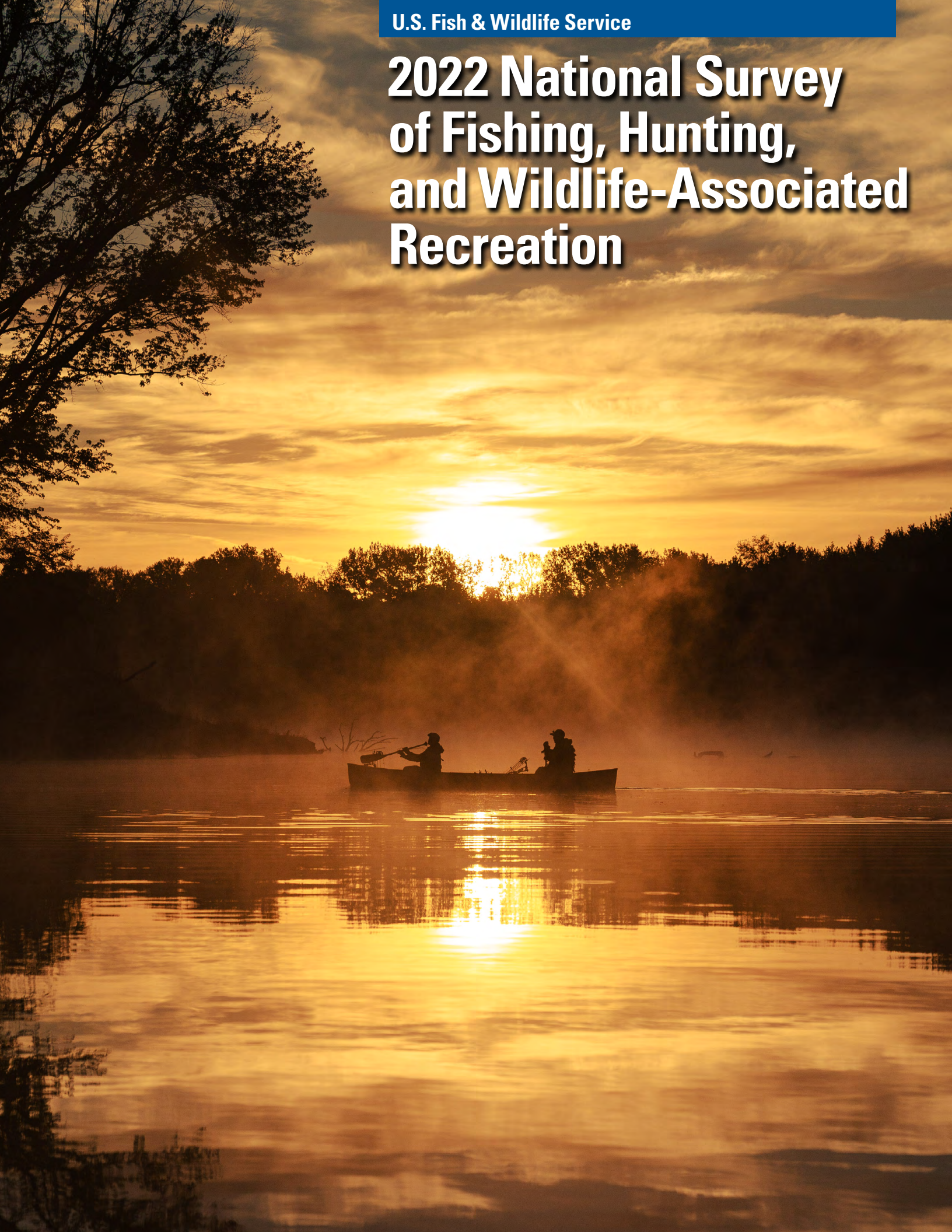


U.S. Fish & Wildlife Service

# 2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

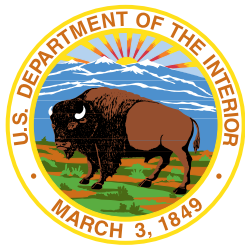






# 2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

*September 2023*



**U.S. Department of the Interior**  
**Deb Haaland,**  
Secretary



**U.S. Fish and Wildlife Service**  
**Martha Williams,**  
Director



**Wildlife and Sport Fish  
Restoration**  
**Paul Rauch,**  
Assistant Director





This Project was supported by a Multistate Conservation Grant F20AP00134, a grant funded from the the Wildlife Restoration Fund and the Sport Fish Restoration and Boating Trust Fund, and jointly managed by the U.S. Fish and Wildlife Service and the Association of Fish and Wildlife Agencies.

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 U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, 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, commonwealths and territories for projects to enhance and protect fish and wildlife resources and to ensure their availability to the public for recreational purposes.

#### **Suggested Citation**

U.S. Department of the Interior, U.S. Fish and Wildlife Service, *2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*



# Foreword



Time spent outdoors immersed in nature lends great solace to the human psyche. The skirr of a covey of quail taking to the wing in front of a bird dog; the zing of a reel as a large catfish peels off line on a run to deep water; or the challenge of identifying the whispery song of a hidden woodland warbler.

I have enjoyed all these sorts of experiences from Maryland to Montana, hunting, fishing, watching wildlife. They feed my soul.

I am pleased to present to you the *2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, a collaboration with the Association of Fish and Wildlife Agencies. This is the fifteenth such report, one that the U.S. Fish and Wildlife Service publishes every five years under the stewardship of economists on our staff. We have done so since 1955. Each Survey report reveals with remarkable insight how Americans use and enjoy our nation's fish and wildlife resources. This report demonstrates the participation rate of Americans in several key recreational activities including hunting, fishing and wildlife watching, and the economic impact of those pursuits, but does not evaluate their reasons for participation or the general public's attitudes toward these activities.

The 2022 Survey findings stand out over all the rest for one reason: the number of hunters, anglers, boaters, and wildlife watchers who were questioned about their participation was the largest of any other prior survey. The findings are robust. The data will be of use to many segments of society: business, industry, media, planners, tourism, and of course state and territorial fish and wildlife agencies which conduct much of the conservation work across the country.

The numbers are impressive: 39.9 million people fished in freshwater and saltwater combined in 2022. Hunters numbered 14.3 million, including those seeking big game, upland birds, and waterfowl; while 46.2 million participated in recreational target

shooting. Wildlife watching proves to be immensely popular; 146.5 million people viewed wildlife at home while 73 million traveled to watch wildlife. For the first time ever, the Survey includes the number of people who used motorized boats not associated with hunting or fishing. We estimate that 47.3 million Americans 6 years old and older participated in motorized boating in 2021.

All these activities involve nature leading people outdoors, who then spend money and support the economy and their communities. Money exchanged for goods and services means jobs throughout the economy. Moreover, the market for firearms, ammunition, archery gear and fishing tackle essentially creates a currency for conservation. Excise taxes paid by manufacturers of these goods going back 86 years with the passage of Federal Aid in Wildlife Restoration Act, are critical to funding conservation. Add to that, a motorboat fuel tax. These taxes funded the Multistate Conservation Grant which paid for the research and publication of this report.

I am grateful to all those involved who brought the *2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* to fruition. Most of all, I thank the more than 106,000 respondents who willingly provided information on their habits and spending as it relates to outdoor activities in 2022.

This report only reflects on recent experiences—but these are experiences that create memories and bonds with people and places. America's great outdoors provides bounties: local-sourced free-ranging food, employment, healthy communities, awe and the immeasurable salve on one's soul that comes with connecting with nature. This report puts economic numbers on how valuable outdoor pursuits are to the American people and to the economy.

A handwritten signature in blue ink that reads "Martha Williams". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

**Martha Williams**  
Director, U.S. Fish & Wildlife Service





# A Message from the Association of Fish and Wildlife Agencies

Dear Friends in Conservation:



The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* is the largest, most statistically rigorous examination of these activities and their economic impact. State fish and wildlife agencies, federal agencies, industry trade associations, and legislators are some of the

groups that rely on the data in the Survey to make decisions that affect our shared stewardship of this country's priceless natural resources.

State fish and wildlife agencies figure prominently in the Survey. Since 2002, the Association of Fish and Wildlife Agencies (AFWA) has been responsible for selecting the vendor for the Survey as part of the Multistate Conservation Grants. The amount of funding in this grant program is limited and every dollar spent on the Survey is a dollar we don't have to spend on other critical conservation needs.

When it became clear that the increasing cost of the Survey, as implemented by the U.S. Census Bureau, would soon exceed the available funding, AFWA created a task force to modernize the Survey and ensure its sustainability. That task force recommended the following:

- Implement a cost cap for the Survey.
- Focus on high-level, national data only.
- Enable individual states to buy into the Survey and to add their own questions to it.
- Use a multi-modal methodology combining internet, mail, probability, and non-probability sampling with the latest computer modelling.
- Greatly reduce the participant burden by simplifying and shortening the Survey.

The current Survey is the result of these recommendations. I admit that I had my doubts that the Survey could meet these requirements and maintain its high standard of statistical rigor. However,



the current vendor, NORC, met these requirements and delivered high-quality data in the very best tradition of the Surveys that preceded it.

As you read this report, please keep in mind that the new methodology means these results are not directly comparable to previous Surveys. We are, with the 2022 Survey, starting a new trend line.

I encourage you to study the results and think about the incredible story the Survey tells. It is my hope that these data will inform our decisions and continue to guide us as we advocate for conservation in this nation.

Sincerely,



**Curt Melcher**

Director, *Oregon Department of Fish and Wildlife*  
President, *Association of Fish and Wildlife Agencies*  
(2022-2023)  
Chair, *National Survey Work Group*





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# 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.

The Survey has faced mounting challenges with rising costs, declining response rates, and concerns about coverage error in rural areas. Over several rounds of the study, the survey instrument itself had become longer and more complex, which increased respondent burden and potentially reduced response rates. Nonresponse bias was also a concern, whereby people who never participate in outdoor recreation are less likely to respond to the survey. Preparations for the 2022 Survey began in 2019 when the Association of Fish and Wildlife Agencies (AFWA) convened a Survey Work Group to identify key elements for a comprehensive methodological redesign of the Survey. In response to a Request for Proposals, NORC at the University of Chicago (NORC) developed an innovative methodological approach for meeting the goals of the Survey Work Group. The new approach included:

- The implementation of mixed-mode approach where interviews are conducted via web, telephone, and self-administered paper questionnaires sent through the mail instead of costly in-person interviewing.
- A blended sample design that primarily uses AmeriSpeak®, NORC's probability-based panel, and an address-based sample (ABS). These approaches were intended to provide full rural coverage, reduced avidity and nonresponse bias.
- The inclusion of samples from nonprobability online panels to provide a cost-effective approach for state-level data. NORC employed their TrueNorth capability to combine probability and nonprobability samples to create reliable estimates that meet the state-level precision requirements.
- Streamlining the questionnaire to focus on key estimates and reduce respondent burden.
- Funding from the Multistate Conservation Grant,

authorized by the Fish and Wildlife Programs Improvement and National Wildlife Refuge System Centennial Act of 2000, as amended.

Data collection for the Survey was carried out in two phases by NORC. The first phase consisted of a screen interview. The screening interviews were conducted in January through April 2022. NORC interviewed a sample of 42,340 households nationwide. Through these interviews, one adult household member provided information for up to four adults ages 16 and older and up to four children ages 6 to 15 in the household. This interview covered participation in fishing, hunting, wildlife watching and other recreation activities in the year 2021 as well as expectations for participation in 2022. Interviews were conducted via the web, telephone, and self-administered questionnaire. In total, data was collected for about 97,415 household members. For more information on the screener data, refer to Appendix B.

The second phase of data collection covered 2022 activities in detail and consisted of three detailed interview waves. The first wave was conducted May through August 2022. The second wave was conducted September through December 2022. The final wave was conducted January through March 2023. Interviews were conducted with samples of likely anglers, hunters, and wildlife watchers who were identified in the initial screening phase. Interviews were conducted via the web, telephone, and self-administered questionnaire. Respondents in the second survey phase were limited to those who were at least 16 years old. Each respondent provided information pertaining only to their activities and expenditures. Sample sizes were designed to provide statistically reliable results at the national level. During the second phase, 105,698 individuals completed any survey, including 24,720 who completed the angler survey, 11,655 who completed the hunter survey, 58,704 who completed the wildlife watching survey, and 10,619 who did not participate in any of the three activities and were not asked detailed questions about them. More detailed information on sampling procedures and response rates is found in Appendix D.

## Comparability With Previous Surveys

As a result of major changes to the questions and methodology, the results from the 2022 Survey should not be directly compared to results from any previous Surveys.





# Highlights





# Introduction

The Survey reports results from interviews with U.S. residents about their fishing, hunting, and wildlife watching. While those who were interviewed revealed their affinities for the outdoors and how they spent their money on these pursuits, the Survey data demonstrate yet again that fishing, hunting, boating, and watching wildlife are part of the American lifestyle, and that these pursuits fuel economies and create enduring social and cultural bonds.

This report focuses on 2022 participation and expenditures of persons 16 years of age and older. It also provides information on participation in wildlife-related recreation in 2021, including that of persons 6 to 15 years of age. These include estimates for motorized boating, archery, and target shooting with firearms.

Appendix C has a summary of the significant methodological changes from previous Surveys. Information about the scope and coverage of the 2022 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. 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 2022, regardless of whether they were licensed.

Anglers are persons who only fished plus those who fished and hunted. Anglers include those using hook-and-line, and less common methods such as trot lines and spears. Two types of fishing are reported: (1) freshwater and (2) saltwater. Since many anglers participated in both types of fishing, the total number of anglers is less than the sum of the two types of fishing.

Hunters are persons who only hunted plus those who hunted and fished. Hunters include those using center-and rim-fire rifles, shotguns, muzzleloaders, primitive



firearms, handguns, and archery equipment. 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 all types of hunters exceeds the total number of hunters.

## Wildlife Watching

Wildlife watching includes persons who were engaged in wildlife watching in different locales. Wildlife watching was added to the Survey in 1980. However, Surveys since 1991 collected data only on activities where the *primary* purpose was wildlife watching.

This Survey reports on wildlife watching by locality: (1) away-from-home, where persons traveled at least one mile from home to watch wildlife and (2) around-the-home, where persons within one mile of their home were involved in 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 nearby parks and natural areas to watch wildlife.

Trips to fish or hunt or scout, and trips to zoos, circuses, aquariums, and museums are not considered wildlife-watching 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.

# Summary

The Survey continues to serve as our nation’s definitive wildlife-related recreation source of data on participation rates, demographics, and economic impacts of outdoor activities. The Survey estimates participation and expenditures of persons 16 years and older in a single year derived from data collected in the detailed phase of the 2022 Survey. The Survey revealed that 39.9 million people fished, 14.4 million hunted, and 148.3 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 Survey screen also provides information about individuals ages 6–15 years olds in 2021: 1.8 million hunted and 9.5 million fished. The number of 6–15-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 old and older.

The 2022 Survey is the first to include numbers of motorized boaters. The number of target shooters who used a firearm, and recreational archers were also estimated. The screening questionnaire asked of a household respondent for a year’s worth of activity, which means there is an unknown amount of overestimation in responses due to recall bias. With that caveat, an estimated total of 46.2 million people 6 years old and older went target shooting with firearms in 2021. Ten percent of them, 4.8 million, were children 6–15 years old, and the remaining 41.3 million were 16 years old and older. That means 16 percent of adult Americans went target shooting, either at a range or more informally in the field. As for archery, 18.8 million Americans 6 years old and older engaged in archery in 2021. Twenty-two percent of them, 4.2 million, were 6–15 years old. Seventy-eight percent, 14.7 million, were adults 16 years old and older, and their participation rate was 6 percent.

Wildlife recreationists’ avidity is reflected in the \$394.8 billion they spent in 2022 on their activities. Of the total amount spent, \$91.0 billion was trip-related, \$179.0 billion was spent on equipment, and \$124.9 billion was spent on other items such as licenses and land leasing and ownership.

Anglers spent \$99.4 billion on fishing and hunters



## Wildlife-Related Recreation

*Expenditures* ..... \$394.8 billion

### Fishing and Hunting

*Anglers* ..... 39.9 million

*Hunters*..... 14.4 million

*Total days*..... 1.0 billion

*Fishing*..... 785 million

*Hunting* ..... 241 million

*Total expenditures* ..... \$144.6 billion

*Fishing*..... \$99.4 billion

*Hunting* ..... \$45.2 billion

### Wildlife Watching

*Total participants\** ..... 148.3 million

*Around the home*..... 146.5 million

*Away from home* ..... 73.3 million

*Total expenditures* ..... \$250.2 billion

*\* 71.6 million wildlife watched both around the home and away from home.*





spent \$45.2 billion on hunting. Wildlife watchers spent \$250.2 billion on their wildlife-watching activities around the home and on trips away from home.

### **Fishing and Hunting**

In 2022, Americans spent \$144.8 billion on fishing and hunting. Of that, \$48.9 billion—34 percent, was for trip-related expenditures, including food, lodging, and transportation, while equipment expenditures amounted to \$60.3 billion, 42 percent of the total. Other expenditures—magazines, membership dues, contributions, land leasing and ownership, and licenses, stamps, tags, and permits—accounted for \$35.4 billion, or 24 percent of all expenditures.

### **Wildlife-Watching**

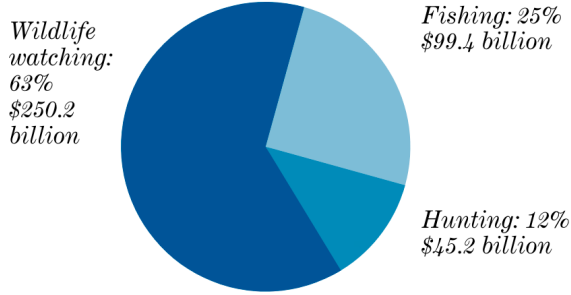
Closely observing, feeding, or photographing wildlife was enjoyed by 148.3 million people 16 years old and older in 2022. Of this group, 73.3 million people took trips away from home for the purpose of enjoying wildlife, while 146.5 million stayed within a mile of home to participate in wildlife-watching activities.

In 2022, wildlife watchers spent \$250.2 billion. Trip-related expenses, including food, lodging, and transportation, totaled \$42.1 billion, 17 percent of all expenditures. A total of \$118.6 billion was spent on equipment, 47 percent of all wildlife-watching expenses. The remaining \$89.5 billion, 36 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.



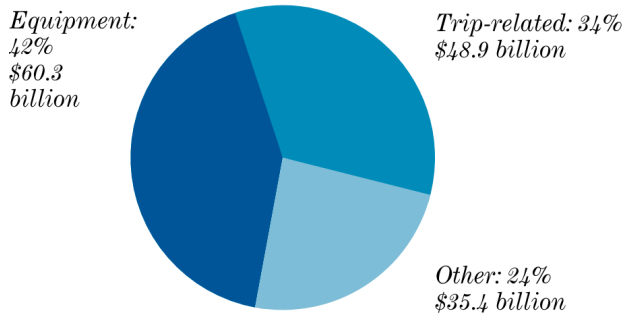
### Expenditures for Wildlife-Related Recreation

Total expenditures: \$394.8 billion



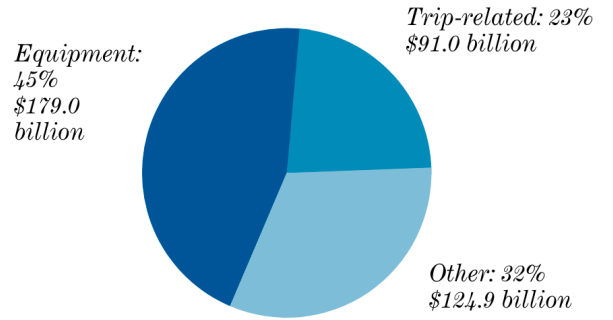
### Expenditures by Anglers and Hunters

Total expenditures: \$144.6 billion



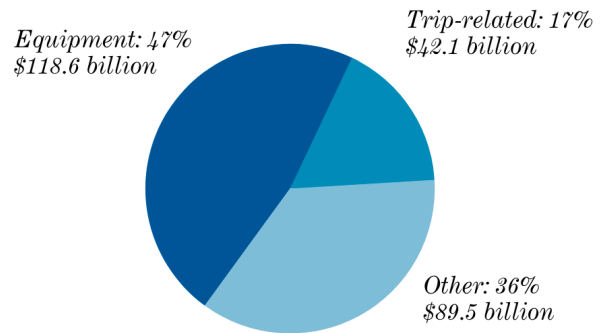
### Expenditures for Wildlife-Related Recreation

Total expenditures: \$394.8 billion



### Expenditures by Wildlife-Watching Participants

Total expenditures: \$250.2 billion







# Fishing





# Fishing Highlights



In 2022, 39.9 million U.S. residents 16 years old and older enjoyed a variety of fishing opportunities throughout the U.S. anglers fished 785 million days and took 463 million fishing trips. They spent \$99.4 billion in fishing-related expenses during the year. Freshwater anglers numbered 35.1 million. They fished 559 million days and took 359 million trips to freshwater in 2022. Saltwater fishing attracted 12.7 million anglers who enjoyed 104 million trips to saltwater on 123 million days.

## Total Fishing

<b>Anglers</b> .....	<b>39.9 million</b>
<i>Freshwater</i> .....	<i>35.1 million</i>
<i>Saltwater</i> .....	<i>12.7 million</i>
<b>Days</b> .....	<b>785 million</b>
<i>Freshwater</i> .....	<i>559 million</i>
<i>Saltwater</i> .....	<i>123 million</i>
<b>Trips</b> .....	<b>463 million</b>
<i>Freshwater</i> .....	<i>359 million</i>
<i>Saltwater</i> .....	<i>104 million</i>

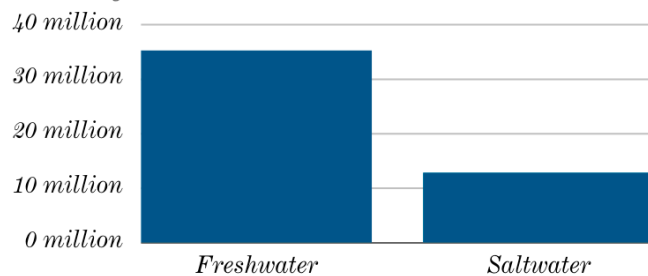
**Expenditures** .....**\$99.4 billion**

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

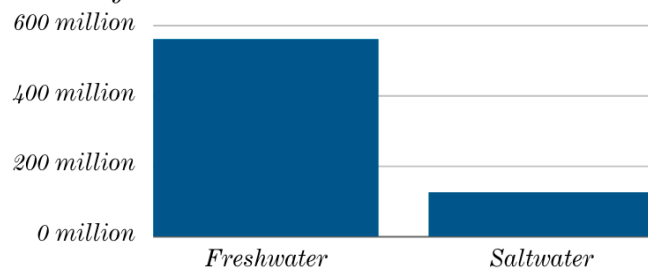
*Sources: Tables 1 and 3.*

## Fishing

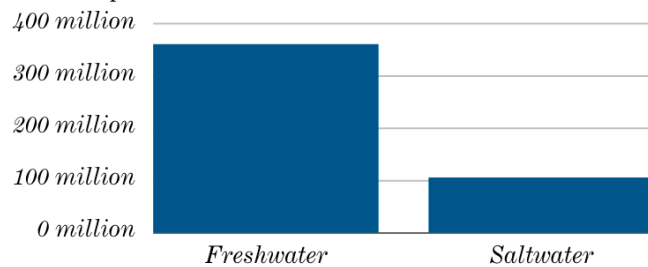
*Total anglers: 39.9 million*



*Total days: 785 million*



*Total trips: 463 million*





### Fishing Expenditures

Anglers spent \$99.4 billion in fishing-related expenses in 2022 including \$36.6 billion on trip-related items—37 percent of all fishing expenditures.

