

[1] Spent $5.00 or more or participated 3 days or more during the year.

[2] Spent $7.50 or more or participated 3 days or more during the year.

[3] Termed "nonconsumptive" in 1980, 1985, and 1991 Surveys.

first and third wave of sportsperson interviewing and the second and third wave of wildlife watching interviewing). Also, all interviews in the second wave were conducted only by telephone. In-person interviews were only conducted in the first and third waves. The 2011 Wave 3 screen phase was composed of both telephone and in-person interviews.

Section I. Important Instrument Changes in the 1996 Survey

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

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

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

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

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

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

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

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

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

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

Section II. Important instrument changes in the 2001 Survey

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

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

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

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

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

Table C-2. Anglers and Hunters by Census Division: 1991, 1996, 2001, 2006, 2011, and 2016

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

Area and sportsperson	1991		1996		2001		2006		2011		2016	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
UNITED STATES												
Total population	189,964	100	201,472	100	212,298	100	229,245	100	239,313	100	254,686	100
Sportspersons	39,979	21	39,694	20	37,805	18	33,916	15	37,397	16	39,553	16
Anglers	35,578	19	35,246	17	34,067	16	29,952	13	33,112	14	35,754	14
Hunters	14,063	7	13,975	7	13,034	6	12,510	5	13,674	6	11,453	4
New England												
Total population	10,180	100	10,306	100	10,575	100	11,233	100	11,593	100	12,018	100
Sportspersons	1,658	16	1,673	16	1,504	14	1,353	12	1,441	12	1,485	12
Anglers	1,545	15	1,520	15	1,402	13	1,246	11	1,355	12	1,333	11
Hunters	444	4	465	5	386	4	374	3	420	4	297	2
Middle Atlantic												
Total population	29,216	100	29,371	100	29,806	100	31,518	100	32,392	100	33,368	100
Sportspersons	4,508	15	4,192	14	3,810	13	3,214	10	3,966	12	3,793	11
Anglers	3,871	13	3,627	12	3,250	11	2,550	8	3,496	11	3,471	10
Hunters	1,746	6	1,453	5	1,633	5	1,520	5	1,558	5	884	3
East North Central												
Total population	32,188	100	33,121	100	34,082	100	35,609	100	36,199	100	36,893	100
Sportspersons	7,202	22	6,912	21	6,400	19	5,975	17	6,766	19	7,097	19
Anglers	6,264	19	6,006	18	5,655	17	5,190	15	5,861	16	6,336	17
Hunters	2,789	9	2,712	8	2,421	7	2,376	7	2,688	7	2,737	7
West North Central												
Total population	13,504	100	13,875	100	14,430	100	15,458	100	15,860	100	16,502	100
Sportspersons	4,143	31	3,977	29	4,239	29	3,836	25	3,980	25	3,487	21
Anglers	3,647	27	3,416	25	3,836	27	3,284	21	3,591	23	3,042	18
Hunters	1,709	13	1,917	14	1,710	12	1,779	12	1,661	10	1,364	8
South Atlantic												
Total population	33,682	100	36,776	100	39,286	100	43,965	100	46,417	100	50,611	100
Sportspersons	6,996	21	7,282	20	6,957	18	6,633	15	6,749	15	8,181	16
Anglers	6,441	19	6,636	18	6,451	16	6,116	14	6,163	13	7,394	15
Hunters	2,083	6	2,050	6	1,875	5	1,884	4	1,870	4	1,716	3
East South Central												
Total population	11,667	100	12,459	100	12,976	100	13,722	100	14,206	100	14,968	100
Sportspersons	2,984	26	2,907	23	2,865	22	2,689	20	3,010	21	3,386	23
Anglers	2,635	23	2,514	20	2,543	20	2,436	18	2,444	17	3,061	20
Hunters	1,279	11	1,301	10	1,164	9	1,101	8	1,531	11	*1,256	*8
West South Central												
Total population	19,926	100	21,811	100	23,337	100	25,407	100	27,195	100	30,094	100
Sportspersons	5,125	26	5,093	23	4,924	21	4,499	18	4,855	18	5,694	19
Anglers	4,592	23	4,616	21	4,375	19	3,952	16	4,298	16	5,206	17
Hunters	1,843	9	1,812	8	1,988	9	1,810	7	1,909	7	1,556	5
Mountain												
Total population	10,092	100	11,966	100	13,308	100	15,651	100	17,013	100	18,364	100
Sportspersons	2,488	25	2,761	23	2,757	21	2,372	15	2,976	17	2,941	16
Anglers	2,079	21	2,411	20	2,443	18	2,084	13	2,586	15	2,687	15
Hunters	1,069	11	1,061	9	1,020	8	868	6	1,043	6	946	5
Pacific												
Total population	29,508	100	31,787	100	34,498	100	36,681	100	38,438	100	41,869	100
Sportspersons	4,875	17	4,897	15	4,349	13	3,345	9	3,654	10	3,489	8
Anglers	4,505	15	4,501	14	4,111	12	3,094	8	3,319	9	3,224	8
Hunters	1,101	4	1,203	4	837	2	798	2	996	3	697	2

Table C-3. Wildlife-Watching Participants by Census Division: 1991, 1996, 2001, 2006, 2011, and 2016

