Hunting, Fishing, Sport Shooting, and Archery Recruitment, Retention, and Reactivation

A Practitioner's Guide

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2017

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INTRODUCTION

WHY AN R3 HANDBOOK?

This handbook was created to summarize in a single volume the most essential and up-to-date research pertaining to hunting, fishing, sport shooting, and archery recruitment, retention, and reactivation efforts (collectively known as "R3").

The importance of hunters, anglers, sport shooters, and archers goes beyond the simple imperative of keeping alive these venerated American traditions; each year, participants in the four activities, through their purchases of licenses and sporting equipment, contribute hundreds of millions of dollars in essential funding for fish and wildlife conservation, including species recovery, habitat improvements, and other critical work carried out by agencies and organizations across the country. Any decline in hunting, fishing, sport shooting, and archery would directly translate into diminished funding and material support for fish and wildlife management activities that benefit *all* Americans.

As a result, the need for organized and data-driven R3 efforts—including programs, outreach initiatives, and other strategies to recruit, retain, and reactivate sportsmen and women—has never been more important. This handbook, through a careful review of research and a corresponding list of action items based on the findings, is intended as a roadmap for R3 specialists to use as they navigate a terrain whose obstacles range from the social and demographic to the structural and technological.

CURRENT TRENDS IN HUNTING, FISHING, SPORT SHOOTING, AND ARCHERY

Current trends in hunting, fishing, sport shooting, and archery help to reinforce the need for concerted and ongoing R3 initiatives. Perhaps the greatest challenge for R3 specialists will be to stem the decline in hunting

participation, which has been continuing fairly consistently since the early 1980s. (A recent apparent uptick in participation, as determined by the 2011 *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, provides a hint of momentum for R3 efforts.)

The trend regarding fishing is similar, with most data sources indicating a long-term and gradual decline in participation. It should be noted, though, that a few sources paint a marginally more optimistic picture, showing instead a generally flat trend line in fishing participation.

Sport shooting and archery, on the other hand, appear to be on the rise. With many data sources suggesting recent gains in sport shooting and archery participation, the challenge regarding these activities is different but equally important: keep up the momentum by ensuring that the upward trend continues.

A more elaborate overview of the participation trends in hunting, fishing, sport shooting, and archery, including specific data for each activity and the various sources used to track participation, are discussed in greater detail in the first chapter of this handbook.

While efforts to ensure healthy participation in the four activities have long been a priority for fish and wildlife agencies and others in the conservation community, the past decade has seen a marked increase not only in R3 implementation but also in the science of how to plan and develop R3 initiatives in the most effective ways. Evidence of the growing consideration given to R3 efforts can be seen in the shift from the original widely used phrase "recruitment and retention" (or "R&R") to "R3," with the latter term now encompassing "reactivation" efforts targeting individuals who have lapsed out of one of the activities. This explicit broadening of focus suggests that agencies, organizations, and industry groups are increasingly segmenting and targeting their efforts in more deliberate ways.

The growing prominence of R3 objectives within agency priorities, including recognition of the need to coordinate initiatives in a methodical and scientific manner, has culminated in the recent development of a national R3 plan. As discussed below, this plan is the lodestar that guided the direction of this handbook, just as it will inform the path of R3 efforts in the United States moving forward.

A RESOURCE IN SUPPORT OF THE NATIONAL PLAN

The National Hunting and Shooting Sports Action Plan is the result of a collaborative effort of the Council to Advance Hunting and the Shooting Sports (CAHSS) and the Wildlife Management Institute.

With a board of directors made up of representatives from state fish and wildlife agencies, nonprofit conservation groups, and leaders in the shooting

industry, the purpose of the CAHSS is to ensure support for and active participation in hunting and the shooting sports for future generations. The group's mission is to facilitate the promotion and growth of hunting and the shooting sports and the education of the public on the contributions that hunters and shooters make towards wildlife conservation.[1]

The Wildlife Management Institute, a private nonprofit organization staffed by wildlife science and management professionals, works to improve the professional foundation of wildlife management by addressing resource issues and opportunities. The organization conducts reviews of federal, state, and provincial agency programs and coordinates many conservation-related initiatives, such as the Chronic Wasting Disease Alliance, the Hunting Heritage Program, and the Conservation Leaders for Tomorrow Program.[2]

Together, the two organizations, with assistance from many professionals who volunteered their time to provide input, have developed the National Hunting and Shooting Sports Action Plan (hereinafter referred to as the National Action Plan), a document providing detailed strategies for recruiting, retaining, and reactivating hunting and shooting sports participants. Based on input from a diverse workgroup and an extensive assessment of the R3 programs available nationwide, the National Action Plan includes a comprehensive framework for identifying strategies and effectiveness measures. The goals of the plan are to increase participation in and support for hunting and the shooting sports.[3] The National Action Plan is available in full via the website of CAHSS; a dedicated website has also been established in support of the Plan (nationalR3plan.com).

The National Action Plan begins with a discussion of steps for building local and national R3 success and a series of recommendations for R3 stakeholders. The core content, however, focuses on a series of seven actionable topics addressing various R3 aspects, from program design and skills training to planning among partners and the need to improve cultural acceptance of hunting and the shooting sports. Each actionable topic forms the basis of an individual chapter in the handbook (along with a chapter on participation in the four activities as it currently stands), which in turn provides research and recommendations in direct response to the topic as identified in the National Action Plan. Although the National Action Plan pertains to hunting and sport shooting participation, it is applicable to fishing as well.

Note that, while the National Action Plan does not encompass fishing and addresses archery only under the umbrella of shooting sports in general, the handbook authors give specific focus to these topics in these pages, as they are both key activities managed by R3 specialists throughout agencies and organizations nationwide.

STRUCTURE AND LAYOUT OF THE HANDBOOK

This handbook consists of eight chapters, the first of these examining participation in hunting, fishing, sport shooting, and archery, as well as related trends and the data sources used to assess participation. Because the primary purpose of the handbook is to support the National Action Plan, the other seven chapters examine individual actionable topics from the National Action Plan; the names of these chapters are consistent with the topics as identified in the National Action Plan. Material in these chapters directly aligns with the actionable topics by addressing notable threats that were identified in the National Action Plan (in the National Action Plan, these threats were organized according to each actionable topic—for example, the actionable topic and handbook chapter "Improving Skills and Training for Participants" includes a discussion of the threat relating to the lack of effective self-learning tools).

Each handbook chapter begins with an overview summarizing in bullet points the major takeaways from the research that follows. The chapter then proceeds to a full discussion of the research, and concludes with a series of recommendations derived from the research. In summarizing the research and in formulating these recommendations, more than a thousand articles and reports were examined. Only some of them are discussed in the report, as tangential material was stripped away to give the essence of the issues being discussed. For instance, national participation rates are discussed, even though hundreds of statewide reports provide data on participation and were examined as corroboration of the national findings.

Included throughout the handbook chapters are vignettes that have been provided by various professionals throughout the R3 community. These vignettes address topics and concepts covered throughout the handbook by way of specific case studies—they are real-life, on-the-ground examples of how R3 challenges have been met on the practical level. In short, the on-the-ground vignettes bring the research to life.

AN OVERVIEW OF THE RESEARCH PROCESS

The handbook was developed in part through a thorough review of literature relevant to hunting, fishing, sport shooting, and archery R3 topics. Literature reviews are a method of examining data from a variety of sources that ultimately results in the compilation of known information on a subject. Useful and pertinent information is extracted from a variety of sources ranging from journal articles to internal agency/ organization reports and databases. By compiling information that already exists on a topic into a single source, literature reviews synthesize information into a concise format.

The information presented in these pages draws on numerous resources, including research reports, other literature reviews, databases, technical documents, agency plans, and program evaluation results.

Some of the sources of information examined include recent *National Surveys of Fishing, Hunting, and Wildlife-Associated Recreation*, the *National Survey of Recreation and the Environment*, and the journals *Human Dimensions of Wildlife* and *Transactions of the North American Wildlife and Natural Resources Conference*. The literature review was initiated at the outset of the handbook development process; the resulting information was then analyzed and distilled for best practices, lessons learned, and recommendations.

Responsive Management employed a traditional approach to the literature review, with multiple researchers working both independently and in concert to perform targeted and exhaustive searches on specific identified data sources and databases. In database searches, Boolean searches were performed on variations of the name of the subject being researched, the name of related topics, and topical subject areas that reasonably could include pertinent information toward the subject being researched.

All data were examined for utility and for use in obtaining other resource materials. The data were then categorized using research techniques integral to human dimensions theory. The review of sources guided the creation of the research summaries, as did subsequent iterations of reviews and rewrites through triangulation methods using confirmations and guidance from individuals and data sources.[4]

In addition to the review of past sources, a new survey of agency and organizational R3 professionals was implemented to collect data for the handbook. The survey, implemented by email to a closed group of preselected respondents, assessed opinions on critical resources for and challenges to planning and cooperation among R3 entities, among other topics.

Endnotes are employed throughout the handbook to cite data and research. Endnotes, relative to footnotes or in-text citations, maintain the flow of the text and preserve the general readability of the document. Additionally, the use of endnotes provided an opportunity for the authors to include supplemental notes and explanations specific to each citation, which would not have been as feasible with other citation options.

ACKNOWLEDGMENTS AND THANKS

Responsive Management and the National Shooting Sports Foundation wish to recognize and thank the many people and organizations without whom this handbook would not have been possible.

Special thanks are due to the many individuals who took the time to write a vignette sharing their on-the-ground R3 experiences (listed below). The on-the-ground vignettes are an essential component of this handbook, as they communicate a basic truth about R3 challenges: that the future of hunting, fishing, sport shooting, and archery depends, above all, on the perseverance, creativity, and hard work of dedicated professionals throughout the country.

Adam A. Ahlers, Kansas State University

Brian Blank, Kentucky Department of Fish and Wildlife Resources

David Case, DJ Case and Associates

Tovar Cerulli, Clearwater Communications

Loren Chase, Arizona Game and Fish Department

Mike Christensen, Pass It On – Outdoor Mentors, Inc.

Brian Clark, Kentucky Department of Fish and Wildlife Resources

Doug Darr, Alabama Department of Conservation and Natural Resources

Daniel J. Decker, Cornell University

Katie Dement, National Fishing in the Schools Program

Billy Downer, South Carolina Department of Natural Resources

Matt Dunfee, Co-Chair, Wildlife Management Institute

Dennis Fox, Michigan Department of Natural Resources

Barb Gigar, Iowa Department of Natural Resources

Lincoln R. Larson, North Carolina State University

Jason Kool, South Dakota Department of Game, Fish and Parks

Adam Pettis, Ohio State University

Michael R. Quartuch, Postdoctoral Research Associate, Cornell University

Jeff Rawlinson, Nebraska Game and Parks Commission

Carl Richardson, Pennsylvania Fish and Boat Commission

Michael Sabbeth, attorney/writer

Phil Seng, DJ Case and Associates

Ryan L. Sharp, Kansas State University

William F. Siemer, Cornell University

Brett Stayton, graduate student, Clemson University

Richard C. Stedman, Cornell University

Keith Tidball, Cornell University

Moira Tidball, Cornell Cooperative Extension

Keith Warnke, Wisconsin Department of Natural Resources

to John Stremple, Multistate Conservation Grant Coordinator, U.S. Fish and Wildlife Service.

Finally, the researchers wish to recognize the millions of hunters, anglers, sport shooters, and archers who hunt, fish, and shoot today, particularly those who have been involved in R3 programs and who have discussed their experiences via surveys, interviews, and other methods of formal documentation—these individuals and their pastimes exist at the heart of the material discussed in this handbook.