Equipment expenditures totaled \$40.7 billion, 41 percent of all fishing expenditures. Anglers spent \$8.7 billion on fishing equipment such as rods, reels, tackle boxes, depth finders, flies and artificial lures. This amounted to 21 percent of all fishing-related equipment expenditures. Auxiliary equipment expenditures, which include camping equipment, binoculars, and special fishing clothing, totaled \$4.3 billion—11 percent of equipment costs. Expenditures for special equipment such as boats, vans, and cabins totaled \$27.7 billion—68 percent of all fishing-related equipment costs.

Anglers also spent a considerable amount on other fishing-related items, such as land leasing and ownership, membership dues, contributions, licenses, stamps, and permits. Expenditures for these items totaled \$22.1 billion, 22 percent of all fishing-related expenditures.

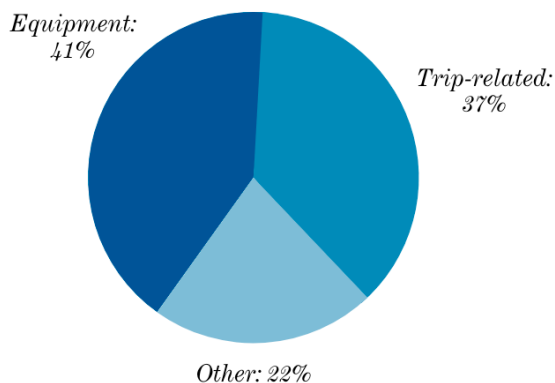
### Total Fishing Expenditures

<b>Total expenditures</b> .....	<b>\$99.4 billion</b>
<b>Total trip-related expenditures</b> .....	<b>\$36.6 billion</b>
<b>Total equipment expenditures</b> .....	<b>\$40.7 billion</b>
<i>Fishing equipment</i> .....	<i>\$8.7 billion</i>
<i>Auxiliary equipment</i> .....	<i>\$4.3 billion</i>
<i>Special equipment</i> .....	<i>\$27.7 billion</i>
<b>Total other fishing expenditures</b> .....	<b>\$22.1 billion</b>

Source: Table 3.

### Percent of Total Fishing Expenditures

Total expenditures: \$99.4 billion







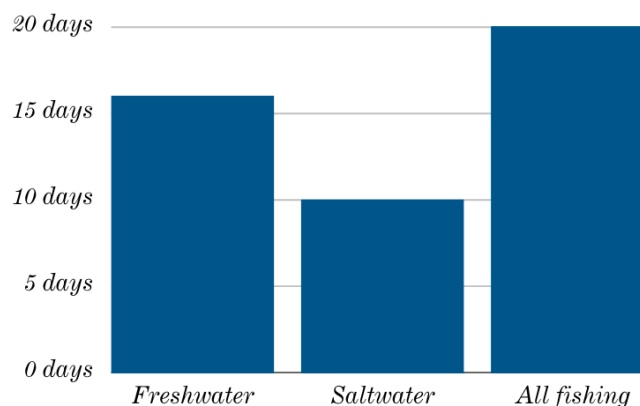
### Comparative Fishing Highlights

In 2022, anglers spent an average of 20 days fishing and took an average of 12 fishing trips. Freshwater anglers averaged 16 days fishing and 10 trips. Saltwater anglers fished 10 days on average and averaged 8 trips.

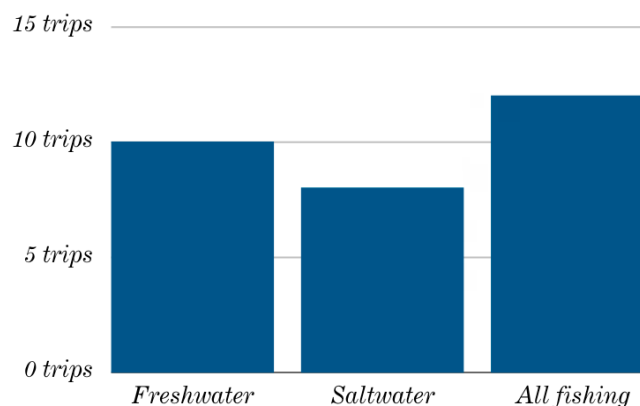
Overall, anglers spent an average of \$2,490 on fishing-related expenses in 2022. They averaged \$917 per angler for their trip-related costs, a daily average of \$47.

### Comparative Fishing by Type of Fishing

*Days per angler*



*Trips per angler*



*Trip expenditures per angler*

**\$917**

*All fishing*

*Trip expenditures per day*

**\$47**

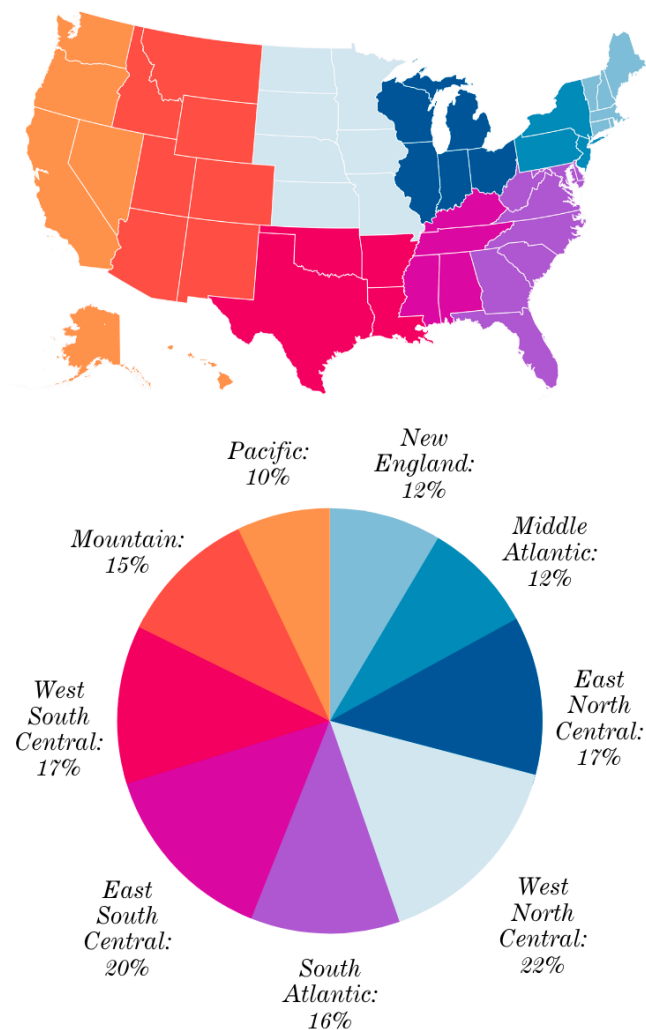
*All fishing*

### Participation by Geographic Division

In 2022, 259 million people 16 years old and older lived in the United States and 1 of 7 of these residents went fishing. The participation rate is the percent of each demographic group that fished. While the national participation rate was 15 percent, the divisional rates ranged from 10 percent in the Pacific to 22 percent in the West North Central Division. The East South Central, West North Central, East North Central, West South Central, and South Atlantic Divisions all reported participation rates above the national rate. The New England, Middle Atlantic, and Pacific Divisions fell below the national rate.

### Angling Participation by Geographic Division

National participation rate: 15%



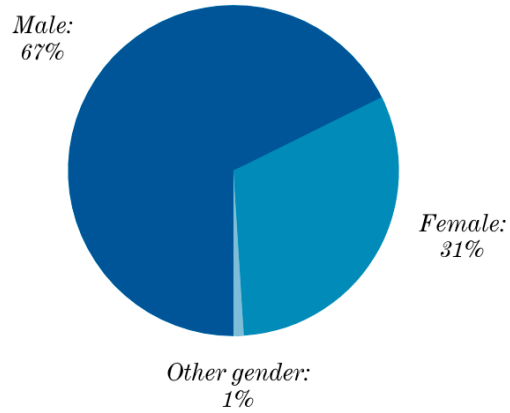


### Sex and Age of Anglers

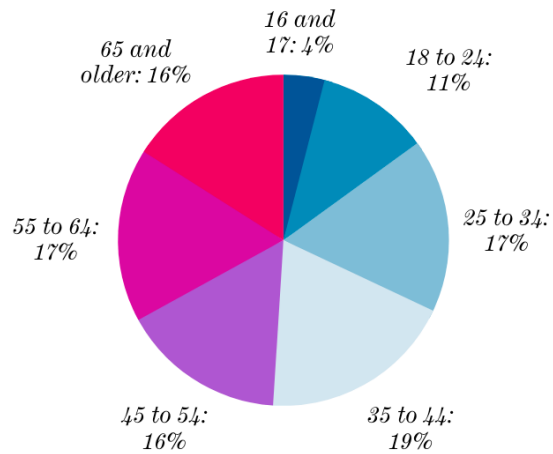
Although more men than women fished in 2022, a substantial number of women, 12.5 million, fished. Approximately 22 percent of all males 16 years and older went fishing, while 10 percent of all females fished. Of the 39.9 million anglers who fished in the U.S., 67 percent, 26.9 million, were male, 31 percent were female, 12.5 million, and 1 percent, 0.4 million, were another gender.

Turning to age categories, 7.6 million anglers, 19 percent of all anglers, were 35 to 44 years old. Their participation rate was 18 percent of the U.S. population in that age group. The 25- to 34-year-old age group accounted for 6.9 million anglers, 17 percent of all anglers. They had 16 percent participation. The 6.7 million 55- to 64-year-olds who fished comprised 17 percent of all anglers and had a participation rate of 16 percent. Anglers 65 and older numbered 6.6 million, 16 percent of all anglers, and had a participation rate of 12 percent. Anglers who were 45 to 54 years old numbered 6.2 million. They comprised 16 percent of all anglers and had a participation rate of 16 percent. The 4.3 million anglers 18 to 24 years old made up 11 percent of the angler population, and had a participation rate of 16 percent. The 16- and 17-year-olds added 1.7 million individuals to the angler population. They made up 4 percent of all anglers, and had a 19 percent participation rate.

### Percent of Anglers by Sex



### Percent of Anglers by Age



### Anglers by Sex and Age

**Total, all sexes ..... 39.9 million**

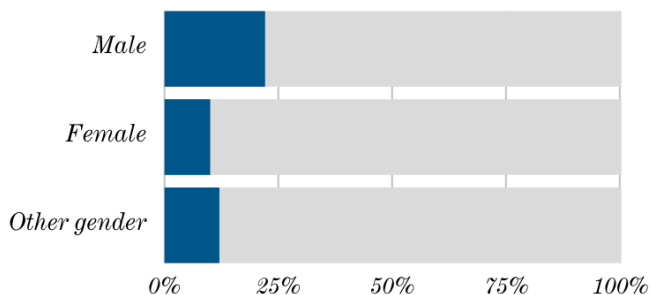
Male ..... 26.9 million  
 Female ..... 12.5 million  
 Other gender ..... 0.4 million

**Total, all ages.....39.9 million**

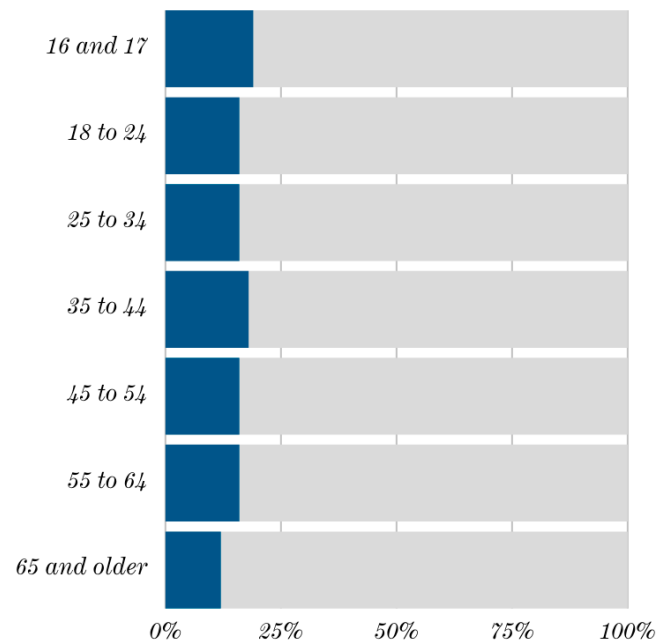
16 and 17 ..... 1.7 million  
 18 to 24 ..... 4.3 million  
 25 to 34 ..... 6.9 million  
 35 to 44 ..... 7.6 million  
 45 to 54 ..... 6.2 million  
 55 to 64 ..... 6.7 million  
 65 and older ..... 6.6 million

Source: Table 2.

### Percent of Anglers by Sex in U.S. Population



### Percent of U.S. Population Who Fished by Age



### Metropolitan and Nonmetropolitan Anglers

Residents of metropolitan statistical areas (MSA) (1) accounted for the majority of anglers. Fifteen percent of all MSA residents fished in 2022, but they comprised 79 percent of all anglers. By comparison, non-MSA residents comprised 21 percent of all anglers, with a higher participation rate of 16 percent.

Larger MSAs had lower participation rates in fishing than smaller MSAs but comprised more of the angler population. Large MSAs with populations of 1,000,000 or more had the lowest participation rate at 13 percent, but they made up 39 percent of all anglers. Medium MSAs with a population of 250,000 to 999,999 had a 17 percent participation rate and made up 19 percent of all anglers. Those MSAs with a population 50,000 to 250,000 had a participation rate of 19 percent and comprised 10 percent of all anglers. Those MSAs with a population of 10,000 to 50,000 had a participation rate of 23 percent and comprised 10 percent of all anglers.

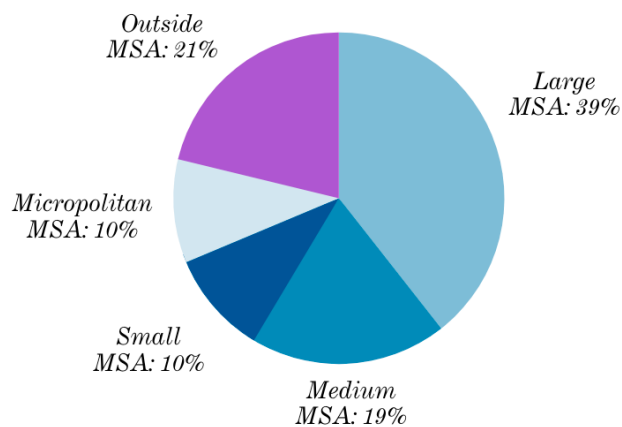
### Household Income of Anglers

The rate of anglers who reported incomes of \$150,000 to \$199,999 was the highest at 20 percent. Those with incomes of \$100,000 to \$149,999 and \$50,000 to \$74,999 had the next highest rate of 17 percent. Those with incomes in the four income categories less than \$34,999 had participation rates ranging from 11 to 15 percent.

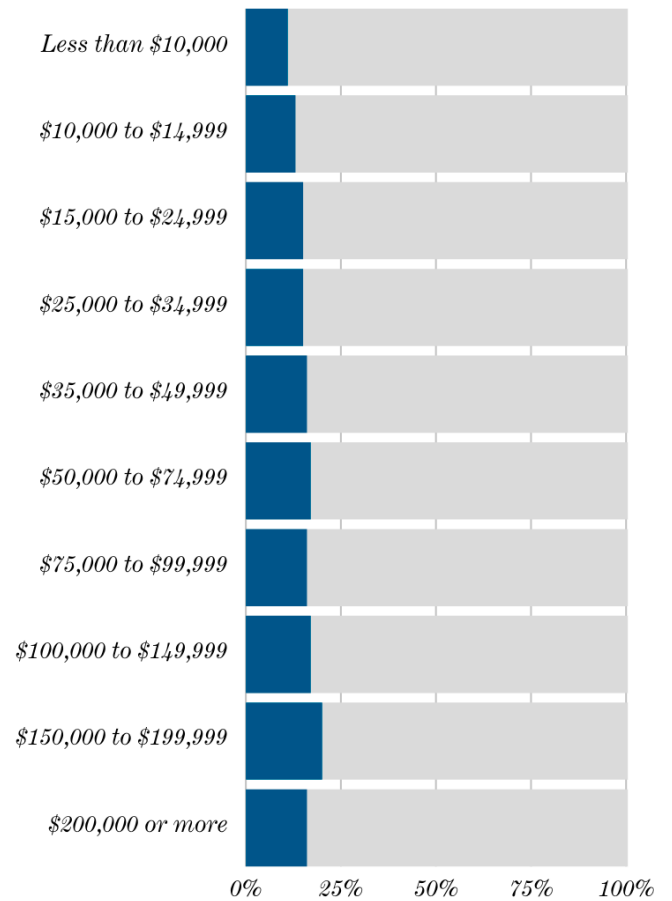
Anglers reporting income above the median household income of anglers had a higher participation rate in fishing compared with those reporting income below the median, 17 percent for above the median compared to 14 percent for below the median. Median household income for anglers was approximately \$55,000.

### Percent of Anglers by Residence

Angler population: 39.9 million

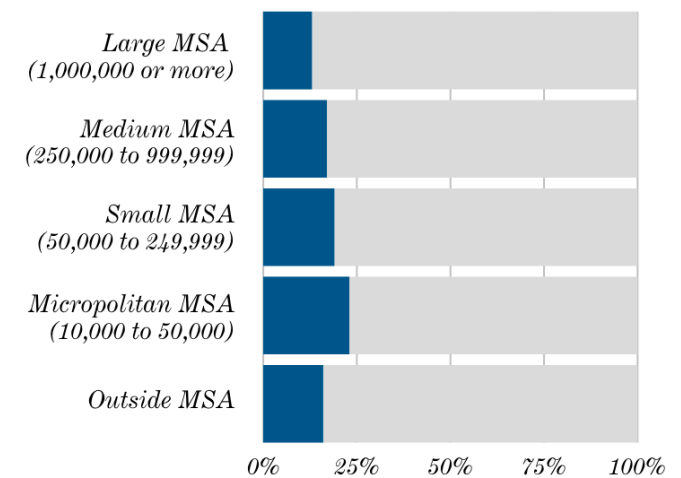


### Percent of U.S. Population Who Fished by Household Income



### Percent of U.S. Population Who Fished by Residence

Total U.S. population that fished: 15%



1 See Appendix A for definition of Metropolitan Statistical Area.



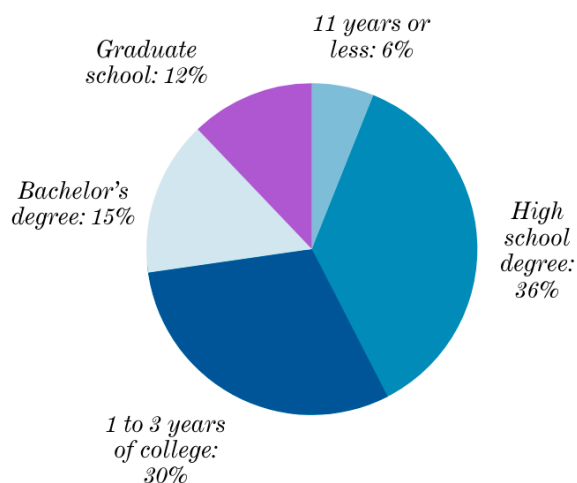
## Education, Race and Ethnicity

People with a high school level of education had the highest participation rate of anglers, 17 percent. Those with 11 years of education or less and 1 to 3 years of college had a participation rate of 16 percent each. Those with a bachelor's degree had a participation rate of 13 percent. The lowest participation rate, 12 percent, was held by those by those who attended graduate school.

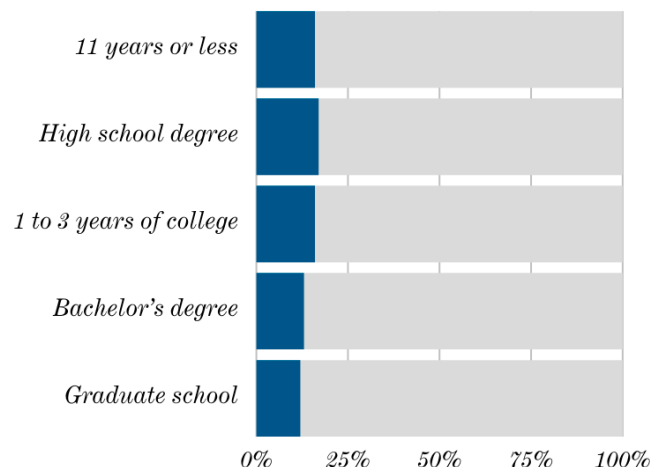
Anglers with a high school degree made up the largest share of anglers. Thirty-six percent, 14.4 million anglers, had a high school degree.

In 2022, fishing was most popular among Asian Americans, who had a participation rate of 20 percent. Whites participated at a 17 percent rate. African Americans participated at a 12 percent rate. "All Others," including Native Americans, Pacific Islanders, and those of mixed races, had a 12 percent participation rate. Of all anglers, 75 percent were White, 15 percent were All Others, 11 percent were African American, and 6 percent were Asian American.

## Percent of Anglers by Education



## Percent of U.S. Population Who Fished by Education



## Anglers by Education, Race and Ethnicity

**Total anglers** ..... 39.9 million

**Education** ..... 39.9 million

11 years or less ..... 2.4 million  
 High school degree ..... 14.4 million  
 1 to 3 years of college ..... 11.9 million  
 Bachelor's degree ..... 6.0 million  
 Graduate school ..... 4.6 million

## Race

White ..... 30.0 million  
 African American ..... 4.5 million  
 Asian American ..... 2.2 million  
 Other ..... 6.1 million

## Ethnicity

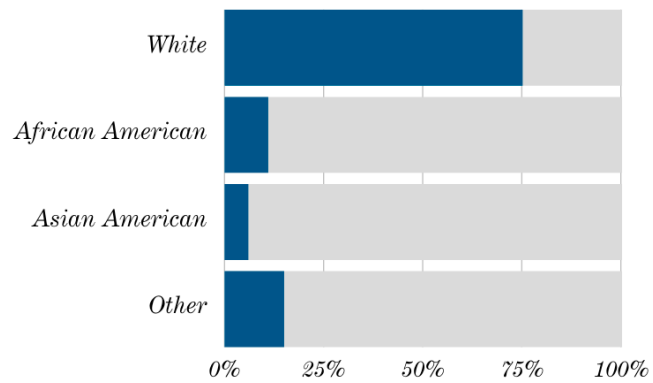
Hispanic ..... 6.5 million  
 Non-Hispanic ..... 33.3 million

Source: Table 2.