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

Area and wildlife watcher	1991		1996		2001		2006		2011		2016	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
UNITED STATES												
Total population	189,964	100	201,472	100	212,298	100	229,245	100	239,313	100	254,686	100
Total wildlife watchers	76,111	40	62,868	31	66,105	31	71,132	31	71,776	30	86,042	34
Away from home	29,999	16	23,652	12	21,823	10	22,977	10	22,496	9	23,720	9
Around the home	73,904	39	60,751	30	62,928	30	67,756	30	68,598	29	81,128	32
New England												
Total population	10,180	100	10,306	100	10,575	100	11,233	100	11,593	100	12,018	100
Total wildlife watchers	4,598	45	3,710	36	3,875	37	4,489	40	3,954	34	4,430	37
Away from home	1,856	18	1,443	14	1,155	11	1,340	12	1,187	10	1,499	12
Around the home	4,544	45	3,586	35	3,765	36	4,310	38	3,858	33	4,336	36
Middle Atlantic												
Total population	29,216	100	29,371	100	29,806	100	31,518	100	32,392	100	33,368	100
Total wildlife watchers	10,556	36	8,185	28	8,740	29	8,723	28	9,118	28	12,170	36
Away from home	4,166	14	2,960	10	2,849	10	2,729	9	2,561	8	3,688	11
Around the home	10,282	35	8,023	27	8,452	28	8,451	27	8,744	27	11,838	35
East North Central												
Total population	32,188	100	33,121	100	34,082	100	35,609	100	36,199	100	36,893	100
Total wildlife watchers	14,511	45	11,731	35	11,631	34	12,215	34	12,840	35	13,348	36
Away from home	5,572	17	4,501	14	3,571	10	3,792	11	3,168	9	2,847	8
Around the home	14,175	44	11,297	34	11,196	33	11,845	33	12,492	35	12,808	35
West North Central												
Total population	13,504	100	13,875	100	14,430	100	15,458	100	15,860	100	16,502	100
Total wildlife watchers	6,924	51	5,089	37	6,206	43	6,741	44	5,479	35	5,322	32
Away from home	2,654	20	1,927	14	2,059	14	2,163	14	1,783	11	1,590	10
Around the home	6,722	50	4,900	35	5,938	41	6,447	42	5,201	33	5,249	32
South Atlantic												
Total population	33,682	100	36,776	100	39,286	100	43,965	100	46,417	100	50,611	100
Total wildlife watchers	13,047	39	11,252	31	11,395	29	12,862	29	13,315	29	17,832	35
Away from home	4,450	13	3,992	11	3,469	9	3,208	7	4,393	9	5,530	11
Around the home	12,813	38	10,964	30	10,911	28	12,432	28	12,767	28	16,502	33
East South Central												
Total population	11,667	100	12,459	100	12,976	100	13,722	100	14,206	100	14,968	100
Total wildlife watchers	4,864	42	3,904	31	4,514	35	4,931	36	4,663	33	5,062	34
Away from home	1,592	14	1,118	9	1,086	8	1,758	13	1,456	10	*498	*3
Around the home	4,765	41	3,795	30	4,390	34	4,683	34	4,394	31	4,907	33
West South Central												
Total population	19,926	100	21,811	100	23,337	100	25,407	100	27,195	100	30,094	100
Total wildlife watchers	7,035	35	5,933	27	5,747	25	6,764	27	7,164	26	8,173	27
Away from home	2,459	12	2,096	10	1,822	8	2,127	8	1,728	6	1,541	5
Around the home	6,817	34	5,773	26	5,490	24	6,319	25	7,087	26	7,763	26
Mountain												
Total population	10,092	100	11,966	100	13,308	100	15,651	100	17,013	100	18,364	100
Total wildlife watchers	4,437	44	4,099	34	4,619	35	4,968	32	5,189	30	6,257	34
Away from home	2,215	22	1,967	16	2,019	15	2,004	13	2,230	13	3,119	17
Around the home	4,145	41	3,855	32	4,282	32	4,605	29	4,716	28	4,883	27
Pacific												
Total population	29,508	100	31,787	100	34,498	100	36,681	100	38,438	100	41,869	100
Total wildlife watchers	10,139	34	8,966	28	9,377	27	9,439	26	10,054	26	13,448	32
Away from home	5,035	17	3,648	11	3,793	11	3,856	11	3,990	10	3,408	8
Around the home	9,641	33	8,558	27	8,504	25	8,664	24	9,337	24	12,842	31

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

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

8. The 1996 Survey included questions about the months around-the-home 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.

Section III. Important instrument changes in the 2006 Survey

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

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

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

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

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

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

7. Disability of participants questions were taken out.

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

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

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

Section IV. Important instrument changes in the 2011 Survey

1. The series of boating questions added in 2006 was deleted.

2. Questions about target shooting and the usage of a shooting range in preparation for hunting were added. The types of weapon used at the shooting range were quantified.

3. Questions about plantings expenditures for the purpose of hunting were added.

4. "Feral pig" was recategorized from big game to other animals for all states except Hawaii.

5. "Ptarmigan" was included as its own small game category, instead of lumped in "other."

6. In previous Surveys, "Moose" was included as its own category only for Alaska. For 2011, "Moose" was included as its own big game category, instead of lumped in "other," for all 50 states.

7. In previous Surveys, "Wolf" was included as its own category only for Alaska. For 2011, "Wolf" was included as its own other animal category, instead of lumped in "other," for all 50 states.

8. The household income categories were modified. The top categories were changed from "$100,000 or more" to "$100,000 to $149,999" and "$150,000 or more."

9. The "Steelhead" category was deleted from the saltwater fish species section, with the idea that it would be included in "other."

10. The 2006 around-the-home wildlife-watching category that quantified visitors of "public parks or areas" was rewritten to wildlife watching at "parks or natural areas." This change was to make clear that respondents should include recreating at quasi-governmental and private areas.

11. The 2006 wildlife watching equipment category "Film and developing" was rewritten to "Film and photo processing."

Section V. Important instrument changes in the 2016 Survey

1. Recreational archery and target shooting with firearms questions were added to the screening instrument. These questions were not asked only of hunters; they were general population questions.

2. The around-the-home wildlife watching questions in the screening instrument were changed from asking about four types of wildlife watching (observing, photographing, feeding, and maintaining natural areas or plantings for the benefit of wildlife) to asking one question (wildlife watching around the home).

3. The contingent valuation questions were deleted. These were the valuation questions for moose, elk, and deer hunting, walleye, trout, and black bass fishing, and away-from-home wildlife watching.

4. The questions in the special equipment section asking if the respondent would have bought the item if they had not gone hunting, fishing, or wildlife watching were deleted.

5. The screening instrument was redesigned to ask the 2016 participation of household members 16 years old and older at the beginning of the interview. If the household member participated in 2016, the rest of the activity section in the screener, which covered participation in 2015, was skipped. The household member was selected for the detailed interview in the case of fishing and hunting. For wildlife watching, the household member was eligible for selection for the detailed interview.

1955 to 1985 Significant Methodological Differences

1955 to 1970 Surveys

The 1955 to 1970 Surveys included only substantial participants. Substantial participants were defined as people who participated at least three days and/or spent at least $5 (the 1955–1965 Surveys) or $7.50 (the 1970 Survey) during the surveyed year. Under most circumstances, the Surveys may be compared for totals, but the effects of differences should be considered when comparing the details of the Surveys.

The 1960, 1965, and 1970 Surveys differed from the 1955 National Survey in classification of expenditures as outlined below.

1. Alaska and Hawaii were not included in the 1955 Survey.

2. Expenditure categories were more detailed in 1970 than in earlier Surveys.

3. The 1960 to 1970 classification of some expenditures differs from the 1955 Survey in the following respects:

   a. "Boats and boat motors" shown under "auxiliary equipment" were included in "equipment, other" in 1955.

   b. "Entrance and other privilege fees" asked separately were included in "trip expenditures, other" in 1955.

   c. "Snacks and refreshments" not included with "food" expenditures in the 1960 to 1970 reports were under "trip expenditures, other" in 1955.

   d. Starting in 1960, expenditures on equipment, magazines, club dues, licenses, and similar items were classified by the one sport activity for which expenditures were chiefly made. In 1955, these expenditures were evenly divided among all the activities in which the sportsperson took part.

   e. Compared with 1955, the 1960 to 1970 Surveys reported fewer expenditures within the "other" category because selected items were transferred to more appropriate categories.

   f. Expenditures on alcoholic beverages were reported separately in the 1970 Survey.

4. The number of waterfowl hunters in the 1970 Survey is not comparable with those reported in the 1960 and 1965 Surveys. In 1960 and 1965, respondent sportspersons were not included in the waterfowl hunter total if they reported that they went waterfowl hunting but did not take the trip chiefly to hunt waterfowl. In 1970, all respondents who reported that they had hunted waterfowl during 1970, regardless of trip purpose, were included in the total. The number of hunters who did not take trips chiefly to hunt waterfowl in 1970 was 1,054,000.