CHAPTER 1: HUNTING, FISHING, SPORT SHOOTING, AND ARCHERY—THE CURRENT STATE OF PARTICIPATION

CHAPTER OVERVIEW

➢ **Data sources do not always agree regarding the number of outdoor recreation participants, but there is general agreement in the data that several "traditional" outdoor activities have had substantial declines, particularly camping, hunting, and fishing.**

➢ **The demographic characteristics of outdoor recreationists reflect the wide participation in society. The male to female ratio is fairly even. Ages fall into thirds: about a third being 45 years old or older, about a third being 25-44 years old, and about a third being 6 to 24 years old. About a quarter are non-white, and about 40% have a bachelor's degree.**

➢ **Hunting participation has shown long-term declines in *National Survey* data, Federal Aid license data, SFIA data, and NSRE data. There is some evidence of a recent uptick in participation, but time will tell if this is an aberration or the start of an upswing.**

➢ **Demographically, hunting is predominantly male. More than half of hunters are 45 years old or older. Overwhelmingly they are white. About a quarter have a bachelor's degree.**

➢ **The trends regarding fishing are generally showing a long-term decline in participation although not all data sources show a decline. While *National Survey* data, SFIA data, and NSGA data show a decline, Federal Aid data and NSRE data show a flat trend line.**

➢ **Anglers for the most part are male, but with more female participation—about a quarter—than hunting. As with hunters, however, more than half of anglers are 45 years old or older. Anglers are predominantly white (but not as much so as is hunting). About a third of anglers have a bachelor's degree.**

➢ **Research suggests that there is an age cohort with a high rate of hunting and fishing that is moving through age structure as these people age. Individuals born between approximately 1948 and 1968 are the most likely to hunt and fish, no matter what year in time their participation is assessed. In other words, there is a twenty-year cohort of hunters/anglers moving through different life stages that have had high participation rates throughout their lives. All reasonable models predict declines in hunting and angling will not only continue but be exacerbated into the foreseeable future as these cohorts reach older ages and eventually attrite.**

➢ **Data on target and sport shooting (hereinafter any references to "sport shooting" include target and sport shooting together) generally show fairly high fluctuations in participation. Nonetheless, most sources agree that there has been an increase in participation in recent years.**

➢ **Demographic analyses suggest that sport shooters are more often male than female, young or middle-aged (as opposed to 55 or older), and from rural areas or small cities/towns.**

➢ **In contrast to the above bullet about shooters in general, *new* sport shooters (those with 5 years of experience or less) are more often female, non-hunters, and urban/suburban dwellers than sport shooters as a whole.**

➢ **Archery has seen a substantial increase in participation in recent years, particularly those who do archery but do not bowhunt. SFIA data, NSGA data, and Responsive Management data all agree that archery participation is on the rise.**

➢ **Archers as a whole (including bowhunters) tend to be male, young or middle-aged (as opposed to 55 or older), and from rural areas or small cities/towns. Additionally, a relatively high percentage of archery participants are from the South.**

Current participation is down in hunting and fishing, when comparing today's rates to those of a generation ago. Sport shooting participation, on the other hand, is more positive, having a generally upward trend in recent years (although data are not available going very far back—so it may very well also be down compared to a generation ago).

This chapter examines current participation as well as long-term trends in hunting, fishing, the shooting sports, and archery; however, before examining those individual activities, it is worth taking a look at outdoor recreation in general.

1.1. PARTICIPATION IN OUTDOOR RECREATION IN GENERAL

After examining trends, this section on participation explores demographic factors associated with participating in outdoor recreation.

TRENDS IN PARTICIPATION IN OUTDOOR RECREATION IN GENERAL

This report first presents numbers of participants from various sources to explore trends before briefly commenting on instances where the sources do not agree on the numbers. What is more important for the purposes of this section is the *trend* in participation for each of the activities of interest.

A broad look at participation in general comes from the Sports & Fitness Industry Association (SFIA), which publishes participation data through the Outdoor Foundation.[5] A selection of outdoor activities that were examined by the SFIA is shown in Figure 1.1.1. From 1998 to 2015 (some activities have data for shorter time periods), these data show decreases in fishing, both types of camping, and canoeing; participation is about the same from one end of the time period to the other end for viewing wildlife, birdwatching, archery, and bowhunting; and the data show a substantial increase in hiking. In short, except for hiking, the outdoor recreation activities in the graph are either flat or down.

Another source of information on outdoor recreation comes from research by the National Sporting Goods Association (NSGA).[6] A selection of outdoor recreational activities are shown in Figure 1.1.2. This research suggests that camping and freshwater fishing have had a decline since the early 2000s; hunting and saltwater fishing have had a flat trend line; and hiking and target shooting have had increases, with a substantial increase in hiking.

Figure 1.1.1. Number of Participants in Several Outdoor Activities, SFIA / Outdoor Foundation Data[7]
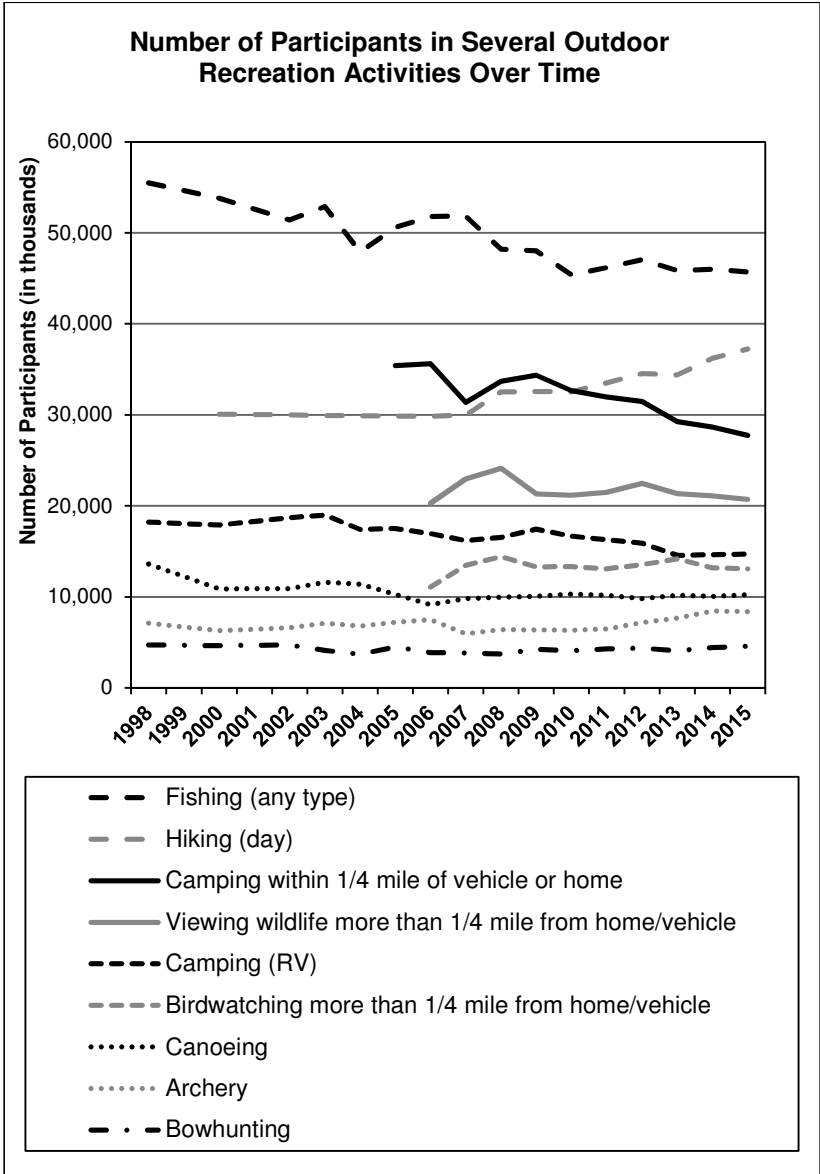
Data for 6 years old and older.

Figure 1.1.2. Number of Participants in Several Outdoor Activities, NSGA Data[8]
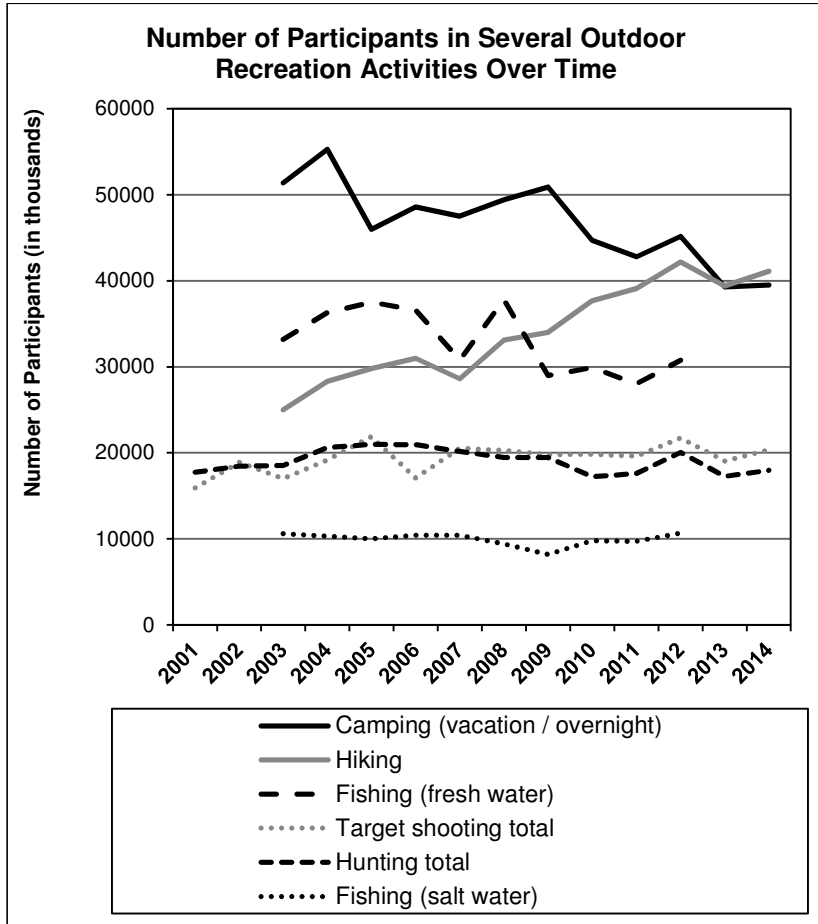
Data for 7 years old and older.

A final broad look at participation comes from the U.S. Forest Service, which has data from four time periods from 1982-1983 through 2005-2009, based on the results of the National Recreation Survey, now retitled the National Survey on Recreation and the Environment (NSRE).[9] The surveys track participation in 33 outdoor activities, 9 of which are shown in Figure 1.1.3 and are worth focusing on as nature- and wildlife-related activities. The data show that most of these activities, with two exceptions, had increases in their rates of participation among United States residents 16 years old and older. The two exceptions are fishing and hunting, both of which had a flat trend line over the long term.

Immediately following Figure 1.1.3 is Table 1.1.1, which shows the data for the graph (because the graph would be too crowded with the data values on it). When examining the line graph, keep in mind that the bottom axis (the

x-axis) is not in even increments but, instead, corresponds to the years for which data are available through the NSRE.

Figure 1.1.3. Participation Rates of Several Outdoor Activities, NSRE Data[10]
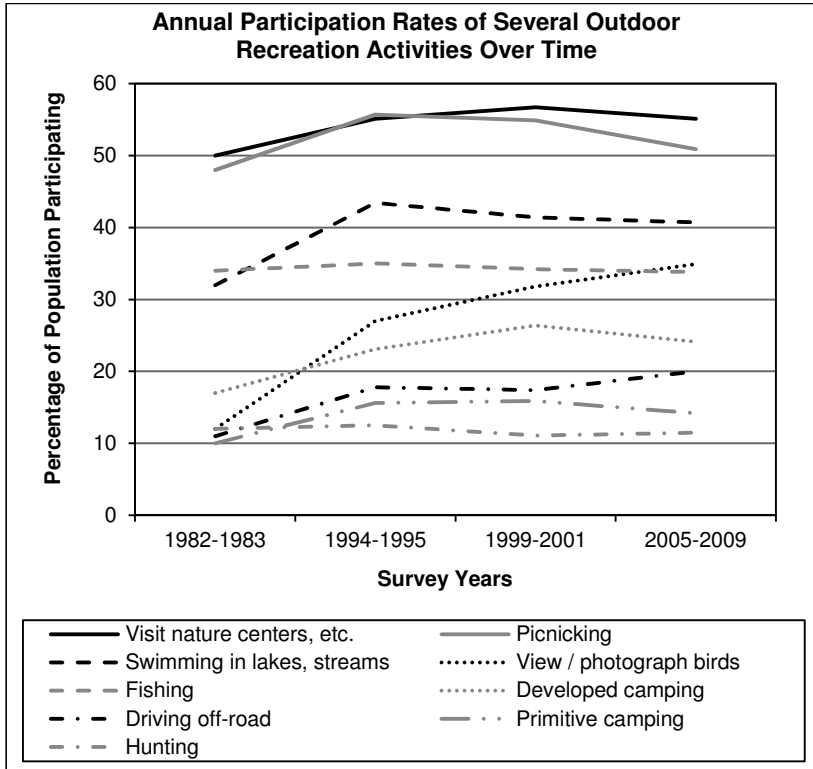
Data for 16 years old and older.