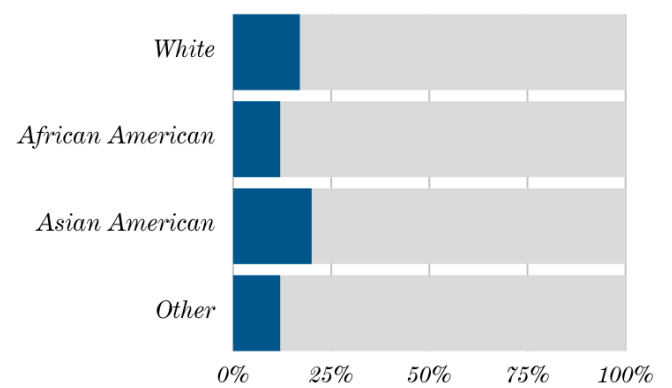




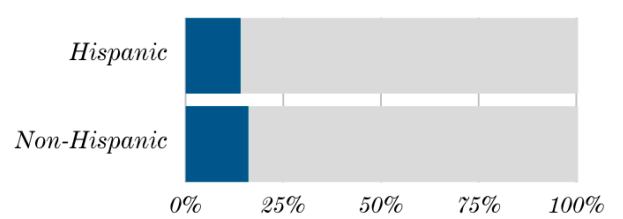
**Percent of Anglers by Race**



**Percent of U.S. Population Who Fished by Race**



**Percent of U.S. Population Who Fished by Ethnicity**









# Hunting





# Hunting Highlights

In 2022, 14.4 million people 16 years old and older enjoyed hunting within the United States. They hunted 241 million days and took 165 million trips. Hunting expenditures totaled \$45.2 billion.

Big game hunting was the most popular when compared with small game, migratory bird, and other animal hunting when considering total hunters, total days of hunting, and total trips. There were 11.5 million hunters who pursued big game, such as deer and elk, on 135 million days. There were 5.3 million hunters of small game including squirrels and rabbits. Hunters hunted small game on 38 million days. Migratory bird hunters numbered 2.8 million. They spent 23 million days hunting birds such as waterfowl and doves. About 2.3 million hunters sought other animals, such as raccoons and feral pigs, on 20 million days.

## Total Hunting

**Hunters ..... 14.4 million**

*Big game ..... 11.5 million*  
*Small game ..... 5.3 million*  
*Migratory bird ..... 2.8 million*  
*Other animal ..... 2.3 million*

**Days ..... 241 million**

*Big game ..... 135 million*  
*Small game ..... 38 million*  
*Migratory bird ..... 23 million*  
*Other animal ..... 20 million*

**Trips ..... 165 million**

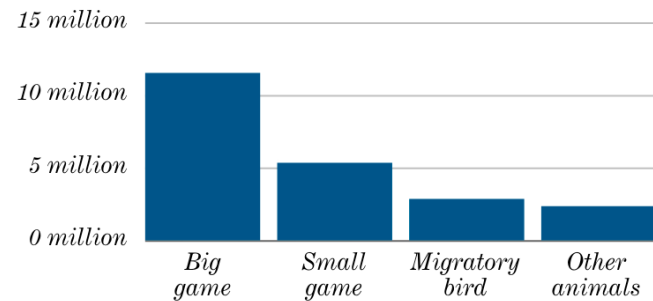
*Big game ..... 92 million*  
*Small game ..... 34 million*  
*Migratory bird ..... 20 million*  
*Other animal ..... 20 million*

**Expenditures ..... \$45.2 billion**

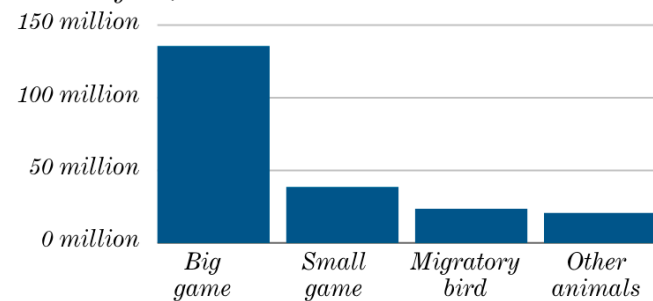
Sources: Tables 1 and 4.

## Hunting

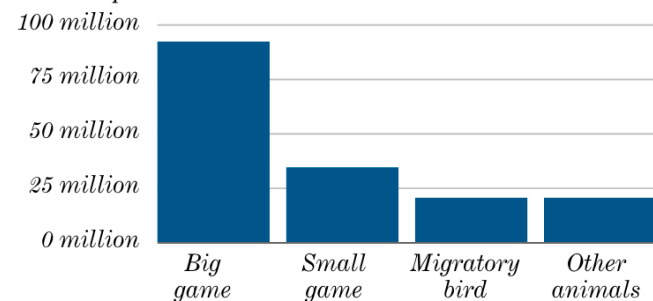
Total hunters: 14.4 million



Total days: 241 million



Total trips: 165 million



NOTE: Detail doesn't add to total because of multiple responses, nonresponse.



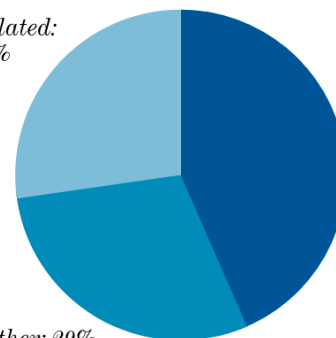
### Hunting Expenditures

Of the \$45.2 billion spent by hunters in 2022, 27 percent, \$12.3 billion, was spent on trip-related expenses. Equipment expenditures for hunting totaled \$19.6 billion in 2022, 43 percent of all hunting expenses. Hunting equipment, such as rifles, telescopic sights, and ammunition, totaled \$7.9 billion, or 40 percent of all equipment costs. Expenditures for auxiliary equipment, including camping equipment, binoculars, and special hunting clothing, accounted for \$3.9 billion or 20 percent of all equipment expenses. Special equipment, such as campers or all-terrain vehicles, amounted to \$7.7 billion or 40 percent of all equipment expenditures. Other expenditures such as licenses and land leasing and owning accounted for 29 percent of all hunting expenditures, at \$13.3 billion.

### Total Hunting Expenditures

Total expenditures: \$45.2 billion

Trip-related:  
27%



Equipment:  
43%

Other: 29%

### Total Hunting Expenditures

**Total hunting expenditures ..... \$45.2 billion**

**Total trip-related expenditures ..... \$12.3 billion**

**Total equipment expenditures ..... \$19.6 billion**

*Hunting equipment ..... \$7.9 billion*

*Auxiliary equipment ..... \$3.9 billion*

*Special equipment ..... \$7.7 billion*

**Total other hunting expenditures ..... \$13.3 billion**

Source: Table 4.





### Big Game Hunting

In 2022, a majority of hunters, 11.5 million, devoted 135 million days to hunting big game including deer, elk, bear, and wild turkey. They took 92 million trips and spent an average of 12 days hunting big game.

### Small Game Hunting

Small game such as rabbits, squirrels, pheasants, quail, and grouse were also popular with hunters. 5.3 million hunters pursued small game for a total of 38 million days. They took 34 million trips and averaged 7 days in the field hunting small game.

### Migratory Bird Hunting

In 2022, 2.8 million migratory bird hunters spent 23 million days on 20 million trips for hunting birds such as doves, ducks, and geese. Hunters averaged 8 days pursuing migratory birds for the year.

### Hunting Other Animals

Over 2.3 million hunters reported spending 20 million days on 20 million trips pursuing animals such as groundhogs, feral pigs, raccoons, foxes, and coyotes. They averaged 9 days of hunting in 2022.

---

### Big Game

Hunters .....	11.5 million
Days .....	135 million
Trips.....	92 million

Source: Table 1.

---

### Small Game

Hunters .....	5.3 million
Days .....	38 million
Trips.....	34 million

Source: Table 1.

---

### Migratory Birds

Hunters .....	2.8 million
Days .....	23 million
Trips.....	20 million

Source: Table 1.

---

### Other Animals

Hunters .....	2.3 million
Days .....	20 million
Trips.....	20 million

Source: Table 1.



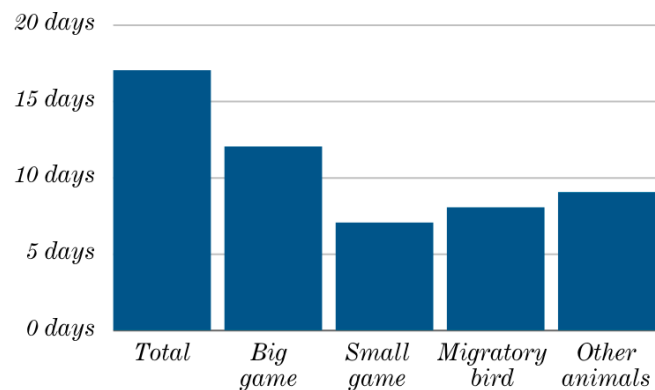
### Comparative Hunting Highlights

Hunters pursued big game an average of 12 days on 8 trips in 2022; small game an average of 7 days on 6 trips; and migratory birds an average of 8 days on 7 trips. Individuals hunting other animals did so an average of 9 days on 9 trips.

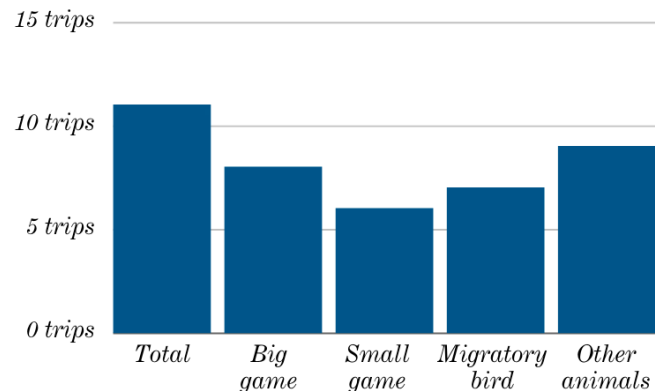
Trip-related expenditures for all hunting averaged \$857 per hunter, a daily average of \$51, during 2022.

### Comparative Hunting by Type of Hunting

*Days per hunter*



*Trips per hunter*



*Trip expenditures per angler*

**\$857**

*All hunting*

*Trip expenditures per day*

**\$51**

*All hunting*





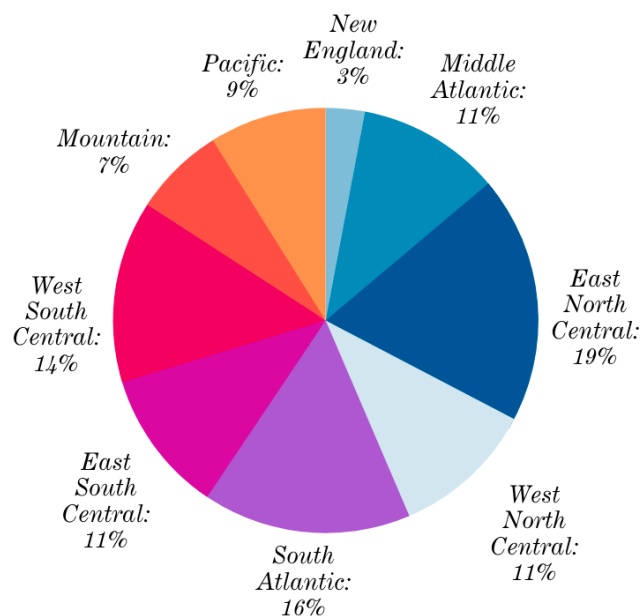
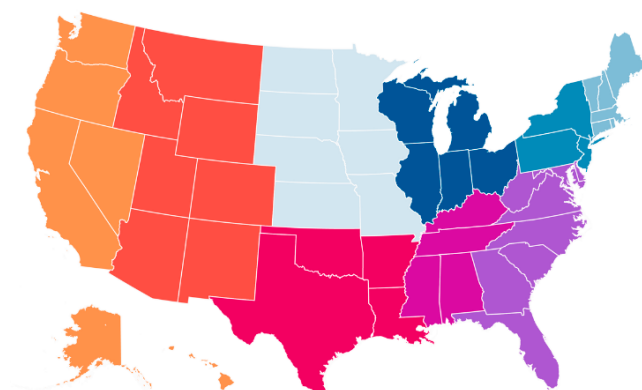


### Participation by Geographic Division

Participation rates in hunting ranged from 3 percent in the New England and Pacific Divisions to 10 percent in the East South Central Division. The West North Central and East North Central Divisions also had participation rates above the national average of 6 percent. Divisions with participation rates below the national rate were New England, South Atlantic, Mountain, Middle Atlantic, and Pacific.

### Hunting Participation by Geographic Division

National participation rate: 6%



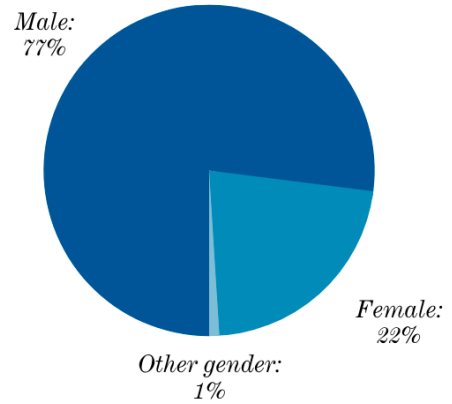
**Sex and Age**

Of the U.S. population 16 years old and older, 9 percent of males, 2 percent of females, and 4 percent of other genders enjoyed hunting in 2022. Of the 14.4 million participants who hunted, 77 percent (11.0 million) were male, 22 percent (3.1 million) were female, and 1 percent (0.2 million) were another gender.

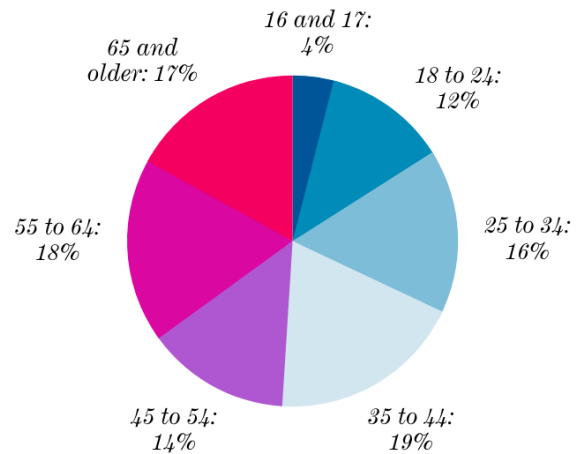
The rate of participation was 6 percent for all of the following age groups: 16 to 17 years old; 18 to 24 years old; 35 to 44 years old; and 55 to 64 years old. The rate dropped to 5 percent for these age groups: 25 to 34 years old; 45 to 54 years old; and 65 to 75 years old.

The age group that contributed the most hunters was 35 to 44 years old at 2.8 million hunters or 19 percent of all hunters. Hunters 55 to 64 years old were next highest at 2.6 million.

**Percent of Hunters by Sex**



**Percent of Hunters by Age**



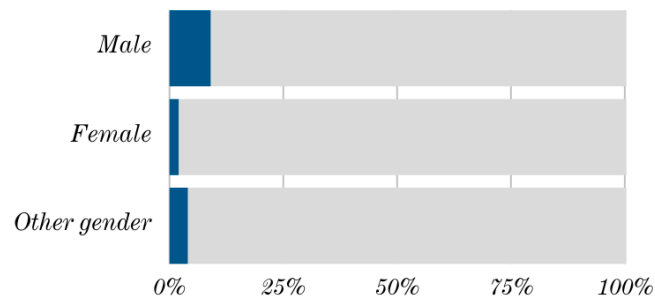
**Hunters by Sex and Age**

<b>Total, all sexes</b> .....	<b>14.4 million</b>
Male .....	11.0 million
Female .....	3.1 million
Other gender .....	0.2 million

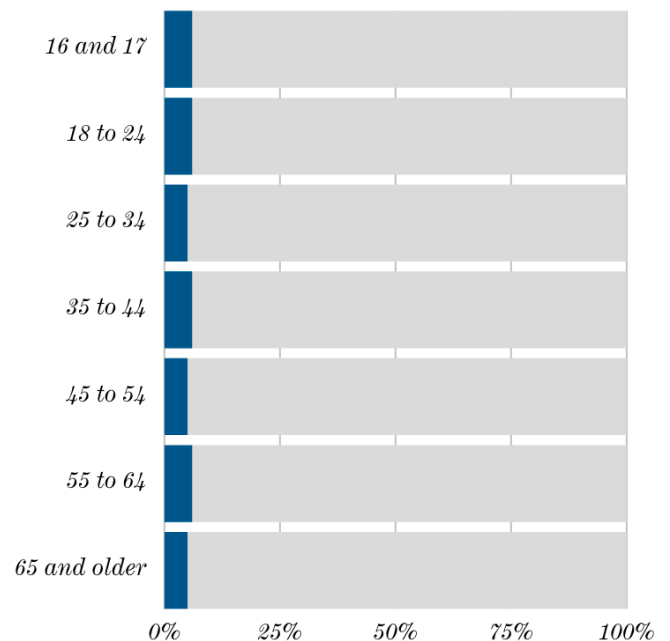
<b>Total, all ages</b> .....	<b>14.4 million</b>
16 and 17 .....	0.5 million
18 to 24 .....	1.7 million
25 to 34 .....	2.3 million
35 to 44 .....	2.8 million
45 to 54 .....	2.0 million
55 to 64 .....	2.6 million
65 and older .....	2.4 million

Source: Table 2.

**Percent of Hunters by Sex in U.S. Population**



**Percent of U.S. Population Who Hunted by Age**





### 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)<sup>2</sup> and were the highest among Micropolitan residents. Residents of the MSAs with a population of 1 million or more hunted at a 4 percent rate, which compares to 10 percent of those who resided in areas with 10,000 to 50,000 residents. The smaller the MSA, the higher the participation rate. The rate among residents of MSAs of 50,000 to 249,000 was 8 percent. Among residents of MSAs with 250,000-999,999 inhabitants, the rate was 6 percent. Residents who lived outside MSAs had a rate of 6 percent.

Despite the lower participation rates for the residents of the largest MSAs, they still made up the plurality of hunters. Hunters who lived in the largest MSAs numbered 4.9 million, compared to 3.5 million who were nonmetropolitan residents.

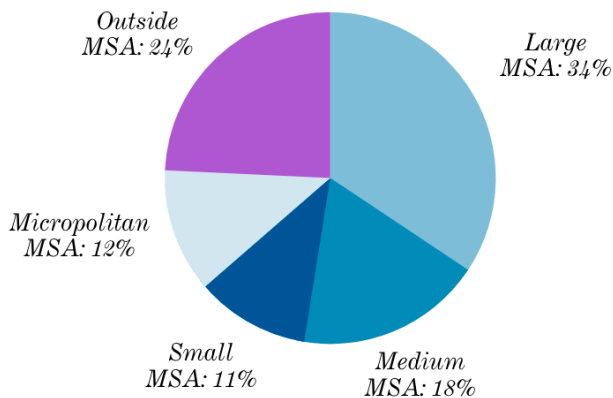
### Household Income of Hunters

The participation rate in hunting increased as household income increased until it reached incomes of \$200,000 or more. The participation rate was highest among those with incomes of \$150,000 to \$199,999, at 9 percent. The next highest was 7 percent for the \$100,000 to \$149,999 cohort; 6 percent of the \$50,000 to \$74,999 and \$75,000 to \$99,999 cohorts hunted. Participation rates for those who reported incomes of \$25,000 to \$34,999, and \$35,000 to \$49,999 were lower at 5 percent. A participation rate of 4 percent was recorded for the following three income groups: less than \$10,000; \$10,000 to \$14,999; and \$15,000 to \$24,999.

The median income of hunters was roughly \$59,000. The participation rate for hunters with below median income was 5 percent. The participation rate for hunters with above median income was 7 percent.

### Percent of Hunters by Residence

Hunter population: 14.4 million

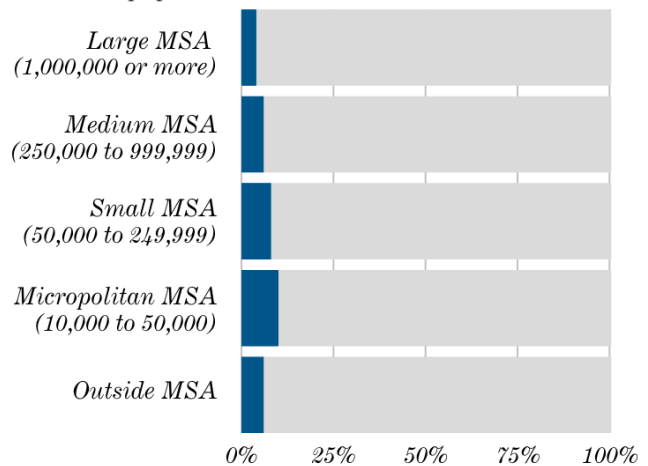


### Percent of U.S. Population Who Hunted by Household Income



### Percent of U.S. Population Who Hunted by Residence

Total U.S. population that hunted: 6%



2. See Appendix A for definition.

### Education, Race, and Ethnicity of Hunters

Participation rates in hunting in 2022 were similar among all education levels, ranging from 4 percent by those with a graduate school education and 6 percent for high school graduates and people with 1-3 years of college. Individuals with 11 years of education or less and those with bachelor's degrees had a 5 percent participation rate.

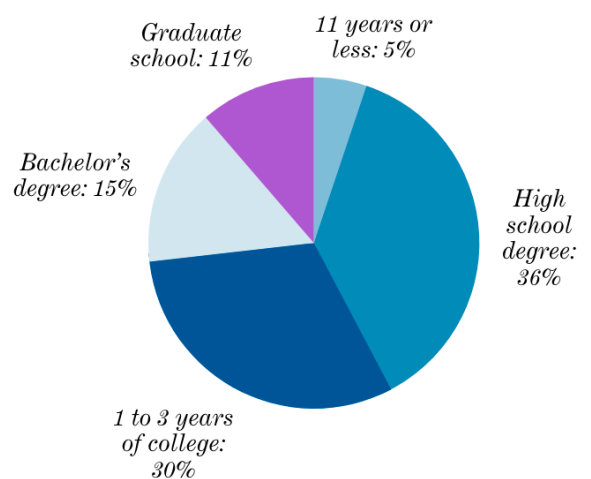
When determining the percent of hunters in each education category, the largest group of hunters were high school graduates, comprising 36 percent of all hunters. Those with 1 to 3 years of college comprised 30 percent of all hunters, and those with 4 years of college comprised 15 percent of all hunters. Individuals who attended graduate school made up 11 percent of all hunters. Hunters with 11 years or less of education made up 5 percent of all hunters.