1975 Survey

In contrast to previous Surveys which covered substantial participants 12 years old and older, the 1975 Survey based all the estimates on responses from individuals 9 years of age and older and did not select respondents based upon substantial participation as defined above. As a result, individuals who participated fewer than three days or spent less than $7.50 on hunting or fishing were included in the estimates of participants, days of activity, and expenditures.

Categories of hunting and fishing expenditures differed from the previous four Surveys in that only major categories were reported. For example, hunting equipment expenditures were not further delineated by subcategory. Similarly, no detail was provided within the category of fishing equipment expenditures. Expenses for items such as daily entrance fees, magazines, club dues, and dogs were categorized as "other" in the 1975 report.

In addition to the above differences, the 1975 Survey gathered data on species sought for the favorite hunting and fishing activity. This data replaced the "chiefly" category where hunting or fishing was the primary purpose of the trip or day of activity. Data omitted in the 1975 Survey that were included in previous Surveys include the respondents' population density of residence, occupation, and level of education.

Table C-4. Comparison of Major Findings of the National Surveys: 1955 to 1985

(U.S. population 12 years and older. Numbers in thousands)

Sportspersons	1955	1960	1965	1970	1975	1980	1985
Total sportspersons	**24,917**	**30,435**	**32,881**	**36,277**	**45,773**	**46,966**	**49,827**
Anglers	20,813	25,323	28,348	33,158	41,299	41,873	45,345
Freshwater	18,420	21,677	23,962	29,363	36,599	35,782	39,122
Saltwater	4,557	6,292	8,305	9,460	13,738	11,972	12,893
Hunters	11,784	14,637	13,583	14,336	17,094	16,758	16,340
Small game	9,822	12,105	10,576	11,671	14,182	12,496	11,130
Big game	4,414	6,277	6,566	7,774	11,037	11,047	12,576
Waterfowl	1,986	1,955	1,650	2,894	4,284	3,177	3,201
Expenditures[1]	**11,401,464**	**13,948,974**	**14,991,502**	**19,618,548**	**33,398,677**	**34,517,421**	**42,058,860**
Anglers	7,655,522	9,743,971	9,952,411	13,699,311	23,498,506	23,387,469	28,585,686
Freshwater	5,700,187	7,476,454	7,231,851	10,315,966	17,333,212	16,663,239	18,942,060
Saltwater	1,955,336	2,267,512	2,720,574	3,383,345	6,165,294	5,581,976	7,191,387
Hunters	3,745,942	4,204,997	3,814,303	5,919,236	9,900,171	10,812,058	10,256,668
Small game	1,975,707	2,629,360	2,093,137	2,612,390	4,525,942	3,335,852	2,342,860
Big game	1,295,357	1,251,800	1,424,711	2,631,532	4,238,341	5,638,395	5,345,606
Waterfowl	474,878	323,840	296,452	675,315	1,135,889	766,033	783,315
Days	**566,870**	**658,308**	**708,578**	**909,876**	**1,459,551**	**1,300,983**	**1,415,379**
Fishing	397,447	465,769	522,759	706,187	1,058,075	952,420	1,064,986
Freshwater	338,826	385,167	426,922	592,494	890,576	788,392	895,027
Saltwater	58,621	80,602	95,837	113,694	167,499	164,040	171,055
Hunting	169,423	192,539	185,819	203,689	401,476	348,543	350,393
Small game	118,630	138,192	128,448	124,041	269,653	225,793	214,544
Big game	30,834	39,190	43,845	54,536	100,600	117,406	135,447
Waterfowl	19,959	15,158	13,526	25,113	31,223	26,179	25,933

[1] In 1985 dollars.

Note: Methodological differences described in the text make the estimates in this table not comparable with the estimates in Tables C-2 and C-3.

1980 to 1985 Surveys

The 1980 and 1985 Surveys were similar. Each measured participants, rather than substantial participants. Questions were incorporated into the 1980 and 1985 Survey questionnaires to facilitate the construction of categories of data for comparisons with earlier Surveys. The use of "chiefly" to delimit primary purpose appeared in the 1970 and prior Surveys, and its use was continued in the 1980 and 1985 Surveys. The expenditure categories in 1980 and 1985 are similar to the 1970 categories with the addition of fish finders, motor homes, and camper trucks as separate categories. The definition of fishing included the use of nets or seines and spearfishing. An extensive wildlife watching section was added in 1980, necessitating a separate detailed phase subsample.

As in the 1970 and 1975 Surveys, the 1980 and 1985 Surveys used a two-phase process to gather information from households and individuals. In the first phase, household respondents were asked to identify each participant six years of age and older who resided in their household. In comparison, the 1975 and 1970 Surveys screened households for participants who were nine years of age and older. In the second phase, the detailed interview phase, interviews were conducted in person for the 1985, 1980, and 1970 Surveys and were conducted by mail for the 1975 Survey. Participants were included in the detailed phase of the Survey if they were at least 12 years old in 1970, 9 years old in 1975, and 16 years old in 1980 and 1985. As a result, the population of hunters and anglers was more narrowly defined in 1980 and 1985. However, estimates of sportspersons 6 years old and older, 9 years old and older, and 12 years old and older, derived from the screening phase, are available for comparison with past Surveys.

Regional Trends

Section I. Most recent trends

This trends section covers the period from 1991 to 2016. The 1991, 1996, 2001, 2006, 2011, and 2016 Surveys used similar methodologies, making all published information for the six Surveys directly comparable.

Section II. Historical trends

This trends section covers the period from 1955 to 1985. The methodology of these Surveys differed (see above), but approximate correction factors were estimated.

Table C-5. Anglers and Hunters by Census Division: 1955 to 1985

(U.S. population 12 years and older. Numbers in thousands)