Table 1.1.1. Participation Rates of Outdoor Activities, NSRE Data

	Percent of Population Participating in the Given Year			
	1982-1983*	1994-1995	1999-2001	2005-2009
Visit nature centers, etc.	50	55.1	56.7	55.1
Picnicking	48	55.7	54.9	50.9
Swimming in lakes, streams	32	43.4	41.4	40.7
View / photograph birds	12	27.0	31.8	34.9
Fishing	34	35.0	34.2	33.8
Developed camping	17	23.1	26.4	24.1
Driving off-road	11	17.8	17.4	20.0
Primitive camping	10	15.6	15.9	14.2
Hunting	12	12.5	11.1	11.5
*Data available only at integer level.				
Data for 16 years old and older.				

Unfortunately, the three data sources are not exactly comparable, as they have varying definitions of the activities—e.g., one shows data for "camping (vacation/overnight)" and another shows data for "developed camping." Nonetheless, they agree regarding the upward trend in hiking, as well as the flat or downward trend in camping, fishing, and hunting.

DEMOGRAPHIC ANALYSES OF GENERAL OUTDOOR RECREATION PARTICIPANTS

This section looks at gender, age, ethnicity, education, and income from recent data. This section also has some information on participation regionally.

Gender

The SFIA/Outdoor Foundation data look at the makeup of outdoor recreation participants, breaking down who these people are by various demographic factors, including gender, showing that participants in outdoor recreation overall are about evenly split between males and females (an outdoor participant being defined as anyone who participated in any of the outdoor activities covered in the SFIA/Outdoor Foundation survey, not just the selected ones previously shown in this report). These data show that males make up 54% of all participants in outdoor recreation, while females make up 46% (Figure 1.1.4).

Figure 1.1.4. Gender of Participants in Outdoor Recreation, SFIA/Outdoor Foundation Data[11]
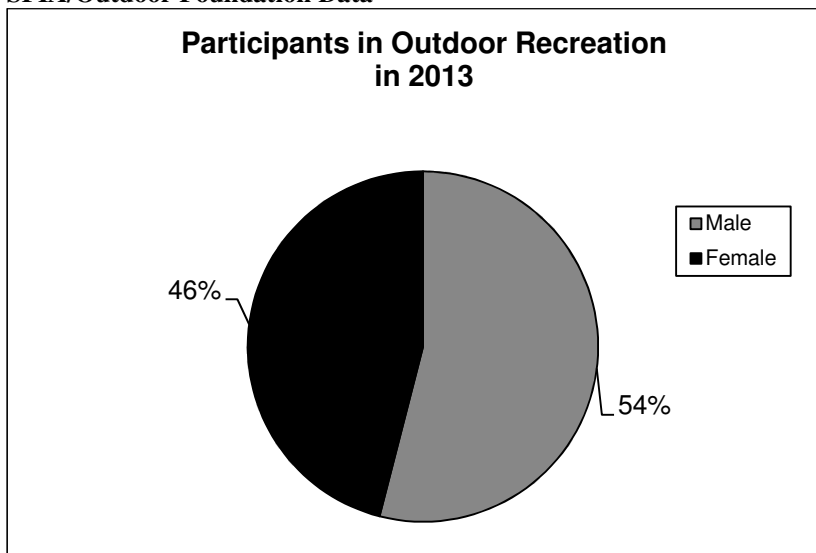
Data for 6 years old and older.

Age

The SFIA/Outdoor Foundation data show an age breakdown of outdoor recreation participants in Figure 1.1.5. The data suggest a breakdown in fairly even thirds as follows: ages 45 years old and older (34%), ages 25 to

44 years old (32%), and the remainder being from 6 up to 24 years old
(34%).

**Figure 1.1.5. Age of Participants in Outdoor Recreation,
SFIA/Outdoor Foundation Data**[12]

**Participants in Outdoor Recreation
in 2013**

- 45 years or older
- 25 to 44 years old
- 18 to 24 years old
- 13 to 17 years old
- 6 to 12 years old

13%
9%
12%
34%
32%

Reading down the key
corresponds to clockwise
on the pie graph.
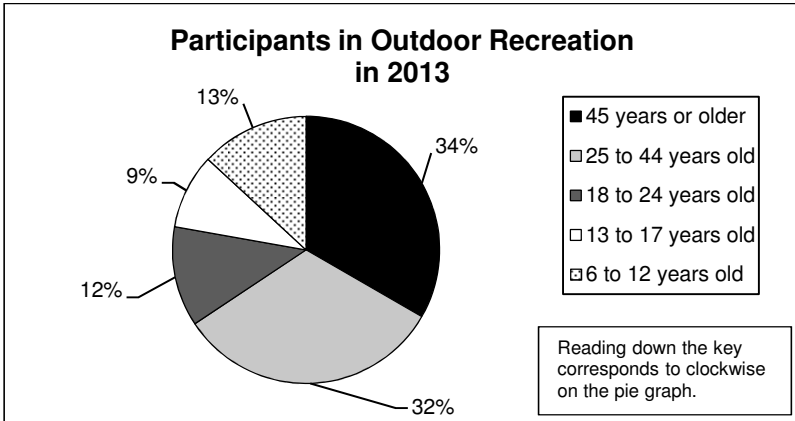
Data for 6 years old and older.

Ethnicity

Again looking at data from the SFIA/Outdoor Foundation, the survey
suggests that outdoor participants are predominantly Caucasian (70% in
2013), with lower percentages of African-Americans (11%), Hispanics
(8%), and others (Figure 1.1.6).

**Figure 1.1.6. Ethnicity of Participants in Outdoor Recreation,
SFIA/Outdoor Foundation Data**[13]

**Participants in Outdoor Recreation
in 2013**

- Caucasian
- African-American
- Hispanic
- Asian/Pacific Islander
- Other

4%
7%
8%
11%
70%

Reading down the key
corresponds to clockwise
on the pie graph.
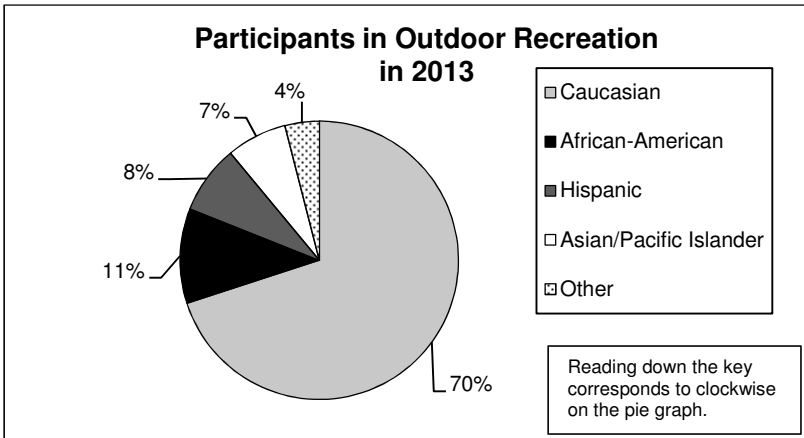
Data for 6 years old and older.

Education

Another demographic characteristic examined is educational attainment. The SFIA/Outdoor Foundation data are presented in Figure 1.1.7, showing that more than half of outdoor recreation participants have some college background, with 40% of them having a bachelor's degree (with or without a post-graduate degree).

Figure 1.1.7. Education of Participants in Outdoor Recreation, SFIA/Outdoor Foundation Data[14]

Participants in Outdoor Recreation in 2013

- ■ Post-graduate
- ☐ College graduate
- ■ 1 to 3 years of college
- ⊠ High school graduate
- ☐ 1 to 3 years of high school or less
- ▨ Not specified

3% 14% 21% 26% 14% 22%

Reading down the key corresponds to clockwise on the pie graph.
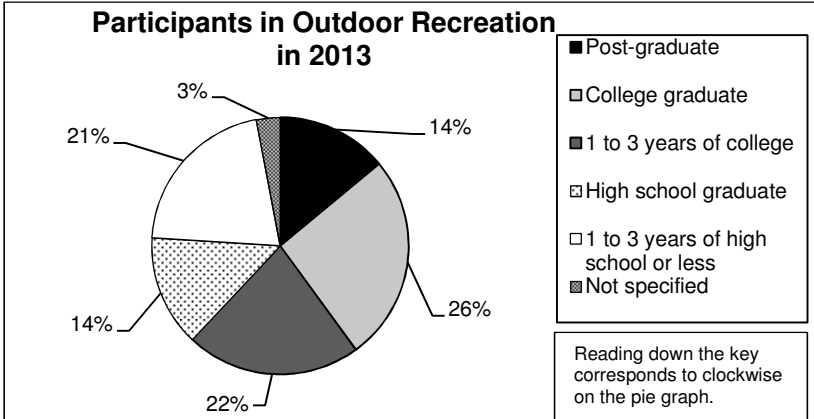
Data for 6 years old and older.

Household Income

The data from the SFIA/Outdoor Foundation concerning income is shown in Figure 1.1.8, with nearly a third of outdoor recreation participants being in a household with an income of $100,000 or over (31% at this level).

Figure 1.1.8. Household Income of Participants in Outdoor Recreation, SFIA/Outdoor Foundation Data[15]

Participants in Outdoor Recreation in 2013

- ■ $100,000 and over
- ■ $75,000 to $99,999
- ☐ $50,000 to $74,999
- ☐ $25,000 to $49,999
- ⊡ Less than $25,000

15% 31% 22% 14% 18%

Reading down the key corresponds to clockwise on the pie graph.
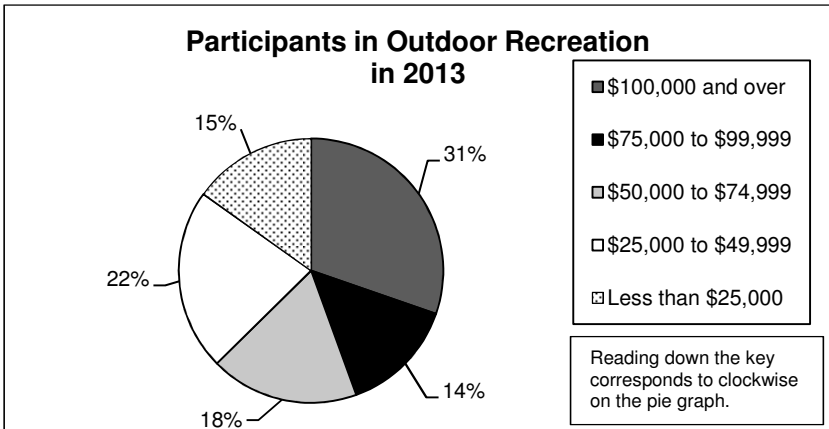
Data for 6 years old and older.

Geographic Region

Two graphs are shown of SFIA/Outdoor Foundation data regarding region of residence, the first showing the proportions of outdoor recreation participants in each region (Figure 1.1.9) and the second showing the rate of participation among the population (6 years old and older) in each region (Figure 1.1.10). A map key is included of the regions, which are based on the regions used by the U.S. Fish and Wildlife Service (USFWS) in the *National Survey* (Figure 1.1.11).

While Figure 1.1.9 will correspond fairly closely to the total population of U.S. residents in each region, the rate as shown in Figure 1.1.10 is independent of the proportion of the population living in the region. This latter graph suggests that the West North Central region has the highest percentage of its population participating in outdoor recreation, while the West South Central has the lowest.