While people of all races participate in hunting, the majority are White. Six percent of the nation's White population, 11.1 million, went hunting in 2022. Asian Americans had the highest participation rate in hunting, with 7 percent, representing 800,000 people.

Hispanics, who represent a growing percentage of the U.S. population, hunted at a lower rate than non-Hispanics. Four percent of all Hispanics hunted in 2022 compared to 6 percent of non-Hispanics. The 2.0 million Hispanics who hunted in 2022 constituted 14 percent of all hunters.



### Percent of Hunters by Education



### Hunters by Education, Race and Ethnicity

**Total hunters ..... 14.4 million**

#### Education

11 years or less ..... 0.8 million  
 High school degree ..... 5.2 million  
 1 to 3 years of college ..... 4.3 million  
 Bachelor's degree ..... 2.2 million  
 Graduate school ..... 1.6 million

#### Race

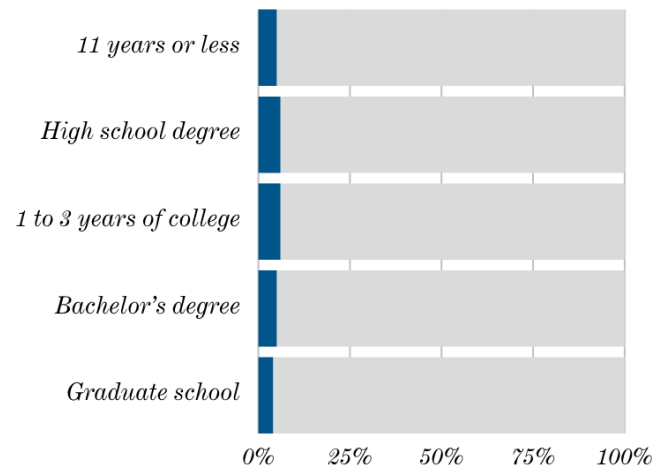
White ..... 11.1 million  
 African American ..... 1.5 million  
 Asian American ..... 0.8 million  
 Other ..... 1.7 million

#### Ethnicity

Hispanic ..... 2.0 million  
 Non-Hispanic ..... 12.3 million

Source: Table 2.

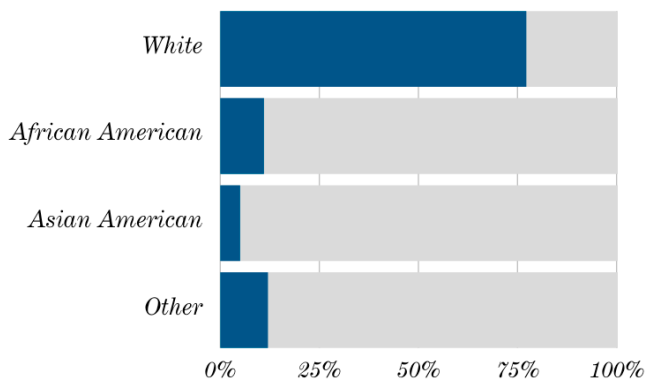
### Percent of U.S. Population Who Hunted by Education



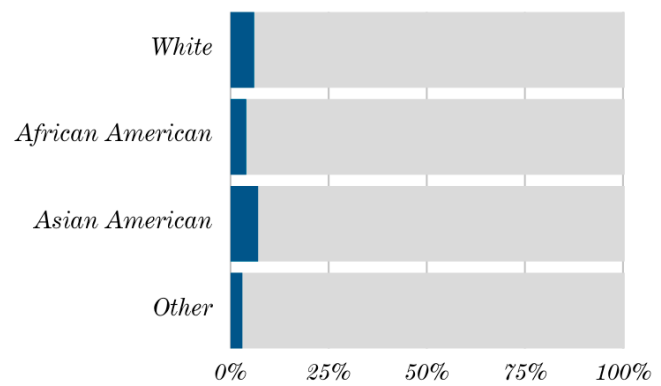




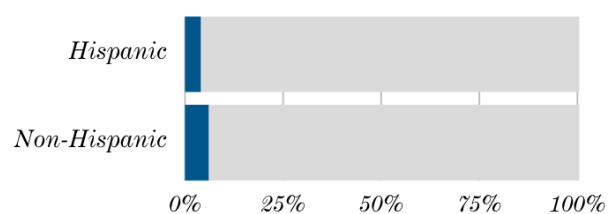
**Percent of Hunters by Race**



**Percent of U.S. Population Who Hunted by Race**



**Percent of U.S. Population Who Hunted by Ethnicity**











# Wildlife Watching





# Wildlife-Watching Highlights



## Wildlife-Watching Highlights

Over half of the U.S. population 16 years old and older enjoyed wildlife watching in 2022. Wildlife watching is defined here as closely observing, feeding, or photographing wildlife, visiting public parks around the home to view wildlife, and maintaining plantings and natural areas around the home for the benefit of wildlife. These activities are categorized as around the home (within a mile of home) or away from home (at least one mile away from home).

The 2022 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.

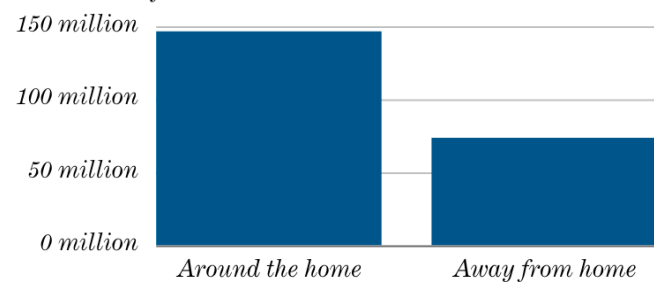
During 2022, 148.3 million U.S. residents, 57 percent of the U.S. population 16 years old or older, participated in wildlife-watching activities. Those who watched wildlife around the home numbered 146.5 million, while those who took trips away from their homes to wildlife watch numbered 73.3 million people.

## Wild Bird Observers

Of all of the wildlife in the United States, birds were the greatest focus of wildlife watchers interviewed in 2022. Approximately 96.3 million people observed birds around the home and on trips in 2022. A large majority, 95 percent (91.1 million), observed wild birds around the home, while 44 percent, 42.6 million, took trips away from home to observe wild birds. Participants averaged 78 days of birding in 2022, with 67 days for around-the-home birders. Away-from-home birders averaged 34 days.

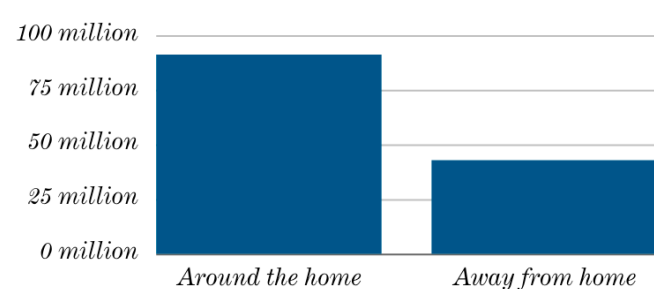
## Wildlife-Watching Participants

Total wildlife watchers: 148.3 million



## Bird Watchers

Total bird watchers: 96.3 million



**Wildlife-Watching Expenditures**

Sixty-three percent of all the dollars spent in 2022 for wildlife-related recreation was due to wildlife watching, whose participants 16 years old or older spent \$250.2 billion, an average of \$2,188 per spender. Seventy-seven percent of all wildlife watchers spent money on their hobby.

Wildlife watchers spent \$42.1 billion on trips pursuing their activities. That is 17 percent of their total wildlife-watching related expenditures.

These recreationists purchased \$118.6 billion worth of equipment for wildlife watching. They spent \$24.6 billion (21 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 \$8.9 billion (8 percent) for the year. Participants spent \$85.1 billion (72 percent) on special equipment, including off-road vehicles, campers, and boats.

Also, for the year, wildlife watchers spent \$89.5 billion on land leasing and ownership, plantings for the benefit of wildlife, membership dues and contributions, and magazines, books, and DVDs.



**Total Wildlife-Watching Expenditures**

**Total wildlife-watching expenditures ..... \$250.2 billion**

**Total trip-related expenditures ..... \$42.1 billion**

**Total equipment expenditures ..... \$118.6 billion**

*Wildlife-watching equipment ..... \$24.6 billion*

*Auxiliary equipment ..... \$8.9 billion*

*Special equipment ..... \$85.1 billion*

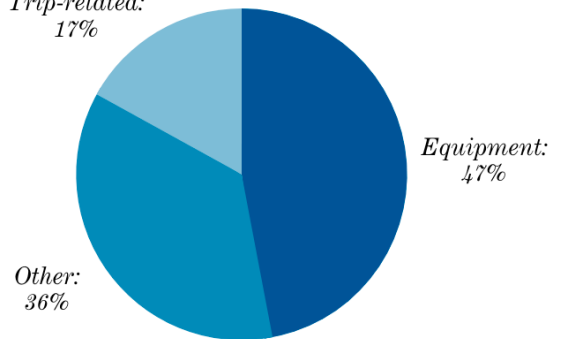
**Total other wildlife-watching expenditures ..... \$89.5 billion**

*Source: Table 5.*

**Wildlife-Watching Expenditures**

*Total expenditures: \$250.2 billion*

*Trip-related:  
17%*



*Equipment:  
47%*

*Other:  
36%*



### Around-The-Home Wildlife-Watching Highlights

In 2022, around-the-home participants 16 years old and older numbered 146.5 million—99 percent of all wildlife-watching recreationists.

### Around-The-Home Wildlife Watchers by Geographic Division

In 2022, 259 million people 16 years old or older lived in the U.S. Of those, 56 percent wildlife watched around their homes. The participation rates of these around-the-home wildlife watchers varied by division.

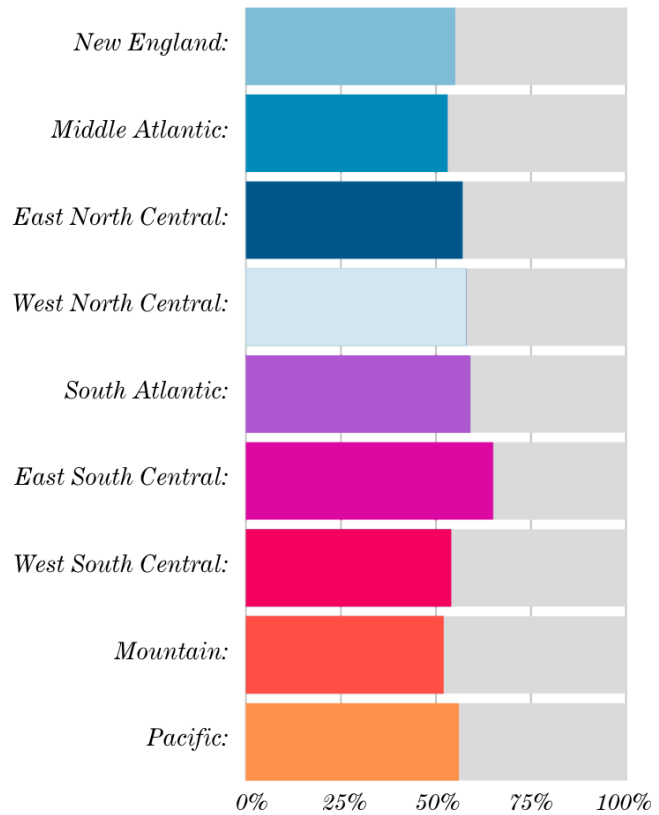
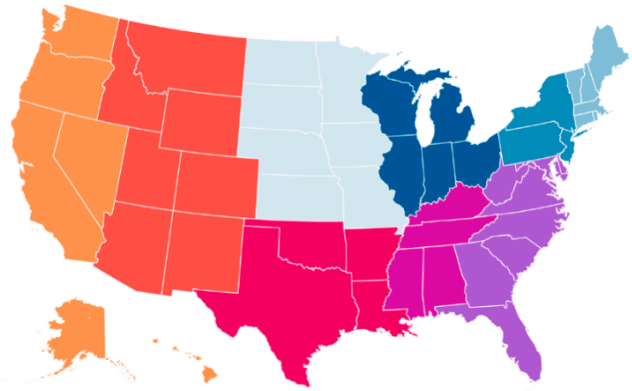
The percentages of populations that wildlife watched around their homes ranged from 52 percent in the Mountain Division to 65 percent in the East South Central Division. The East North Central, West North Central, South Atlantic, and East South Central had participation rates above the national average of 56 percent.

The Division that had the highest number of around-the-home wildlife watchers was the South Atlantic (31.3 million participants).



### Around-the-Home Wildlife-Watching Participation by Geographic Division

National participation rate: 56%



### Sex and Age of Around-The-Home Wildlife Watchers

Males had a higher participation rate than females and other genders for around-the-home wildlife watching. In 2022, 59 percent of males, 54 percent of females, and 58 percent of other genders enjoyed around-the-home activities. Of the 146.5 million around-the-home wildlife watchers, 50 percent (73.6 million) were males, 48 percent (70.3 million) were females, and 1 percent (2.2 million) were other genders.

People in the 16- to 17-year-old age group were most likely to participate at 64 percent (5.4 million). People in the 45- to 54-year-old age group were the least likely to participate, but still had a 53 percent participation rate (21.3 million).

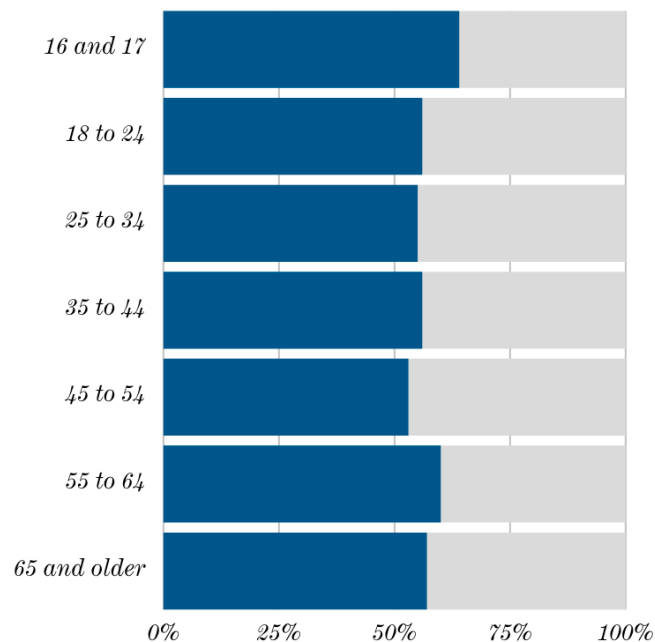
### Around-the-Home Participants by Sex and Age

**Total, all sexes ..... 146.5 million**  
*Male ..... 73.6 million*  
*Female ..... 70.3 million*  
*Other gender ..... 2.2 million*

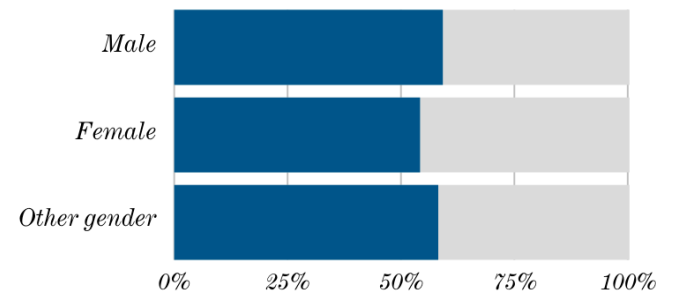
**Total, all ages.....146.5 million**  
*16 and 17 ..... 5.4 million*  
*18 to 24 ..... 15.0 million*  
*25 to 34 ..... 24.3 million*  
*35 to 44 ..... 24.0 million*  
*45 to 54 ..... 21.3 million*  
*55 to 64 ..... 25.4 million*  
*65 and older ..... 30.7 million*

Source: Table 6.

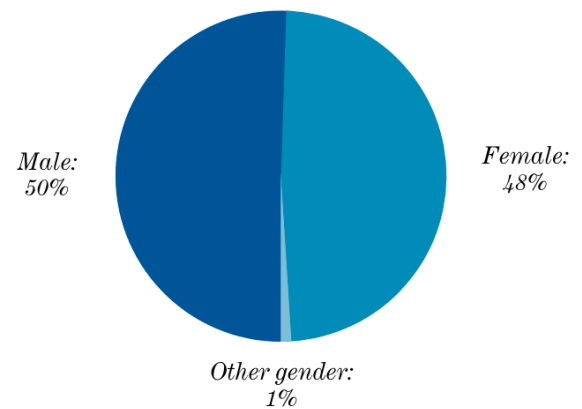
### Percent of U.S. Population Who Participated in Around-the-Home Wildlife-Watching by Age



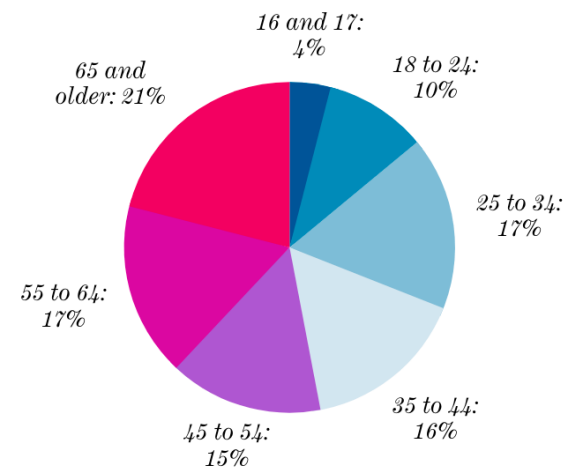
### Percent of Around-the-Home Wildlife Watchers by Sex in the U.S. Population



### Percent of Around-the-Home Wildlife Watchers by Sex Total participants: 146.5 million



### Percent of Around-the-Home Wildlife Watchers by Age







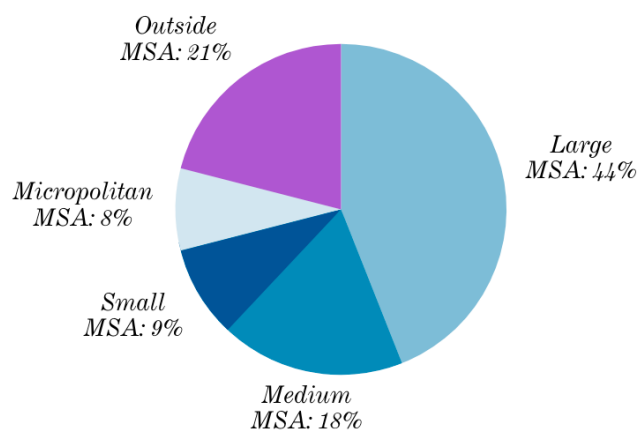
### Metropolitan and Nonmetropolitan Around-the-Home Participants

Seventy-eight percent of around-the-home wildlife watchers lived in metropolitan areas. Metropolitan Statistical Areas, or MSAs<sup>3</sup>, with populations of 1 million or more had a participation rate of 53 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 58 percent and they made up 18 percent of all around-the-home recreationists. Nine percent 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 60 percent. Micropolitan areas, with populations of 10,000 to 49,999, had a participation rate of 64 percent and constituted 8 percent of all around-the-home participants.

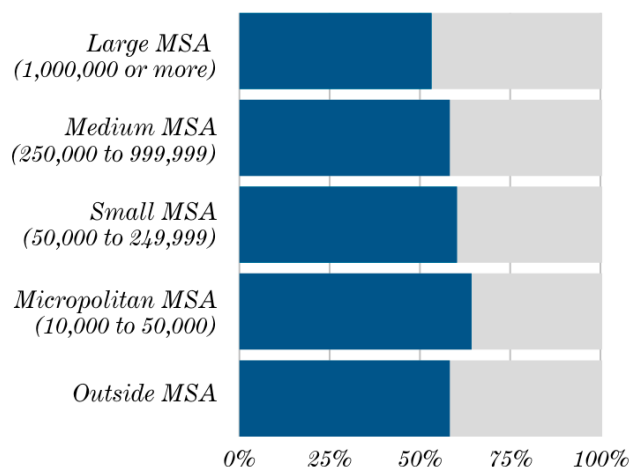
The participation rate for populations who lived outside MSAs was 58 percent. Twenty-one percent of the total U.S. population lived outside MSAs in 2022 and also constituted 21 percent of all around-the-home wildlife watchers.

### Percent of Around-the-Home Wildlife Watchers by Residence

Total participants: 146.5 million



### Percent of U.S. Population Who Participated in Around-the-Home Wildlife-Watching by Residence



3. See Appendix A for definition.

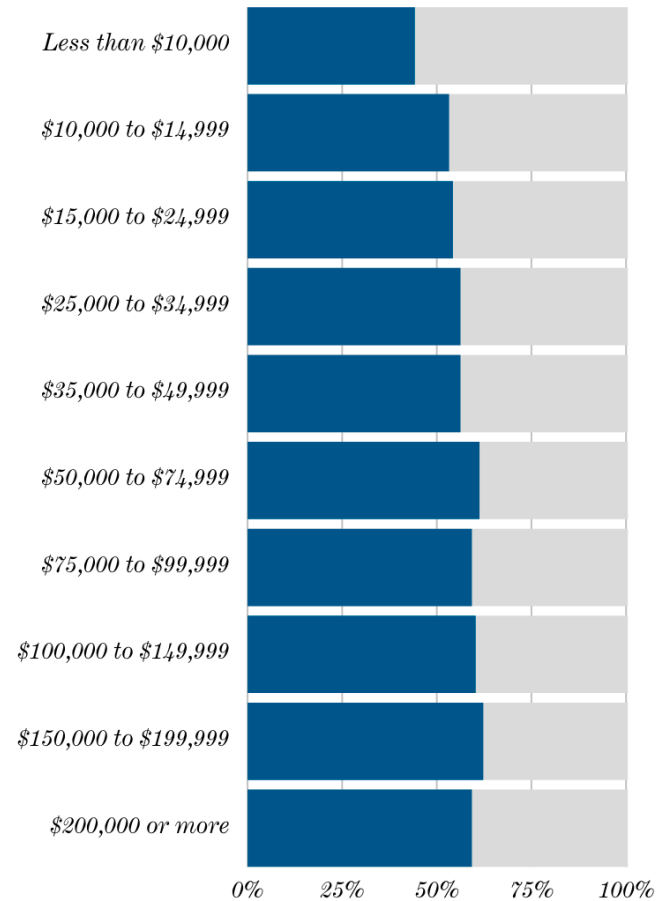


### Household Income of Around-The-Home Participants

Participation rates ranged from 44 percent among U.S. residents living in households earning less than \$10,000 per year to 62 percent of those living in households earning \$150,000 to \$199,999 annually. The income cohorts with less than the national average participation rate were the lowest three: less than \$10,000, \$10,000 to \$14,999, and \$15,000 to \$24,999.