Year	Population		Sportsperson, fished or hunted		Anglers		Hunters	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
UNITED STATES								
1955	118,366	100	24,917	21.1	20,813	17.6	11,784	10.0
1960	131,226	100	30,435	23.2	25,323	19.3	14,637	11.2
1965	141,928	100	32,881	23.2	28,348	20.0	13,585	9.6
1970	155,230	100	36,277	23.4	33,158	21.4	14,336	9.2
1975	171,860	100	45,773	26.6	41,299	24.0	17,094	9.9
1980	184,691	100	46,966	25.4	41,873	22.7	16,758	9.1
1985	195,659	100	49,827	25.5	45,345	23.2	16,340	8.4
New England								
1955	7,919	100	1,224	15.4	1,002	12.7	589	7.4
1960	8,349	100	1,368	16.4	1,205	14.4	517	6.2
1965	9,256	100	1,650	17.8	1,488	16.0	583	6.3
1970	8,652	100	1,579	18.3	1,430	16.5	582	6.7
1975	9,910	100	2,004	20.2	1,861	18.8	566	5.7
1980	10,205	100	1,974	19.3	1,788	17.5	572	5.6
1985	10,554	100	2,058	19.5	1,914	18.1	552	5.2
Middle Atlantic								
1955	24,869	100	3,539	14.2	2,811	11.3	1,608	6.5
1960	26,493	100	3,432	13.0	2,569	9.7	1,723	6.5
1965	27,346	100	3,602	13.2	2,760	10.1	1,631	6.0
1970	28,244	100	4,539	16.1	4,504	14.4	1,731	6.1
1975	30,449	100	5,919	19.4	5,097	16.7	2,096	6.9
1980	30,256	100	5,181	17.1	4,332	14.3	2,001	6.6
1985	31,099	100	5,565	17.9	4,820	15.5	1,972	6.3
East North Central								
1955	25,733	100	5,489	21.3	4,583	17.8	2,538	9.9
1960	26,833	100	6,316	32.5	5,317	19.8	2,985	11.1
1965	28,124	100	6,214	22.1	5,336	19.0	2,563	9.1
1970	31,550	100	7,284	23.1	6,699	21.2	2,812	8.9
1975	32,796	100	9,049	27.6	8,181	24.9	3,392	10.3
1980	33,526	100	8,725	26.0	7,891	23.5	2,955	8.8
1985	33,747	100	8,973	26.6	8,270	24.5	2,814	8.3
West North Central								
1955	9,201	100	2,913	31.7	2,346	25.5	1,534	16.7
1960	10,149	100	3,383	33.3	2,855	28.1	1,709	16.8
1965	11,681	100	3,678	31.5	3,226	27.6	1,620	13.9
1970	12,904	100	4,000	31.0	3,579	27.7	1,783	13.8
1975	13,564	100	4,524	33.3	4,089	30.1	1,863	13.7
1980	13,826	100	4,770	34.5	4,220	30.5	1,965	14.2
1985	14,137	100	5,140	36.4	4,681	33.1	1,971	13.9
South Atlantic								
1955	14,336	100	3,223	22.5	2,805	19.6	1,449	10.1
1960	17,798	100	4,423	24.9	3,695	20.8	2,045	11.5
1965	20,593	100	5,626	27.3	5,054	24.5	1,900	9.2
1970	23,539	100	5,461	23.2	5,129	21.8	1,904	8.1
1975	27,127	100	7,110	26.2	6,479	23.9	2,494	9.2
1980	30,512	100	7,769	25.5	7,086	23.2	2,444	8.0
1985	33,636	100	8,721	25.9	8,056	24.0	2,467	7.3
East South Central								
1955	7,959	100	1,963	24.7	1,665	20.9	989	12.4
1960	9,277	100	2,778	29.9	2,207	23.8	1,510	16.3
1965	9,652	100	2,587	26.8	2,201	22.8	1,294	13.4
1970	9,862	100	2,660	27.0	2,464	25.0	1,162	11.8
1975	10,798	100	3,007	27.8	2,689	24.9	1,355	12.5
1980	11,771	100	3,614	30.7	3,173	27.0	1,567	13.3
1985	12,364	100	3,671	29.7	3,308	26.8	1,441	11.7

Table C-5. Anglers and Hunters by Census Division: 1955 to 1985—Continued

(U.S. population 12 years old and older. Numbers in thousands)

Year	Population		Sportsperson, fished or hunted		Anglers		Hunters	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
West South Central								
1955	10,250	100	2,560	25.0	2,237	21.8	1,165	11.4
1960	11,837	100	3,666	31.0	3,133	26.5	1,750	14.8
1965	12,724	100	3,713	29.2	3,278	25.8	1,571	12.3
1970	14,624	100	4,380	30.0	4,006	27.4	1,918	13.1
1975	16,628	100	5,781	34.8	5,267	31.7	2,563	15.4
1980	19,136	100	5,862	30.6	5,136	26.8	2,456	12.8
1985	21,184	100	6,418	30.3	5,704	26.9	2,572	12.1
Mountain								
1955	4,529	100	1,369	30.2	1,112	24.6	796	17.6
1960	5,222	100	1,646	31.5	1,372	26.3	1,120	21.4
1965	5,029	100	1,565	31.1	1,261	25.1	988	19.6
1970	5,656	100	2,044	36.1	1,769	31.3	980	17.3
1975	7,576	100	2,570	33.9	2,252	29.7	1,159	15.3
1980	9,160	100	2,903	31.7	2,500	27.3	1,268	13.8
1985	10,215	100	3,128	30.6	2,765	27.1	1,241	12.1
Pacific								
1955	13,570	100	2,637	19.4	2,252	16.6	1,116	8.2
1960	15,268	100	3,422	22.4	2,971	19.5	1,279	8.4
1965	17,523	100	4,246	24.2	3,744	21.4	1,433	8.2
1970	20,199	100	4,332	21.4	4,030	20.0	1,466	7.3
1975	23,012	100	5,811	25.2	5,386	23.4	1,607	7.0
1980	26,299	100	6,168	23.5	5,747	21.9	1,531	5.0
1985	38,725	100	6,154	21.4	5,829	20.3	1,310	4.6

Note: Methodological differences described in the text make the estimates in this table not comparable with the estimates in Tables C-2 and C-3.

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 2016 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 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, Tables D-1 through D-5, reports approximate standard errors and 95-percent confidence intervals for selected measures of participation and expenditures for wildlife-related recreation.

Source and Accuracy Statement for the United States of America National Report of the *2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*

SOURCE OF DATA

The estimates in this report are based on data collected in the 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (FHWAR) conducted by the U.S. Census Bureau and sponsored by the U.S. Fish and Wildlife Service.

The eligible universe for the FHWAR is the household population.

The 2016 Survey was designed to provide national-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 three stages: an initial brief prescreening of households to identify households with likely sportspersons and wildlife-watching participants, a more in-depth personal screener, and a series of follow-up interviews of selected persons to collect detailed data about their wildlife-related recreation during 2016.

SAMPLE DESIGN

The 2016 FHWAR sample was selected from the Census Bureau's master address file (MAF).

The FHWAR is a multistage probability sample, with coverage in all 50 states and the District of Columbia. In the first stage of the sampling process, primary sampling units (PSUs) are selected for sample. The PSUs are defined to correspond to the Office of Management and Budget definitions of Core Based Statistical Area definitions and to improve efficiency in field operations. The United States was divided into 2,013 PSUs. These PSUs were grouped into 753 strata. Within each stratum, a single PSU was chosen for the sample, with its probability of selection proportional to the household population of the PSU. This PSU represents the entire stratum from which it was selected. In the case of strata consisting of only one PSU, the PSU was chosen with certainty.

Within the selected PSUs, the FHWAR sample was selected from the MAF.

FHWAR Prescreener and Screening Sample

A prescreener, self-response questionnaire for the 2016 FHWAR was used to determine whether any members in the selected households were planning to participate in fishing, hunting or wildlife-watching activities in 2016. Those indicating that a household member was planning to participate received a more in-depth follow-up screener interview to determine which household members were participants. A subsample of households not responding to the prescreener were selected for the more in-depth follow-up screener via personal visit by a Census Bureau field representative.