Figure 1.1.9. Region of Residence of Participants in Outdoor Recreation, SFIA/Outdoor Foundation Data[16]
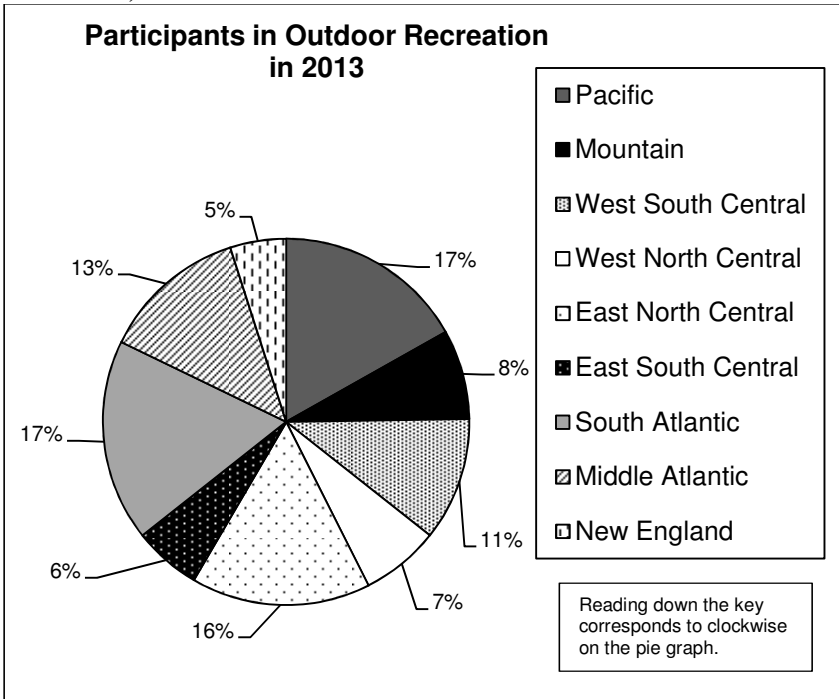
Data for 6 years old and older.

Figure 1.1.10. Rate of Participation in Outdoor Recreation in the Regions in 2013[17]

Rate of Participation in Outdoor Recreation Among Residents of the Regions in 2013

Region	Percent
New England	50
Middle Atlantic	47
South Atlantic	46
East South Central	48
East North Central	51
West North Central	55
West South Central	45
Mountain	52
Pacific	52

Percent of Population Participating
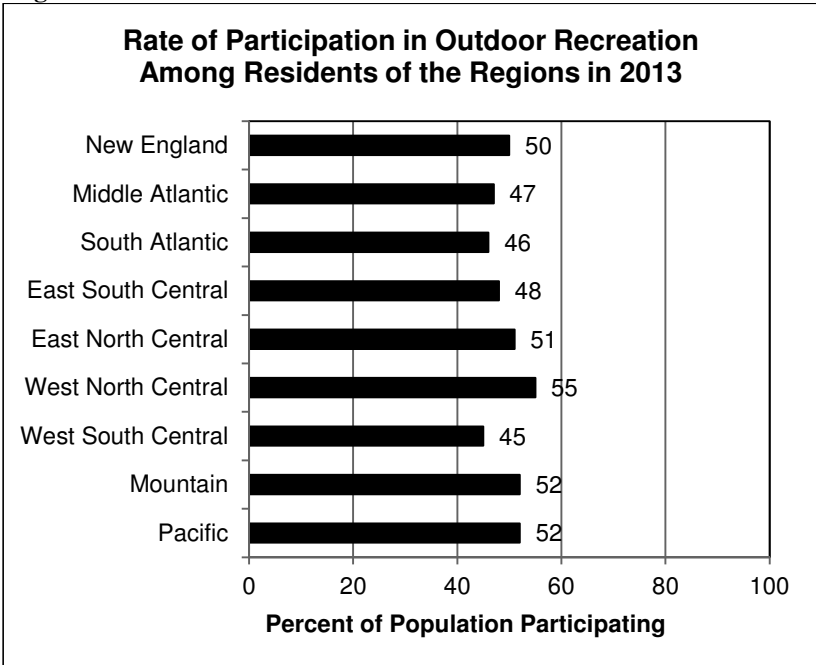
Data for 6 years old and older.

Figure 1.1.11. U.S. Fish and Wildlife Service Regions

USFWS Regions for the *National Survey*
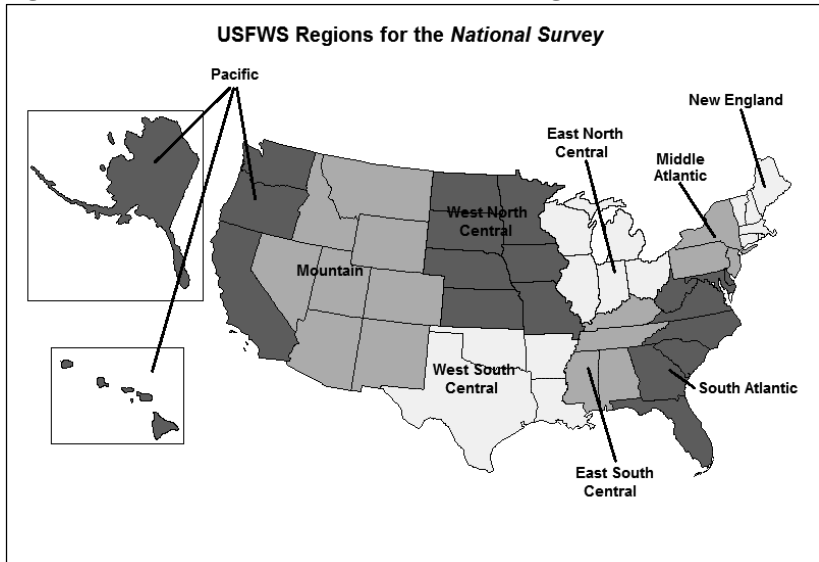
1.2. PARTICIPATION IN HUNTING

Trends in participation and demographic characteristics of hunters are explored in this section of the report.

TRENDS IN PARTICIPATION IN HUNTING

Perhaps the most well-known source of data on hunting participation comes from the *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*[18] (often simply referred to as the *National Survey*) that have been conducted by the USFWS and the U.S. Census Bureau every 5 years since 1955 (with one 6-year interval). These reports have comparable data (i.e., the methods matched close enough to allow the data to be compared) for 1991 through 2011.

The *National Survey* contains two participation measures that will be examined here: the total number of participants in hunting overall and in various types of hunting (big game, small game, migratory birds, and other animals) and the rate of participation among all United States residents 16 years old and older.

The total number of hunters has declined from 1991 to 2011 (despite a slight uptick in 2011 over 2006) (Figure 1.2.1). The number of hunters overall fell from 14.1 million in the 1991 *National Survey* to 13.7 million in the 2011 report. While big game hunter numbers increased slightly, the number of hunters of small game and migratory birds declined.

Figure 1.2.1. Number of Hunters, *National Survey* Data[19]
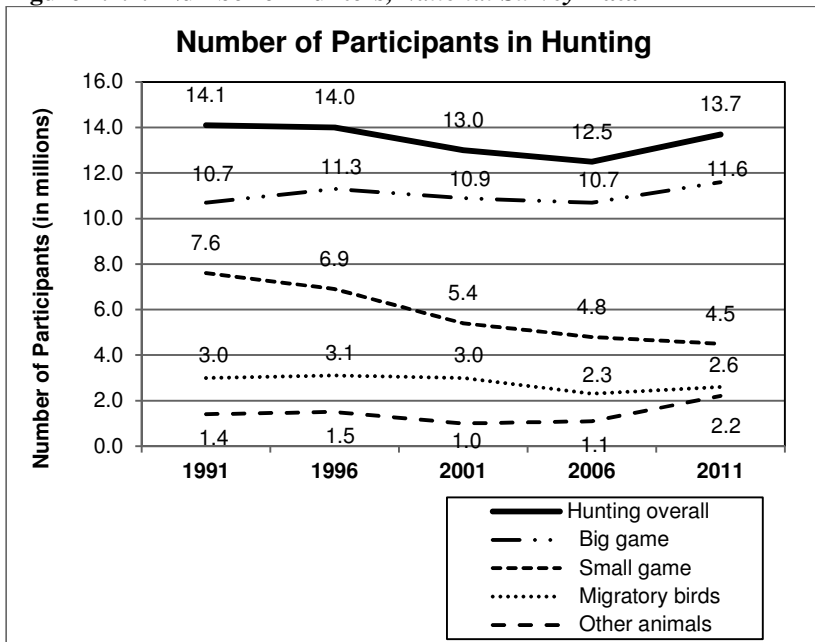
Data for 16 years old and older.

When examining the rate, rather than the total numbers of hunters, the decline in hunting is a little more precipitous. Overall, the hunting rate went from 7.4% in 1991 to 5.7% in 2011 (Figure 1.2.2). In this examination, the rates of big game hunting, small game hunting, and migratory bird hunting all declined. However, the *National Survey* data do have a more upbeat side: it appears that 2011 shows an uptick in participation compared to 2006.

Figure 1.2.2. Hunting Rate, *National Survey* **Data**[20]
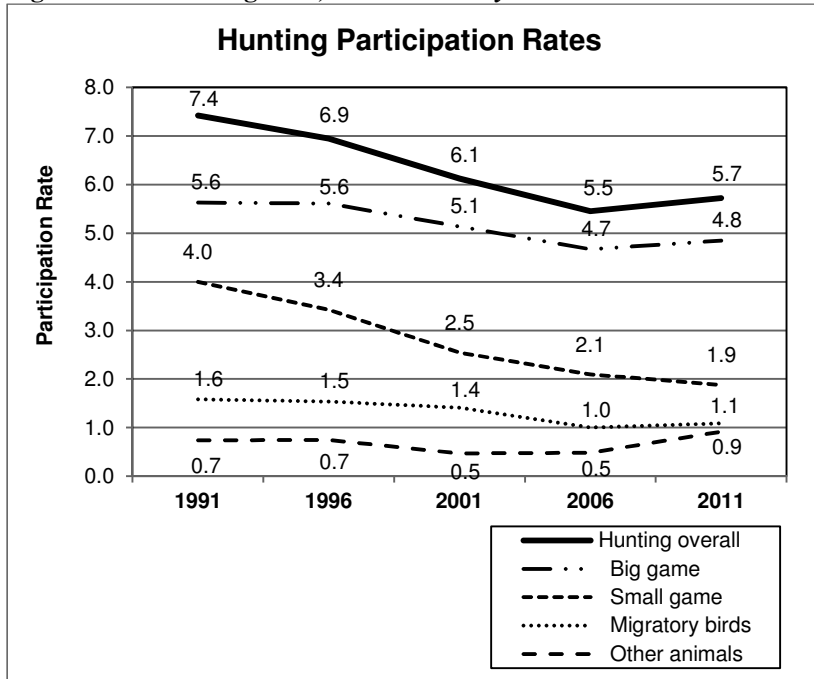
Data for 16 years old and older.

Another source of data on participation in hunting comes from license data compiled by the USFWS as part of the Federal Aid in Wildlife Restoration Program.[21] Figure 1.2.3 shows the number of paid license holders from 1980 through 2013 (the latest year for which license data are available at the time of this writing in 2016); note that this shows *license holders*, not total participants, as there are some types of hunting that do not require a license (for instance, in Virginia residents and their immediate family members can hunt without a license on their own land). Also included in Figure 1.2.3 are *National Survey* data from 1991 onward, the starting date for the time period in which *National Survey* data are comparable, according to the methodology notes in the *National Survey* reports. There has been an almost steady, but slight, decline from 1980 until 2013 in license holders, going from 16.26 million in 1980 to 14.84 million in 2013.

Figure 1.2.3. Paid Hunting License Holders, USFWS Federal Aid Data, and Number of Hunters, *National Survey* Data[22]
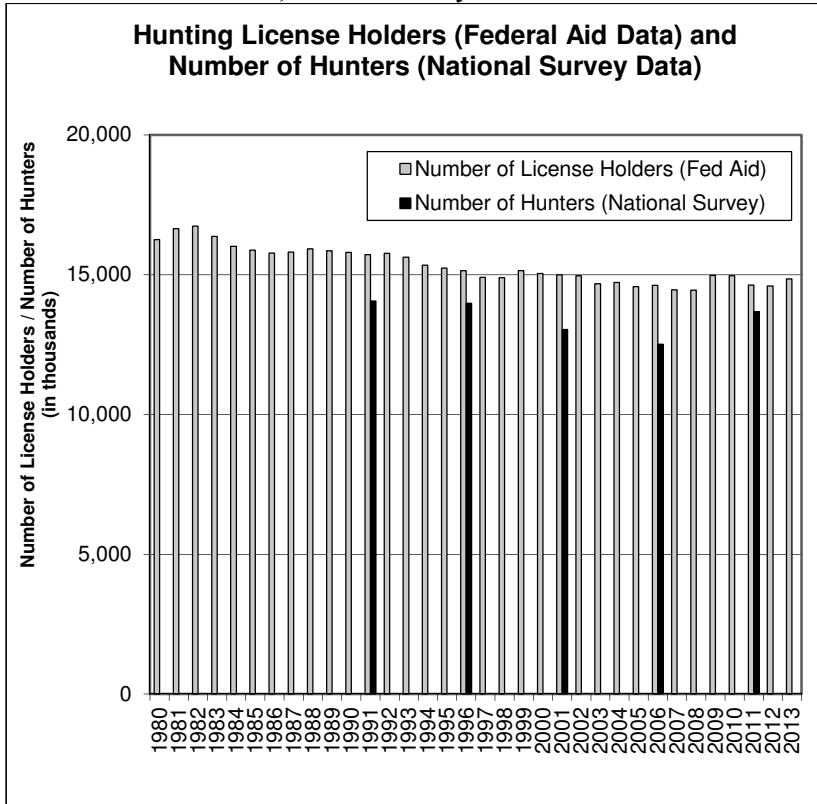
National Survey data for 16 years old and older.