Participants in households earning \$50,000 to \$74,999 a year constituted the largest number, 25.7 million. The income group with the next largest number of participants was \$35,000 to \$49,999. This group contributed 18.7 million and had a 56 percent participation rate. The number of around-the-home wildlife watchers contributed by other income groups ranged from 6.7 million participants with \$200,000 or more household incomes to 18.2 million participants for both the \$75,000 to \$99,999 and \$100,000 to \$149,999 groups, with 59 percent and 60 percent participation rates, respectively.

### Percent of U.S. Population Who Participated in Around-the-Home Wildlife-Watching by Household Income





**Education, Race, and Ethnicity of Around-The-Home Participants**

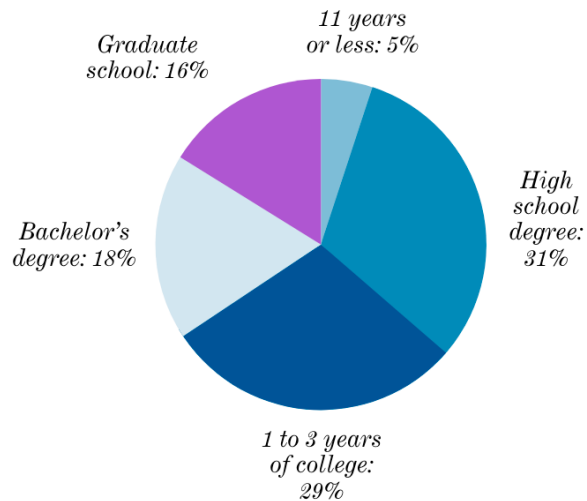
Looking at the educational background of participants, the rate of participation for around-the-home wildlife watching generally increased with more education. The highest participation rate was among recreationists with graduate school education, 61 percent. They made up 16 percent of all around-the-home wildlife watchers. The lowest participation rate, 48 percent, was among people with 11 years or less of education—5 percent of all participants. Recreationists with a high school degree, 31 percent of all around-the-home participants, had a participation rate of 53 percent. Participants with 1 to 3 years of college, 29 percent of all participants, had a participation rate of 59 percent. Recreationists with a bachelor’s degree, 18 percent of all participants, had a participation rate of 58 percent.

A wide range of participation rates were found among the different race and ethnic groups. Sixty-four percent of the Asian American population engaged in around-the-home wildlife watching, with 60 percent of the White population, 45 percent of the African American population, and 53 percent of individuals composing the “other” race category. Of the total number of around-the-home participants, 73 percent were White, 11 percent were African Americans, 5 percent was Asian Americans, and 18 percent were all other races.

Fifty-six percent of the Hispanic population engaged in wildlife watching around their homes in comparison with 57 percent of the non-Hispanic population. The 121 million non-Hispanic participants comprised 83 percent of all around-the-home wildlife watchers and the 24.9 million Hispanic participants made up 17 percent.



**Percent of Around-the-Home Wildlife Watchers by Education**



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

**Total participants** ..... 146.5 million

**Education**

11 years or less ..... 7.1 million  
 High school degree ..... 45.9 million  
 1 to 3 years of college ..... 42.9 million  
 Bachelor’s degree ..... 25.9 million  
 Graduate school ..... 22.8 million

**Race**

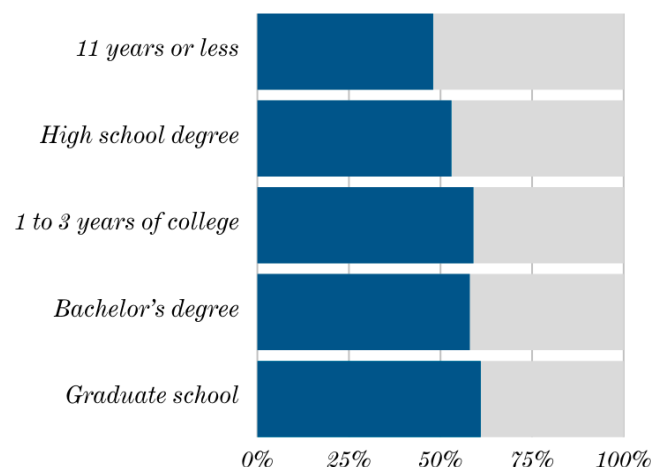
White ..... 106.7 million  
 African American ..... 16.3 million  
 Asian American ..... 6.9 million  
 Other ..... 27.0 million

**Ethnicity**

Hispanic ..... 24.9 million  
 Non-Hispanic ..... 121.0 million

Source: Table 6.

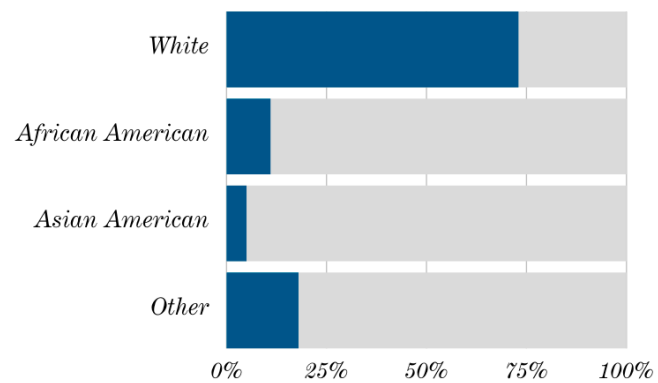
**Percent of U.S. Population Who Participated in Around-the-Home Wildlife-Watching by Education**



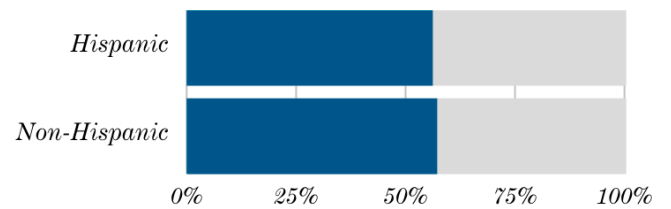


**Percent of Around-the-Home Wildlife Watchers by Race**

*Total participants: 146.5 million*



**Percent of U.S. Population Who Participated in Around-the-Home Wildlife-Watching by Ethnicity**





### Away-From-Home Wildlife-Watching Highlights

In 2022, 73.3 million people 16 years old and older took trips away from home to feed, observe, or photograph wildlife. They constituted 49 percent of all wildlife watchers.

### Away-From-Home Wildlife Watchers by Geographic Division

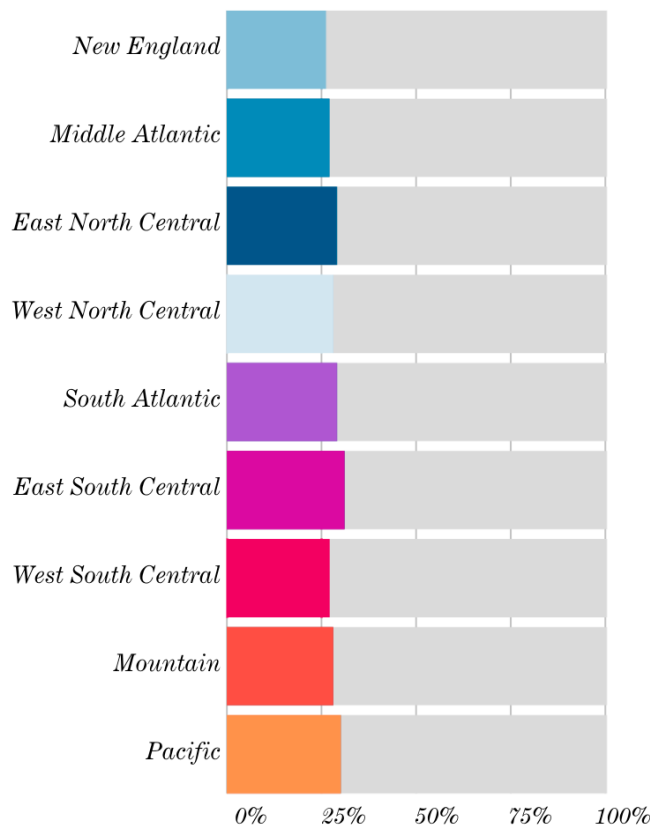
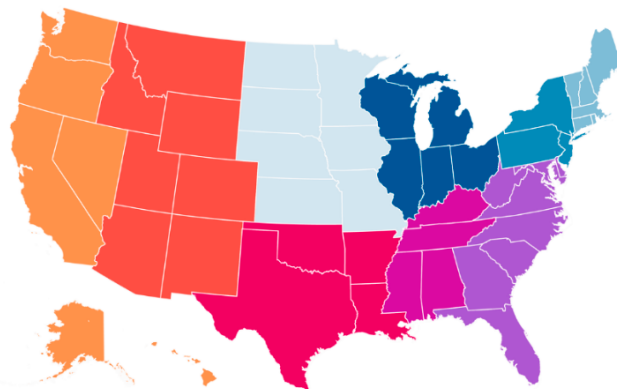
In 2022, 259 million people 16 years old and older lived in the U.S.—28 percent of whom took trips to wildlife watch.

Away-from-home participation rates ranged from 26 percent in the New England Division to 31 percent in the East South Central Division. The divisions that had participation rates higher than the national average were East North Central, South Atlantic, East South Central, and Pacific.



### Away-from-Home Wildlife Watchers by Geographic Division

National participation rate: 28%



### Sex and Age of Away-From-Home Wildlife Watchers

More males participated in away-from-home wildlife watching than females in 2022. Fifty-three percent (38.6 million) of all participants were males, 45 percent (33.3 million) were females, and 2 percent (1.2 million) were another gender. Thirty-one percent of males, 25 percent of females, and 33 percent of other genders in the U.S. enjoyed observing, feeding, or photographing wildlife away from home.

The 25- to 34-year-old age group had the most away-from-home recreationists, 14.2 million. The 16- to 17-year-old age group had the highest participation rate, 38 percent. The 18- to 24-year-old age group had the next highest participation rate, 33 percent. The 65 and older group had the lowest participation rate, at 21 percent.

### Away-from-Home Participants by Sex and Age

**Total, all sexes ..... 73.3 million**

Male ..... 38.6 million

Female ..... 33.3 million

Other gender ..... 1.2 million

**Total, all ages.....73.3 million**

16 and 17 ..... 3.2 million

18 to 24 ..... 8.9 million

25 to 34 ..... 14.2 million

35 to 44 ..... 13.4 million

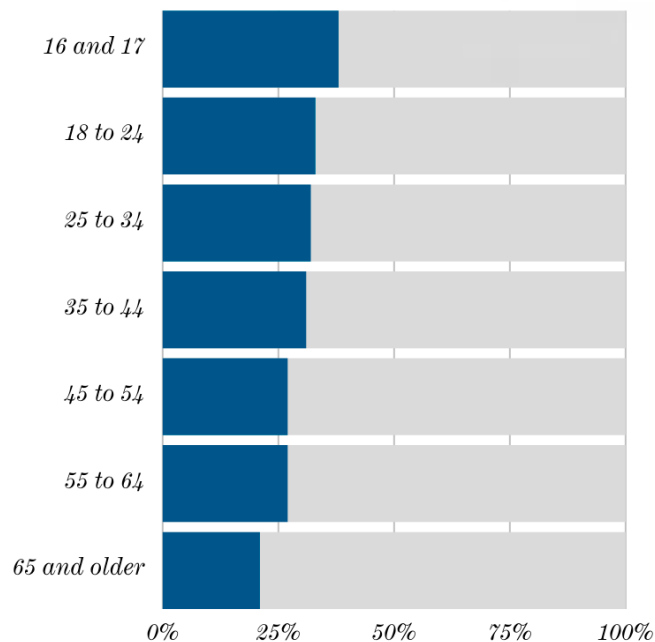
45 to 54 ..... 10.7 million

55 to 64 ..... 11.4 million

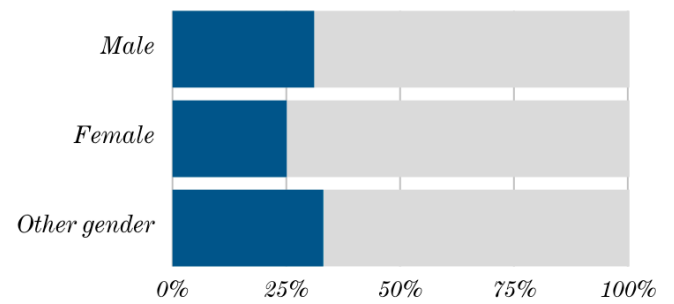
65 and older ..... 11.2 million

Source: Table 6.

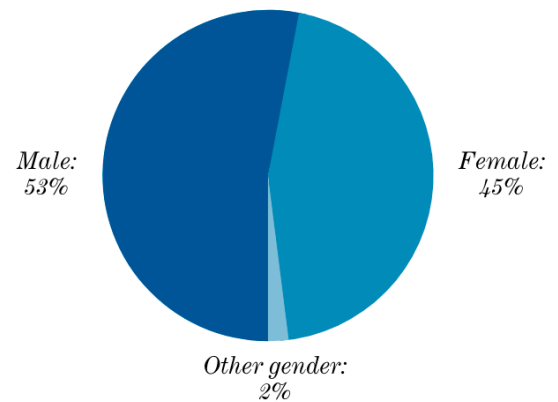
### Percent of U.S. Population Who Participated in Away-from-Home Wildlife-Watching by Age



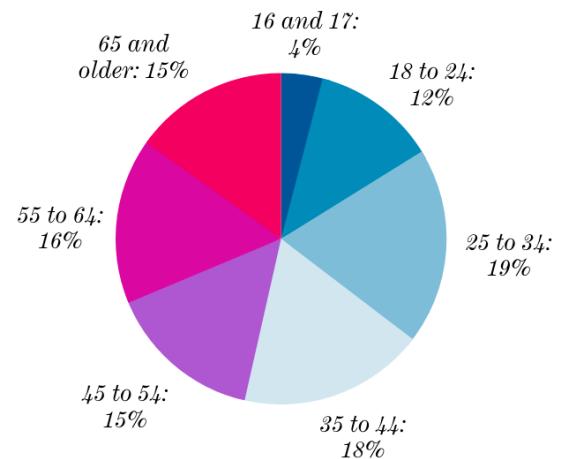
### Percent of Away-from-Home Wildlife Watchers by Sex in the U.S. Population



### Percent of Away-from-Home Wildlife Watchers by Sex



### Percent of Away-from-Home Wildlife Watchers by Age





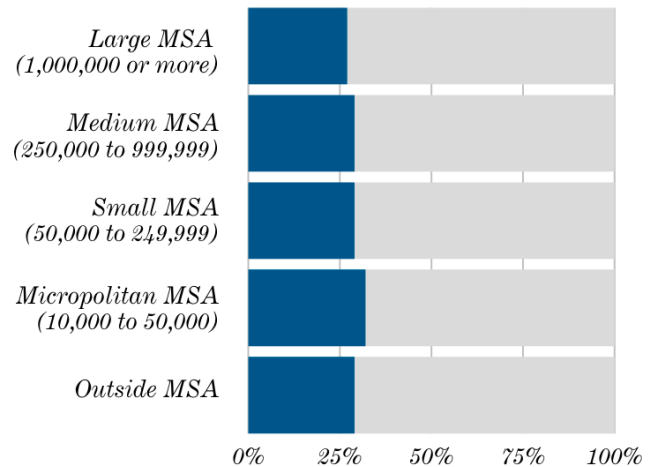


### Metropolitan and Nonmetropolitan Statistical Areas Away-From-Home Participants

In 2022, 28 percent of all people living in MSAs (metropolitan statistical areas) took trips primarily to enjoy wildlife. MSA residents comprised 78 percent of all away-from-home participants. In contrast, 21 percent of all people outside an MSA watched wildlife away from home.

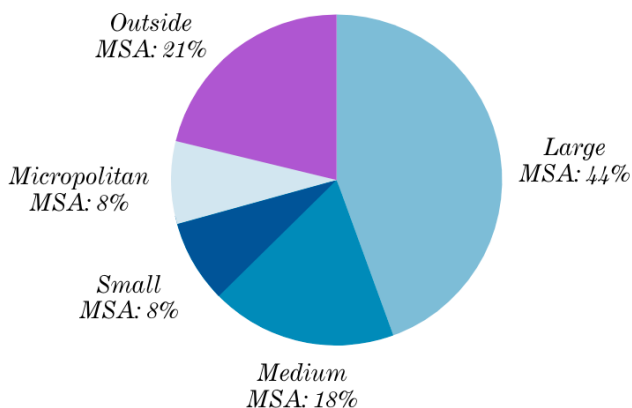
As was the case with around-the-home wildlife watching, the biggest MSA had both the lowest participation rate (27 percent) and the highest number of participants (32.3 million). Residents of non-MSAs made up 21 percent of both away-from-home and around-the-home participants.

### Percent of U.S. Population Who Participated in Away-from-Home Wildlife-Watching by Residence



### Percent of Away-from-Home Wildlife Watchers by Residence

Total participants: 73.3 million



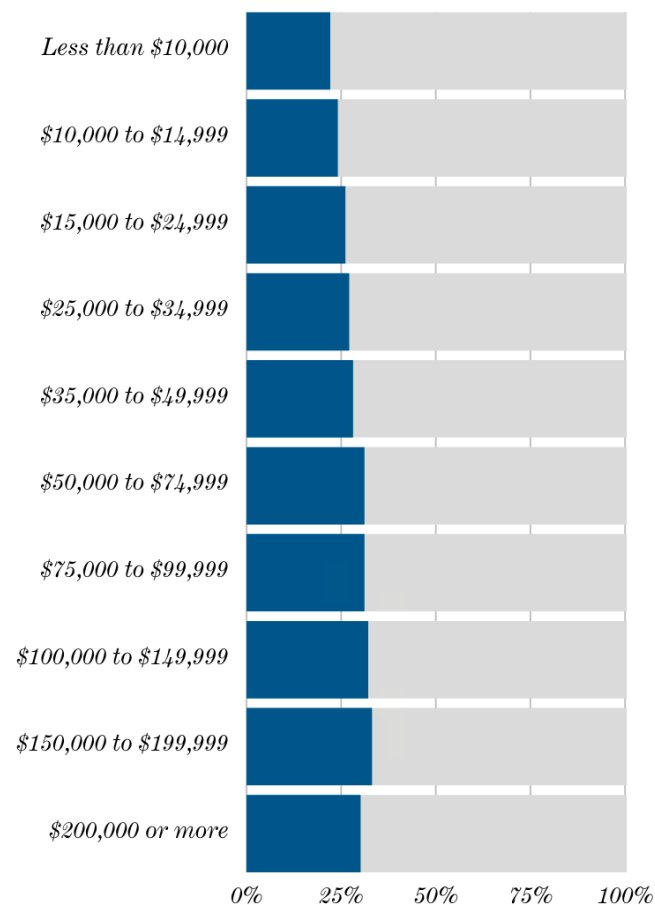


### Household Income of Away-From-Home Participants

Participation rates ranged from 22 percent for those in households earning less than \$10,000 per year to 33 percent for those households earning \$150,000 to \$199,999. The income group that had the most participants was \$50,000 to \$74,999, with 13.2 million recreationists.

The median income was approximately \$56,000 for away-from-home participants. The participation rate for participants with below median income was 26 percent. The rate for participants with above median income was 31 percent.

### Percent of U.S. Population Who Participated in Away-from-Home Wildlife-Watching 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 22 percent of the U.S. population with 11 years of education or less participated, compared to 32 percent of the population with a graduate school education. The educational cohort with the most participants was high school graduates, with 22.2 million wildlife watchers. The educational cohort with the fewest wildlife watchers was 11 years or less, with 3.3 million.

Approximately 29 percent of Whites took trips to wildlife watch. Twenty-two percent of African Americans and 35 percent of Asian Americans participated. Finally, 29 percent of all other races took trips to wildlife watch. Of the total 73.3 million away-from-home participants, 71 percent were White, 11 percent were African Americans, 5 percent were Asian Americans, and 20 percent were all other races.

About 14.3 million recreationists were Hispanic, 19 percent of all participants. Thirty-two percent of the Hispanic population took trips to engage in wildlife watching. Of the non-Hispanic population, 28 percent (58.8 million participants) took trips to wildlife watch. They comprised 80 percent of all away-from-home wildlife watchers.

### Away-from-Home Participants by Education, Race and Ethnicity

**Total participants** ..... 73.3 million

#### Education

11 years or less	3.3 million
High school degree	22.2 million
1 to 3 years of college	21.2 million
Bachelor's degree	13.6 million
Graduate school	12.0 million

#### Race

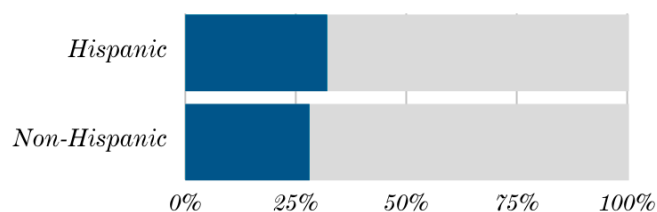
White	52.3 million
African American	8.1 million
Asian American	3.8 million
Other	14.8 million

#### Ethnicity

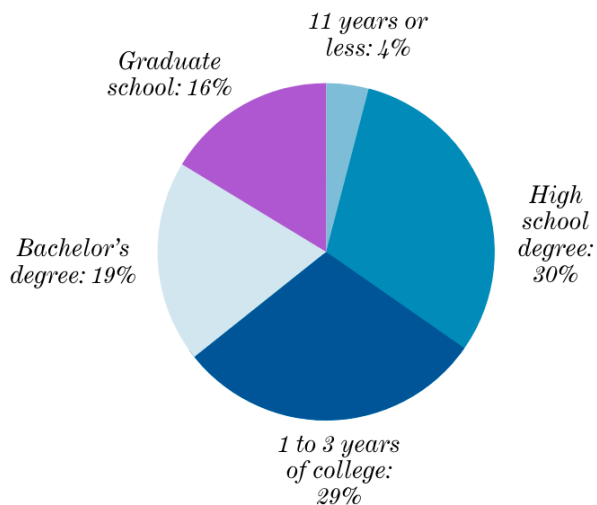
Hispanic	14.3 million
Non-Hispanic	58.8 million

Source: Table 6.

