

# Fishing and Hunting Recruitment, Retention, and Reactivation in the U.S.

*Addendum to the 2022  
National Survey of Fishing,  
Hunting, and Wildlife-  
Associated Recreation*







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INVESTMENT**

**By Jerry Leonard, *Economist***

U.S. Fish and Wildlife Service, Office of Conservation Investment

This report complements the *2022 National Survey of Fishing, Hunting and Wildlife-Associated Recreation*. The conclusions in this report are the author's and do not represent official positions of the U.S. Fish and Wildlife Service.

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# Introduction

The 2022 *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (Survey)* indicates that hunting and fishing remain highly important lifestyle choices in the United States. In 2022, there were 14.4 million hunters and 39.9 million anglers 16 years and older. While impressive, there are a number of indications that participation had declined from prior levels. A number of Recruitment, Retention, and Reactivation (R3) efforts have been implemented to increase hunting and fishing participation. By taking a deep dive into *Survey* data, this report seeks to assist those efforts by contributing to the existing body of participation-related research.

This report follows three prior efforts by the U.S. Fish and Wildlife Service to examine recruitment and retention by leveraging *Survey* data. However, because of changes in the 2022 questionnaire and methodology, this report differs from prior examinations. Notably, prior reports extensively analyzed trends in R3, but because of changes to the *Survey* methods, comparing 2022 results with prior *Surveys* is no longer straightforward. The new methods do afford a better benchmark going forward. This report will not address longer-term trends. Rather, it will focus on the 2022 data alone, which provides much useful information. The changes to the *Survey*, which make comparisons with prior *Surveys* difficult, also provide a new suite of information useful in examining R3.

This report sheds light on numerous questions regarding fishing and hunting R3. What percent of children living at home have ever been exposed to fishing? How much higher is the percentage of boys exposed to hunting than girls? What percent of hunting newcomers participate in target shooting, and does this percent differ from that of all hunters? At what age do individuals tend to stop fishing and hunting? What population segments are the most likely to lapse if they have formerly participated? These are just a sample of the numerous recruitment and retention-related questions that are addressed in this report. To answer these questions, this report will perform a data exploration based on *Survey* point

estimates. It does not attempt to address statistical significance for all inquiries<sup>1</sup>. Additionally, this report examines R3 across numerous characteristics that are also correlated with one another. For example, people who identify as African American are more likely to live in urban areas. To examine the relative relationship between these characteristics and R3, an appropriately specified model is needed to help account for these cross correlations. This is a suggestion for further research, but it is not addressed here. The results presented in this report should be considered an exploratory data analysis.

## Report Organization

This report first analyzes recruitment and then addresses retention. More specifically, the report is organized as follows.

### Recruitment

*Age of Initiation:* The age at which initiation into hunting and fishing occurs is examined, as well as differences in age of initiation among urban and rural areas and those with different household incomes.

*Demographic and Associated Behaviors of All and First-Time Participants:* This section examines the characteristics of all hunters and anglers and those who participated for the first time in 2021.

*Characteristics and Behaviors of Adults with Children in Household:* Comparisons are made in the hunting and fishing behavior between adult participants with and without children who participate.

### Retention

*Age of Lapsers:* This section examines the age at which individuals stop hunting or fishing.

*Demographic and Associated Behaviors of Retained Participants:* The relationship between various demographic characteristics and associated behaviors with retention rates in hunting and fishing are examined.

1 Contact the author with specific questions about whether a difference discussed is statistically significant.



# Data and Definitions

All reported data contained herein are from the 2022 *Survey*, and the report makes extensive use of data from the *screen phase* of the *Survey* because these data are uniquely suited to examine recruitment and retention in detail. Like prior versions, the 2022 *Survey* had a two-phase construction. The first is the *screen phase*, which is used to locate individuals who will likely participate in hunting, fishing, or wildlife watching in the relevant survey year. The second is the *detail phase*, in which those selected from the *screen phase* are given detailed interviews about their activities. In 2022, unlike prior *Surveys*, not everyone who completes the *detail phase* participated in the *screen*, but there are enough observations to complete this report.<sup>2</sup> It is important to note that because of the heavy use of the *screen phase*, the information in this report will not match the data reported in the final report for the 2022 *Survey*. That report focused on participation and expenditures in 2022, but this report considers participation and behaviors outside of 2022.

*Screen* data from each *Survey* are particularly useful in analyzing recruitment. To determine individuals who are likely to hunt or fish in the survey year, respondents were asked questions about historical hunting and fishing of household members. In most cases, one adult household member provided information for all household members. Respondents indicated the year of their most recent activity. Because the *screen* queries respondents for years prior to the *detail* survey year, we can identify respondents who have ever participated in hunting or fishing, which is well suited for indicating exposure or “recruitment.” Additionally, while the *detail phase* only queries about those 16 and over, the *screen* queries about the behavior of those over five, and as will be shown, ages six to fifteen are critical years for hunting and fishing initiation.

Data from the *screen phase* are also useful in analyzing retention. For individuals who have participated in hunting or fishing at some point, there is information available to indicate the most recent

year in which he or she participated. This information can be used to identify individuals who have effectively ceased hunting or fishing. In this report, individuals are considered active participants if they participated in the respective activity in at least one of the three years prior to the *detail* survey year of 2022. Alternatively, individuals are considered lapsed if they have fished or hunted at some point in their lives but did not participate in one of the three years prior to 2022. Hence, an individual is considered lapsed from fishing if he or she fished at some point in their life but did not participate in 2021, 2020, or 2019.

The Council to Advance Hunting and Shooting Sports’ R3 Practitioners Guide<sup>3</sup> offers the following definitions of several concepts utilized in this report.

**Recruitment** – A behavioral influence (from an R3 effort or other external influence) resulting in the initial choice to participate in a target activity.

**Retention** – A behavioral influence (from an R3 effort or other external influence) resulting in continued year-to-year participation in a target activity.

**Reactivation** – A behavioral influence (from an R3 effort or other external influence) resulting in the renewed participation in an abandoned target activity.

**Retention Rate** – The proportion of individuals in a participant population who participated in a target activity in both the previous year and the current year.

**Reactivation Rate** – The proportion of lapsed participants who did not participate in a target activity in the previous year or years, but then resumed participation in the current year.

**Recruitment Rate** – The proportion of the participant population who participates in the target activity for the first time.

2 More details of administration of the screen can be found in the 2022 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation Technical Report, which can be obtained by contacting the USFWS.

3 The Guide is found here <https://cahss.org/r3-foundations-and-definitions/>.

In this report, the operational definitions, or how these concepts are to be measured, are as follows. This report will use a concept of Recruitment Rate that does differ conceptually as defined below.

**Children** – Measured as individuals 18 years of age and younger. Eighteen-year-olds are included as children because some people who were 18 at the time of the survey were 17 for some part of the period for which activity is queried.

**Recruitment** – Measured as those individuals participating in the activity for the first time. These individuals are referred to as newcomers or entrants.

**Retention** – Measured as individuals who participated in an activity over a three-year span from 2019 to 2021.

**Reactivation** – Measured as individuals who have been inactive for three years prior to 2021, so 2018-2020, who participated again in 2021.

**Retention Rate** – Measured as the proportion of individuals who participated at some point in their life who have been active over a three-year span from 2019 to 2021.

**Recruitment Rate** – The definition above indicates that Recruitment Rate is the share of the hunter and angler populations who participate for the first time. In this report, Recruitment Rate is the share of the U.S. population who are newcomers participating for the first time in 2021.

In addition to these working definitions, this report will add one that has not been previously defined, which is recurrence.

**Recurrence** – Measured as the number of years over the five years from 2017 to 2021 that one engages in an activity.









# Recruitment

## Age of Initiation

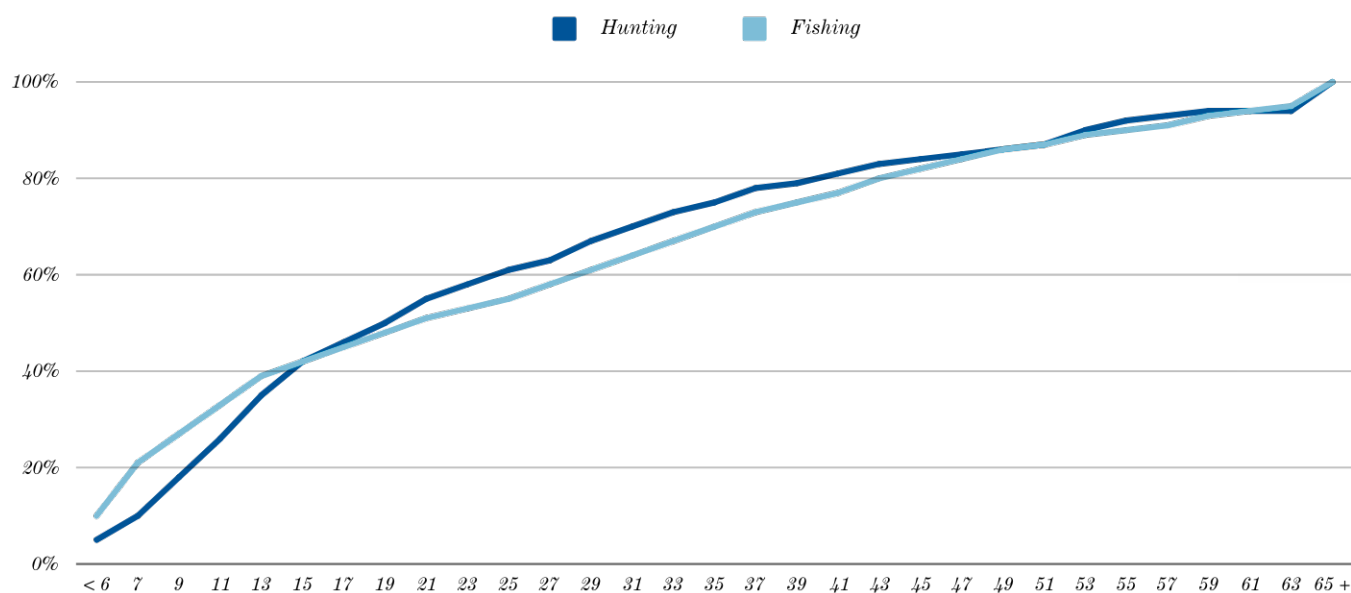
The *screen* contains information about first-time hunting or fishing experiences for the year immediately preceding the *detail* survey year. Individuals who hunted or fished in 2021 were asked a follow-up question about whether it was their first year participating. Using the responses to this question, one can obtain the distribution of first-time hunters and anglers by age. These distributions are displayed in Figure 1 as cumulative percentages. Displaying the distributions in this manner helps reveal what age groups are critical for exposure to hunting or fishing.