All three of the data sources that were discussed in the section about outdoor recreation in general—the SFIA/Outdoor Foundation, the NSGA, and the NSRE—have data on hunting.[23] These will be examined in that order.

According to the SFIA, hunting has declined slightly from 2005 to 2015, although there has been an uptick since 2013 (Figure 1.2.4). Hunting with a rifle has declined over the time period (from 11.2 million in 2005 to 10.8 million in 2015), as has hunting with a shotgun (9.0 million to 8.4 million in the same time period). Bowhunting appears to be more stable, hovering around 4 million participants. Numbers for hunting overall are available for only part of this period, from 2007 to 2013, which go up and down, but the number in 2013 is lower than in 2007.

Figure 1.2.4. Number of Hunters, SFIA/Outdoor Foundation Data[24]
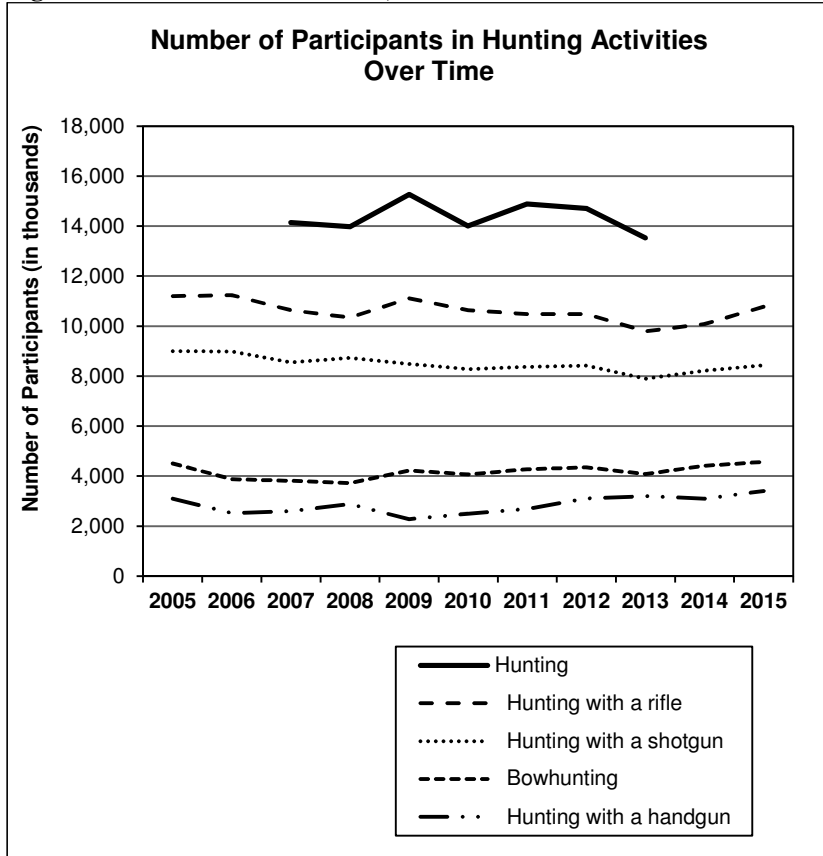
Data for 6 years old and older.
Data for hunting overall are not available for 2005, 2006, 2014, and 2015.

NSGA data are available regarding hunting participation from 2001 to 2014 (Figure 1.2.5). These data show nearly the same numbers in 2001 and 2014, being at 17.75 million in 2001 and 17.96 million in 2014, but the data show a rise and then a fall in the interim. Interestingly, the data show the opposite of the *National Survey*, showing a peak in 2006 and falling in 2011 (with another peak in 2012 before falling again), while the *National Survey* shows an increase from 2006 to 2011 (see Figure 1.2.1).

Figure 1.2.5. Number of Hunters, NSGA Data[25]
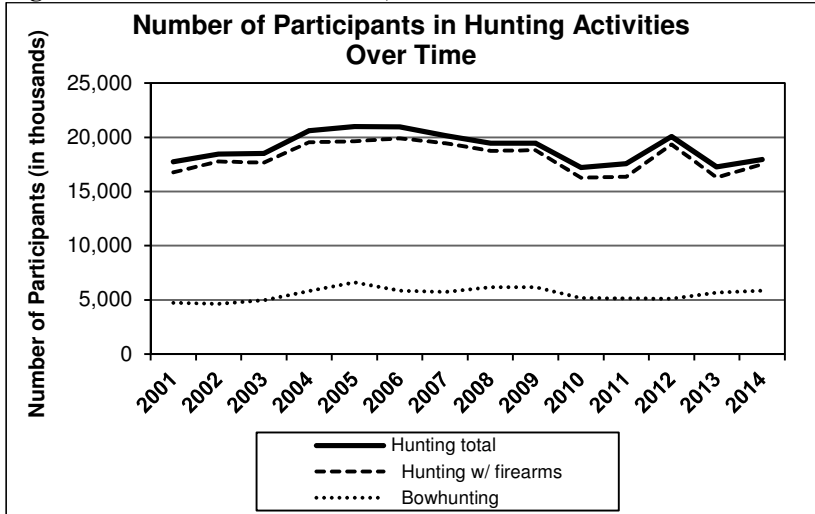
Data for 7 years old and older.

The final data source about hunting reviewed here is shown in Figure 1.2.6, which shows the participation rate in hunting according to the NSRE. It shows a decline from the survey years of 1994-1995 to the most recent survey years of 2005-2009 (12.5% to 11.5%) (the trend is ambiguous going back to the survey years of 1982-1983 because the integer "12" could be anywhere in the range of 11.6 to 12.4; this means the data may show an essentially flat line if starting at 11.6 or a slight decline if starting at 12.4).

Figure 1.2.6. Participation Rate in Hunting, NSRE Data[26]
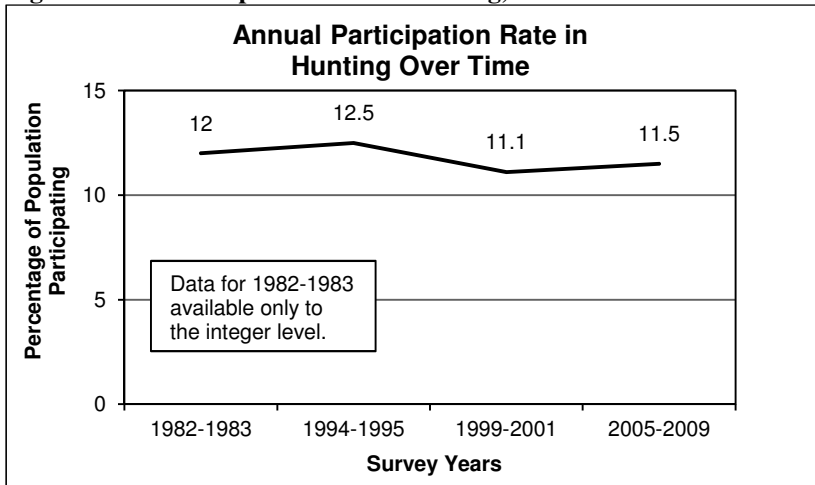
Data for 16 years old and older.

DEMOGRAPHIC ANALYSES OF HUNTERS

This section looks at demographic characteristics of hunters. These include gender, age, education, residential area, and ethnicity.

Gender

The vast majority of hunters are male (Figure 1.2.7).

Figure 1.2.7. Gender of Hunters, *National Survey* Data[27]

Hunters in 2011

- Male
- Female

11%

89%
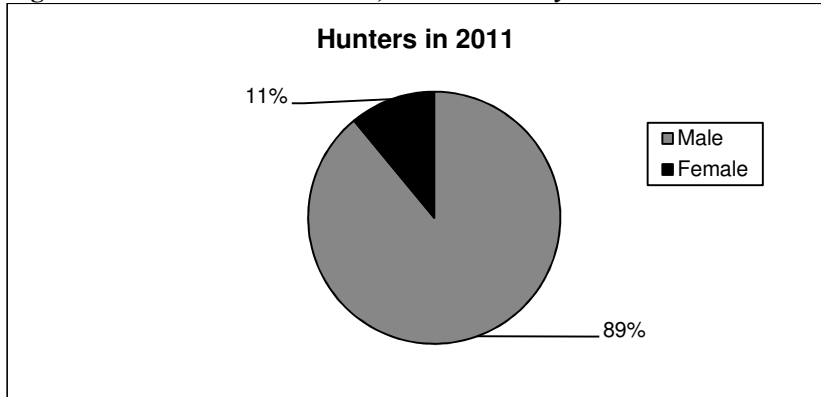
Data for 16 years old and older.

Age

More than half of hunters (among those 16 years old and older) are 45 years old or older (Figure 1.2.8).

Figure 1.2.8. Age of Hunters, *National Survey* Data[28]

Hunters in 2011

- 65 years old and older
- 55 to 64 years old
- 45 to 54 years old
- 35 to 44 years old
- 25 to 34 years old
- 18 to 24 years old
- 16 and 17 years old

3%
9%
15%
18%
11%
21%
23%

Reading down the key corresponds to clockwise on the pie graph.
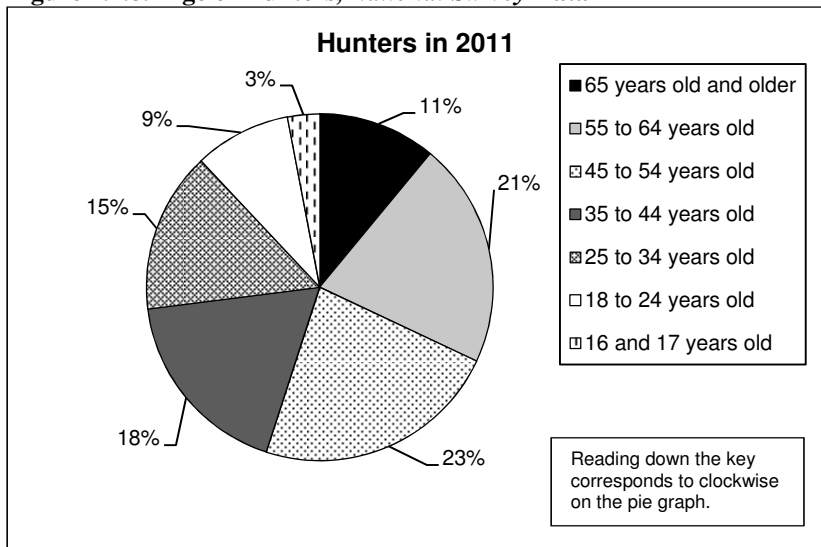
Data for 16 years old and older.

Education

According to the *National Survey*, nearly half of hunters have no more than a high school diploma (Figure 1.2.9). (The assumption is that "12 years of schooling" is equivalent to a high school diploma.)