The total prescreening sample in United States consisted of about 22,700 households. The prescreener data collection was conducted during January and February 2016. A total of 4,030 households were selected from the responding prescreener households to receive a computer assisted telephone interview (CATI). An additional 4,000 households were selected from prescreener households where a phone number was not reported and nonresponding prescreener households to receive the more in-depth screener interviews via a personal computer assisted interview (CAPI). About 2,800 prescreener households indicated that nobody in the household was going to participate. These households were considered complete interviews and no further follow-up was conducted. Interviewing for the in-depth screener was conducted during April and May 2016. Noncontacts and refusal cases via the screener CATI resulted in an additional attempt via personal visit in September and October 2016. Of all housing units in sample, about 9,980 were determined to be eligible for interview. Interviewers obtained interviews at 8,890 of these units for a national response rate of 89 percent.[1] The national weighted response rate was 83 percent. The interviewers asked screening questions for all household members 6 years and older. Noninterviews occurred when the occupants were not found at home after repeated calls or were unavailable for some other reason.

[1] Response rates are calculated by using AAPOR's Response Rate 2 formula.

Data for the FHWAR sportsperson sample and wildlife-watcher sample were collected in three waves. The first wave started in April 2016, the second in September 2016, and the third in January 2017. In the sportsperson sample, all persons who hunted or fished in 2016 by the time of the screening interview were interviewed in the first wave. The remaining sportspersons in sample were interviewed in the second wave. The reference period was the preceding 4 months for Waves 1 and 2.[2] In Wave 3, the reference period was either 4, 8, or 12 months depending on when the sample person was first interviewed.

Detailed Samples

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

A. Sportspersons

The Census Bureau selected the detailed samples based on information reported during the in-depth screening phase. Based on information collected from the household respondent, every person 16 years and older in the FHWAR screening sample was assigned to a sportsperson stratum. The criteria for the strata included time devoted to hunting or fishing in previous years, participation in hunting or fishing in 2016 by the time of the in-depth screening interview, and intentions to participate in hunting and fishing activities during the remainder of 2016. The four sportsperson categories were:

1. *Active*—a person who had already participated in hunting or fishing in 2016 at the time of the in-depth screener interview.
2. *Likely*—a person who had not participated in 2016 at the time of the in-depth screener, but had participated in 2015 or was likely to participate in 2016.
3. *Inactive*—a person who had not participated in 2015 or 2016 and was somewhat unlikely to participate in 2016.
4. *Nonparticipant*—a person who had not participated in 2015 or 2016 and was very unlikely or not going to participate in 2016.

Active sportspersons were given the detailed interview twice—at the time of the in-depth screening interview (in April or May 2016) and again in January or February 2017. Likely sportspersons and inactive sportspersons were also interviewed twice—first in September or October 2016, then in January or February 2017. Almost 5,650 persons were designated for interviews in the United States. During each interview period, about 30 percent of the designated persons were not found at home or were unavailable for some other reason. Overall, about 3,950 detailed sportsperson interviews were completed at a response rate of 70 percent. The weighted response rate for the sportsperson interviews was 67 percent.

B. Wildlife Watchers

The wildlife-watching detailed sample was also selected based on information reported during the in-depth screening phase. Based on information collected from the household respondent, every person 16 years and older was assigned to a stratum. The criteria for the strata included time devoted to wildlife-watching activities in previous years, participation in wildlife-watching activities in 2016 by the time of the in-depth screening interview, and intentions to participate in wildlife-watching activities during the remainder of 2016. The five wildlife-watching categories were:

1. *Active*—a person who had already participated in 2016 at the time of the in-depth screening interview.
2. *Avid*—a person who had not yet participated in 2016, but in 2015 had taken trips to participate in wildlife-watching activities for 21 or more days or had spent $300 or more.
3. *Average*—a person who had not yet participated in 2016, but in 2015 had taken trips to wildlife watch for less than 21 days and had spent less than $300 or had not participated in wildlife-watching activities but was very likely to in the remainder of 2016.
4. *Infrequent*—a person who had not participated in 2015 or 2016 but was somewhat likely or somewhat unlikely to participate in the remainder of 2016.
5. *Nonparticipant*—a person who had not participated in 2015 or 2016 and was very unlikely to participate during the remainder of 2016.

Wildlife-watching participants were given the detailed interview twice. Some received their first detailed interview at the same time as the in-depth screening interview (in April or May 2016). The rest received their first detailed interview in September or October 2016. All wildlife-watching participants received their second interview in January or February 2017. About 6,100 persons were designated for interviews in the United States. During each interview period, about 34 percent of the designated persons were not found at home or were unavailable for some other reason. Overall, about 4,000 detailed wildlife-watcher interviews were completed at a response rate of 66 percent. The weighted response rate for the wildlife-watchers was 64 percent.

ESTIMATION PROCEDURE

Several stages of adjustments were used to derive the final 2016 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 in-depth screening interview. Statistics for the population 16 years and older come from both the in-depth screening and detailed interviews. Estimates that come from the in-depth screening sample are presented in Appendix B.

A. Screening Sample

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

1. *Base Weight.* The base weight is the inverse of the household's prob-

[2] The reference period for the Wave 1 CATI sample cases selected for a Wave 2 personal visit was between 8 and 10 months.

ability of selection including the subsampling from the prescreener sample.

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

3. *First-Stage Adjustment.* The 753 areas designated for our samples were selected from 2,013 such areas of the United States. Some sample areas represent only themselves and are referred to as self-representing. The remaining areas represent other areas similar in selected characteristics and are thus designated non-self-representing. The first-stage factor reduces the component of variation arising from sampling the non-self-representing areas.

4. *Second-Stage Adjustment.* This adjustment brings the estimates of the total population into agreement with census-based estimates of the household population.

B. Sportsperson Sample

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

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

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

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

C. Wildlife-Watchers Sample

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

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

2. *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 whom no in-depth interview was obtained. A person was considered a noninterview if he or she was not interviewed in the third wave of interviewing.

3. *Wildlife-Watchers Ratio Adjustment Factor.* This is a ratio adjustment of the detailed sample to the in-depth screening sample within the wildlife-watchers sampling strata. This adjustment brings the population estimates of persons 16 years and older from the detailed sample into agreement with the same estimates from the in-depth screening sample.

ACCURACY OF THE ESTIMATES

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

NONSAMPLING ERROR

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

- The interviewer records the wrong answer, the respondent provides incorrect information, the respondent estimates the requested information, or an unclear survey question is misunderstood by the respondent (measurement error).
- Some individuals who should have been included in the survey frame were missed (coverage error).
- Responses are not collected from all those in the sample or the respondent is unwilling to provide information (nonresponse error).
- Values are estimated imprecisely for missing data (imputation error).
- Forms may be lost; data may be incorrectly keyed, coded, or recoded, etc. (processing error).