To clarify the meaning of the cumulative percentage curves in Figure 1, the line for fishing indicates that in 2021, 10 percent of all first-time anglers were under 6 years old<sup>4</sup>, 42 percent were 15 or under, and 49 percent were 20 or under. If the distribution of first-time hunters and anglers is relatively consistent over time, then the relationship between age and

first-time hunters and anglers seen in 2021 alone would resemble the rate of exposure for all anglers and hunters. In other words, one could then estimate that 49 percent of all individuals who have ever participated in fishing were exposed to it by the time they were 20 years old.

Figure 1 reveals that individuals are typically exposed to fishing at a younger age than hunting. Thirty percent of first-time anglers were 10 years old or younger compared to 21 percent of first-time hunters. However, the cumulative percent of individuals hunting for the first time increases rapidly through the teenage years, so roughly half of both first-time hunters and anglers are 20 years of age or younger: 52 percent of hunters and 49 percent of anglers, respectively. This finding underscores the importance of recruitment during the adolescent years. However, it also means that about half of both first-time anglers and first-time hunters in 2021 were 21 years old and older.

**Figure 1. Cumulative First-Time Hunters and Anglers by Age**



4 The *screen* does not query the activities for individuals under 6. The number of individuals in 2021 who were first-time anglers before 6 was approximated by tallying the 6-year-old individuals who both participated in 2021 and indicated it was not the first time.



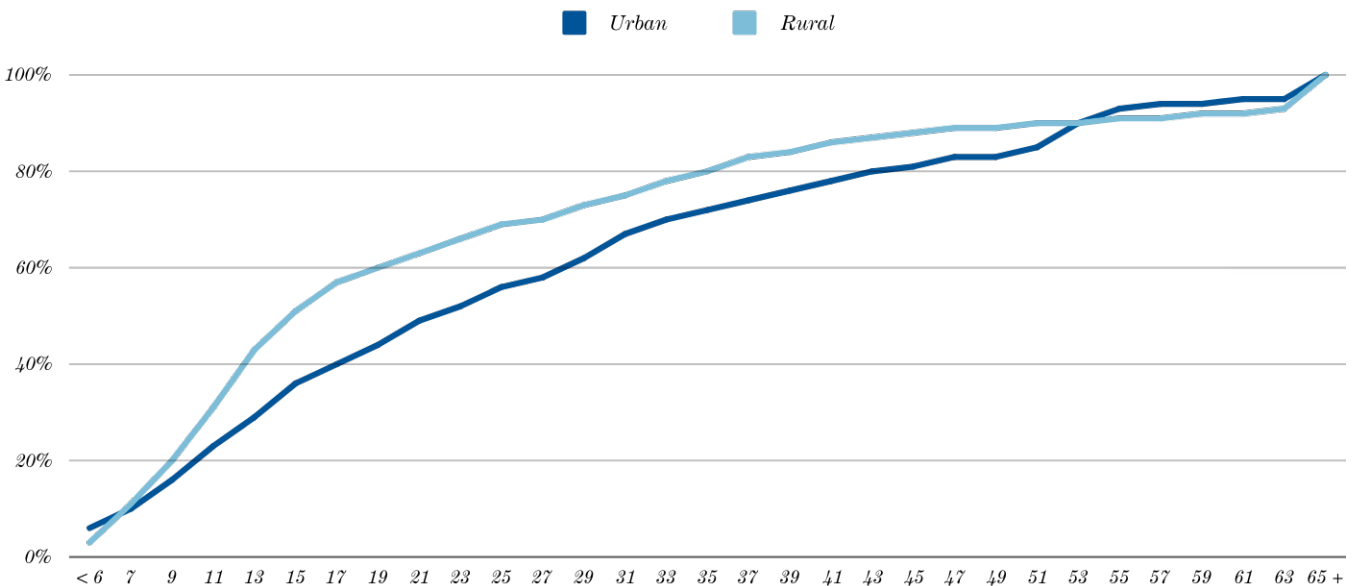
That may come as a surprise. While adolescence is the most important time for recruitment, this finding punctuates that other opportunities exist to recruit more hunters and anglers in young adult and middle-aged demographics.

The participation curves in Figure 1 can be produced for different demographic characteristics, and a few exhibit noteworthy differences in age of initiation. Figure 2 displays the cumulative percent of first-time hunters for rural and urban residents separately. Residents of rural areas participate for the first time at a younger age than residents of urban areas: 51 percent of first-time hunters living in rural areas are 15 or younger, compared to 36 percent of first-time hunters living in urban areas. Research suggests that those initiated into hunting at younger ages tend to have higher levels of dedication to hunting and tend to be more active hunters later in life<sup>5</sup>. Consequently, the finding that individuals in rural areas are more likely to participate at earlier ages than those in urban areas is not trivial.

For fishing, residents of rural areas also begin fishing at younger ages, but the difference is not as pronounced as that of hunting.



**Figure 2. Cumulative First-Time Hunters by Age and Urban/Rural**



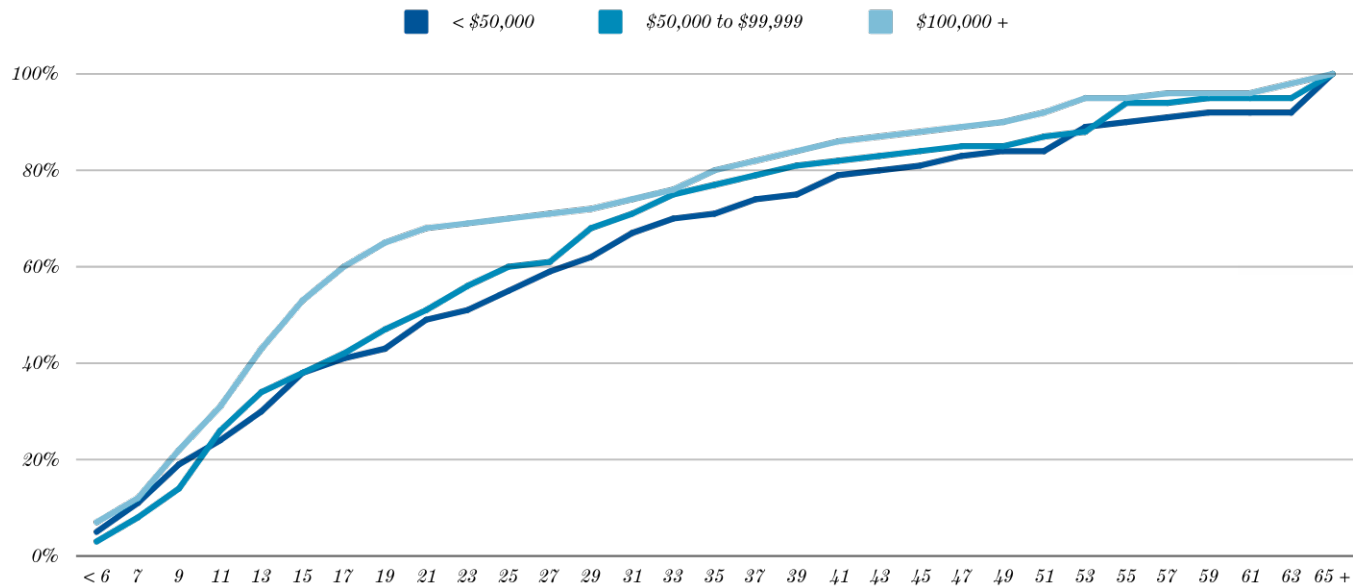
<sup>5</sup> See the following publications for more information: Responsive Management/National Shooting Sports Foundation, 2008, *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*, [https://responsivemanagement.com/wp-content/uploads/2018/11/Future\\_Hunting\\_Shooting\\_Report.pdf](https://responsivemanagement.com/wp-content/uploads/2018/11/Future_Hunting_Shooting_Report.pdf); Applegate, J. E. (1982) "A change in the age structure of new hunters in New Jersey," *Journal of Wildlife Management*, 46: 490-492; O'Leary, J. T., J. Behrens-Tepper, F.A. McGuire and F. D. Dottavio. (1987). Age of first hunting experience: results from a nationwide recreation survey. *Leisure Sciences*, 9: 225-233; Purdy, K. G., Decker, D. J. & Brown, T. L. (1989). New York's new hunters: Influences on hunting involvement from beginning to end (HDRU Publication 89-3). Ithaca, NY: Cornell University, Department of Natural Resources, Human Dimensions Research Unit.



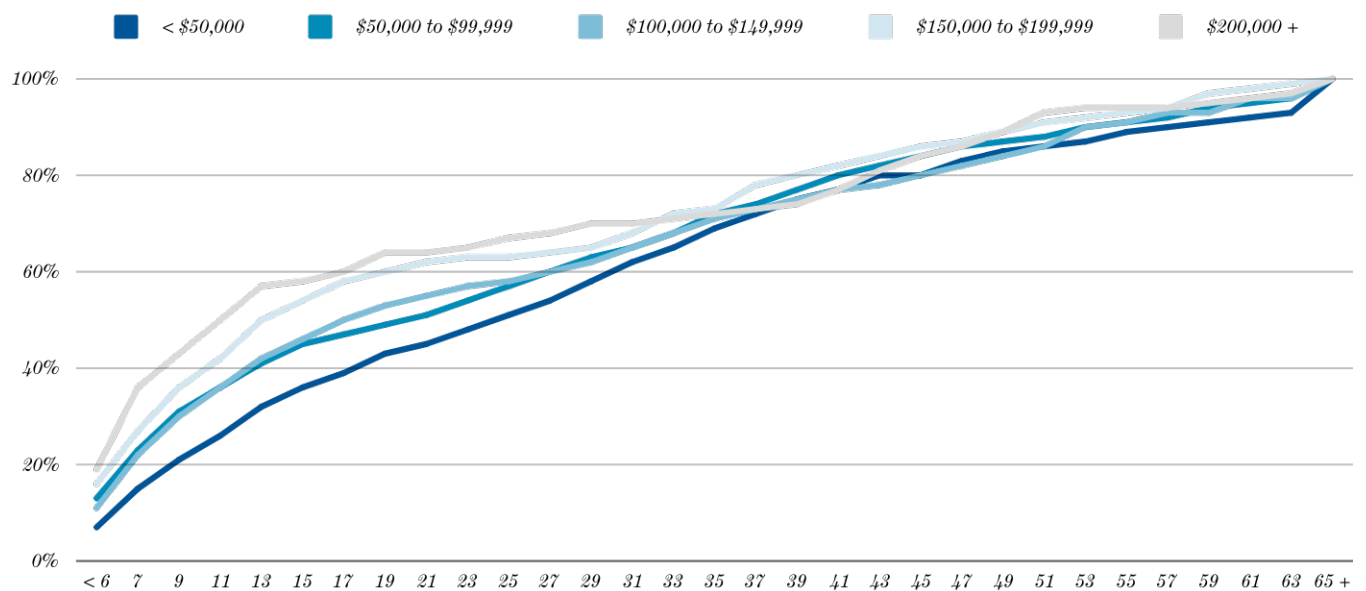
Both hunters and anglers from higher income households begin participating at younger ages than those from lower income households. First-time hunters from households with less than \$50,000 and \$50,000-\$99,999 start at similar ages, but those from households over \$100,000 start sooner (Figure 3). Fishing initiation age is also younger as income

increases (Figure 4).<sup>6</sup> Earlier initiation by those with higher incomes could be due in part to increased opportunities for participation. These opportunities might include increased availability of boats for fishing, guided hunting or fishing trips, land leased or owned for the purpose of hunting and fishing, etc.