Figure 1.2.9. Education of Hunters, *National Survey* **Data**[29]

Hunters in 2011

11%	11 years of schooling or less
36%	12 years of schooling
26%	1 to 3 years of college
18%	4 years of college
9%	5 years or more of college

Reading down the key corresponds to clockwise on the pie graph.
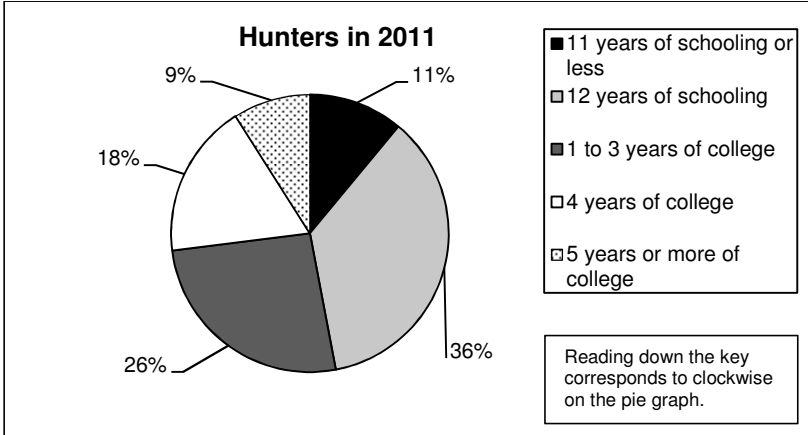
Data for 16 years old and older.

Ethnicity

Hunting is largely a pursuit of ethnically white people: 94% identify themselves as white (Figure 1.2.10). (Note that the ethnic category of Hispanic was considered separately from ethnicity shown here—in other words, "white" consists of Hispanic whites and non-Hispanic whites.)

Figure 1.2.10. Ethnicity of Hunters, *National Survey* **Data**[30]

Hunters in 2011

94%	White
3%	African American
3%	Other
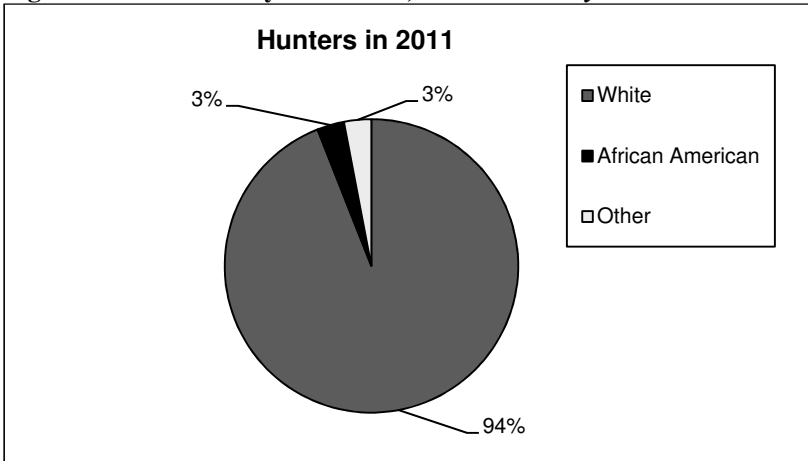
Data for 16 years old and older.

Residential Area

Not surprisingly, hunters tend to come from small metro areas or from rural areas (i.e., outside of a large or medium metro area) (Figure 1.2.11).

Figure 1.2.11. Residential Area of Hunters, *National Survey* Data[31]

Hunters in 2011

	Legend
□	Large Metropolitan Statistical Area
■	Medium Metropolitan Statistical Area
□	Small Metropolitan Statistical Area
■	Outside of a Metro. Stat. Area

25%

20%

38%

17%

Reading down the key corresponds to clockwise on the pie graph.
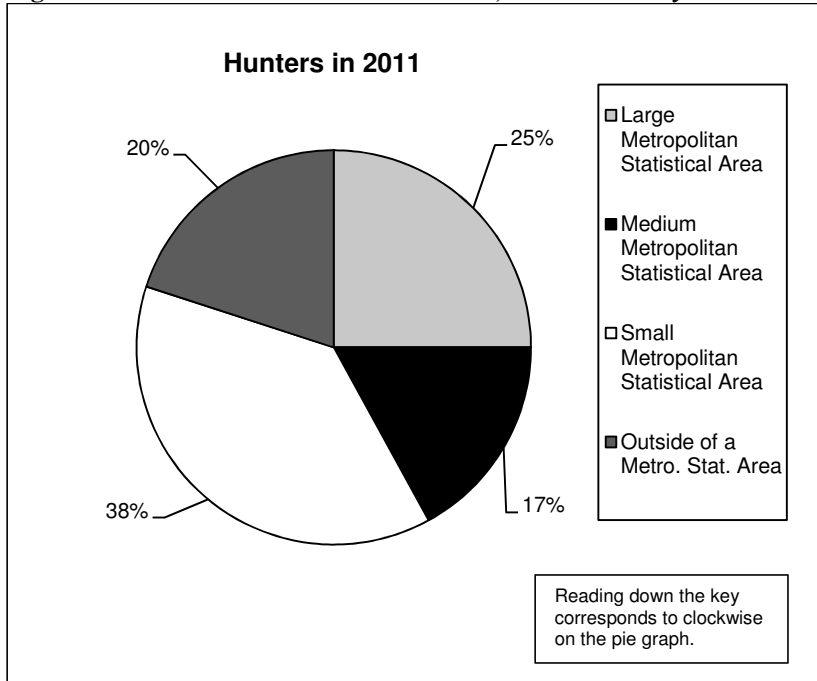
Data for 16 years old and older.

Exploring the Aging Demographics of Sportsmen

Loren Chase

The Demography of Hunters Is Changing

We all sense it…America is changing. The effects of modernization are reflected in urbanization, industrialization, propagation of technology, and proliferation of education. These manifestations of modernization derive from the American population's climb up the rungs of Maslow's Hierarchy of Needs. People begin to worry less about putting food on the table or providing safety and are more concerned with belonging to the right social networks and indulging their self-esteem through boundless posts to social media. The result has been a detachment from nature.

continued

Research confirms that hunting and fishing have declined ubiquitously in the past two decades. In the 90s, about 1 in 9 people hunted; today, that number is closer to 1 in 13. Hunters and anglers bankroll about 59% of state wildlife conservation funding. Therefore, the financial virility and effectiveness of agencies will deteriorate should hunting and fishing participation continue to wane.

Understandably, stemming this decline in hunting and angling is of keen interest to agencies, yet little is known about the nature of recent participation declines or the extent to which they will continue into the future. In an effort to simply do something, agencies have conducted youth camps, recruitment camps, and other R3 events. However, the efficacy of R3 initiatives is largely unknown, as documented evidence evaluating the lasting effects of these initiatives is lacking.

Demography Research
To comprehend hunting and fishing declines, we conducted an age-period-cohort analysis on hunting and fishing license sales in 23 states in the United States. These states are from every part of the union and represent nearly all permutations of agency configurations, population demographics, and biological conditions. Age, period, and cohort effects are difficult to analyze because at any given time they are perfectly linear (i.e., a person who turns 38 in 2016 will always have been born in 1978). Therefore, data collected across time are critical for differentiating age, period, and cohort effects.

Age effects manifest by altered participation levels at specific ages, regardless of which year in time it is and what is occurring during that year. For example, over the past 20 years, a significant decrease consistently occurs when hunters and anglers are in their early 70s, most likely because participants are physically no longer able to participate.

Period effects occur when a specific year in time shows a change in hunting and fishing participation across all age groups simultaneously. An example of this effect may be lower sales volumes across all ages when state agencies adjust the costs of licenses or tags.

Cohort effects manifest by people of the same birth year who are consistently higher or lower in their participation across time. An example of this effect is that individuals born in 1975 are nearly twice as likely to go hunting as individuals born in 1985, no matter what year in time is used for the comparison.

Age effects are most noticeable in reduced participation during college years, and again beginning about age 70. Period effects were somewhat

continued

variable across the 23 states but generally showed declining participation rates over time and offered unique insights into specific incidences (related to license structure changes, policy, disease, or environment) that simultaneously affected participation for all ages and cohorts.

Cohort effects are clearly the strongest driver in hunting and fishing participation. Individuals born between approximately 1948 and 1968 are the most likely to hunt and fish, no matter what year in time their participation is assessed. These findings definitively demonstrate that hunting and fishing are not tied to specific life stages; rather, there is a twenty-year cohort of hunters/anglers moving through different life stages that have had high participation rates throughout their lives. All reasonable models predict declines in hunting and angling will not only continue but be exacerbated into the foreseeable future as these cohorts reach older ages and eventually attrite. Because this model is predictive, this information will be beneficial to agencies as they strategically plan to diversify client bases and wildlife conservation revenue sources while simultaneously preserving the hunting heritage.
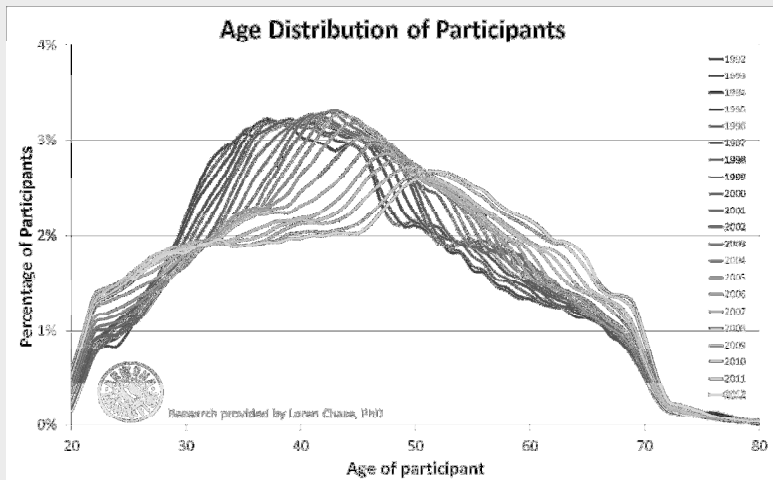
Concrete Recommendations
I am a shooter, hunter, and angler. If future generations are going to hunt, fish, and enjoy wildlife like our predecessors, agencies are going to have to do business differently. To preserve the hunting heritage, I see three avenues that the conservation community can take to address these issues:

1. *Make more hunters and anglers.* Youth camps or locavore events are intended to create more recreationists. However, they are resource-intensive, and many in the recruitment community are beginning to deem them impractical in the long-term. A better approach is to reactivate parents in their mid-30s to early-40s and subsequently let them recruit their children. They have the social bonds, infrastructure, and time to inspire organic growth, as opposed to synthetic programs from a government agency. Agencies may also consider emphasizing hunting motivations higher on Maslow's Hierarchy of Needs.

2. *Do not charge each hunter and angler more.* A few have suggested increasing agency revenue by charging more for each hunter or angler. I respectfully disagree. Asking for more revenue from those who already pay more than their fair share may not be tenable. Further, commanding a higher conscription fee will only exacerbate the perception that our passions are only for the wealthy.

3. *Evolve the funding model.* The North American Model of Wildlife Conservation is the most effective tool to conserve wildlife resources and is the envy of the rest of the conservation world. The success of the model is evidenced by the diversity of now-common species recovered from the brink of extinction, such as white-tailed deer and wood ducks, as well as recovering species like the California condor and Gila trout. However, some mistakenly believe that the model has been static in the past; others erroneously believe that, if the model evolves, it is an admission that the model was imperfect. This is inaccurate; during its time, the model worked perfectly to realize wildlife conservation. However, the world has changed, and so must the model evolve—as it was always meant to do. Agencies must carefully consider how they will choose to evolve their model and how best to serve their constituencies.

The Take-Home
Hunters and anglers are crucial but no longer sufficient to exclusively fund wildlife conservation. These data from 23 states unequivocally indicate that hunting and fishing are declining. Moreover, there is a cohort of hunters and anglers who will attrite in the near future and will exacerbate the declines that we have already seen in the past two decades. The North American Model of Wildlife Conservation has served us well, and it will continue to serve us for generations to come if we adapt it. It is time to diversify client bases and wildlife conservation revenue sources to meet the conservation challenges of the future head on.

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1.3. PARTICIPATION IN FISHING

This section of the report looks at trends in fishing participation. It also includes an analysis of demographic characteristics of anglers.

TRENDS IN PARTICIPATION IN FISHING[32]

For fishing participation data, the *National Surveys* once again provide comparable data from 1991 to 2011. As was done with hunting, both the total number of participants and the rate of participation among all United States residents 16 years old and older are examined. The total number of anglers has declined from 1991 to 2011 (again, despite a slight uptick in 2011 over 2006) (Figure 1.3.1). The number of anglers declined from 35.6 million in the 1991 *National Survey* to 33.1 million in the 2011 report (after falling as low as 30.0 million in 2006). The number of freshwater anglers fell (31.0 million to 27.5 million), while the number of saltwater anglers ended up the same in 2011 compared to 1991 (both at 8.9 million).