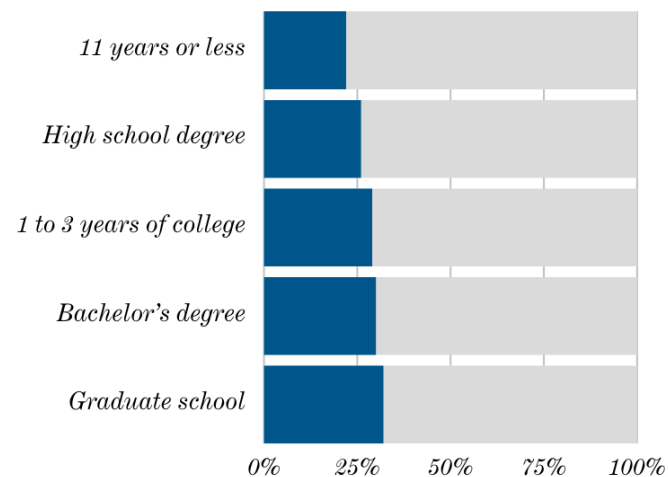
### Percent of U.S. Population Who Participated in Away-from-Home Wildlife-Watching by Ethnicity



### Percent of Away-from-Home Wildlife Watchers by Education

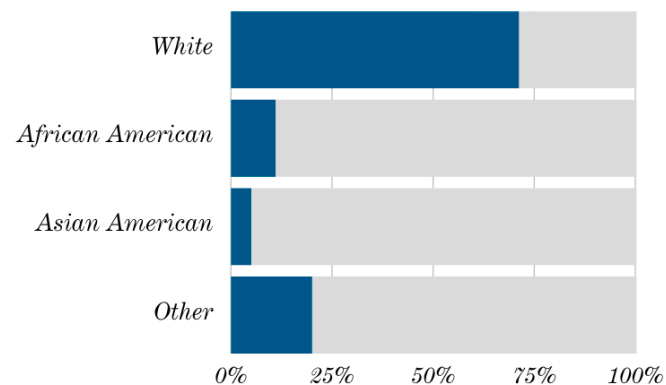


### Percent of U.S. Population Who Participated in Away-from-Home Wildlife-Watching by Education



### Percent of Away-from-Home Wildlife Watchers by Race

Total participants: 73.3 million













# 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 Survey, which was designed to collect data about participation in wildlife-related recreation. To have taken part in the Survey, a respondent must have been a U.S. resident (a resident of one of the 50 states or the District of Columbia). No one residing outside the United States (including U.S. citizens) was eligible for interviewing. Therefore, reported 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

These results from the 2022 Survey should not be directly compared to results from any previous Surveys due to major changes in methodology. These changes were made to reduce respondent burden and to improve accuracy in the information provided. More information on the methodological redesign for the 2022 Survey can be found in Appendix C.

## 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, hunters, and wildlife watchers, 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 fishing-related expenditures.

## Notes to the Tables

Percentages are reported in the tables for the convenience of the user. When exclusive groups are being reported, the base of a percentage is apparent from its context because the 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 (56 percent), those taken by small game hunters (21 percent), those taken by migratory bird hunters (12 percent), and those taken by hunters pursuing other animals (12 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 (37 percent), total migratory bird hunters (20 percent), and total hunters of other animals (16 percent) will not yield total hunters (100 percent) because respondents could hunt for more than one type of game.

Additionally, some respondents did not or could not answer all the questions. The effect of nonresponse is again illustrated in Table 1, where the total for days of all hunting is greater than the sum of days of hunting for big game, small game, migratory birds, and other animals. In some cases, this occurs because total hunting days were asked separately from days hunting individual types of game. In other cases, some respondents did not answer the number of days hunting big game, small game, migratory birds, and other species questions. As a result, it is known how many days hunters were in the field due to an earlier question, but not known how many days were specifically devoted to each type of game. In this case, totals are greater than the sum of subcategories.

These instances are noted in the section below about generating tables using public data files.

Public data files have been reviewed for disclosure risk based on small samples of specific demographic groups. This does not impact the estimates in the tables below, allowing them to be replicable using the public data files.

Public data files have also been reviewed for consistency of response to different questions. The tables below reflect this data review.

**Table 1. Anglers, Hunters, and Wildlife Watchers 16 Years Old and Older, Days of Participation, and Trips by Type of Fishing, Hunting, and Wildlife Watching: 2022**

<i>Type of activity</i>	<i>Participants</i>		<i>Days of Participation</i>		<i>Trips</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
<b>FISHING</b>						
<b>Total, all fishing</b>	39,935,437	100	785,226,417		462,733,320	100
<i>Freshwater</i>	35,069,217	88	559,005,615	71	359,051,599	78
<i>Saltwater</i>	12,704,743	32	123,110,918	16	103,681,721	22
<b>HUNTING</b>						
<b>Total, all hunting</b>	14,374,589	100	240,752,065		165,002,494	100
<i>Big game</i>	11,521,659	80	134,683,681	56	91,610,000	56
<i>Small game</i>	5,290,082	37	38,056,272	16	33,996,768	21
<i>Migratory birds</i>	2,812,364	20	22,861,271	9	19,786,340	12
<i>Other animals</i>	2,300,439	16	19,902,802	8	19,609,387	12
<b>WILDLIFE WATCHING</b>						
<b>Total, all wildlife-watching</b>	148,280,092	100	12,993,936,858		1,075,753,274	100
<i>Away from home</i>	73,334,491	49	2,443,884,896	19	1,075,753,274	100
<i>Around the home</i>	146,502,604	99	10,550,051,963	81	NA	NA

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



**Table 2. Selected Characteristics of Angling, Hunting, and Wildlife Watching: 2022**

(Population 16 years old and older)

Characteristic	U.S. Population		Fishing			Hunting			Wildlife Watching		
	Number	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
<b>Total persons</b>	259,434,526	100	39,935,437	15	100	14,374,589	6	100	148,280,092	57	100
<b>Population Density of Residence</b>											
Urban	207,550,596	80	27,855,117	13	70	8,264,303	4	57	113,106,420	54	76
Rural	51,273,801	20	11,969,721	23	30	6,034,917	12	42	34,834,700	68	23
<b>Population Size of Residence</b>											
<i>Metropolitan Statistical Area (MSA)</i>											
1,000,000 or more	120,312,780	46	15,590,976	13	39	4,906,065	4	34	65,159,494	54	44
250,000 to 999,999	45,157,567	17	7,753,625	17	19	2,542,293	6	18	26,615,390	59	18
50,000 to 249,999	21,052,174	8	3,896,749	19	10	1,632,180	8	11	12,865,505	61	9
Microropolitan (10-50,000)	18,009,250	7	4,162,340	23	10	1,765,228	10	12	11,631,873	65	8
Outside MSA	54,292,625	21	8,421,147	16	21	3,453,454	6	24	31,668,860	58	21
<b>Census Geographic Division</b>											
New England	12,049,325	5	1,501,286	12	4	411,523	3	3	6,682,963	55	5
Middle Atlantic	33,156,736	13	4,079,433	12	10	1,544,291	5	11	17,812,661	54	12
East North Central	36,911,735	14	6,456,969	17	16	2,768,913	8	19	21,256,361	58	14
West North Central	16,677,887	6	3,698,524	22	9	1,518,281	9	11	9,744,740	58	7
South Atlantic	52,601,908	20	8,386,234	16	21	2,303,439	4	16	31,739,605	60	21
East South Central	15,155,523	6	3,079,293	20	8	1,538,268	10	11	9,973,215	66	7
West South Central	31,295,266	12	5,418,040	17	14	2,003,261	6	14	17,067,237	55	12
Mountain	19,697,460	8	2,953,654	15	7	1,004,367	5	7	10,349,032	53	7
Pacific	41,885,355	16	4,362,005	10	11	1,282,246	3	9	23,654,278	56	16
<b>Age</b>											
16 to 17 years	8,498,598	3	1,651,838	19	4	537,312	6	4	5,539,008	65	4
18 to 24 years	26,877,855	10	4,263,807	16	11	1,672,225	6	12	15,248,726	57	10
25 to 34 years	44,002,413	17	6,851,341	16	17	2,304,482	5	16	24,788,515	56	17
35 to 44 years	42,986,685	17	7,603,045	18	19	2,792,085	6	19	24,291,493	57	16
45 to 54 years	39,901,055	15	6,208,266	16	16	1,992,740	5	14	21,483,569	54	14
55 to 64 years	42,136,736	16	6,706,013	16	17	2,581,922	6	18	25,621,204	61	17
65 years and older	54,355,326	21	6,555,031	12	16	2,449,531	5	17	30,953,223	57	21
65 to 74 years	33,283,182	13	4,504,351	14	11	1,772,070	5	12	19,807,959	60	13
75 and older	21,072,144	8	2,050,680	10	5	677,460	3	5	11,150,265	53	8
<b>Sex</b>											
Male	124,186,349	48	26,932,209	22	67	11,037,478	9	77	74,563,039	60	50
Female	130,810,173	50	12,452,130	10	31	3,133,589	2	22	71,132,877	54	48
Other gender	3,693,781	1	448,059	12	1	165,635	4	1	2,199,640	60	1
<b>Ethnicity</b>											
Hispanic	44,808,283	17	6,463,391	14	16	1,951,569	4	14	25,289,254	56	17
Non-Hispanic	213,603,262	82	33,295,927	16	83	12,330,388	6	86	122,361,533	57	83
<b>Race</b>											107
White	178,338,033	69	29,972,272	17	75	11,052,032	6	77	107,738,252	60	73
African American	36,128,351	14	4,495,415	12	11	1,535,179	4	11	16,640,593	46	11
Asian American	10,859,254	4	2,202,156	20	6	774,899	7	5	7,041,599	65	5
All others	51,100,210	25	6,054,711	12	15	1,711,087	3	12	27,324,852	53	18
<b>Annual Household Income</b>											
Less than \$10,000	29,217,437	11	3,226,756	11	8	1,119,378	4	8	13,211,550	45	9
\$10,000 to \$14,999	14,251,099	5	1,790,483	13	4	569,415	4	4	7,644,081	54	5
\$15,000 to \$24,999	23,940,187	9	3,520,605	15	9	1,062,763	4	7	13,179,268	55	9
\$25,000 to \$34,999	27,338,398	11	4,189,536	15	10	1,236,139	5	9	15,384,647	56	10
\$35,000 to \$49,999	33,367,728	13	5,256,524	16	13	1,676,031	5	12	18,927,053	57	13
\$50,000 to \$74,999	42,227,872	16	6,975,141	17	17	2,608,914	6	18	26,015,984	62	18
\$75,000 to \$99,999	30,728,243	12	4,936,060	16	12	1,960,785	6	14	18,411,512	60	12
\$100,000 to \$149,999	30,107,820	12	5,168,871	17	13	2,116,724	7	15	18,422,654	61	12
\$150,000 to \$199,999	11,557,976	4	2,361,030	20	6	1,023,192	9	7	7,195,808	62	5
\$200,000 or more	11,430,857	4	1,793,854	16	4	686,090	6	5	6,795,317	59	5
Not reported	5,266,909	2	716,577	14	2	315,157	6	2	3,092,218	59	2
<b>Education</b>											
Less than high school	14,682,040	6	2,363,333	16	6	753,338	5	5	7,166,124	49	5
High school degree	86,266,448	33	14,350,167	17	36	5,225,753	6	36	46,623,322	54	31
Some college	72,864,202	28	11,904,271	16	30	4,296,921	6	30	43,341,830	59	29
Bachelor's degree	44,926,022	17	5,986,836	13	15	2,177,871	5	15	26,220,777	58	18
Graduate school	37,463,385	14	4,609,243	12	12	1,649,679	4	11	23,014,078	61	16

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.

**Table 3. Expenditures for Fishing: 2022***(Population 16 years old and older)*

<i>Expenditure item</i>	<i>Expenditures</i>			<i>Spenders</i>	
	<i>Amount (dollars)</i>	<i>Average per angler (dollars)</i>	<i>Number</i>	<i>Percent of anglers</i>	<i>Average per spender (dollars)</i>
<b>Total, all items</b>	99,422,180,761	2,490	38,862,006	97	2,558
<i>Total Trip-related</i>	36,604,110,918	917	37,341,147	94	980
<i>Fishing Equipment</i>	8,660,298,983	217	29,126,920	73	297
<i>Auxiliary Equipment</i>	4,326,757,061	108	14,771,669	37	293
<i>Special Equipment</i>	27,747,888,134	695	7,908,496	20	3,509
<i>Other Expenditures</i>	22,083,125,666	553	29,268,567	73	754

Note: Average expenditures are annual estimates.

Trip-related expenditure items include food, drink, refreshments, lodging, public and private transportation, airfare, charter, guide, package, and pack trips, public and private land use, heating and cooking fuel, equipment rental, boating expenses, bait and ice.

Special equipment includes boats, campers, trail bikes, 4x4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, and recreational vehicles.

Auxiliary equipment includes sleeping bags, packs, duffel bags, tents, traps, binoculars and field glasses, special clothing, boots and waders, maintenance and repair of equipment, processing and taxidermy costs, and electronic auxiliary equipment such as global positioning systems.

Detail does not add to total because of multiple responses.

**Table 4. Expenditures for Hunting: 2022***(Population 16 years old and older)*

<i>Expenditure item</i>	<i>Expenditures</i>			<i>Spenders</i>	
	<i>Amount (dollars)</i>	<i>Average per hunter (dollars)</i>	<i>Number</i>	<i>Percent of hunters</i>	<i>Average per spender (dollars)</i>
<b>Total, all items</b>	45,221,096,403	3,146	13,854,558	96	3,264
<i>Total Trip-related</i>	12,322,736,006	857	12,191,391	85	1,011
<i>Hunting Equipment</i>	7,903,537,189	550	10,555,584	73	749
<i>Auxiliary Equipment</i>	3,947,958,433	275	8,440,300	59	468
<i>Special Equipment</i>	7,742,558,419	539	3,351,210	23	2,310
<i>Other Expenditures</i>	13,304,306,355	926	11,734,306	82	1,134

Note: Average expenditures are annual estimates.

Trip-related expenditure items include food, drink, refreshments, lodging, public and private transportation, airfare, charter, guide, package, and pack trips, public and private land use, heating and cooking fuel, equipment rental, and boating expenses.

Special equipment includes boats, campers, trail bikes, 4x4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, and recreational vehicles.

Auxiliary equipment includes sleeping bags, packs, duffel bags, tents, traps, binoculars and field glasses, special clothing, boots and waders, maintenance and repair of equipment, processing and taxidermy costs, and electronic auxiliary equipment such as global positioning systems.

Detail does not add to total because of multiple responses.



**Table 5. Expenditures for Wildlife Watching: 2022***(Population 16 years old and older)*

<i>Expenditure item</i>	<i>Expenditures</i>			<i>Spenders</i>	
	<i>Amount (dollars)</i>	<i>Average per watcher (dollars)</i>	<i>Number</i>	<i>Percent of wildlife- watching participants</i>	<i>Average per spender (dollars)</i>
<b>Total, all items</b>	250,198,668,336	1,687	114,362,154	77	2,188
<i>Total Trip-related</i>	42,059,320,300	284	34,914,966	24	1,205
<i>Wildlife-watching Equipment</i>	24,635,959,828	166	89,051,682	60	277
<i>Auxiliary Equipment</i>	8,910,935,634	60	36,132,561	24	247
<i>Special Equipment</i>	85,097,170,236	574	20,823,554	14	4,087
<i>Other Expenditures</i>	89,495,282,339	604	72,486,119	49	1,235

Note: Average expenditures are annual estimates.

Trip-related expenditure items include food, drink, refreshments, lodging, public and private transportation, airfare, charter, guide, package, and pack trips, public and private land use, heating and cooking fuel, equipment rental, and boating expenses.

Special equipment includes boats, campers, trail bikes, 4x4 vehicles, ATVs, 4-wheelers, snowmobiles, pickups, vans, travel and tent trailers, motor homes, house trailers, and recreational vehicles.

Auxiliary equipment includes sleeping bags, packs, duffel bags, tents, traps, binoculars and field glasses, special clothing, boots and waders, maintenance and repair of equipment, and electronic auxiliary equipment such as global positioning systems.

Detail does not add to total because of multiple responses.

**Table 6. Selected Characteristics of Participants in Wildlife-Watching Activities Around and Away From Home: 2022**  
(Population 16 years old and older)

Characteristic	U.S. Population		Away from home			Around the home		
	Number	Percent	Number	Percent who participated	Percent	Number	Percent who participated	Percent
<b>Total persons</b>	259,434,526	100	73,334,491	28	100	146,502,604	56	100
<b>Population Density of Residence</b>								
Urban	207,550,596	80	56,927,155	27	78	111,619,049	54	76
Rural	51,273,801	20	16,207,034	32	22	34,544,582	67	24
<b>Population Size of Residence</b>								
Metropolitan Statistical Area (MSA)								
1,000,000 or more	120,312,780	46	32,361,867	27	44	64,287,608	53	44
250,000 to 999,999	45,157,567	17	13,186,918	29	18	26,339,694	58	18
50,000 to 249,999	21,052,174	8	6,122,879	29	8	12,733,641	60	9
Micropolitan (10,000 to 50,000)	18,009,250	7	5,820,624	32	8	11,498,714	64	8
Outside MSA	54,292,625	21	15,641,900	29	21	31,303,975	58	21
<b>Census Geographic Division</b>								
New England	12,049,325	5	3,160,202	26	4	6,620,674	55	5
Middle Atlantic	33,156,736	13	8,787,042	27	12	17,626,005	53	12
East North Central	36,911,735	14	10,657,953	29	15	21,102,160	57	14
West North Central	16,677,887	6	4,624,145	28	6	9,664,190	58	7
South Atlantic	52,601,908	20	15,172,375	29	21	31,292,146	59	21
East South Central	15,155,523	6	4,628,910	31	6	9,898,275	65	7
West South Central	31,295,266	12	8,315,982	27	11	16,802,397	54	11
Mountain	19,697,460	8	5,511,148	28	8	10,181,024	52	7
Pacific	41,885,355	16	12,476,735	30	17	23,315,735	56	16
<b>Age</b>								
16 to 17 years	8,498,598	3	3,226,993	38	4	5,418,816	64	4
18 to 24 years	26,877,855	10	8,909,246	33	12	15,002,144	56	10
25 to 34 years	44,002,413	17	14,226,795	32	19	24,309,849	55	17
35 to 44 years	42,986,685	17	13,438,276	31	18	24,016,941	56	16
45 to 54 years	39,901,055	15	10,745,265	27	15	21,250,519	53	15
55 to 64 years	42,136,736	16	11,374,693	27	16	25,427,651	60	17
65 years and older	54,355,326	21	11,208,540	21	15	30,728,037	57	21
65 to 74 years	33,283,182	13	8,061,180	24	11	19,659,915	59	13
75 and older	21,072,144	8	3,147,360	15	4	11,068,122	53	8
<b>Sex</b>								
Male	124,186,349	48	38,572,732	31	53	73,608,320	59	50
Female	130,810,173	50	33,336,451	25	45	70,349,915	54	48
Other gender	3,693,781		1,237,098	33	2	2,159,831	58	1
<b>Ethnicity</b>								
Hispanic	44,808,283	17	14,269,038	32	19	24,915,616	56	17
Non-Hispanic	213,603,262	82	58,758,332	28	80	120,980,766	57	83
<b>Race</b>								
White	178,338,033	69	52,330,782	29	71	106,671,715	60	73
African American	36,128,351	14	8,082,342	22	11	16,291,188	45	11
Asian American	10,859,254	4	3,818,589	35	5	6,948,220	64	5
All others	51,100,210	25	14,840,790	29	20	26,966,137	53	18
<b>Annual Household Income</b>								
Less than \$10,000	29,217,437	11	6,326,577	22	9	12,990,618	44	9
\$10,000 to \$14,999	14,251,099	5	3,414,608	24	5	7,555,351	53	5
\$15,000 to \$24,999	23,940,187	9	6,170,482	26	8	13,038,698	54	9
\$25,000 to \$34,999	27,338,398	11	7,397,451	27	10	15,222,974	56	10
\$35,000 to \$49,999	33,367,728	13	9,441,125	28	13	18,650,392	56	13
\$50,000 to \$74,999	42,227,872	16	13,171,134	31	18	25,731,696	61	18
\$75,000 to \$99,999	30,728,243	12	9,423,707	31	13	18,167,022	59	12
\$100,000 to \$149,999	30,107,820	12	9,600,674	32	13	18,200,731	60	12
\$150,000 to \$199,999	11,557,976	4	3,761,523	33	5	7,131,327	62	5
\$200,000 or more	11,430,857	4	3,416,756	30	5	6,740,979	59	5
Not reported	5,266,909	-	1,210,452	23	2	3,072,815	58	2
<b>Education</b>								
Less than high school	14,682,040	6	3,292,067	22	4	7,082,429	48	5
High school degree	86,266,448	33	22,246,641	26	30	45,938,293	53	31
Some college	72,864,202	28	21,152,885	29	29	42,893,103	59	29
Bachelor's degree	44,926,022	17	13,569,450	30	19	25,893,154	58	18
Graduate school	37,463,385	14	12,010,130	32	16	22,795,597	61	16

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.





# Appendix A





# Appendix A.

## Definitions

**Annual household income**—Total 2021 income of household members before taxes and other deductions.

**Around-the-home wildlife watching**—Activity within one 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 fishing and hunting 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 groups it also includes electronic auxiliary equipment such as global positioning systems.

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

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

**Census Divisions**—See box, right.

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

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

### 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

**Expenditures**—Money spent in 2022 for wildlife-related recreation trips in the U. S., wildlife-related recreational equipment purchased in the U. S., 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 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, and rod-making components
- Lines and leaders
- Artificial lures, flies, baits, and dressing for flies or lines
- Hooks, sinkers, swivels, and other items attached to a line, except lures and baits
- Tackle boxes
- Creels, stringers, fish bags, landing nets, and gaff hooks
- Minnow traps, seines, and bait containers
- Depth finders, fish finders, and other electronic fishing devices
- Ice fishing equipment
- Other fishing equipment

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

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

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

**Metropolitan Statistical Area (MSA)**—Except in the New England States, an MSA is a county or group of contiguous counties containing at least one city of 10,000 or more inhabitants or twin cities (i.e., cities with contiguous boundaries and constituting, for general social and economic purposes, a single community) with a combined population of at least 10,000. Also included in an MSA are contiguous counties that are socially and economically integrated with the central city. In the New England States, an MSA consists of towns and cities instead of counties. Each MSA must include at least one central city.

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

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

**Nonresponse**—A term used to reflect the fact that some Survey respondents provide incomplete sets of information. For example, a Survey respondent may declare themselves a hunter but not have identified the type of hunting they engaged in. Total hunting participation estimates will include their participation, but they will not appear as a big game or any other type of hunter. 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 in 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 must have hunted, fished, or wildlife watched in 2022 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 parks and wildlife management areas; or the federal government, such as national forests, recreation areas, and wildlife refuges).

**Rural**—All territory, population, and housing units located outside of urbanized areas and urban clusters.

**Saltwater**—Oceans, tidal bays and sounds, and the tidal portions of rivers and streams. Brackish water is considered saltwater.