**Figure 3. Cumulative First-Time Hunters by Age and Household Income**



**Figure 4. Cumulative First-Time Anglers by Age and Household Income**



6 More observations for fishing than hunting enable more income categories being displayed.



## Demographic and Associated Behaviors of All and First-Time Participants

A demographic comparison of new entrants to all hunting and fishing participants improves our understanding of which population segments are experiencing relative successes in terms of exposure and may hint at how the hunter and angler populations could change in the years ahead. The associated behaviors examined include target shooting, archery participation, and motorboating. Participation in these associated behaviors yields information about whether these activities are heavily engaged in by new entrants.

The analysis in this section utilizes both distributional percentages and participation rates. Distributional percentages indicate the composition of the population of participants with respect to various characteristics and can be found in the “Percent” columns of Tables 1 and 2. For example, in Table 1, the ‘All Hunters Percent’ for the characteristic ‘Sex’ indicates 81 percent of hunters in 2021 were male and 17 percent were female.

Participation rates indicate the share of the population for a particular characteristic who participates, which are shown in the ‘Rate’ columns. For example, the ‘Participation Rate’ column in Table 1 indicates that 9 percent of males and 2 percent of females hunted. The distributional percentages and participation rates are useful to describe the makeup of a given population, like the population of all hunters. Differences in

distributional percentages and participation rates among entrants are helpful to understand potential changes to the population.

A good example of an indication of potential changes to a population can be seen in the differences in the distribution and participation rates of new hunters, or ‘entrants’ by sex compared to all hunters. While females comprise 17 percent of all active hunters, they represent 33 percent of entrants. Additionally, the participation rates suggest that there is a larger difference between males and females for all hunters than there is for entrants. In the all-hunter population males are more likely to participate: 9 percent of males compared to 2 percent of females, so the participation rate of males is approximately 5 times greater than females (9 percent ÷ 2 percent). Males are also more likely to be entrants: 0.7 percent of males were new to hunting in 2021 compared to 0.4 percent of females, so the recruitment rate of males is approximately 2 times greater than females (0.7 percent ÷ 0.4 percent). This information indicates that females are both more prevalent and relatively more likely to participate among the new entrants than they are among the population of all hunters. This could suggest that of late, females are initiated into hunting more than they have been historically. Alternatively, if this has been occurring over time, for many years preceding 2021, it could suggest that females are more likely to give up hunting after they have been initiated. Lapsing will be considered in detail in the retention section of this report.





**Table 1: Distribution and Participation Rates of All and First-Time Hunters in 2021***Population Six Years and Older*

	<i>All Hunters Percent</i>	<i>Participation Rate</i>	<i>Entrants Percent</i>	<i>Recruitment Rate</i>
<b>Sex</b>				
<i>Male</i>	81%	9%	66%	0.7%
<i>Female</i>	17%	2%	33%	0.4%
<b>Population Density of Residence</b>				
<i>Urban</i>	48%	3%	60%	0.4%
<i>Rural</i>	52%	13%	40%	1.1%
<b>Population Size of Residence</b>				
<i>1,000,000 or more</i>	31%	3%	40%	0.4%
<i>250,000 to 999,999</i>	21%	5%	20%	0.5%
<i>50,000 to 249,999</i>	14%	8%	16%	1.0%
<i>Micropolitan (10,000 to 49,999)</i>	17%	11%	13%	0.9%
<i>Outside MSA</i>	16%	15%	11%	1.1%
<b>Annual Household Income</b>				
<i>Less than \$25,000</i>	13%	4%	24%	0.8%
<i>\$25,000 to \$49,999</i>	17%	4%	19%	0.5%
<i>\$50,000 to \$74,999</i>	17%	5%	18%	0.6%
<i>\$75,000 to \$99,999</i>	16%	6%	12%	0.5%
<i>\$100,000 to \$149,999</i>	16%	5%	13%	0.5%
<i>\$150,000 to \$199,999</i>	8%	6%	5%	0.4%
<i>\$200,000 or more</i>	8%	5%	6%	0.4%
<b>Race</b>				
<i>White</i>	86%	7%	70%	0.6%
<i>African American</i>	6%	2%	16%	0.6%
<i>Asian American</i>	5%	7%	5%	0.7%
<i>All others</i>	8%	2%	16%	0.4%
<b>Target Shooting or Sport Shooting Participation</b>				
<i>Yes</i>	69%	22%	66%	2.3%
<i>No</i>	31%	2%	34%	0.2%
<b>Archery Participation, Not Including Hunting</b>				
<i>Yes</i>	39%	31%	43%	3.7%
<i>No</i>	61%	3%	57%	0.3%

Note: *Entrants are those that hunted for the first time and the recruitment rate is the percent of the population six and over who participated for the first time in 2021.*



## Hunting

There is obviously a lot of information presented in Table 1. Differences between all hunters and first-timers are useful to help understand how the disposition of hunters is changing or may change in the future. Similarities are useful because they suggest that a particular characteristic or behavior is no more associated with first-time participants than the whole population. A few noteworthy differences and similarities are as follows.

### *Population Density and Size of Residence*

Residents of urban areas and large metropolitan areas comprise a higher share of entrants than all hunters. The population of all hunters is split roughly 50/50 between urban and rural participants, but entrants are split 60/40. Similarly, residents of large metropolitan areas (1mil or more) comprise 40 percent of entrants and 31 percent of all hunters. If this difference persists, and propensity to lapse between urban vs. rural and large vs. small metropolitan areas are the same, then over time, the population of all hunters would increasingly be comprised of urban and large metropolitan area participants. Lapsing is discussed below in the retention rate section.

### *Annual Household Income*

Those from households with lower income comprise a greater share of entrants than all hunters. This is not surprising because new entrants tend to be younger (Figure 1), and young people tend to have lower incomes.

### *Race*

Whites comprise a smaller share of entrants than the total hunter population. African Americans comprise nearly three times as many entrants as in the hunter population (16 percent vs. 6 percent). Additionally, at 0.6 percent, the recruitment rate of African Americans among entrants is as high as that of Whites. If this persists going forward and propensity to lapse is similar between Whites and African Americans, the population of hunters would likely become more African American in the future. The recruitment rate for Asian Americans is also on par with that of Whites.

### *Target Shooting and Archery Participation*

The results for target shooting and archery participation are interesting because of the similarity between the population of all hunters and entrants. Target shooting and archery are associated with and important to both populations. This is evident in the higher participation rates of both populations when participants engage in target shooting or archery. Twenty-two percent of U.S. residents who target shoot are hunters, while only two percent of residents who do not target shoot are hunters. However, the results suggest that newcomers are not more prone

to participate in either than those hunters who have been around for more than one year. The share of newcomers or entrants who participate in both target shooting and archery are similar to the population of all hunters: 69 percent of all hunters are target shooters compared to 66 percent of entrants, and 39 percent of all hunters are archers compared to 43 percent of entrants. One may expect that newcomers may be more prone to participate in target shooting or archery to gain the skills necessary to go afield, but this is not supported by the data. This does not consider any frequency or intensity differences between all hunters and newcomers, which could indicate 'more' usage by newcomers. The same percentage could engage in target shooting, but newcomers may go target shooting more frequently than someone who has been around for more than one year. Unfortunately, the data is not suited to answer this question.

## Fishing

In general, when compared to hunting, the demographics and associated behaviors results for fishing exhibit more similarity between entrants and all anglers (Table 2). A few noteworthy differences and similarities are as follows.

### *Sex*

Similar to hunting, the data indicate that females are both more prevalent and more likely to participate among the entrants than they are among the whole population of anglers. Females comprise a higher percentage of entrants than the population of all active anglers, 37 percent versus 30 percent. Additionally, the discrepancy between male and female participation rates indicates that, when compared to men, they are relatively more likely to be participants as entrants. The participation rate for males is higher among all active anglers: 23 percent for males and 10 percent for females, so the participation rate for males is 2.3 times greater than females (23 percent ÷ 10 percent). Males are also more likely to be entrants: 2.6 percent of males were new to fishing in 2021 compared to 1.5 percent of females, so the recruitment rate of males is approximately 1.5 times greater than females (2.6 percent ÷ 1.5 percent). This indicates while males are more likely to be in both populations, the advantage of males is reduced among new entrants.

### *Population Density and Size of Residence*

Residents of urban areas and large metropolitan areas comprise a higher share of entrants than all anglers. The population of all anglers is split roughly 66/34 between urban and rural participants, but entrants are split 76/24. Similarly, residents of large metropolitan areas (1 mil or more) comprise 50 percent of entrants and 43 percent of all anglers.



**Table 2: Distribution and Participation Rates of All and First-Time Anglers in 2021**  
*Population Six Years and Older*

	<i>All Anglers Percent</i>	<i>Participation Rate</i>	<i>Entrants Percent</i>	<i>Recruitment Rate</i>
<b>Sex</b>				
<i>Male</i>	69%	23%	61%	2.6%
<i>Female</i>	30%	10%	37%	1.5%
<b>Population Density of Residence</b>				
<i>Urban</i>	66%	13%	76%	2.0%
<i>Rural</i>	34%	28%	24%	2.5%
<b>Population Size of Residence</b>				
<i>1,000,000 or more</i>	43%	13%	50%	1.9%
<i>250,000 to 999,999</i>	23%	18%	23%	2.3%
<i>50,000 to 249,999</i>	12%	21%	10%	2.2%
<i>Micropolitan (10,000 to 49,999)</i>	12%	25%	9%	2.3%
<i>Outside MSA</i>	10%	30%	8%	3.0%
<b>Annual Household Income</b>				
<i>Less than \$25,000</i>	14%	14%	23%	3.0%
<i>\$25,000 to \$49,999</i>	18%	15%	22%	2.4%
<i>\$50,000 to \$74,999</i>	17%	17%	16%	2.0%
<i>\$75,000 to \$99,999</i>	14%	17%	12%	1.8%
<i>\$100,000 to \$149,999</i>	16%	18%	13%	1.8%
<i>\$150,000 to \$199,999</i>	8%	18%	5%	1.6%
<i>\$200,000 or more</i>	8%	18%	6%	1.7%
<b>Race</b>				
<i>White</i>	80%	20%	63%	2.0%
<i>African American</i>	9%	10%	15%	2.3%
<i>Asian American</i>	5%	21%	6%	3.3%
<i>All others</i>	9%	11%	19%	2.8%
<b>Motorboating Participation</b>				
<i>Yes</i>	43%	44%	33%	4.3%
<i>No</i>	57%	11%	67%	1.7%

*Note: Entrants are those that fished for the first time and the recruitment rate is the percent of the population six and over who participated for the first time in 2021.*



### *Annual Household Income*

Those from households in the lowest income level, less than \$25,000, comprise a greater share of entrants than all anglers. This is not surprising because entrants tend to be younger (Figure 1), and young people tend to have lower incomes.