Figure 1.3.1. Number of Anglers, *National Survey* Data[33]
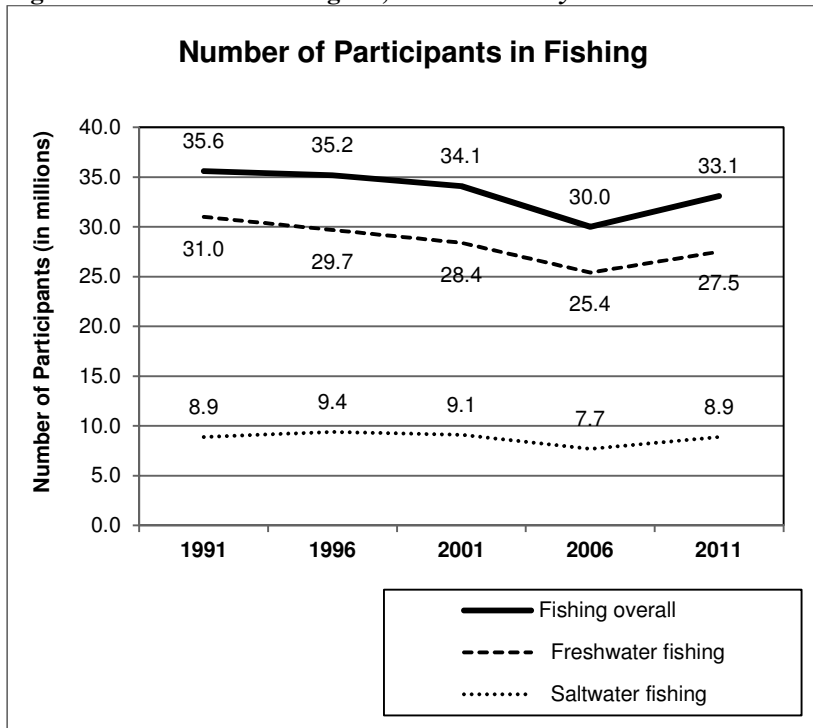
Data for 16 years old and older.

The rate of fishing participation is down—the overall rate, as well as the rate of freshwater fishing and the rate of saltwater fishing (Figure 1.3.2). Overall, the fishing rate went from 18.7% in 1991 to 13.8% in 2011. Freshwater fishing fell from a rate of 16.3% to 11.5%, and saltwater fishing fell from 4.7% to 3.7% over the time period. As with the hunting rate, the

silver lining, so to speak, is that there appears to be an uptick in fishing
participation when comparing 2011 to 2006.

Figure 1.3.2. Fishing Rate, *National Survey* **Data**[34]

Fishing Participation Rates

Percentage of Population Participating

Year	Fishing overall	Freshwater	Saltwater
1991	18.7	16.3	4.7
1996	17.5	14.7	4.7
2001	16.1	13.4	4.3
2006	13.1	11.1	3.4
2011	13.8	11.5	3.7

Fishing overall
Freshwater fishing
Saltwater fishing
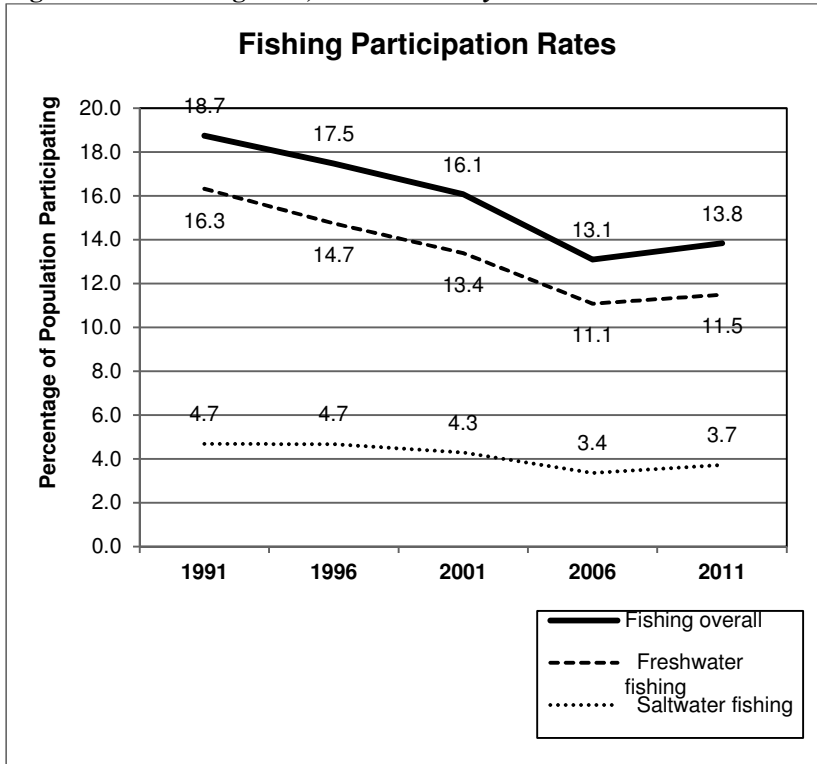
Data for 16 years old and older.

There is another source of data on participation in fishing: the fishing
license data compiled by the USFWS as part of the Federal Aid in Sport
Fish Restoration Program. The number of paid fishing license holders from
1980 through 2013 (the latest year for which license data are available at the
time of this writing in 2016) is shown in Figure 1.3.3. It is important to
note that this shows *license holders*, not total participants. Also included in
Figure 1.3.3 are *National Survey* data from 1991 onward, the starting date
for the time period in which *National Survey* data are comparable, as stated
in the methodology notes in the *National Survey* reports. While the number
of license holders in 2013 closely matches the number in 1980, there has
been a decline from the peak in 1988, going from 31.48 million in 1988 to
28.46 million in 2011.

**Figure 1.3.3. Paid Fishing License Holders, USFWS Federal Aid Data, and Number of Anglers,** *National Survey* **Data**[35]
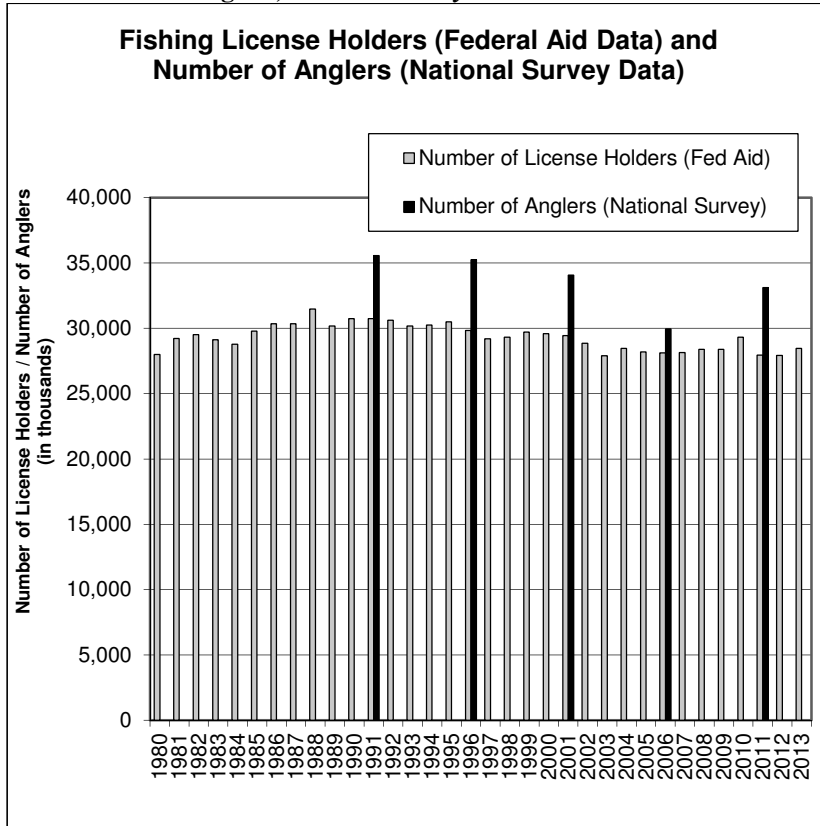
National Survey data for 16 years old and older.

The SFIA/Outdoor Foundation, the NSGA, and the NSRE also have data on fishing. The first to be examined is the SFIA/Outdoor Foundation, with data available from 1998 to 2015. The data show a decline in fishing overall and in all three types of fishing (although the decline in fly fishing is slight) (Figure 1.3.4).

Figure 1.3.4. Number of Anglers, SFIA/Outdoor Foundation Data[36]

Number of Participants in Fishing Activities Over Time

Y-axis: Number of Participants (in thousands)

Legend:
- Fishing (any type)
- Freshwater, non-fly (subset of any type)
- Fly fishing (subset of any type)
- Saltwater fishing (subset of any type)
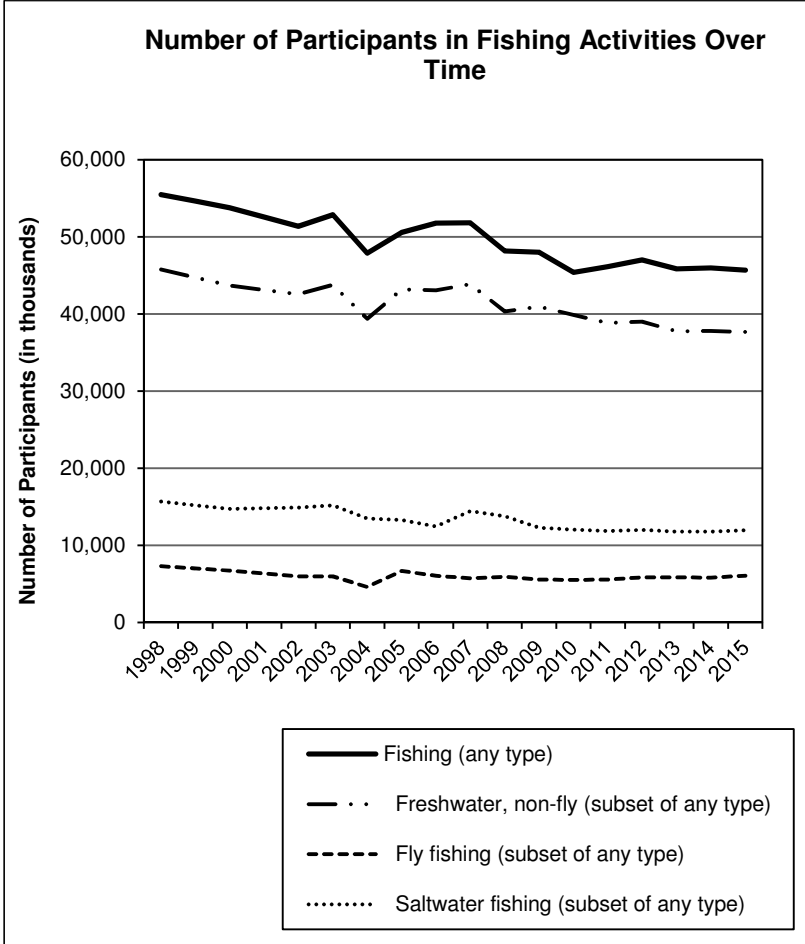
Data for 6 years old and older.

The next set of data to be examined on fishing comes from the NSGA. As shown in Figure 1.3.5, the NSGA data suggest that fishing has declined from 2003 to 2014 (overall fishing is down from 2005 to 2014; freshwater fishing is down from 2003 to 2012).

Figure 1.3.5. Number of Anglers, NSGA Data[37]
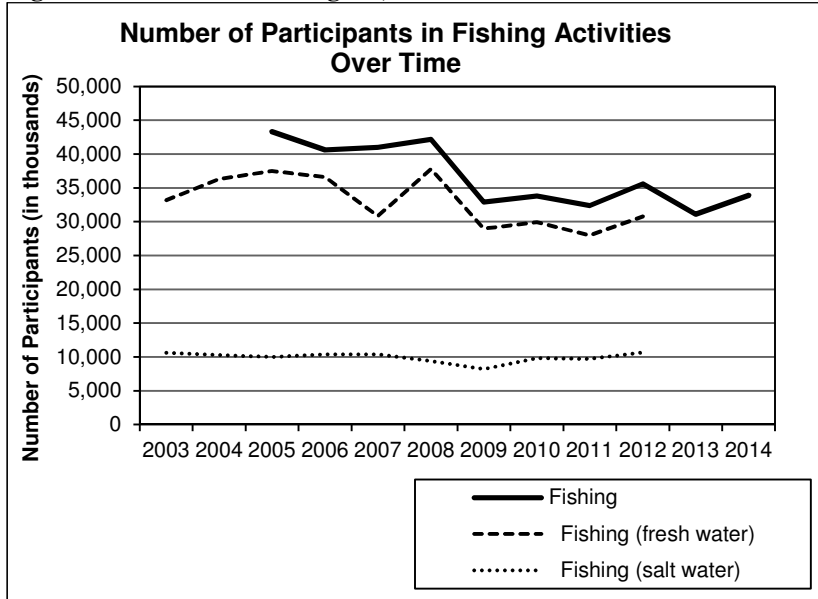
Data for 7 years old and older.