**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 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:

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

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

**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 two types of fishing: (1) freshwater and (2) saltwater.

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

**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.

**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**—Around-the-home and away-from-home 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, 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, videocameras, 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.

### *2021 Participation in Motorized Boating, Target Shooting, and Archery and Historical Participation— Data from Screening Interviews*

The 2022 Survey was carried out in two phases: screen and detailed. The screen phase began in January 2022, and covered activities over the previous five years. The survey collected information about all persons 16 years old and older to develop a sample of potential interviewees for the detailed phase. Information was also collected on the number of persons 6 to 15 years old who participated in wildlife-related recreation in 2021. In addition, questions about the participation of target shooters, archers, and motorized boaters were included.

The screen phase covered activity for 2021 and the previous four years; the detailed phase has estimates for only 2022. The detailed phase was a series of three interviews of the actual participants conducted four months apart. The shorter recall period of the detailed phase enabled better data accuracy.

The screen data are reported by one household

respondent in a single interview speaking for all household members. These data are based on long-term recall (12-month recall or longer), which has been found to bias the resulting estimates. Longer recall periods result in over-estimating participation and expenditures for wildlife-related recreation.<sup>4</sup>

Because of differences in methodologies of the screen and the detailed phases of the 2022 Survey, the estimates of the two phases are not comparable.

Tables B-1 through B-3 report data on first-time participation and 2017-2021 hunting and fishing participation. Tables B-4 and B-5 report estimates on target shooting, archery, and motorized boating, regardless of whether participants hunted, fished, or watched wildlife. Detailed expenditures and recreational activity data were not gathered for these categories.



4. Investigation of Possible Recall/Reference Period Bias in National Surveys of Fishing, Hunting and Wildlife-Associated Recreation, December 1989, Westat, Inc.

**Table B-1. Anglers and Hunters Participating for the First Time in 2021 by Age Group**

Age Group	Total anglers in 2021	Fishing for first time		Total hunters in 2021	Hunting for first time	
		Number	Percent of anglers in age group		Number	Percent of hunters in age group
<b>Total, all ages</b>	49,446,153	6,276,626	100	15,250,850	1,652,225	100
6 to 15 years	9,515,939	2,211,132	19.25	1,791,347	635,447	11.75
16 to 17 years	1,497,547	203,308	3.03	438,617	73,442	2.88
18 to 24 years	4,165,727	611,049	8.42	1,263,619	223,564	8.29
25 to 34 years	6,811,232	997,227	13.78	2,154,514	249,891	14.13
35 to 44 years	7,373,948	856,450	14.91	2,240,879	159,848	14.69
45 to 54 years	6,423,005	580,950	12.99	2,274,923	140,588	14.92
55 to 64 years	6,414,601	436,406	12.97	2,414,358	66,755	15.83
65 years or older	6,482,994	285,446	13.11	2,379,244	74,761	15.60

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 2020 but Not in 2021 by Age Group**

Age Group	Anglers		Hunters	
	Number	Percent	Number	Percent
<b>Total, all ages</b>	9,308,756	100	1,921,352	100
6 to 15 years	1,940,115	20.84	152,246	7.92
16 to 17 years	279,374	3.00	65,993	3.43
18 to 24 years	695,504	7.47	186,961	9.73
25 to 34 years	1,339,172	14.39	338,135	17.60
35 to 44 years	1,691,054	18.17	298,626	15.54
45 to 54 years	1,042,845	11.20	272,253	14.17
55 to 64 years	1,112,482	11.95	243,189	12.66
65 years or older	1,038,180	11.15	313,258	16.30

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-3. Participation by Hunters and Anglers by Age Group: 2017-2021**

Age Group	2021		2020		2019		2018		2017	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
<b>Fishing</b>										
<b>Total, all ages</b>	49,446,153	100	47,929,800	100	47,611,222	100	49,525,733	100	48,840,251	100
6 to 15 years	9,515,939	19.25	8,733,826	18.22	8,121,744	17.06	7,968,836	16.09	7,010,271	14.35
16 to 17 years	1,497,547	3.03	1,435,371	2.99	1,501,665	3.15	1,644,604	3.32	1,635,826	3.35
18 to 24 years	4,165,727	8.42	3,808,607	7.95	3,751,876	7.88	3,788,017	7.65	3,934,542	8.06
25 to 34 years	6,811,232	13.78	6,398,082	13.35	6,232,114	13.09	6,443,764	13.01	6,109,755	12.51
35 to 44 years	7,373,948	14.91	7,454,360	15.55	7,420,662	15.59	7,473,604	15.09	7,339,506	15.03
45 to 54 years	6,423,005	12.99	6,368,132	13.29	6,540,765	13.74	6,972,690	14.08	7,034,038	14.40
55 to 64 years	6,414,601	12.97	6,432,352	13.42	6,565,775	13.79	7,017,352	14.17	7,286,639	14.92
65 years or older	6,482,994	13.11	6,546,312	13.66	6,751,613	14.18	7,474,695	15.09	7,685,817	15.74
<b>Hunting</b>										
<b>Total, all ages</b>	15,250,850	100	13,864,153	100	13,766,494	100	14,442,080	100	14,749,740	100
6 to 15 years	1,791,347	11.75	1,179,461	8.51	943,975	6.86	812,094	5.62	577,954	3.92
16 to 17 years	438,617	2.88	379,661	2.74	359,923	2.61	352,076	2.44	326,284	2.21
18 to 24 years	1,263,619	8.29	1,061,286	7.65	1,078,333	7.83	1,183,807	8.20	1,129,763	7.66
25 to 34 years	2,154,514	14.13	1,920,134	13.85	1,963,244	14.26	2,037,157	14.11	2,095,381	14.21
35 to 44 years	2,240,879	14.69	2,109,146	15.21	2,137,271	15.53	2,175,386	15.06	2,222,583	15.07
45 to 54 years	2,274,923	14.92	2,180,813	15.73	2,162,806	15.71	2,357,750	16.33	2,441,880	16.56
55 to 64 years	2,414,358	15.83	2,347,421	16.93	2,429,792	17.65	2,593,225	17.96	2,745,159	18.61
65 years or older	2,379,244	15.60	2,386,049	17.21	2,430,008	17.65	2,641,958	18.29	2,916,632	19.77

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-4. Participants in Target Shooting and Archery by Age Group: 2021**

<i>Shooting activity</i>	<i>Recreational shooters</i>	
	<i>Number</i>	<i>Percent</i>
<b>Total, target shooters</b>	47,021,609	100
<i>6 to 15 years</i>	4,820,346	10.25
<i>16 to 17 years</i>	1,166,524	2.48
<i>18 to 24 years</i>	4,175,301	8.88
<i>25 to 34 years</i>	8,063,251	17.15
<i>35 to 44 years</i>	7,583,088	16.13
<i>45 to 54 years</i>	6,687,440	14.22
<i>55 to 64 years</i>	6,938,313	14.76
<i>65 years or older</i>	6,732,771	14.32
<b>Total, archers</b>	19,225,787	100
<i>6 to 15 years</i>	4,198,084	21.84
<i>16 to 17 years</i>	792,096	4.12
<i>18 to 24 years</i>	1,947,345	10.13
<i>25 to 34 years</i>	3,337,682	17.36
<i>35 to 44 years</i>	2,932,189	15.25
<i>45 to 54 years</i>	2,236,893	11.63
<i>55 to 64 years</i>	1,970,654	10.25
<i>65 years or older</i>	1,434,875	7.46

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.

**B-5. Participants in Motorized Boating by Age Group: 2021**

<i>Motorized boating activity</i>	<i>Participants</i>	
	<i>Number</i>	<i>Percent</i>
<b>Total, motorized boaters</b>	48,062,640	100
<i>6 to 15 years</i>	7,281,995	15.15
<i>16 to 17 years</i>	1,373,933	2.86
<i>18 to 24 years</i>	3,814,999	7.94
<i>25 to 34 years</i>	6,807,068	14.16
<i>35 to 44 years</i>	7,138,356	14.85
<i>45 to 54 years</i>	6,555,686	13.64
<i>55 to 64 years</i>	7,054,312	14.68
<i>65 years or older</i>	7,246,228	15.08

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.







# Appendix C





# Appendix C.

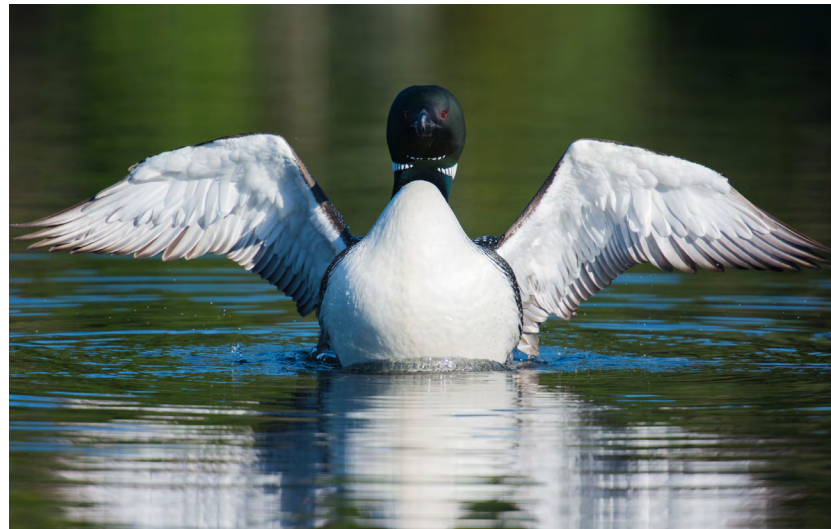
## *Significant Methodological Changes of Previous Surveys*

The 2022 Survey was designed to continue the data collection of the 1955 to 2016 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.

This appendix provides trend information in two sections (1991 to 2022 and 1955 to 1985). A significant change was made in 1991 in the recall period used in the detailed phase of the 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 2011 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<sup>5</sup> of the effect of the respondent recall length on survey estimates. The study found significant differences in 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.

### **1991 to 2022 Significant Methodological Differences**

The most significant design differences in the six 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, 2011, and 2016 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

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5. Investigation of Possible Recall/Reference Period Bias in National Surveys of Fishing, Hunting and Wildlife-Associated Recreation, December 1989, Westat, Inc.

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. Census 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 2011 modification of the pre-2011 sampling scheme was to oversample counties that had relatively high proportions of hunting license purchases.

The 2016 Survey had a nationally-representative sample with the sample selected on a regional level. State-level data were gathered for four states to allow internal analysis. The region of residence data on the public data set are at the Census Division level. A modification of the screening process was the addition of a “pre-screen,” in which the household sample received a short web questionnaire in January and February of 2016. The pre-screen had questions asking for household wildlife-related recreation participation in 2015, preferred phone number, and age and gender breakdown of the household members. The April–June 2016 screen followed up households where participation was likely and did not incorporate the responses received from the pre-screen, with no follow-up for the identified nonparticipant households. The screening instrument design was changed from the previous practice of asking all questions of each household member before continuing to the next household member to asking a global question covering all household members and thereby determining which household members had participated in that activity. The household roster was cycled through for each question, which meant each question did not have to be read for each household member. In addition to the April–June screen there was a computer-assisted personal interview screen in Wave 2 for interviewing a subsample of the non-contacts from the computer-assisted telephone interviews of Wave 1.

3. The 2022 Survey had a new data collector and redesigned methodology including push to web interviewing and samples drawn from an address-based data base, a respondent panel, and a non-probability opt-in sample scheme. See Section VI below for more details.

The screening interviews for all six 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, 2011, and 2016 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 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 individuals if they participated as much as they wanted were added in 1996. If the individual 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 hunter, angler, and wildlife-watchers special equipment section. “House trailer” was added to the hunter and angler special equipment section.
5. Total personal income was asked in the detailed phase of the 1996 Survey. This was changed to total household income in the 2001 Survey.
6. A question was added to the trip-related expenditures section to ascertain how much of the total was spent in the respondent’s state of residence when the respondent participated in hunting, fishing, or wildlife watching out-of-state.
7. Boating questions were added to the fishing section. The respondent was asked about the extent of boat usage for the three types of fishing.
8. The 1996 Survey included questions about the months 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 non-motorboats, length of boat used most often, distance to boat launch used most often, needed improvements to facilities at the launch, whether or not the respondent completed a boating safety course, who the boater fished with most often, and the source and type of information the boater used for his or her fishing.
2. Questions regarding catch and release fishing were added. 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 fifty 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 fifty 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**

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.

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).

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.



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.

### **Section VI. Important instrument and survey design changes in the 2022 Survey**

The 2022 Survey included significant methodological changes from past surveys, including moving to a mixed-mode design, the incorporation of non-probability opt-in panels, questionnaire redesign, the use of differential post-incentive amounts, and using text and email communications. The data collector was NORC at the University of Chicago.

#### **Mixed-Mode Administration**

The 2022 Survey featured multiple samples and was conducted via the phone, web, and paper questionnaires across a screener wave and three subsequent waves. This was a major shift in methodology from past years where the survey was conducted primarily by in-person, field interviewers, which has become financially unfeasible for many projects.

The 2022 Survey combined three sample sources: an address-based probability sample (ABS), AmeriSpeak®, NORC's probability-based panel, and nonprobability sample from online panels.

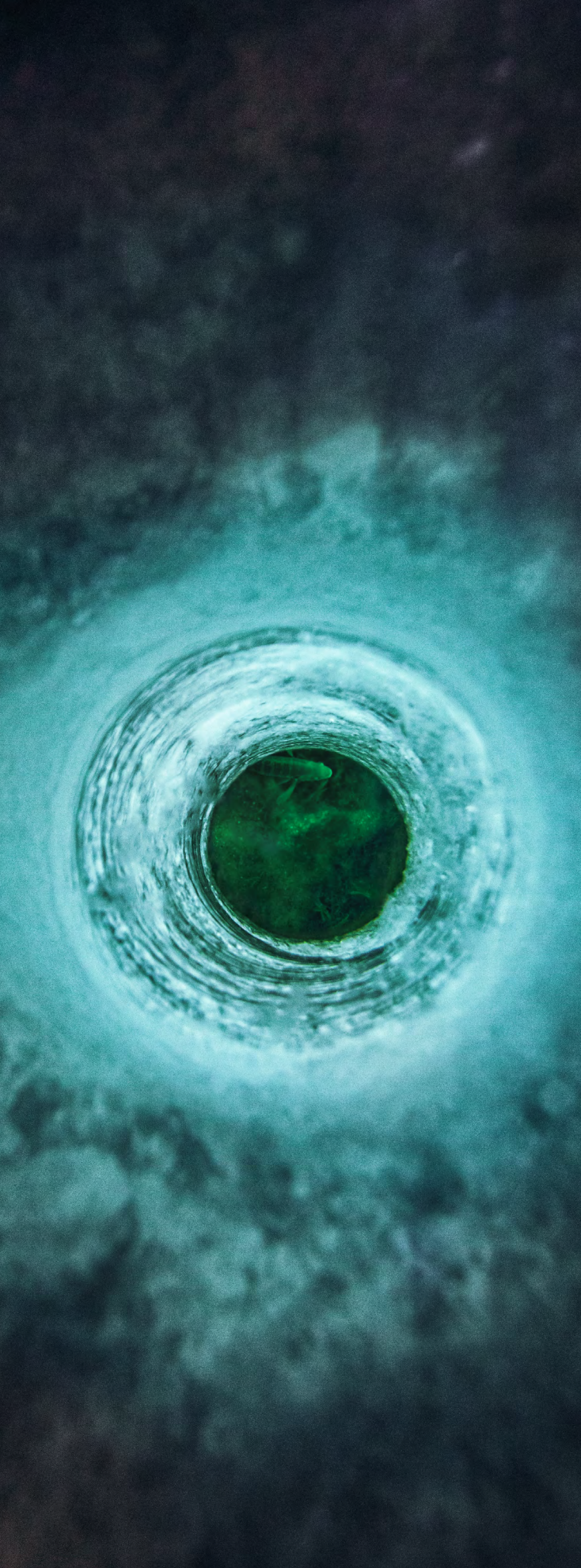
For the ABS sample, NORC incorporated hunting license data and commercial data into the sampling to improve representativeness and reduce nonresponse bias. Respondents received letters and reminder postcards inviting them to complete the survey online or via the phone, and respondents also had the option to complete paper-and-pencil questionnaires.

NORC's AmeriSpeak® Panel provided a nationally representative sample, including strong coverage of rural areas. AmeriSpeak panelists received emails and phone calls inviting them to do the survey online or via the phone.

Nonprobability sample from online panels was incorporated in the Survey to provide a cost-effective approach for state-level data collection for coastal states and states who purchased state-level data. NORC statisticians determined the sample size needed for each coastal state based on the coefficient of variation requirement for freshwater and saltwater angling estimates for each state and the national probability sample size for the state. Demographic and geographic targets were included to improve coverage. NORC employed its TrueNorth calibration approach to combine probability and non-probability samples to create reliable estimates that meet the state-level precision requirements for freshwater and saltwater angling. Nonprobability







interviews from the coastal states and the states that purchased state-level data were included in the national estimates and data files.

### **Questionnaire Redesign**

In consultation with AFWA, NORC redesigned the survey instruments for 2022 to address concerns about survey bias, reduce omitting events from survey reports, and reduce the length of the survey instruments with special attention to items AFWA and the FWS specifically requested be addressed. This process included cognitive and debriefing interviews and a pilot test to improve data quality and reduce respondent burden.

### *Wildlife Watching Question Changes*

The Wildlife-Watching questionnaire includes measures of participation in activities that qualify as wildlife-associated recreation, both around-the-home and away-from home. As part of NORC's initial questionnaire review process aimed at reducing the survey length and cognitive burden, many detailed activity questions were removed or streamlined in partnership with the AFWA Survey Work Group and the U.S. Fish and Wildlife Service (Service). For around-the-home wildlife watching, respondents are considered a wildlife-watching participant if they participate in at least one of six major activities: observing wildlife, photographing wildlife, feeding wildlife, maintaining natural areas, maintaining plantings, and visiting parks or natural areas. In the 2022 Wildlife-Watching questionnaire, each of these major activities is asked about separately, so the respondent has six separate chances to provide an answer that would confirm their participation in around-the-home wildlife-associated recreation.

At the end of each of the three activity questionnaires (Hunting, Angling, and Wildlife-Watching), respondents are asked if they have participated in the other two respective activities throughout the year (e.g., those receiving the Hunting questionnaire are asked about their participation in wildlife-watching and angling, etc.). To better streamline the activity questionnaires across the study, NORC implemented changes at the end of the Angler and Hunter questionnaires to match the redesign of the around-the-home wildlife-watching questions implemented on the Wildlife-Watching questionnaire. Previous versions of the Hunting and Angling surveys included a single wildlife-watching question, in which all wildlife-associated recreation activities were lumped together. To reduce the cognitive burden on the respondent and standardize the definition of around-the-home wildlife-watching, the Hunting and Angling questionnaires were changed from a single yes/no question to a series of six yes/no questions in alignment with the way wildlife watching is organized in the Wildlife-Watching questionnaire.



Cognitive interviews revealed confusion about the meaning of the question pertaining to photographing wildlife. Participants were unsure if this should include the use of cell phone cameras. After consultation with AFWA and the Service, it was decided that pictures of wildlife taken with cell phones should be included in wildlife photography. As a result, the question was edited to clarify that cell phone pictures of wildlife count as a form of wildlife photography.

Cognitive testing was also used to examine the impact of question order on the reporting of wildlife-watching activities. In the 2016 survey, away-from-home wildlife-watching and associated expenditures were asked about before around-the-home wildlife watching. NORC found that due to the prevalence and avidity of around-the-home wildlife watching activities, participants often confused the intent of the away-from-home wildlife-watching questions (when they were asked first) and were prone to mistakenly include around-the-home activities. As a result, we switched the question order so that around-the-home wildlife-watching was asked about first, then away-from-home wildlife watching and associated expenditures, which seemed to aid in better recall and resulted in less confusion.

#### *Question Order*

For the screener, NORC rearranged the order of the sections so that respondents were asked about wildlife watching first, following by fishing, then hunting. This was done so that respondents would be presented with questions on activities the general population is more likely to have participated in. Since fewer people have hunted, these questions were moved later in the questionnaire.

#### *Question Grouping*

NORC tested the inclusion of “bounding” questions in the screener, which collected detailed participation information about all household members. In this approach, respondents would report participation for various types of activities (including days and trips) for each household member. These screener questions were grouped in two ways to see which would result in better recall about household activities and reduce respondent burden. In the interleaved approach, respondents were asked to report on activities for their entire household, selecting one person at a time then cycling through all types of activities. In the grouped approach, respondents were asked to report on a single activity first, recalling participation in that activity for all household members before moving on to the next activity.





Through the cognitive interviews, the bounding questions were found to be burdensome with respondents reporting difficulty recalling details about activities for other household members. Also, the accuracy of proxy reports was not high enough to justify the burden with many respondents reporting inaccurate or conflicting information. As a result, NORC removed the detailed bounding questions from the screener. Instead, the questionnaire simply asked if a household member had engaged in an activity. With a reduced set of questions, the grouped format resulted in a choppy sequence, so the interleaved version was chosen for these engagement questions.

#### *Removed Questions*

AFWA and the Service requested that certain questions be reviewed before the 2022 administration to reduce the survey length and respondent burden beyond the survey cuts AFWA and the Service had already made.

Questions about 2022 hunting, fishing, and wildlife-watching activity were removed from the screener questionnaire knowing that few would have participated in these activities already at that early point of 2022. Instead, the first four months of the year were asked about in the Wave 1 questionnaire. Participation rates in Waves 1, 2, and 3 were only asked at the state-level and aggregated rather than asking an additional question about national participation.

Fishing questions were reworked to not explicitly ask about fishing in the Great Lakes. Instead, fishing

in the Great Lakes was included through freshwater fishing questions. Instead of asking for the number of days one fished for shellfish and finfish, the 2022 questionnaires asked what kind of saltwater fishing was done in each coastal state in which one reported fishing, including fishing for finfish, shellfish, or both, to shorten the survey. The Wave 3 fishing questionnaire did not ask specifically about bass boats when asking about large purchases made in 2022. Instead, they were included in the “motorboat” category.

#### **State Opt-in**

NORC provided states with the opportunity to collect state-level data through the 2022 Survey. Doing so allowed state agencies to collect detailed, reliable information about fishing, hunting and wildlife watching activities in their state at a much lower price than if they had collected the data in a standalone project.

Arkansas, Connecticut, Georgia, Kentucky, Minnesota, Missouri, New Hampshire, New Jersey, New York, Oklahoma, Pennsylvania, Rhode Island, Texas, Virginia, and Washington were part of the state opt-in initiative. All opt-in states received data from the national questionnaires. Some states paid additional funds to include tailored, state questions asked to residents of their respective state. Most of these questions focused on knowledge of state agencies related to wildlife and conservation, support for their organization, and reasons for not partaking in outdoor activities. Some states catered questions to specific activities while others focused on support for potential funding through means other than donations.