### *Race*

Whites comprise a considerably smaller share of new entrants than among the total angler population. While Whites comprise 80 percent of active anglers, they are 63 percent of newcomers. African Americans comprise nearly twice the share of entrants as in the angler population (15 percent vs. 9 percent). Additionally, at 2.3 percent, the participation rate of African Americans among entrants is actually slightly higher than that of Whites. If this persists going forward and propensity to lapse is the same between Whites and African Americans, the population of anglers would become more African American in the future.

### **Motorized Boating**

Both all anglers and newcomers have a considerably higher participation rate in fishing if they also participate in motorized boating, but the population of all anglers and newcomers is comprised of a greater share of non-motorized boaters. The fishing participation rate of all anglers and entrants is considerably higher among motorized boaters in both populations. Forty-four percent of those who

boat are anglers, compared to 11 percent of those who do not boat. Four-point-three percent of those who boat are newcomers, compared to 1.7 percent of those who do not boat. However, the share of all anglers who participate in boating is higher among all anglers than newcomers: 43 percent compared to 33 percent. Newcomers are not more prone to use boats. One possible explanation for this is that boating is expensive, and newcomers tend to be younger and have lower incomes. Another possible explanation is that those who have participated for more than one year are more likely to make the investment in a boat to further their fishing endeavors. We will examine boating in another way below when we examine the correlation between adults and children in the household.

### **Demographic and Associated Behaviors of Adult First-Time Participants**

This section addresses the population of adult first-time participants. To do so, all people 18 and under are dropped, and Tables two and three are recreated. As defined above, those 18 years of age are treated as children in this report. Additionally, this section will examine new adult entrants with respect to other hunters and anglers in the household, which will enable us to answer questions like the following. What proportion of new hunters over 18 are coming from households with experienced hunters? Are adult female entrants more likely to live in a household with an experienced hunter than males?



**Table 3: Distribution and Participation Rates of All and First-Time Hunters in 2021 Over 18 Years Old Population Over Eighteen Years**

	<i>All Hunters Percent</i>	<i>Participation Rate</i>	<i>Entrants Percent</i>	<i>Recruitment Rate</i>
<b>Sex</b>				
<i>Male</i>	84%	9%	67%	0.5%
<i>Female</i>	16%	2%	33%	0.2%
<b>Population Density of Residence</b>				
<i>Urban</i>	48%	3%	69%	0.3%
<i>Rural</i>	52%	13%	31%	0.6%
<b>Population Size of Residence</b>				
<i>1,000,000 or more</i>	32%	3%	46%	0.3%
<i>250,000 to 999,999</i>	22%	5%	19%	0.3%
<i>50,000 to 249,999</i>	14%	8%	15%	0.6%
<i>Micropolitan (10,000 to 49,999)</i>	17%	11%	10%	0.4%
<i>Outside MSA</i>	16%	15%	10%	0.7%
<b>Annual Household Income</b>				
<i>Less than \$25,000</i>	13%	4%	30%	0.7%
<i>\$25,000 to \$49,999</i>	17%	5%	19%	0.3%
<i>\$50,000 to \$74,999</i>	17%	5%	19%	0.4%
<i>\$75,000 to \$99,999</i>	16%	6%	11%	0.3%
<i>\$100,000 to \$149,999</i>	16%	6%	8%	0.2%
<i>\$150,000 to \$199,999</i>	8%	6%	5%	0.3%
<i>\$200,000 or more</i>	7%	5%	5%	0.2%
<b>Race</b>				
<i>White</i>	87%	7%	62%	0.3%
<i>African American</i>	5%	2%	18%	0.5%
<i>Asian American</i>	5%	8%	4%	0.4%
<i>All others</i>	8%	2%	21%	0.4%
<b>Target Shooting or Sport Shooting Participation</b>				
<i>Yes</i>	69%	22%	67%	1.5%
<i>No</i>	31%	2%	33%	0.1%
<b>Archery Participation, Not Including Hunting</b>				
<i>Yes</i>	38%	35%	45%	2.9%
<i>No</i>	62%	3%	55%	0.2%

Note: *Entrants are those that hunted for the first time and the recruitment rate is the percent of the population over 18 who participated for the first time in 2021.*

*Asian entrants percent and recruitment rates are based on a small sample size (19).*

**Table 4: Distribution and Participation Rates of All and First-Time Anglers in 2021 Over 18 Years Old Population Over Eighteen Years**

	<i>All Anglers Percent</i>	<i>Participation Rate</i>	<i>Entrants Percent</i>	<i>Recruitment Rate</i>
<b>Sex</b>				
<i>Male</i>	71%	22%	63%	2.0%
<i>Female</i>	29%	9%	36%	1.1%
<b>Population Density of Residence</b>				
<i>Urban</i>	66%	13%	77%	1.5%
<i>Rural</i>	34%	26%	23%	1.7%
<b>Population Size of Residence</b>				
<i>1,000,000 or more</i>	42%	12%	51%	1.4%
<i>250,000 to 999,999</i>	23%	17%	24%	1.7%
<i>50,000 to 249,999</i>	12%	19%	10%	1.6%
<i>Micropolitan (10,000 to 49,999)</i>	12%	23%	8%	1.5%
<i>Outside MSA</i>	10%	28%	8%	2.1%
<b>Annual Household Income</b>				
<i>Less than \$25,000</i>	14%	13%	25%	2.3%
<i>\$25,000 to \$49,999</i>	19%	15%	23%	1.8%
<i>\$50,000 to \$74,999</i>	17%	16%	16%	1.4%
<i>\$75,000 to \$99,999</i>	14%	16%	12%	1.3%
<i>\$100,000 to \$149,999</i>	16%	16%	12%	1.2%
<i>\$150,000 to \$199,999</i>	8%	17%	4%	1.0%
<i>\$200,000 or more</i>	8%	16%	5%	1.0%
<b>Race</b>				
<i>White</i>	80%	18%	60%	1.3%
<i>African American</i>	8%	10%	15%	1.8%
<i>Asian American</i>	4%	21%	6%	2.7%
<i>All others</i>	12%	9%	27%	2.0%
<b>Motorboating Participation</b>				
<i>Yes</i>	44%	43%	35%	3.4%
<i>No</i>	56%	10%	64%	1.2%

*Note: Entrants are those that fished for the first time and the recruitment rate is the percent of the population over 18 who participated for the first time in 2021.*





Tables three and four indicate that, for the most part, the findings discussed above for all new entrants are unchanged when looking at only adult (19 and older) entrants, but there are a few differences that should be addressed. For hunting, when dropping the child entrants, the newcomers are even more heavily urban residents, and they are from large metropolitan areas with one million or more residents. Additionally, White's become a smaller share of entrants, 62 percent compared to 70 percent, and all other races, which includes Native Americans and those who identify as mixed race, goes up from 16 percent to 21 percent. For fishing, the results are even more similar for adults only. The only substantive differences are those for race. The share of Whites among adult entrants goes down by three percent and the share of all other races goes up by eight percent.

Table five shows the disposition of adult entrants with respect to the participation of others within their respective households. It is important to note that these are percentages of those who reached adulthood without ever trying hunting or fishing before. This contributes to the differences between males and females. More males will be recruited before they reach adulthood, which is discussed above. The table indicates that 19 percent of all adult hunting entrants have another experienced hunter within the household. The criteria for what constitutes an experienced hunter is minimal. If someone participated in 2021, and it was not their first time, they are considered an experienced hunter in Table five. This is a low bar for someone to be considered an experienced hunter, but this is what is possible with

the data. There is a noticeable difference between males and females. Among males, 14 percent have an experienced hunter in the household, but for females it doubles to 30 percent. Perhaps this indicates that females are more likely to be introduced into hunting by a spouse or partner than males.

The share of adult hunting entrants who are starting in a household with a child who is also just starting out, is somewhat surprising at 20 percent. An adult and child starting together was not uncommon in 2021. In fact, it is as high as those starting out with an experienced hunter in the household. This could perhaps be a result of COVID-related shutdowns that prompted participants to get out and try something different. However, for both males and females, the highest share of adult entrants have neither a child starting out nor an experienced hunter. More than half of all adult entrants have neither.

For fishing, there is less difference between males and females, and many more entrants are from households with experienced anglers. Thirty eight percent of all adult entrants have experienced anglers in their households. Males and females do differ at 35 and 44 percent respectively. Once again, the share starting out in the same year as a child in the household is somewhat surprising at 25 percent. At 37 percent, the share starting out with neither an experienced nor new child angler is about the same as that starting with an experienced angler. This 37 percent are starting without any in-household family support, which is worthy of additional study.

**Table 5. Adult Recruits by Status of Others within Same Household**

	<i>All</i>	<i>Male</i>	<i>Female</i>
<b>Hunting</b>			
<i>With Experienced Hunter</i>	19%	14%	30%
<i>With New Child Hunter</i>	20%	20%	19%
<i>Without Either Experienced or New Child Hunters</i>	61%	66%	51%
<b>Fishing</b>			
<i>With Experienced Angler</i>	38%	35%	44%
<i>With New Child Angler</i>	25%	22%	29%
<i>Without Either Experienced or New Child Anglers</i>	37%	43%	26%

*Note: Does not add to 100 because categories are not mutually exclusive*

## Characteristics and Behaviors of Adults with Children in Household Participants

Figure 1 clearly indicates that childhood is an important period for hunting and fishing initiation. Unfortunately, the *screen* collected very limited information about the activities of children under 16. By linking adults in households with children residing in the same household, we can discern the characteristics and behaviors of adults with children at home who participate and make comparisons to adults with children who do not participate. In so doing, we can examine questions such as the following. Do adult hunters differ in species pursued if they have children at home who also hunt compared to those with children who do not hunt? Do adult hunters with children who hunt spend more than those with children who do not hunt? If so, how much more? Do hunters with children who hunt engage in target shooting at a greater rate?

The sort of analysis that is performed here was done in prior FWS recruitment and retention reports. Unfortunately, unlike prior *Surveys*, the 2022 data collection did not include a relationship variable that indicates the relationship of each member in the household to the person who owns, leases, or rents the residence. We cannot discern whether a child in the household is the son or daughter of an adult or if the adult is a grandparent, sibling, or friend. Nevertheless, there is a wealth of information available. In the following discussion those aged 6 to 18 are considered children, while individuals over 18 are treated as adults. For the sake of brevity in the discussion below, we only note adults and children in the same household as “adults” and “children.”