The Census Bureau employs quality control procedures throughout the production process, including the overall design of surveys, the wording of questions, and the review of the work of interviewers and coders, to minimize these errors. Two types of nonsampling error that can be examined to a limited extent are nonresponse and undercoverage.

Nonresponse. The effect of nonresponse cannot be measured directly, but one indication of its potential effect is the nonresponse rate. For the FHWAR in-depth screener interview in the United States, the household-level nonresponse rate was 11 percent. The person-level nonresponse rate for the detailed sportsperson interview in the United States was an additional 30 percent and for the wildlife watchers, it was 34 percent. Since the in-depth screener nonresponse rate is a household-level rate and the detailed interview nonresponse rate is a person-level rate, we cannot combine these rates to derive an overall nonresponse rate. Since it is unlikely the nonresponding households to the FHWAR

have the same number of persons as the households successfully interviewed, combining these rates would result in an overestimate of the "true" person-level overall nonresponse rate for the detailed interviews.

Coverage. Overall screener undercoverage is estimated to be about 14 percent. Ratio estimation to independent population controls, as described previously, partially corrects for the bias due to survey undercoverage. However, biases exist in the estimates to the extent that missed persons in missed households or missed persons in interviewed households have different characteristics from those of interviewed persons in the same age group.

Comparability of Data. Data obtained from the 2016 FHWAR and other sources are not entirely comparable. This results from differences in interviewer training and experience and in differing survey processes. This is an example of nonsampling variability not reflected in the standard errors. Therefore, caution should be used when comparing results from different sources. (See Appendix C.)

Nonsampling Error Warning. Since the full extent of the nonsampling error is unknown, one should be particularly careful when interpreting results based on small differences between estimates. The Census Bureau recommends that data users incorporate information about nonsampling errors into their analyses, as nonsampling error could impact the conclusions drawn from the results. Caution should also be used when interpreting results based on a relatively small number of cases. Summary measures (such as medians and percentage distributions) probably do not reveal useful information when computed on a subpopulation smaller than 997,000 for screener data; 1,605,000 for the detailed sportsperson data; and 1,578,000 for the wildlife-watchers data.

SAMPLING ERROR

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

Standard Errors and Their Use. The sample estimate and its standard error enable one to construct a confidence interval. A confidence interval is a range that has a known probability of including the average result of all possible samples. For example, if all possible samples were surveyed under essentially the same general conditions and using the same sample design, and if an estimate and its standard error were calculated from each sample, then approximately 95 percent of the intervals from 1.96 standard errors below the estimate to 1.96 standard errors above the estimate would include the average result of all possible samples. A particular confidence interval may or may not contain the average estimate derived from all possible samples. However, one can say with specified confidence that the interval includes the average estimate calculated from all possible samples. Standard errors may also be used to perform hypothesis testing, a procedure for distinguishing between population parameters using sample estimates. The most common type of hypothesis is that the population parameters are different. An example would be comparing the proportion of anglers to the proportion of hunters. Tests may be performed at various levels of significance. A significance level is the probability of concluding that the characteristics are different when, in fact, they are the same. For example, to conclude that two characteristics are different at the 0.05 level of significance, the absolute value of the estimated difference between characteristics must be greater than or equal to 1.96 times the standard error of the difference. This report uses 95-percent confidence intervals and 0.05 level of significance to determine statistical validity. Consult standard statistical textbooks for alternative criteria.

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

Generalized Variance Parameters. While it is possible to compute and present an estimate of the standard error based on the survey data for each estimate in a report, there are a number of reasons why this is not done. A presentation of the individual standard errors would be of limited use, since one could not possibly predict all of the combinations of results that may be of interest to data users. Additionally, data users have access to FHWAR microdata files, and it is impossible to compute in advance the standard error for every estimate one might obtain from those data sets. Moreover, variance estimates are based on sample data and have variances of their own. Therefore, some methods of stabilizing these estimates of variance, for example, by generalizing or averaging over time, may be used to improve their reliability. Experience has shown that certain groups of estimates have similar relationships between their variances and expected values. Modeling or generalizing may provide more stable variance estimates by taking advantage of these similarities. The generalized variance function is a simple model that expresses the variance as a function of the expected value of the survey estimate. The parameters of the generalized variance function are estimated using direct replicate variances. These generalized variance parameters provide a relatively easy method to obtain approximate standard errors for numerous characteristics. Table D-5 provides the generalized variance parameters for FHWAR data. Methods for using the parameters to calculate standard errors of various estimates are given in the next sections.

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

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

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

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

$$s_x \quad \sqrt{\quad ax^2 + b\overline{x} + y^2 cx} \tag{2}$$

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

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

Suppose there were an estimated 39,553,000 persons 16 years and older who either fished or hunted in the United States in 2016. Using formula (1) with the parameters a = - 0.000345 and b = 87,738 from Table D-5, the approximate standard error of the estimated number of 39,553,000 sportspersons 16 years and older is

$$s_x = \sqrt{-0.000345 * 39{,}553{,}000^2 + 87{,}738 * 39{,}553{,}000} = 1{,}711{,}891$$

The 95-percent confidence interval for the estimated number of sportspersons 16 years and older is from 36,198,000 to 42,908,000, i.e., 39,553,000 ± 1.96 x 1,711,891. 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 95 percent of all possible samples.

Suppose there were an estimated 11,453,000 hunters 16 years and older who engaged in 184,021,000 days of participation in 2016. Using formula (2) with the parameters a = 0.006569, b = -1,131,130, and c = 303,313 from Table D-5, the approximate standard error on 184,021,000 estimated days on an estimated base of 11,453,000 hunters is

$$s_x = \sqrt{0.006569 * 184{,}021{,}000^2 - 1{,}131{,}130 * 184{,}021{,}000 + \frac{303{,}313 * 184{,}021{,}000^2}{11{,}453{,}000}} = 30{,}185{,}000$$

The 95-percent confidence interval on the estimate of 184,021,000 days is from 124,858,000 to 243,184,000, i.e., 184,021,000 ± 1.96 x 30,185,000. Again, a conclusion that the average estimate derived from all possible samples lies within a range computed in this way would be correct for roughly 95 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

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

Here, x is the total number of sportspersons, hunters, etc., which is the base of the percentage; p is the percentage; and b is the parameter in the tables associated with the characteristic in the numerator of the percentage.

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

Suppose there were an estimated 11,453,000 hunters 16 years and older of whom 20.5 percent hunted migratory birds. From Table D-5, the appropriate *b* parameter is 82,275. Using formula (3), the approximate standard error on the estimate of 20.5 percent is

$$s_{x,p} = \sqrt{\frac{82{,}275 * 20.5 * (100 - 20.5)}{11{,}453{,}000}} = 3.42$$

Consequently, the 95-percent confidence interval for the estimate percentage of migratory bird hunters 16 years and older is from 13.8 percent to 27.2 percent, i.e., 20.5 ± 1.96 x 3.42.