### Differential Post-Incentive Experiment

NORC conducted an incentive experiment on the screener with 27,000 cases (10 percent of the 270,000 sampled cases) that had the lowest likelihood to respond based on Census data. Half the cases were offered \$5, and the other half were offered \$10 for completing the survey. The screener yield rate was 9 percent for the group offered \$10 and 7 percent for the \$5 group. The \$10 incentive was associated with a 29 percent increase in the response rate. The success of this experiment led to differential post-incentive amounts being paid in subsequent mailings based on likelihood to respond.

### Text and Email Communications

In Wave 1, NORC sent a text message or email invitation to all respondents who provided their consent to be contacted via text message or email in the screener. The messages let the respondent know the survey was ready and provided a direct link into the survey to complete it. The text messages and emails were sent prior to the mail invitations. In total, NORC sent text messages to 15,994 respondents and email invitations to 34,628 respondents inviting them to take the survey.

In Waves 2 and 3, NORC experimented with varying the timing of the text and email messages. For Wave 2, respondents who consented to be texted in the screener or in Wave 1 were selected into five conditions: receive a text message as the initial contact (n=5615), receive a text message as the initial contact and a text message after the first mailing (n=1247), receive a text message as the initial contact and a text message after the second mailing (1,212), receive a text message after the second mailing (n=5,448), and receive a text message after the final mailing (n=5,535). No emails were distributed in Wave

2. In Wave 3, respondents who consented to be texted in the screener, Wave 1, or Wave 2 were selected into five conditions: receive a text message as the initial contact and after the first mailing (n=6,200), receive a text message as the initial contact, after the first mailing, and after the second mailing (n=6,200), receive a text message as the initial contact and an email after the first mailing (n=935), receive an email invitation as the initial contact and an email after the first mailing (n=6,439), and receive an email invitation as the initial contact and a text message after the first mailing (n=2,661).

### 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 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.

#### **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 individuals 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.







# Appendix D





# Appendix D.

## *Sample Design and Statistical Accuracy*

### **Screener**

#### **Sample Design**

Screener sample included an address-based sample (ABS) and AmeriSpeak®, NORC's probability-based panel. The ABS sample was developed from the November 2021 United State Postal Service's Delivery Sequence File (DSF), including only city-style residential addresses and PO BOX addresses that were flagged as Only Way to Get Mail (OWGM). Drop delivery and vacant households were removed. The ABS sample allowed for oversampling counties with high hunting participation identified by hunting license lists. The sample was stratified by state.

#### **Data Collection**

Recruitment varied depending on the sample source. AmeriSpeak® panel members were contacted using web, text, and phone contacts. ABS addresses received up to four contacts.

1. All ABS sample members were sent a letter including a \$1 incentive directing them to complete the questionnaire online or over the phone with a live interviewer by calling into the NORC project toll-free number. Because of the large volume of letters sent, these letters were sent between January 7 and 21, 2022.
2. One week later, nonrespondents received a reminder postcard sent between January 14 and 28, 2022.
3. Another week later, nonrespondents received a second reminder postcard or privacy mailer sent between January 21 and February 11, 2022.
4. Two weeks later, between February 11 and 25, 2022, nonrespondents were sent a self-administered, paper questionnaire with a letter explaining the survey.

The ABS sample used an adaptive survey design that focused on balanced samples rather than a high response rate. The adaptive design maximized responses from those reluctant to participate and whose answers might differ from those who did not participate. NORC calculated response rates by demographic characteristics during each phase of data collection to identify these individuals.



Based on screener responses, rostered household members were placed in one of five groups for Waves 1, 2, and 3 of data collection: Hunters, Anglers, Wildlife-associated recreation participants, Anyone in more than one of the activities, and Non-participants in any of the activities. Sampled members in more than one activity or with no activity were assigned to an activity, so that no one person completed more than one activity questionnaire in a wave.

Overall, 42,340 households completed the screener questionnaire. By mode, 32,928 households completed by web, 2,341 by phone, and 7,071 by paper survey. Completes by wave and language can also be found in Appendices A and B.

### **Wave 1**

#### **Sample Design**

All individuals identified through the ABS screener phase were contacted in Wave 1. All AmeriSpeak® panelists and household members 16 years old or older identified in the screener phase were contacted in Wave 1.

#### **Data Collection**

AmeriSpeak® panel members were contacted using web, text, and phone contacts, depending on their

preferences, and were paid a \$5 incentive. Wave 1 included four contacts for ABS addresses, which included household members recruited through AmeriSpeak® panelists.

1. Wave 1 ABS cases first received an invitation letter sent between May 13 and 16, 2022.
2. Two weeks later, nonrespondents received a postcard reminder sent between May 27 and 31, 2022.
3. Reminder letter and \$1 incentive were sent to nonrespondents between June 10 and 14, 2022, two weeks after the postcard reminder.
4. Lastly, nonrespondents received a letter and self-administered paper questionnaire sent between June 27 and 29, 2022.

Overall, 16,609 Wave 1 surveys were completed. Appendices A and B shows the number of completes by wave, mode, and language.

## **Wave 2 Sample Design**

Only Wave 1 ABS and AmeriSpeak® respondents were contacted for Wave 2. A supplemental sample of AmeriSpeak® panelists was also included in Wave 2 to improve the precision of the results.

## **Data Collection**

AmeriSpeak® panel members were contacted using web, text, and phone contacts, depending on their preferences, and were paid a \$5 incentive.

Wave 2 included up to five contacts for ABS addresses.

1. Wave 2 ABS addresses first received an invitation letter and \$1 incentive sent between September 16 and 19, 2022.
2. A postcard was sent two weeks later to nonrespondents between September 30 and October 3, 2022.
3. Two weeks later, nonrespondents were sent a second reminder postcard between October 14 and 17, 2022.
4. An outbound dialing phase targeted a small subset of nonrespondents from October 10 and 29, 2022.
5. A letter and self-administered, paper questionnaire were sent between October 31 and November 1, 2022 to a subset of nonresponders



due to the low paper survey yield of 2.4 percent during the screener phase. The screener phase showed that the paper survey was most effective with respondents who were older (about 50 percent of those who completed the mail survey were 65 or older) or who had lower education/income levels (about 60 percent of mail respondents did not have a college degree). Based on these findings, the Wave 2 paper survey was sent to populations most likely to complete it, including those who had completed a paper version in a previous wave.

In total, 16,968 Wave 2 surveys were completed. Appendices A and B shows the number of completes by wave, mode, and language.

## **Wave 3 Sample Design**

Wave 3 included six sample types; ABS cases surveyed throughout 2022, AmeriSpeak® cases surveyed throughout 2022, supplemental AmeriSpeak® cases sampled for Wave 2, supplemental ABS cases sampled for Wave 3, supplemental AmeriSpeak® cases sampled for Wave 3 and nonprobability panel cases.

Existing ABS and AmeriSpeak® cases who had responded to the screener were contacted again in Wave 3 to finish collecting 2022 information. Supplemental ABS and AmeriSpeak® samples were added with Wave 3 to improve response and precision, especially among hard-to-reach populations and states with oversamples. For the supplemental ABS sample, households that were likely to engage in fishing and hunting were oversampled using data from a market vendor.

Nonprobability, online panels provided a cost-effective approach for state-level data collection for the 23 coastal states and states who purchased state-



level data (see State Opt-in section below). NORC statisticians determined the sample size needed for each coastal state based on the coefficient of variation requirement for freshwater and saltwater angler estimates for each state and the national probability sample size for the state. Demographic and state-level targets were included to improve coverage.

### Data Collection

AmeriSpeak® panel members, both existing and supplemental, were contacted using web, text, and phone contacts, depending on their preferences. Non-probability cases were contacted using the procedures of their respective panel. AmeriSpeak® panelists were paid a \$5 incentive. The incentive amount paid non-probability cases was determined by their respective panel. Up to three contacts were sent to ABS cases, both existing and supplemental, in Wave 3.

1. ABS cases were sent a letter including a \$1 incentive directing them to complete the questionnaire online or over the phone with a live interviewer by calling into the NORC project toll-free number. Because of the large volume of letters sent, these letters were sent between January 4 and 26, 2023.
2. Nonrespondents were sent a reminder postcard three weeks later between January 25 and February 16, 2023.

3. Three weeks later, nonrespondents either received a second reminder postcard or a self-administered, paper questionnaire with a letter explaining the survey. All supplemental cases received the second reminder postcard. Existing cases who had completed a paper questionnaire in a previous wave received the paper survey mailing. Existing cases who had not completed a paper questionnaire received the second reminder postcard. The second reminder postcards were mailed between February 16 and March 9, 2023, while the paper questionnaire mailings were sent on February 22, 2023.

Overall, 105,698 people completed the Wave 3 questionnaire, including 49,464 opt-in cases. By mode, 100,867 completed by web, 3,500 by phone, and 1,331 by paper survey. Completes by language can also be found in Appendices A and B.

### State Opt-in

NORC provided states with the opportunity to collect state-level data through the 2022 Survey. Doing so allowed state agencies to collect detailed, reliable information about fishing, hunting and wildlife watching activities in their state at a much lower price than if they had collected the data in a standalone project.

Arkansas, Connecticut, Georgia, Kentucky, Minnesota, Missouri, New Hampshire, New Jersey,



New York, Oklahoma, Pennsylvania, Rhode Island, Texas, Virginia, and Washington were part of the state opt-in initiative. All opt-in states received data from the national questionnaires. Some states paid additional funds to include tailored, state questions asked of residents of their respective state. Most of these questions focused on knowledge of state agencies related to wildlife and conservation, support for their organization, and reasons for not partaking in outdoor activities. Some states catered questions to specific activities while others focused on support for potential funding through means other than donations.

### **Weighting**

Data were weighted after the screener and Wave 3. Data were not weighted separately for Waves 1 and 2 because participation and expenditures estimates were derived for the whole calendar year after Wave 3 data were collected.

### **Screener**

#### *AmeriSpeak® Weighting*

AmeriSpeak® panel data were weighted to account for probability of selection, nonresponse, and population characteristics. Weights were calculated for all spawned household members six years of age through adulthood. The base weights were computed using the AmeriSpeak® panel weight and the probability of selection of the sampled panelist. Nonresponse weights were calculated using AmeriSpeak® panel profile data and market data. The nonresponse weights adjusted for age, sex, race, ethnicity, and education, while the market data were used to predict hunting and fishing participation. Population-based weights were calculated using raking. Raked weights for children six to 15 years old were calculated within each Census Division based on sex, race, ethnicity, and urbanicity. Raked weights for household members 16 years and older were calculated within each Census Division using age, sex, education, race, ethnicity, and urbanicity.

#### *ABS Weighting*

ABS data, including spawned cases six years of age and older, were also weighted for probability of selection, nonresponse, and population characteristics. The base weights were derived as the inverse of the probability of selection of the sampled household. Nonresponse weights were calculated using county-level hunting license data and market data used to predict hunting and fishing participation. Raking was used to calculate population-based adjustments. Raked weights for children six to 15 years old were calculated within each opt-in state/rest of Census Division (after excluding any opt-in states) based on sex, race, ethnicity, and urbanicity. Raked weights



for household members 16 years and older were calculated within each opt-in state/rest of Census Division using age, sex, education, race, ethnicity, and urbanicity.

#### *Combined Weighting*

Additional raking was needed to combine AmeriSpeak® and ABS cases and also adjust for oversampling cases in opt-in states (See State Opt-in section). Raked weights were calculated within each opt-in state/rest of Census Division using age, sex, education, race, ethnicity, urbanicity, and participation in fishing, hunting, archery, target shooting, motorboating, and wildlife watching in 2021. Modeled population totals were calculated for the number of persons participating in fishing, hunting, archery, target shooting, motorboating, and wildlife watching in 2021. The models incorporated data from the 2016 Survey and 2011 Survey as well as covariates sourced from the American Community Survey (such as race/ethnicity, education, gender, and urbanicity), and hunting/fishing license data.

### **Wave 3**

#### *AmeriSpeak® and ABS Weighting*

The base weights were calculated as the final screener weights for the AmeriSpeak® and ABS cases that were recruited into the survey through the screener. For the supplemental ABS cases, base weights were computed using the probability of selection of the household. For the supplemental AmeriSpeak® cases in Waves 2 and 3, base weights were computed using the product of the AmeriSpeak® panel weight and the inverse of probability of selection of the sampled panelist. Nonresponse weights were calculated using available data for the specific sample type (reported fishing/hunting data from the screener, AmeriSpeak® profile data, market data, and Census data). Population-based weights were calculated by raking



within each opt-in state/rest of Census Division using age, sex, education, race, ethnicity, urbanicity, and within Census Division by sex using model estimates of participation in fishing, hunting, and wildlife watching using data from the Survey screener.

*Opt-in Weighting*

The opt-in cases were raked within each opt-in state/rest of Census Division using age, sex, education, race, ethnicity, and urbanicity, and within each Census Division by sex using 2022 hunting, fishing and wildlife watching participation.

*Combined Sample Weighting*

The longitudinal data, fresh sample data, and opt-in cases were combined for the final data set. These data were raked within each opt-in state/rest of Census Division using age, sex, education, race, ethnicity, and urbanicity, as well as within each opt-in state/rest of Census Division by age using small area modeled estimates for 2022 hunting, 2022 fishing, and 2022 wildlife watching. Small area modeling was used to generate the 2022 hunting, fishing, and wildlife watching participation estimates by age using covariates sourced from the American Community Survey (such as race/ethnicity, education, number of adults in the household, urbanicity), hunting/fishing license data, and the 2011 Survey estimates. Small area models were also used to refine estimates of the number of anglers in coastal states and the ratio of freshwater and saltwater anglers in coastal states using 2011 Survey data.

*Expenditure Weighting*

The reported expenditures were weighted separately from the remaining survey responses to adjust for the likelihood of a case being asked either the fishing, hunting, or wildlife-watching specific questions. The base weights were calculated based on the final Wave 3 participation weight and the inverse of the probability of selection for the respondent being assigned to the fishing or hunting or wildlife-watching questionnaire. Random forest models that incorporated the 2011 Survey data were used to refine the estimates for the proportion of big game hunting, small game hunting, migratory bird hunting, and other hunting. Participation population totals for each activity were estimated at the national level using the final Wave 3 participation weights. These participation population totals were used in raking to adjust the expenditure weights for each activity to the following raking dimensions: age, sex, education, race, ethnicity, urbanicity, and opt-in state/rest of Census Division.

**Table D-1. ABS Completes by Wave, Mode, and Language**

	<i>Screener</i>	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>
<b>CAWI</b>	21,944	8,167	8,844	41,077
<b>CATI</b>	1,839	474	552	3,159
<b>PAPI</b>	7,071	1,762	961	1,331
<b>English</b>	30,767	10,390	10,334	45,473
<b>Spanish</b>	87	13	23	94
<b>Total Completes</b>	<b>30,854</b>	<b>10,403</b>	<b>10,357</b>	<b>45,567</b>
<b>Response Rate</b>	<b>11%</b>	<b>4%</b>	<b>4%</b>	<b>8%</b>

Note: CAWI is computer-assisted web interviewing. CATI is computer-assisted telephone interviewing. PAPI is paper and pencil interviewing.

**Table D-2. AmeriSpeak® Completes by Wave, Mode, and Language**

	<i>Screener</i>	<i>Wave 1</i>	<i>Wave 2</i>	<i>Wave 3</i>
<b>CAWI</b>	10,984	6,060	6,435	10,326
<b>CATI</b>	502	146	176	341
<b>English</b>	11,392	6,178	6,566	10,480
<b>Spanish</b>	94	28	45	187
<b>Total Completes</b>	<b>11,486</b>	<b>6,206</b>	<b>6,611</b>	<b>10,667</b>
<b>Response Rate</b>	<b>9%</b>	<b>8%</b>	<b>7%</b>	<b>5%</b>

Note: CAWI is computer-assisted web interviewing. CATI is computer-assisted telephone interviewing. PAPI is paper and pencil interviewing.

**Table D-3. Nonprobability Online Completes in Wave 3 by Language**

	<i>Wave 3</i>
<b>English</b>	49,179
<b>Spanish</b>	285
<b>Total Completes</b>	<b>49,464</b>

**Table D–4. Approximate Standard Errors and 95-Percent Confidence Intervals for Selected Fishing, Hunting, and Wildlife Watching Estimates: 2022**

<i>Description</i>	<i>Estimate</i>	<i>Standard error</i>	<i>Lower 95 percent</i>	<i>Upper 95 percent</i>
<b>FISHING</b>				
<b>Total anglers</b>	39,935,437	377,363	39,195,811	40,675,064
<i>Freshwater</i>	35,069,217	w366,677	34,350,500	35,787,933
<i>Saltwater</i>	12,704,743	225,967	12,261,829	13,147,657
<b>Total days of fishing</b>	785,226,417	19,550,759	746,905,326	823,547,508
<i>Freshwater days of fishing</i>	559,005,615	16,101,394	527,445,562	590,565,668
<i>Saltwater days of fishing</i>	123,110,918	4,947,097	113,414,203	132,807,634
<b>Trip-related fishing expenditures</b>	\$36,604,110,918	\$447,664,019	\$35,726,652,720	\$37,481,569,115
<b>Fishing equipment</b>	\$8,660,298,983	\$129,520,874	\$8,406,427,444	\$8,914,170,521
<b>Auxiliary fishing equipment</b>	\$4,326,757,061	\$91,943,548	\$4,146,540,165	\$4,506,973,957
<b>Special fishing equipment</b>	\$27,747,888,134	\$944,690,649	\$25,896,216,972	\$29,599,559,296
<b>Other fishing expenditures</b>	\$22,083,125,666	\$859,691,682	\$20,398,059,451	\$23,768,191,881
<b>Total fishing expenditures</b>	\$99,422,180,761	\$1,678,706,869	\$96,131,777,599	\$102,712,583,923
<b>HUNTING</b>				
<b>Total hunters</b>	14,374,589	232,462	13,918,966	14,830,212
<i>Big game</i>	11,521,659	249,325	11,032,922	12,010,396
<i>Small game</i>	5,290,082	131,509	5,032,293	5,547,871
<i>Migratory birds</i>	2,812,364	92,584	2,630,877	2,993,850
<i>Other animals</i>	5,290,082	131,509	5,032,293	5,547,871
<b>Total days hunting</b>	240,752,065	7,738,130	225,583,459	255,920,671
<i>Big game days of hunting</i>	134,683,681	4,826,041	125,223,473	144,143,889
<i>Small game days of hunting</i>	38,056,272	1,532,991	35,051,238	41,061,306
<i>Migratory birds days of hunting</i>	22,861,271	1,536,805	19,848,761	25,873,780
<i>Other animals days of hunting</i>	19,902,802	1,268,202	17,416,820	22,388,785
<b>Trip-related hunting expenditures</b>	\$12,322,736,006	\$227,115,480	\$11,877,534,732	\$12,767,937,280
<b>Hunting equipment expenditures</b>	\$7,903,537,189	\$169,234,827	\$7,571,795,995	\$8,235,278,383
<b>Auxiliary hunting equipment expenditures</b>	\$3,947,958,433	\$84,476,944	\$3,782,363,189	\$4,113,553,676
<b>Special hunting equipment expenditures</b>	\$7,742,558,419	\$303,769,653	\$7,147,096,427	\$8,338,020,411
<b>Other hunting expenditures</b>	\$13,304,306,355	\$436,984,352	\$12,447,711,331	\$14,160,901,380
<b>Total hunting expenditures</b>	\$45,221,096,403	\$825,625,337	\$43,602,671,047	\$46,839,521,758
<b>WILDLIFE WATCHING</b>				
<b>Wildlife watching participants</b>	148,280,092	654,928	146,996,442	149,563,743
<i>Around the home</i>	146,502,604	652,176	145,224,348	147,780,860
<i>Away from home</i>	73,334,491	519,023	72,317,213	74,351,769
<b>Total wildlife watching days</b>	12,993,936,858	191,173,036	12,619,239,359	13,368,634,358
<i>Total days away from home</i>	2,443,884,896	57,421,131	2,331,336,556	2,556,433,236
<i>Total days around home</i>	10,550,051,963	148,711,545	10,258,578,618	10,841,525,307
<b>Trip-related wildlife watching expenditures</b>	\$42,059,320,300	\$702,601,880	\$40,682,184,854	\$43,436,455,745
<b>Wildlife watching equipment expenditures</b>	\$24,635,959,828	\$259,344,565	\$24,127,643,211	\$25,144,276,446
<b>Auxiliary wildlife watching equipment expenditures</b>	\$8,910,935,634	\$163,785,350	\$8,589,915,546	\$9,231,955,722
<b>Special wildlife watching equipment expenditures</b>	\$85,097,170,236	\$2,523,568,654	\$80,150,963,323	\$90,043,377,149
<b>Other wildlife watching expenditures</b>	\$89,495,282,339	\$2,838,683,843	\$83,931,448,112	\$95,059,116,565
<b>Total wildlife watching expenditures</b>	\$250,198,668,336	\$4,396,401,245	\$241,581,700,379	\$258,815,636,293



**Table D–5. Approximate Standard Errors and 95-Percent Confidence Intervals for Selected Average Expenditure Estimates: 2022**

<i>Description</i>	<i>Estimate</i>	<i>Standard error</i>	<i>Lower 95 percent</i>	<i>Upper 95 percent</i>
<b>FISHING</b>				
Average fishing trip-related expenditure	\$917	\$14	\$889	\$944
Average fishing equipment expenditure	\$217	\$4	\$209	\$224
Average auxiliary fishing equipment expenditure	\$108	\$3	\$103	\$113
Average special fishing equipment expenditure	\$695	\$25	\$647	\$743
Average other fishing expenditure	\$553	\$22	\$510	\$596
Average total fishing expenditure	\$2,490	\$48	\$2,395	\$2,584
<b>HUNTING</b>				
Average hunting trip-related expenditure	\$857	\$21	\$816	\$898
Average hunting equipment expenditure	\$550	\$15	\$521	\$579
Average auxiliary hunting equipment expenditure	\$275	\$7	\$260	\$289
Average special hunting equipment expenditure	\$539	\$23	\$494	\$583
Average other hunting expenditure	\$926	\$34	\$859	\$992
Average total hunting expenditure	\$3,146	\$77	\$2,996	\$3,296
<b>WILDLIFE WATCHING</b>				
Average wildlife watching trip-related expenditure	\$284	\$5	\$274	\$293
Average wildlife watching equipment expenditure	\$166	\$2	\$162	\$170
Average wildlife watching auxiliary equipment expenditure	\$60	\$1	\$58	\$62
Average wildlife watching special equipment expenditure	\$574	\$17	\$540	\$608
Average wildlife watching other expenditure	\$604	\$19	\$566	\$641
Average total wildlife watching expenditure	\$1,687	\$31	\$1,627	\$1,747

Note: These are average expenditures per participant.

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