### Hunting

Data from the *detail phase* and *screen phase* of the *Survey* were merged to analyze how the hunting practices of hunters with children who were new to hunting in 2021 differed from the hunting practices of those with children in who did not hunt and



those without children. The *screen* data contains information about households with children and whether those children hunted or fished in 2021. The *detail* data contain information about the hunting and fishing activities in 2022. The *detail* data contain information about the species of game hunted, and expenditures made on hunting and fishing trips and equipment<sup>7</sup>.

A question of interest is whether adult hunters with children who are new to hunting pursue different species than those with children who do not hunt. The answer should provide some insight into species pursued when introducing a child to hunting. These species are referred to as “introductory species.”

Table 6 presents adult hunters by species pursued and whether they had children who hunted. Each column indicates the percent of those hunters who pursued the species group named. Hence, the second row indicates that 87 percent of adult hunters without children new to hunting pursued big game, and 40 percent pursued small game. These adults without children new to hunting include hunters who have children, but they are not new hunters, and hunters without children. The percent columns permit one to ascertain if adult hunters with children who hunted for the first time were more heavily concentrated in some species than those with children who did not hunt or those without children.

**Table 6. Participation of Adults by Species Pursued and Children in Household Status**

*Percent of adult hunters by type*

<i>Percent of adult hunters by type</i>	<i>Big Game</i>	<i>Small Game</i>	<i>Migratory Bird</i>	<i>Other Animals</i>
<i>All Hunters Without Children New to Hunting</i>	87%	40%	21%	15%
<i>With Children New to Hunting</i>	82%	68%	41%	21%

*Note: Data from detail and screen combined*

*Adults with children new to hunting of other animals is based on small sample size (27)*

<sup>7</sup> It is important to note that activities of the children are for year 2021 only, and the activities of adults with children residing at home are for 2022. Consequently, there is not perfect comparability between the children and parent data. It would be preferable to have data for the parents and children correspond to the same year of activity.



Comparing the percentages reveals that adults with children new to hunting had relatively high concentrations in species in which small caliber rifles or shotguns are used. Eighty-seven percent of adult hunters with children new to hunting pursued small game, which is higher than the rate for hunters without new child hunters. Only about three out of ten hunters with children new to hunting did not hunt small game. Migratory bird hunting also has a greater share among hunters with children new to hunting, 41 percent compared to 21 percent.

It is perhaps not surprising to find evidence suggesting that small game and migratory birds serve important roles as introductory species to initiate children into hunting. The firearms used for these species are probably a contributing factor. Small caliber rifles and smaller gauge shotguns are typical firearms of choice for hunting these species. They produce less recoil that children can more easily accommodate than the large caliber rifles used in big game hunting. Small game and migratory birds also often offer greater opportunities to shoot these firearms, which provides more chances to learn. Additionally, small game hunting offers an advantage of not necessitating children remain quiet or still for long periods of time.

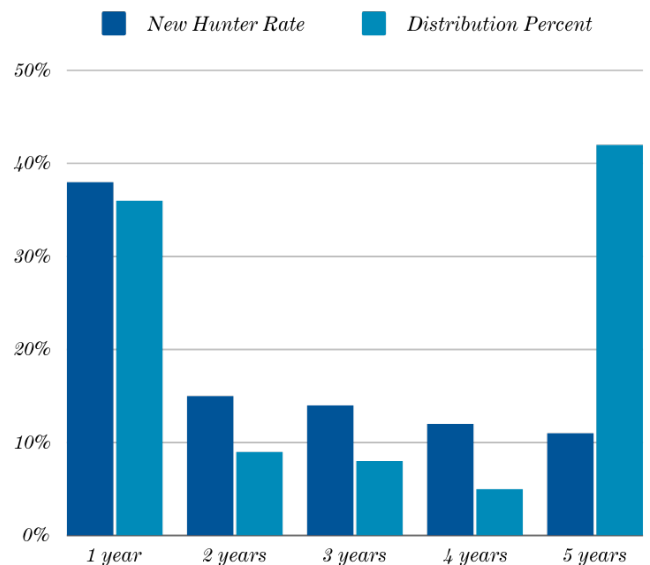
Another question of interest is whether the likelihood of child hunting participation differs as the participation frequency of adult hunters increases. It seems reasonable that as frequency of an adult increases, so too will the likelihood of children in the household participating. *Survey* data permits two concepts of frequency that can be examined. One is the frequency within 2022 alone, or the number of days an adult participated in 2022. This is referred to as “avidity.” The other is how frequently an adult has hunted in the five years prior to 2022, or the number of years an adult hunted in the last five years. This is referred to as “recurrence.”

Figure 5 shows both new child hunter rates and distributional percentages. The rates indicate the percentage of adults with children in household at the given recurrence have children at home who were new to hunting in 2021. For example, the first column indicates that among hunters who went one out of the five prior years, 38 percent of them had children new to hunting in 2021. The distributional percentages, indicate the percent of all adults with children new to hunting in 2021 that have a given recurrence. For example, the second column indicates that 36 percent of adult hunters with children new to hunting went one out of the prior five years. Adult hunters who went once out of the last five years are the most likely to have a child who is new to hunting. One factor influencing this is the result discussed above that 20 percent of adult hunters with children who go hunting for the first time are themselves going for the first time.



**Figure 5. New Child Hunter Rate and Distribution Percent by Adult Hunter Recurrence**

Population of Adult Participants with Children in Household



*Note: The sample sizes for recurrence 2-4 are small, between 10-30 respondents that had children new to hunting.*

Adult hunters with a recurrence of five comprise the largest share of those with new child hunters. Even though the rate of adults with children new to hunting in 2021 is relatively low at 11 percent, there are many more adult hunters who go every year compared to those who go one out of five, two out of five, etc. This is similar to the urban/rural disposition of hunters shown in Table 1; the rate of hunting participation is much lower for urban residents, but because so many more people live in urban areas than in rural, nearly 50 percent of all hunters dwell in urban areas.



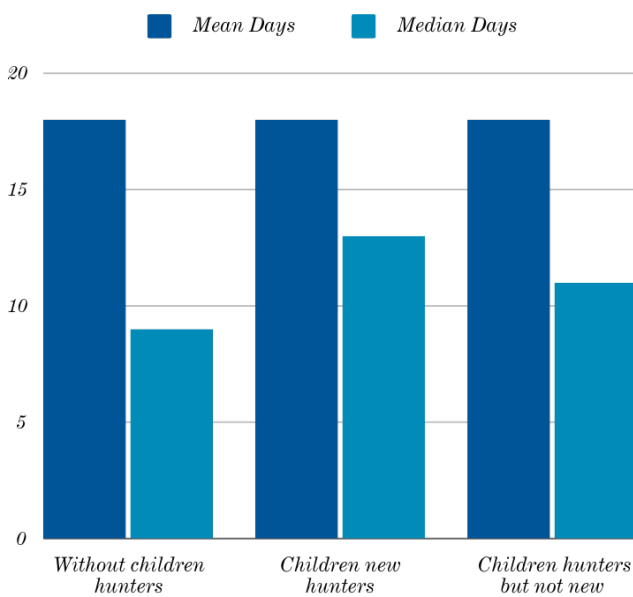
The avidity results (Figure 6) indicate that adult hunters in 2022 with children who are new to hunting have higher median number of days afield than either those without child hunters or those with children, but their children are not new to hunting. Those without child hunters include both those with children who do not hunt and those who do not have children. The comparisons of the means indicate less variation than the medians. It is not shown in the figure, but further examination reveals that those without children are more likely to be very avid, going more than 70 days a year. This might be expected given the likelihood of less available recreation time among those with children. Those at the high end of the

avidity distribution contribute to the reduction in the difference seen in the medians.

Moving to expenditures, one may also inquire whether those with children new to hunting spend more on trips and equipment (Figure 7). To mitigate the effect of different avidity, expenditures per day of hunting are considered. Those with children new to hunting tend to spend more per day than either those without children or those with children who are not new hunters. The difference is particularly sharp for hunting equipment and special equipment, which includes spending on motorhomes, campers, and off-road vehicles like ATVs.

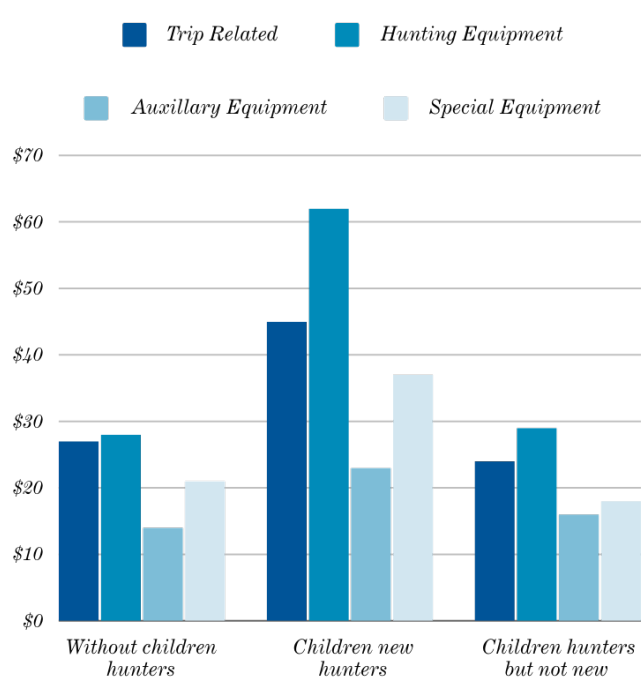
**Figure 6. Mean and Median Hunting Days in 2022 by Child Status**

Population of Adult Hunters



**Figure 7. Mean Hunting Related Expenditures per Day in 2022 by Child Status**

Population of Adult Hunters





### Fishing

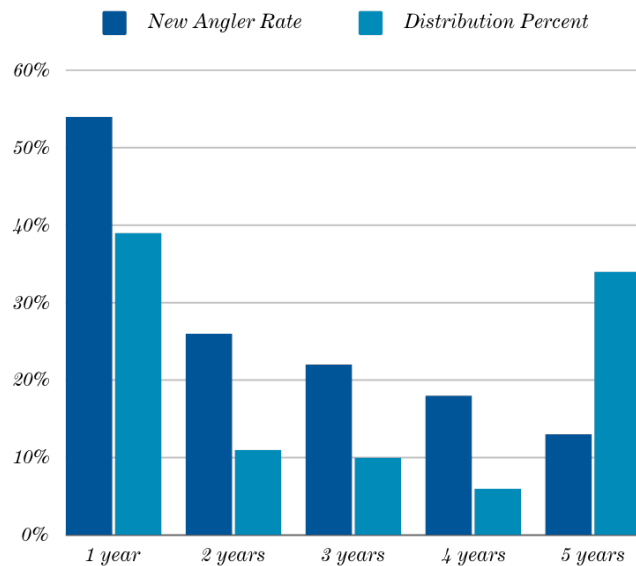
For fishing, the results for recurrence and childhood participation are similar to hunting. Among adult anglers with children in household who have fished in one out of the last five years, 54 percent of them have children who went for the first time in 2021. Like hunting, this is the highest rate of adults having new child participants. Unlike hunting, those who went fishing in one out of the last five years also comprise the highest share of all adults with new child anglers. Like hunting, the high percentage of new child anglers among adults who have gone only once in the prior five years is affected by a high percentage of both adults and children trying for the first time. Twenty-five percent of adults with children new to fishing also fished for the first time.