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

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

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

Illustration of the Computation of the Standard Error of a Difference

Suppose there were an estimated 10,463,000 females in the age range of 18 to 24 years of whom 630,000 or 6.0 percent were sportspersons. Similarly, suppose there were an estimated 11,205,000 males in the same age range of whom 1,814,000 or 16.2 percent were sportspersons. The apparent difference between the percentage of female and male sportspersons is 10.2 percent. Using formula (3) and the appropriate *b* parameter from table D-5, the approximate standard errors of 6.0 percent and 16.2 percent are 2.17 and 3.26, respectively. Using formula (4), the approximate standard error of the estimated difference of 10.2 percent is

$$s_{x-y} = \sqrt{2.17^2 + 3.26^2} = 3.92$$

The 95-percent confidence interval on the difference between 18- to 24-year-old female and male sportspersons is from 2.5 to 17.9, i.e., 10.2 ± 1.96 x 3.92. Since the interval does not contain zero, we can conclude with 95 percent confidence that the percentage of 18- to 24-year-old female sportspersons is less than the percentage of 18- to 24-year-old male sportspersons.

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

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

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

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

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

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

Suppose that the estimated number of the average days per angler 16 years and older for all fishing was 12.8 days. Using formulas (1) and (2) above, we compute the standard error on total days, 459,341,000, and total anglers, 35,754,000, to be 55,698,627 and 1,641,936, respectively. The approximate standard error on the estimated average of 12.8 days is

$$s_{x/y} = \frac{459{,}341{,}000}{35{,}754{,}000}\sqrt{\left[\frac{55{,}698{,}627}{459{,}341{,}000}\right]^2 + \left[\frac{1{,}641{,}936}{35{,}754{,}000}\right]^2 - 2 * 0.7\frac{55{,}698{,}627 * 1{,}641{,}936}{459{,}341{,}000 * 35{,}754{,}000}} = 1.22$$

Therefore, the 95-percent confidence interval on the estimated average of 12.8 days is from 10.4 to 15.2, i.e., 12.8 ± 1.96 x 1.22.

Table D–1. Approximate Standard Errors and 95-Percent Confidence Intervals for Selected Fishing Estimates: 2016

Anglers, days, and expenditures	Estimate	Standard error	Lower 95 percent	Upper 95 percent
ANGLERS (thousands)				
Total	**35,754**	**1,642**	**32,536**	**38,972**
Freshwater	30,137	1,527	27,145	33,129
Freshwater, except Great Lakes	29,490	1,512	26,526	32,454
Great Lakes	1,824	399	1,043	2,605
Saltwater	8,320	840	6,673	9,967
DAYS OF FISHING (thousands)				
Total	**459,341**	**55,699**	**350,170**	**568,512**
Freshwater	383,192	48,551	288,032	478,352
Freshwater, except Great Lakes	372,660	47,465	279,628	465,692
Great Lakes	13,440	4,419	4,779	22,101
Saltwater	75,392	13,840	48,265	102,519
Average Days Per Angler				
Total	**12.8**	**1.2**	**10.5**	**15.2**
Freshwater	12.7	1.2	10.3	15.2
Freshwater, except Great Lakes	12.6	1.2	10.2	15.1
Great Lakes	7.4	1.7	4.0	10.8
Saltwater	9.1	1.2	6.7	11.4
FISHING EXPENDITURES (thousands of dollars)				
Total	**$46,115,118**	**$7,250,349**	**$31,904,435**	**$60,325,801**
Freshwater	$29,896,064	$4,749,974	$20,586,116	$39,206,012
Freshwater, except Great Lakes	$27,518,014	$4,379,278	$18,934,630	$36,101,398
Great Lakes	$2,246,114	$676,207	$920,748	$3,571,480
Saltwater	$11,199,380	$2,154,666	$6,976,234	$15,422,526
Average Expenditure Per Angler (dollars)				
Total	**$1,290**	**$167**	**$963**	**$1,617**
Freshwater	$992	$128	$742	$1,242
Freshwater, except Great Lakes	$933	$120	$698	$1,168
Great Lakes	$1,232	$265	$713	$1,751
Saltwater	$1,346	$190	$973	$1,719

Table D–2. Approximate Standard Errors and 95-Percent Confidence Intervals for Selected Hunting Estimates: 2016

Hunters, days, and expenditures	Estimate	Standard error	Lower 95 percent	Upper 95 percent
HUNTERS (thousands)				
Total	**11,453**	**949**	**9,594**	**13,312**
Big game	9,208	854	7,533	10,883
Small game	3,505	533	2,460	4,550
Migratory birds	2,353	438	1,495	3,211
Other animals	1,315	328	672	1,958
DAYS OF HUNTING (thousands)				
Total	**184,021**	**30,185**	**124,859**	**243,183**
Big game	132,665	23,352	86,896	178,434
Small game	38,306	9,659	19,375	57,237
Migratory birds	15,621	3,923	7,932	23,310
Other animals	13,275	5,176	3,130	23,420
Average Days Per Hunter				
Total	**16.1**	**2.0**	**12.2**	**19.9**
Big game	14.4	1.9	10.8	18.1
Small game	10.9	2.0	7.0	14.8
Migratory birds	6.6	1.2	4.3	9.0
Other animals	10.1	2.8	4.6	15.6
HUNTING EXPENDITURES (thousands of dollars)				
Total	**$26,190,488**	**5,906,739**	**14,613,279**	**37,767,697**
Big game	$14,878,550	3,435,793	8,144,396	21,612,704
Small game	$1,653,408	442,980	785,168	2,521,648
Migratory birds	$2,253,939	663,959	952,579	3,555,299
Other animals	$755,073	276,753	212,637	1,297,509
Average Expenditure Per Hunter (dollars)				
Total	**$2,287**	**$406**	**$1,490**	**$3,083**
Big game	$1,616	$289	$1,050	$2,182
Small game	$472	$92	$292	$652
Migratory birds	$958	$202	$561	$1,355
Other animals	$574	$150	$280	$869

Table D–3. Approximate Standard Errors and 95-Percent Confidence Intervals for Selected Fishing and Hunting Expenditure Estimates: 2016

(Thousands of dollars)