The avidity results (Figure 9) indicate that adult anglers in 2022 with children who are new anglers have similar mean avidity as those with child anglers, but are not new, and those without child anglers. Like hunting, median fishing days are higher for those with children new to hunting.

Moving to expenditures, slight differences exist in mean spending per day (Figure 10). Trip-related and special equipment expenditures are slightly higher for those with child anglers who are not new.

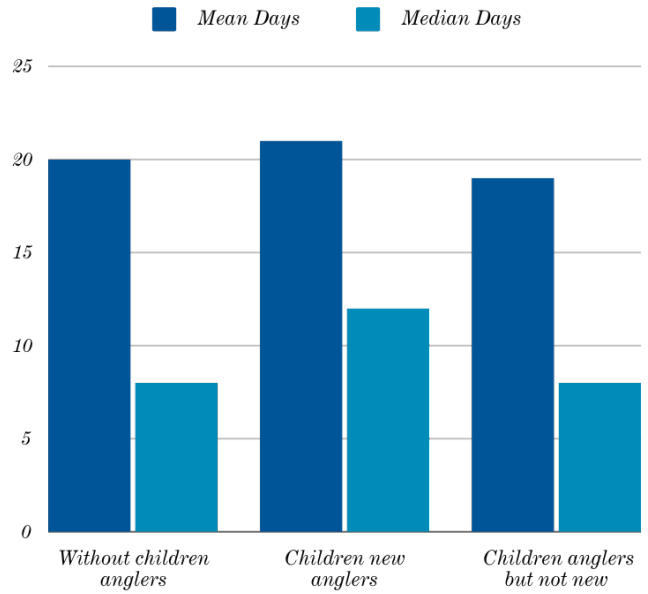
**Figure 8. New Child Angler Rate and Distribution Percent by Adult Angler Recurrence**

Population of Adult Participants with Children in Household



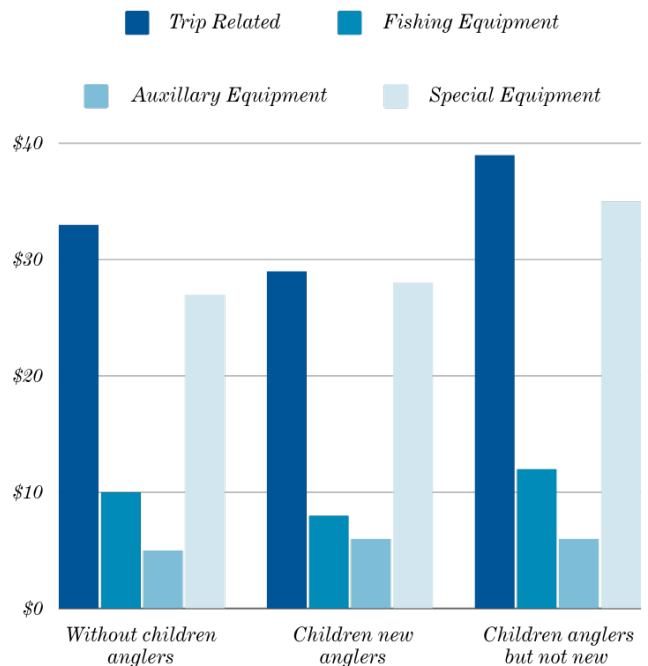
**Figure 9. Mean and Median Fishing Days in 2022 by Child Status**

Population of Adult Anglers



**Figure 10. Mean Fishing Related Expenditures per Day in 2022 by Child Status**

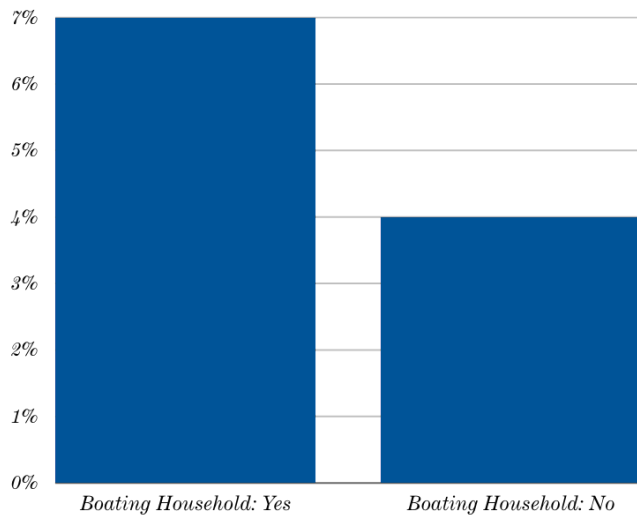
Population of Adult Anglers



The data cannot be parsed by target fish species as done for hunting above, but we can examine the correlation between motorized boating participation of adults with respect to child newcomers. Figure 11 presents the participation rate of children fishing for the first time by boating household status. These percents represent the share of all children in the United States who are fishing for the first time, and a boating household is one in which an adult therein participates in motorized boating. Among non-motorized boating households, 3.6 percent of children were first-time anglers in 2021. Among motorized boating households, this rate nearly doubles to 6.5 percent. Motorized boating households are also positively correlated with income. It is not shown in the graph, but it can be shown with the data, that the higher the income, the more likely an angler is to participate in motorized boating. Combining the finding of increased initiation of children from motorized boating households with the information about the those with higher incomes being more likely to boat, likely indicates one reason why those from higher income households are initiated into fishing at an earlier age. It is probably the case that children from households with adult boaters have better access to motorized boats, which increases a child's exposure to fishing.

**Figure 11. Percent of Children Fishing for First Time in 2021 by Boating Household Status**

Population All 6- to 18-Year-Olds



*Note: A boating household is one in which an adult resident participates in motorized boating.*













# Retention

Having analyzed information available from the *Survey* concerning recruitment, it is now time to shift gears and see what information it contains about retention of individuals in hunting and fishing. As discussed above, individuals are no longer considered active anglers or hunters if they did not participate in the activity for three years prior to the *detail* survey year of 2022. An individual is considered lapsed from fishing if he or she had fished at some point in their life but did not participate in 2021, 2020, or 2019.

Retention rates and recurrence years are used in this section to analyze retention for adult hunters and anglers. “Remained active” refers to participation in fishing or hunting in one of the three years prior to 2022, and the “retention rate” is the percent of individuals who have participated in fishing or hunting at some point and have remained active in the respective activity. “Recurrence” is the number of years over the five years from 2017 to 2021 that one engages in hunting and fishing. The mean number of years is the average number of years hunters and anglers are active and it can range from one to five. Recurrence is generated from all hunters or anglers who have been active at least one of the last five years.

If someone has hunted at some point in their life but have not hunted once in the five prior years, they are excluded from the recurrence year calculations.

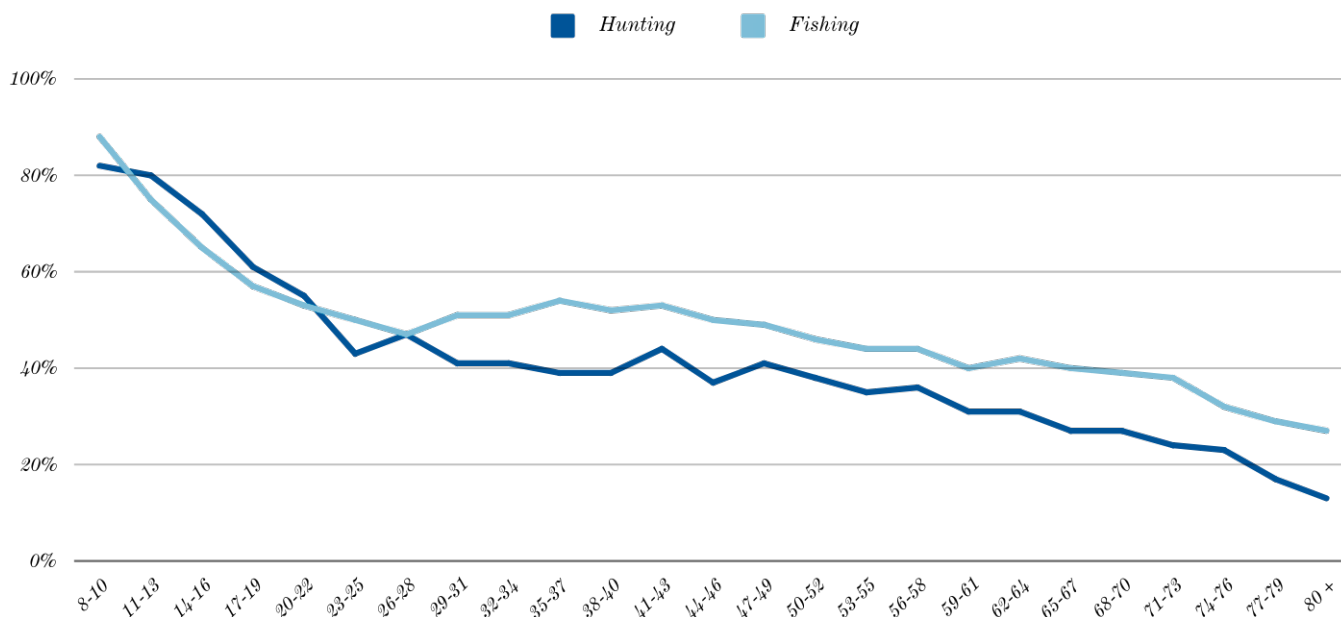
## Age of Lapsers

Information from the *Survey* is useful in discerning the percentage of the population who previously participated in hunting and fishing and have remained active in at least one of three years prior to the survey year. These percentages can be calculated and graphed for individuals of different ages. The plots in Figure 12 serve as “lapse curves” that indicate ages where quitting occurs.

Hunting retention decreases rapidly through the teenage years, levels out from the early twenties to the late forties, starts declining again after 45, and the decline accelerates after 55. At 75 the rate of decline accelerates again.

Fishing retention declines rapidly through the teenage years, levels out from the early twenties through the early forties, declines at a constant rate from the early forties until the early sixties, and declines rapidly beyond the age of 68.

**Figure 12. Hunting and Fishing Retention Rates by Age**



## Demographic and Associated Behaviors of Retained Participants

Tables 7 and 8 present the retention rate and mean recurrence years by demographic characteristics and associated behaviors. Incorporating the demographic information yields a better understanding of the “types” of individuals who are more likely to quit fishing or hunting. The associated behaviors examined are the same as in the recruitment discussion: target shooting, archery participation, and motorboating.

### Hunting

There are many similarities in the hunting retention rate by demographic characteristics, but this is also informative (Table 7). The rate is consistent by income category. Those with incomes from \$150,000-\$199,999 are the most likely to stay active, but difference from those with lower incomes is not substantial. Race is similarly consistent, with African Americans exhibiting the highest percentage who stay active. The differences between males and females are also relatively slight. Females are five percent more likely to lapse but compared to the differences in recruitment, this difference is slight. The recurrence rate among females is lower, which indicates that they do not hunt as consistently as males. The ‘Recruitment Rate’ of males is more than twice that of females (see Table 1). Of course, there are many to other factors at play, but these results suggest that the heavily male disposition of the population of hunters is more about differences in recruitment than lapsing.



**Table 7. Hunting Retention Rates by Selected Characteristics**

*Population those Over 18 Years who Have Ever Hunted*

	<i>Retention Rate*</i>	<i>Recurrence** (mean years)</i>
<b>All</b>	<b>35%</b>	<b>3.3</b>
<b>Sex</b>		
Male	36%	3.4
Female	31%	2.8
<b>Population Density of Residence</b>		
Urban	29%	2.9
Rural	45%	3.6
<b>Population Size of Residence</b>		
1,000,000 or more	30%	3.0
250,000 to 999,999	32%	3.2
50,000 to 249,999	36%	3.3
Micropolitan (10,000 to 49,999)	42%	3.5
Outside MSA	47%	3.7
<b>Annual Household Income</b>		
Less than \$25,000	35%	2.8
\$25,000 to \$49,999	31%	3.3
\$50,000 to \$74,999	35%	3.3
\$75,000 to \$99,999	37%	3.4
\$100,000 to \$149,999	35%	3.4
\$150,000 to \$199,999	41%	3.6
\$200,000 or more	37%	3.5
<b>Race</b>		
White	35%	3.4
African American	39%	2.2
Asian American	36%	3.1
All others	37%	2.7
<b>Target Shooting or Sport Shooting Participation</b>		
Yes	52%	3.5
No	21%	2.8
<b>Archery Participation, Not Including Hunting</b>		
Yes	69%	3.8
No	28%	3.0

Notes: \*Retention Rate is the percent of individuals who have ever hunted that participated in the three years prior to 2022 (so 2021,2020,2019)

\*\*Recurrence is the total number of years out of five from 2017 to 2021 that one participates in hunting.



There are noteworthy differences in the retention rate by both resident population size and density. Residents of urban areas had lower hunting retention rates than those in rural areas. The larger the residence population size, the lower the retention rate. These results are not surprising given the distance one must travel to hunt likely increases living in urban and large metropolitan areas. Additionally, these would-be hunters have a multitude of competing substitute activities available like theaters, sporting events, shopping, etc. These results suggest that the higher participation rate for hunting in rural areas is not only due to higher recruitment but also to higher retention.

With a retention rate of 52 percent, those who target shoot are more likely to stay active hunters than those who do not, at 21 percent. We cannot assess causality with these results. It is unknown whether hunters who do not target shoot are more likely to give up hunting, or if participants who give up hunting are more likely to give up target shooting, or if they give up hunting and target shooting at the same time. Unfortunately, the data are not well suited to address this question. What is known is that target shooting is highly correlated with hunting, and a higher percentage of those who do not target shoot have lapsed.

At 69 percent, the retention rate among recreational archers is the highest of all population segments presented, and is nearly double the rate for all those who have ever hunted. Like the target shooting results, we cannot ascertain whether folks give up hunting first or non-hunting archery. What is known is that those who continue to practice archery don't lapse nearly as much as those who do not. This is an interesting finding that deserves more research, and it has implications for retention and reactivation efforts.

Perhaps not surprising, the results for recurrence are higher for those characteristics where retention is relatively high. For example, males have a higher retention rate than female: 36 percent versus 31 percent. Recurrence, measured as the average number of years active, is also higher for males compared to females: 3.4 versus 2.8. This pattern exists for nearly every characteristic. One exception is the result for African Americans. Their retention rate is higher than Whites, but mean recurrence is 2.2 years compared to 3.4 for Whites.

**Table 8. Fishing Retention Rates by Selected Characteristics**

*Population those Over 18 Years of Age who Have Ever Fished*

	<i>Retention Rate*</i>	<i>Recurrence** (mean years)</i>
<i>All</i>	50%	3.1
<b>Sex</b>		
<i>Male</i>	55%	3.3
<i>Female</i>	42%	2.7
<b>Population Density of Residence</b>		
<i>Urban</i>	46%	2.9
<i>Rural</i>	60%	3.5
<b>Population Size of Residence</b>		
<i>1,000,000 or more</i>	45%	2.9
<i>250,000 to 999,999</i>	51%	3.1
<i>50,000 to 249,999</i>	52%	3.2
<i>Micropolitan (10,000 to 49,999)</i>	58%	3.3
<i>Outside MSA</i>	62%	3.6
<b>Annual Household Income</b>		
<i>Less than \$25,000</i>	50%	2.9
<i>\$25,000 to \$49,999</i>	50%	3.1
<i>\$50,000 to \$74,999</i>	49%	3.1
<i>\$75,000 to \$99,999</i>	50%	3.2
<i>\$100,000 to \$149,999</i>	50%	3.2
<i>\$150,000 to \$199,999</i>	51%	3.2
<i>\$200,000 or more</i>	53%	3.3
<b>Race</b>		
<i>White</i>	50%	3.2
<i>African American</i>	48%	2.5
<i>Asian American</i>	54%	3.1
<i>All others</i>	50%	2.6
<b>Motorboating Participation</b>		
<i>Yes</i>	74%	3.7
<i>No</i>	42%	2.8

*Notes: \*Retention Rate is the percent of individuals who have ever fished that participated in the three years prior to 2022 (so 2021,2020,2019)*

*\*\*Recurrence is the total number of years out of five from 2017 to 2021 that one participates in fishing.*



## Fishing

Like hunting, retention rates are similar by race and income. The retention rate is relatively consistent by income category with only a couple of percentage points variation from the all-angler rate of 50 percent. This suggests that income is not a very good indicator of an angler's consistency year after year. Among the different race categories, Asian Americans have the highest retention rate at 54 percent, but the results are also relatively similar across race categories.

There are noteworthy differences in the retention rate by sex, population size of residence, and density. The discrepancy in fishing retention between males and females is high relative to that in hunting. The retention rate for males is 55 percent, compared to 42 percent for females. Like hunting, there is a greater difference in recruitment rates by sex than retention, but female lapsing appears to be a greater issue for overall fishing participation. Comparing the results for fishing and hunting is also instructive when examining population size and density. Like hunting, fishing retention is higher in smaller and less dense areas. However, the discrepancy is not as great for fishing as it is for hunting. These results suggest that the higher participation rate for fishing in rural and small metropolitan areas is not only due to higher recruitment but also to higher retention. While this can't be discerned with the data, a contributing factor for this difference is likely that fishing opportunities are more plentiful inside metropolitan areas than hunting opportunities.

Those who participate in motorized boating are substantially more likely to stay active anglers. Seventy-four percent of those who participate in motorized boating were active anglers, compared to 42 percent of those who are not motorized boaters. Like the results for target shooting, we cannot say whether those who do not use motorized boats are more likely to give up fishing, or if those who give up fishing are more likely to give up boating, or if they give up fishing and boating at the same time. Nevertheless, motorized boating is highly correlated with fishing, and a higher percentage of those who do not use motorized boats have lapsed.

The results for recurrence are generally higher for those characteristics where retention is relatively high. Recurrence is highest for residents outside of metropolitan areas (denoted 'Outside MSA') and motorized boaters at 3.6 and 3.7 years respectively. These are also the same characteristics with highest retention rates at 62 percent and 74 percent respectively. The lowest recurrence category 'All other' races interestingly does not have a lower-than-average retention rate. The results for 'Female' and not motorized boaters do correspond to relatively low retention rates. African Americans have lower-than-average recurrence but not a particularly low retention rate, which likely indicates that while active based on our three-year definition, they are less prone to participate consistently year after year.





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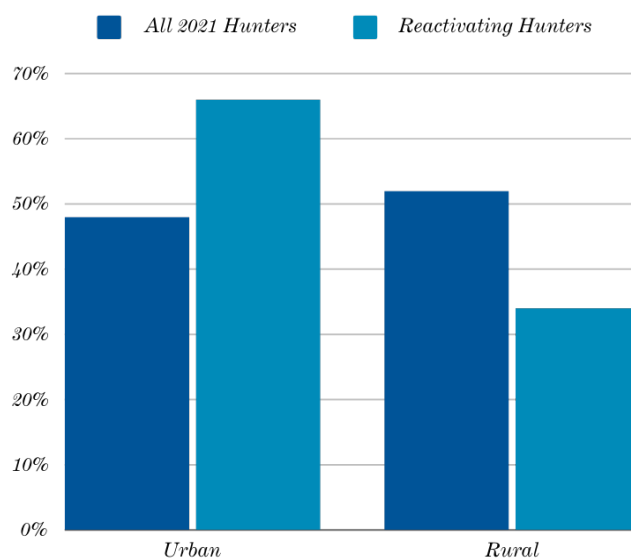


# Reactivation

For the first time, the *Survey* questions about prior hunting and fishing enable an examination of participants who are returning after a period of inactivity. Using the same questions about prior participation used for recurrence above, we can identify those who were not active participants prior to 2021, then returned. Reactivators are those who did not participate in 2020, 2019, or 2018 but did participate in 2021. Alternative definitions for reactivation are possible, but here we will stay with the definition that inactivity for three years indicates an individual has dropped out, hence, re-engaging after having dropped out indicates reactivation. Comparing the demographic and behavioral characteristics of the reactivating population to the whole population of hunters or anglers provides some insight into segments that are relatively more prone to reactivate. The results reveal that reactivating is seen more often in population segments that are more prone to lapse, which makes sense. Populations segments exhibiting relatively high lapsing are the ones where the possibility of reactivation occurs.