Expenditures	Estimate	Standard error	Lower 95 percent	Upper 95 percent
FISHING AND HUNTING EXPENDITURES				
Total	**$81,035,416**	**$12,629,137**	**$56,282,308**	**$105,788,524**
Trip-related	$30,926,023	$4,834,276	$21,450,842	$40,401,204
Food and lodging	$10,962,927	$1,729,380	$7,573,343	$14,352,511
Transportation	$8,233,085	$1,300,552	$5,684,003	$10,782,167
Other trip costs	$11,730,011	$1,866,935	$8,070,818	$15,389,204
Equipment, total	$42,315,716	$6,508,669	$29,558,724	$55,072,708
Fishing	$7,445,695	$1,206,066	$5,081,806	$9,809,584
Hunting	$7,996,132	$1,441,940	$5,169,929	$10,822,335
Auxiliary	$6,082,746	$1,104,636	$3,917,660	$8,247,832
Special	$20,791,143	$4,667,568	$11,642,710	$29,939,576
Other, total	$7,628,245	$1,194,474	$5,287,077	$9,969,413
Magazines, books, DVDs	$383,617	$78,322	$230,105	$537,129
Membership dues and contributions	$574,450	$124,997	$329,457	$819,443
Land leasing and ownership	$5,257,433	$1,375,744	$2,560,974	$7,953,892
Licenses, stamps, tags, and permits	$1,412,745	$228,612	$964,665	$1,860,825
Fishing Expenditures				
Total	**$46,115,118**	**$7,250,349**	**$31,904,435**	**$60,325,801**
Trip-related	$21,729,778	$3,425,620	$15,015,563	$28,443,993
Food and lodging	$7,848,993	$1,250,570	$5,397,876	$10,300,110
Transportation	$5,048,606	$806,013	$3,468,821	$6,628,391
Other trip costs	$8,832,179	$1,411,463	$6,065,712	$11,598,646
Equipment, total	$21,077,638	$3,340,072	$14,531,098	$27,624,178
Fishing	$7,430,662	$1,204,627	$5,069,594	$9,791,730
Auxiliary	$3,163,575	$682,643	$1,825,595	$4,501,555
Special	$10,483,401	$2,802,497	$4,990,508	$15,976,294
Other, total	$3,307,702	$537,685	$2,253,840	$4,361,564
Magazines, books, DVDs	$147,465	$34,737	$79,380	$215,550
Membership dues and contributions	$214,485	$62,810	$91,377	$337,593
Land leasing and ownership	$2,358,811	$863,974	$665,423	$4,052,199
Licenses, stamps, tags, and permits	$586,941	$98,127	$394,613	$779,269
Hunting Expenditures				
Total	**$26,190,488**	**$5,906,739**	**$14,613,279**	**$37,767,697**
Trip-related	$9,196,245	$2,085,668	$5,108,336	$13,284,154
Food and lodging	$3,113,934	$705,383	$1,731,384	$4,496,484
Transportation	$3,184,479	$721,807	$1,769,737	$4,599,221
Other trip costs	$2,897,832	$757,540	$1,413,054	$4,382,610
Equipment, total	$12,755,917	$2,823,776	$7,221,317	$18,290,517
Hunting	$7,383,871	$1,704,057	$4,043,920	$10,723,822
Auxiliary	$2,018,696	$504,598	$1,029,684	$3,007,708
Special	$3,353,350	$1,855,829	-$284,074	$6,990,774
Other, total	$4,072,894	$894,057	$2,320,543	$5,825,245
Magazines, books, DVDs	$166,451	$52,920	$62,727	$270,175
Membership dues and contributions	$182,016	$53,315	$77,518	$286,514
Land leasing and ownership	$2,898,622	$901,530	$1,131,622	$4,665,622
Licenses, stamps, tags, and permits	$825,805	$178,731	$475,492	$1,176,118

Table D–4. Approximate Standard Errors and 95-Percent Confidence Intervals for Selected Wildlife-Watching Estimates: 2016

Participants and expenditures	Estimate	Standard error	Lower 95 percent	Upper 95 percent
WILDLIFE–WATCHING PARTICIPANTS (thousands)				
Total	**86,042**	**3,136**	**79,896**	**92,188**
Nonresidential	23,720	1,928	19,942	27,498
Observe wildlife	19,583	1,767	16,119	23,047
Photograph wildlife	13,721	1,498	10,786	16,656
Feed wildlife	4,869	908	3,088	6,650
Residential	81,128	3,089	75,073	87,183
Observe wildlife	43,829	2,504	38,922	48,736
Photograph wildlife	30,473	2,153	26,254	34,692
Feed wildlife	59,083	2,799	53,596	64,570
Visit public parks	11,359	1,369	8,675	14,043
Maintain natural areas or plantings	11,024	1,350	8,378	13,670
DAYS OF PARTICIPATION IN NONRESIDENTIAL ACTIVITIES (thousands)				
Total	**386,045**	**48,861**	**290,278**	**481,812**
Observe wildlife	308,769	42,708	225,061	392,477
Photograph wildlife	151,559	24,670	103,205	199,913
Feed wildlife	70,846	19,156	33,300	108,392
Average Days of Participation in Nonresidential Activities				
Total	**16.3**	**1.48**	**13.4**	**19.2**
Observe wildlife	15.8	1.56	12.7	18.8
Photograph wildlife	11.0	1.29	8.5	13.6
Feed wildlife	14.6	2.81	9.0	20.1
EXPENDITURES (thousands)				
Total	**$75,867,134**	**$11,486,095**	**$53,354,388**	**$98,379,880**
Trip–related	$11,587,870	$2,019,178	$7,630,280	$15,545,460
Food and lodging	$6,068,131	$1,088,656	$3,934,366	$8,201,896
Transportation	$4,228,568	$739,070	$2,779,990	$5,677,146
Other trip costs	$1,291,171	$268,236	$765,429	$1,816,913
Equipment and other, total	**$64,279,264**	**$9,810,357**	**$45,050,965**	**$83,507,563**
Equipment, total	$55,083,300	$8,375,081	$38,668,142	$71,498,458
Wildlife watching equipment, total	$12,105,745	$1,860,579	$8,459,011	$15,752,479
Auxiliary equipment, total	$1,043,932	$233,961	$585,368	$1,502,496
Special equipment, total	$41,933,623	$12,895,894	$16,657,672	$67,209,574
Other, total	$9,195,965	$1,536,597	$6,184,236	$12,207,694
Magazines, books, DVDs	$236,696	$45,410	$147,692	$325,700
Land leasing and ownership	$4,196,305	$1,922,344	$428,510	$7,964,100
Membership dues and contributions	$3,817,276	$774,133	$2,299,975	$5,334,577
Plantings	$945,688	$204,922	$544,040	$1,347,336

Table D–5. Parameters a, b, and c for Calculating Approximate Standard Errors for United States Screener Sample, Detailed Sportsperson Sample, and Wildlife-Watching Sample for Levels, Expenditures, and Days of Trip

Sample	Parameters		
	a	b	c
Screener sample			
Sportspersons, anglers, hunters, and wildlife-watching participants—6 years old and older	–0.000132	39,040	X
Sportspersons, anglers, hunters, and wildlife-watching participants—6 to 15 years old	–0.001137	46,852	X
Detailed sportperson sample—16 years old and older			
Sportspersons and anglers	–0.000345	87,738	X
Hunters	–0.000324	82,275	X
Expenditures for sportspersons and anglers	0.021181	–350,933	115,275
Expenditures for hunters	0.041478	–5,623,134	105,525
Days or trips for sportspersons and anglers	0.007257	–1,421,928	376,919
Days or trips for hunters	0.006569	–1,131,130	303,313
Wildlife-watching sample			
Levels of wildlife-watching—away-from-home participants	–0.000583	148,001	X
Levels of wildlife-watching—wildlife-watching participants[1]	–0.000680	172,804	X
Expenditures for wildlife-watching	0.019372	–3,580,707	228,652
Days of trips for wildlife-watching	0.001217	–146,287	360,102

X Not applicable.

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

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