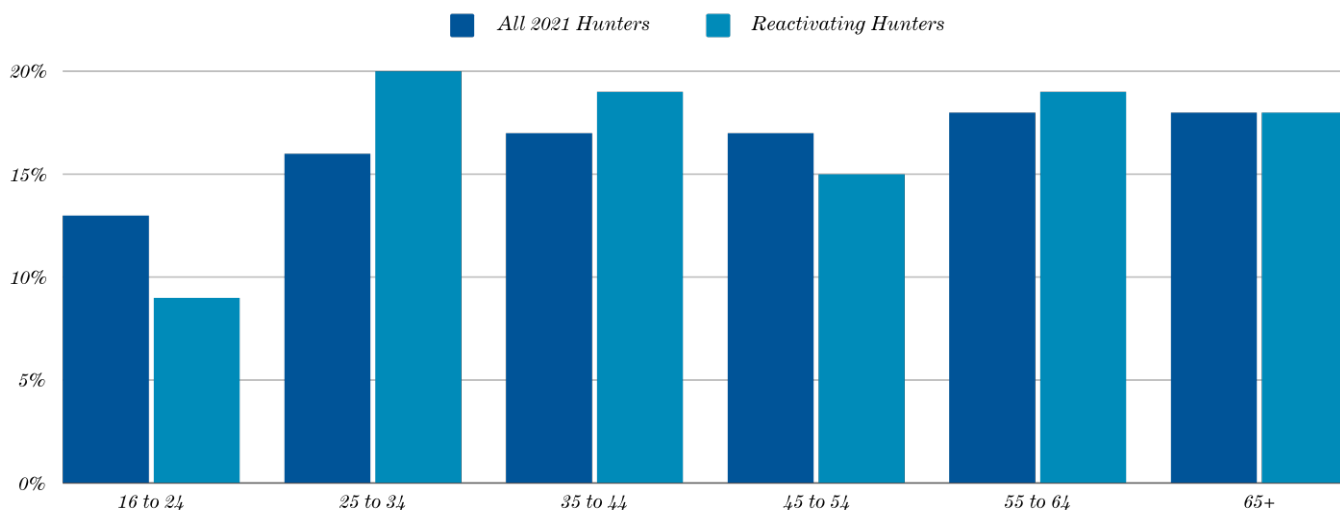
Figures 13 and 14 present the distribution of all hunters and reactivating hunters in 2021 by urban or rural residence and age, respectively. The distribution for these two demographic characteristics exhibits useful information about how reactivators differ from all hunters. Under 24 years old, the percent of reactivators is lower than that of all hunters. People in this age category have likely had less time to lapse

**Figure 13. Distribution of All and Reactivating Hunters by Urban/Rural**



and then reactivate. From 25 to 44, the percent of reactivators is higher than that of all hunters, which may be due in part to people starting the activity again after their college years and reestablishing permanent residence, perhaps in a new location. Altogether, about 44 percent of all reactivators are from 25-44. Reactivators are also more heavily residents of urban areas than all hunters.

**Figure 14. Distribution of All and Reactivating Hunters by Age Over 15**

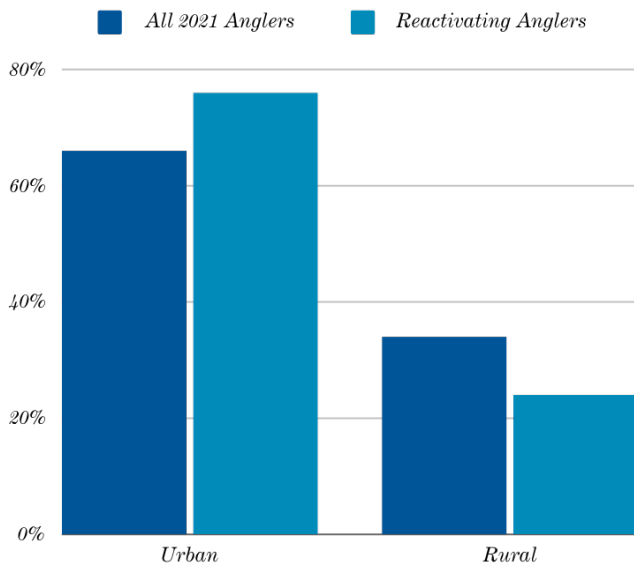


Note: Reactivating hunters 16 to 24 is based on a small sample size (22)

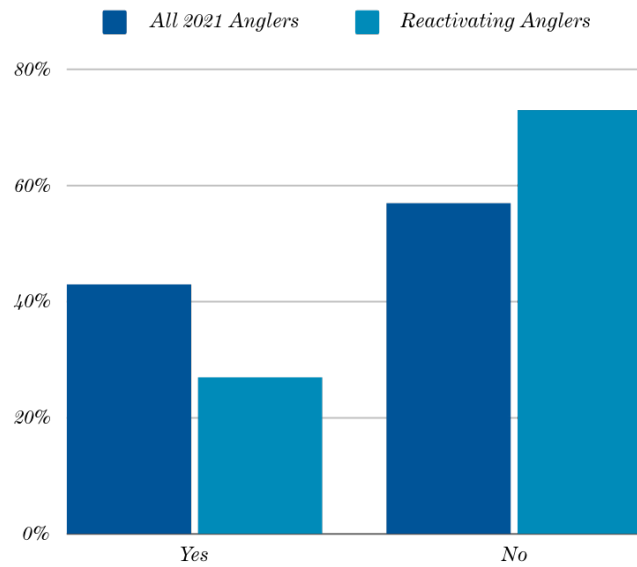
Fishing reactivation follows a similar pattern to that of hunting by urban or rural residence and age (Figures 15 and 16). The highest percentages of reactivators are among 25-44 years, but the difference from all anglers is less than the difference for hunters. The urban or rural distribution is also similar to hunting, but again the difference in reactivation rates between urban

and rural anglers is relatively less. Figure 17 indicates that more than 70 percent of reactivating anglers do not participate in motorboating. Those who also motorboat have a substantially higher rate of lapsing (Table 8), and reactivation occurs more often among non-motorboaters.

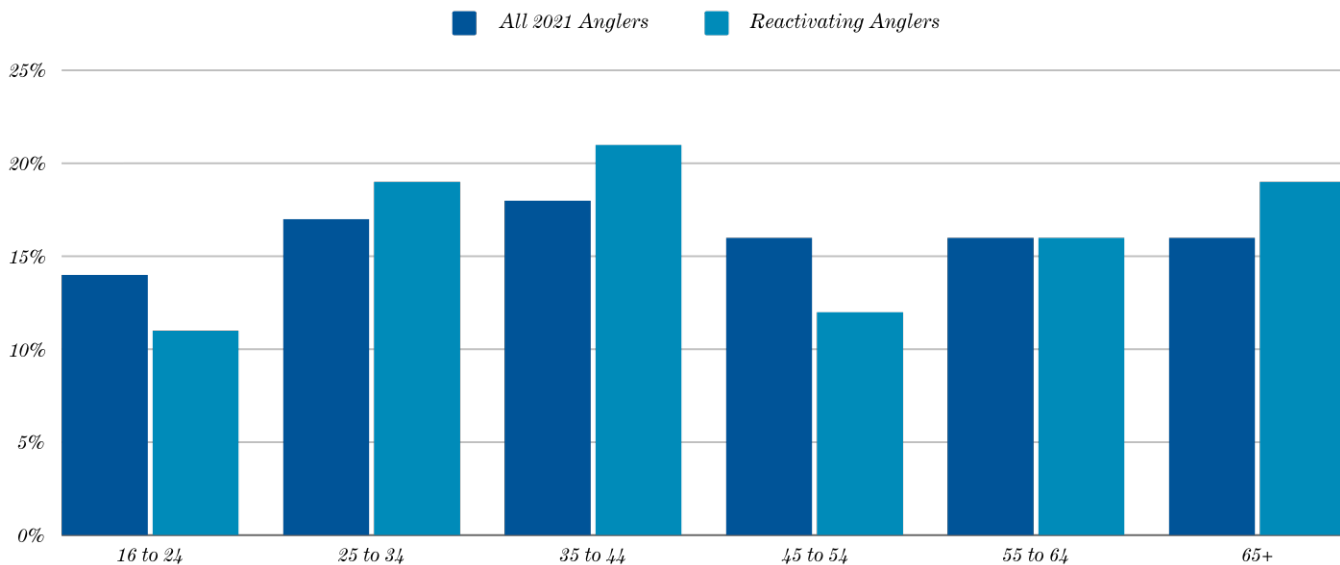
**Figure 15. Distribution of All and Reactivating Anglers by Urban/Rural**



**Figure 17. Motor-Boating Participation for All and Reactivating Anglers**



**Figure 16. Distribution of All and Reactivating Anglers by Age Over 15**









# Summary

This report utilizes data from the 2022 *Survey* for R3-related information for both hunting and fishing. The *Survey* was not specifically designed to collect R3-related data. Nevertheless, by creatively using what is collected, it contributes a wealth of information to the existing body of related research.

Examining the age of initiation supports what others already well accept, but there are some findings that are a bit more surprising. While adolescence is the most important period for introduction into both hunting and fishing, adult initiation is also important for recruitment. About half of first-time hunters and anglers are under 21, but about half are over 21. Residents of rural areas are younger when initiated into hunting and fishing than their urban counterparts. Those from higher income households tend to be initiated at younger ages than those in lower income households.

The comparison of first timers with all hunters and anglers reveals that newcomers have both similarities and differences, and the differences point to potential changes in the hunter and angler populations in the years ahead. Hunting newcomers are more heavily urban or large metropolitan area residents, female, and African American. The differences between fishing newcomers and the population of all anglers are not as pronounced as it is for hunting, but the noteworthy differences are among the same characteristics. Newcomers are heavily from urban and large metropolitan areas, female, and African American. Lastly, fishing newcomers are less likely to use motorized boats than all anglers.

The examination of hunting and fishing behavior of adult participants with children in the household reveals some important differences among those with children who are new to each. Adult hunters with newly hunting children in the household are substantially more likely to hunt small game and migratory birds. Among all hunters, 40 percent and 21 percent were small game and migratory bird hunters, respectively. Among hunters with children new to hunting, these percentages climb to 68 percent and 41 percent. Hunters with children

who hunt tend to hunt more frequently in a single hunting year, and hunt more consistently over the course of five years. Somewhat surprisingly, there is a relatively high percent of adult hunters who are new to hunting during the same year. Hunters with children new to hunting tend to spend more than those without, particularly for special equipment such as motorhomes, campers, and off-road vehicles. Like hunting, adult anglers with child anglers in the household tend to go more frequently in a single year and be more consistent anglers over a five-year span. Also similar to hunting, adult anglers starting at the same time as children in the household are not uncommon. Children from households with adults who participate in motorboating are nearly twice as likely to be initiated into fishing than those in households without any adult motorized boaters.

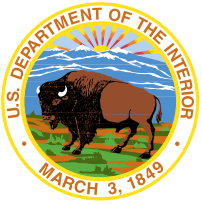
This report analyzes the retention rate with respect to demographic characteristics as was done in prior *Survey* addenda reports, however, this addendum adds associated behaviors like target shooting and motorized boating. Additionally, this report adds the concept of mean recurrence years, which is the mean number of participating years out of the last five. Characteristics with higher retention rates in both hunting and fishing include rural and small metropolitan area residents. Among hunters, those who practice target shooting or archery are more likely to stay active hunters. Motorized boaters are more likely to remain active anglers. Compared to recruitment, there is relatively little difference in retention by race and sex.

This report looks for similarities and differences in recruitment and retention across numerous characteristics, but it is important to note that none of those characteristics identified occur individually or are disentangled from the others. Many of the characteristics themselves are also correlated. To examine the relative relationship between these characteristics on R3, an appropriately specified model is needed to help account for these cross correlations, and this is a suggestion for further research using *Survey* data.









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