Finally regarding fishing participation, Figure 1.3.6 shows the participation rate in fishing as determined by the NSRE, suggesting a decline from the survey years of 1994-1995 to the most recent survey years of 2005-2009 (35.0% to 33.8%).

Figure 1.3.6. Participation Rate in Fishing, NSRE Data[38]
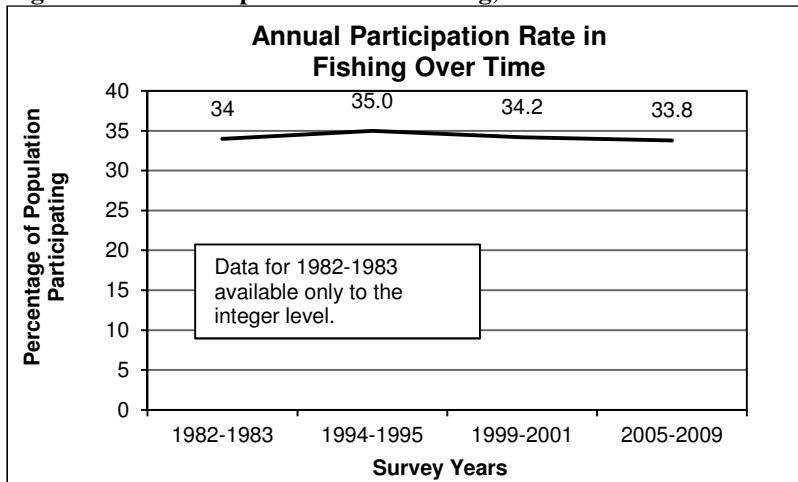
Data for 16 years old and older.

DEMOGRAPHIC ANALYSES OF ANGLERS

This section looks at demographic characteristics of anglers, including gender, age, education, residential area, and ethnicity.

Gender

According to the *National Survey*, the majority of anglers are male, but a little more than a fourth are female (Figure 1.3.7).

Figure 1.3.7. Gender of Anglers, *National Survey* Data[39]
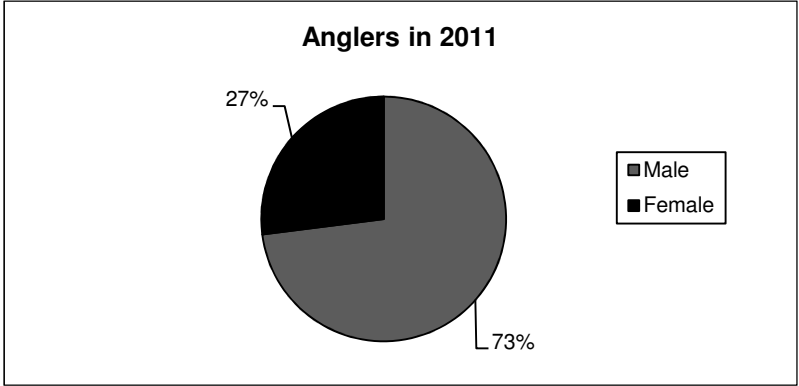
Data for 16 years old and older.

Age

The age breakdown of anglers is shown in Figure 1.3.8 from the *National Survey*. Note that this examined hunters 16 years old and older.

Figure 1.3.8. Age of Anglers, *National Survey* Data[40]
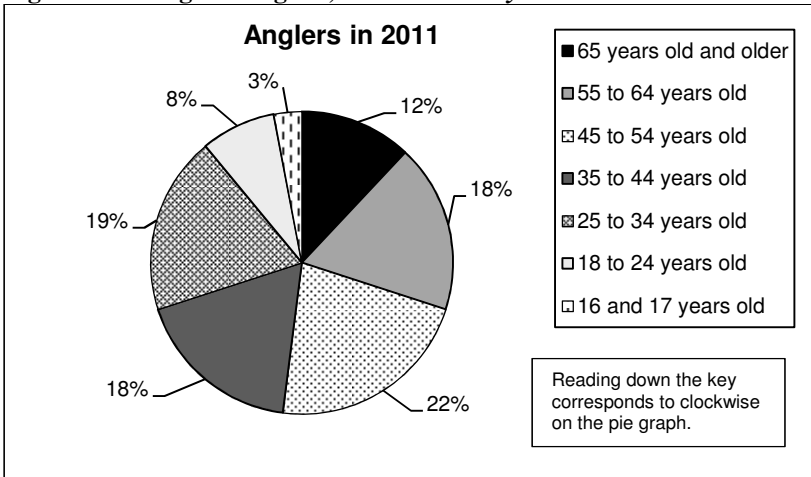
Data for 16 years old and older.

Education

Figure 1.3.9 shows the educational attainment of anglers based on *National Survey* data. Well more than half have some college experience, with or without a college degree.

Figure 1.3.9. Education of Anglers, *National Survey* Data[41]

Anglers in 2011

- 11 years of schooling or less
- 12 years of schooling
- 1 to 3 years of college
- 4 years of college
- 5 years or more of college

11%
32%
26%
19%
12%

Reading down the key corresponds to clockwise on the pie graph.
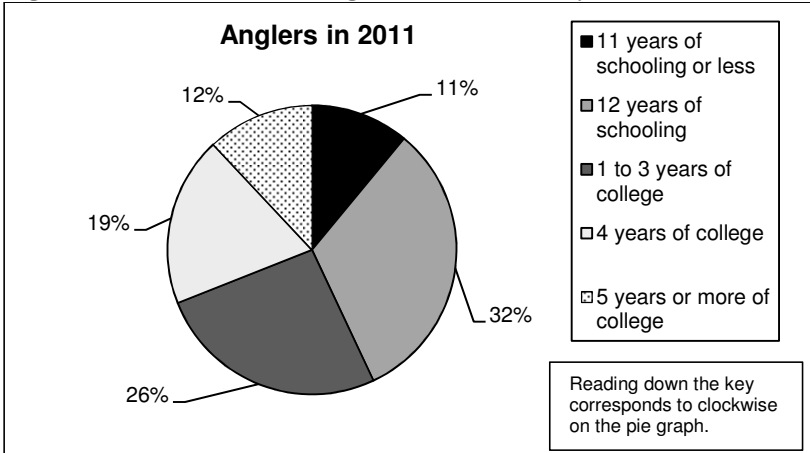
Data for 16 years old and older.

Ethnicity

Like hunting, fishing is predominated by ethnically white people: 86% identify themselves as white (Figure 1.3.10). (Note that the ethnic category of Hispanic was considered separately from ethnicity shown here—in other words, "white" consists of Hispanic whites and non-Hispanic whites.)

Figure 1.3.10. Ethnicity of Anglers, *National Survey* Data[42]

Anglers in 2011

- White
- African American
- Asian American
- Other

2%
5%
7%
86%

Reading down the key corresponds to clockwise on the pie graph.
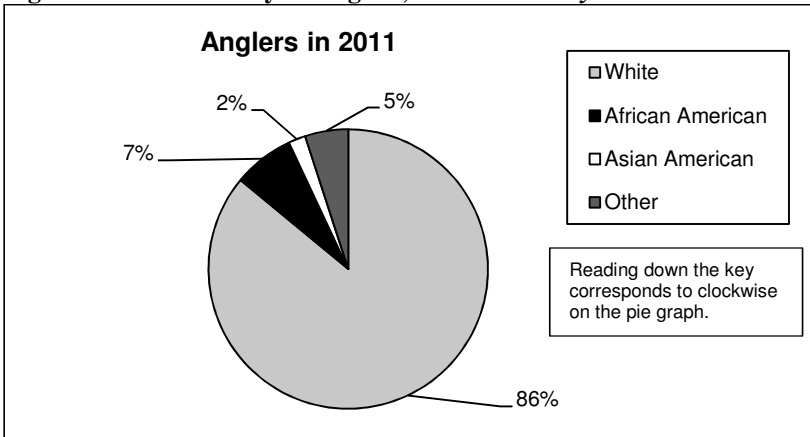
Data for 16 years old and older.

Residential Area

Unlike with hunters, anglers are well distributed among the urban areas as
well as rural areas (Figure 1.3.11).

Figure 1.3.11. Residential Area of Anglers, *National Survey* Data[43]
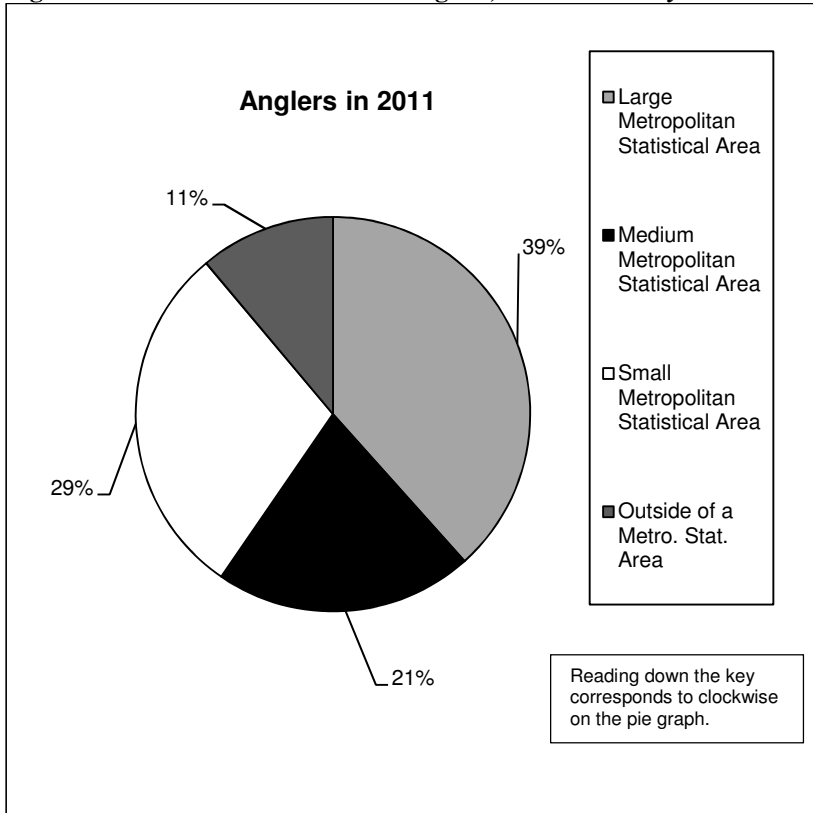
Data for 16 years old and older.

1.4. PARTICIPATION IN SPORT SHOOTING

This section looks at trends and demographic factors associated with sport shooting. (Note that participation in archery is considered on its own later in this chapter.)

TRENDS IN PARTICIPATION IN SPORT SHOOTING

The NSRE and the *National Survey* do not track participation in any sport shooting activities (other than hunting, which is usually not included under the rubric, "sport shooting"), so there are no trend data corresponding to the trend data for hunting and fishing shown above. However, the SFIA/Outdoor Foundation and the NSGA have tracked several sport shooting and related activities, and several Responsive Management surveys are included in this section, as well.

The SFIA/Outdoor Foundation[44] has sport shooting data from 1998 to 2015. These data suggest that target shooting with a handgun, sporting clays, and trap/skeet have had growth in their number of participants over the time period (Figure 1.4.1 and Table 1.4.1—a table is included of the data from 2002-2015 because the graph becomes too crowded if it includes the values at each survey year). Target shooting with a rifle has had ups and downs but is just slightly down when comparing 2015 to the beginning of the data period in 1998.

Figure 1.4.1. Number of Participants in Sport Shooting Activities, SFIA/Outdoor Foundation Data[45]
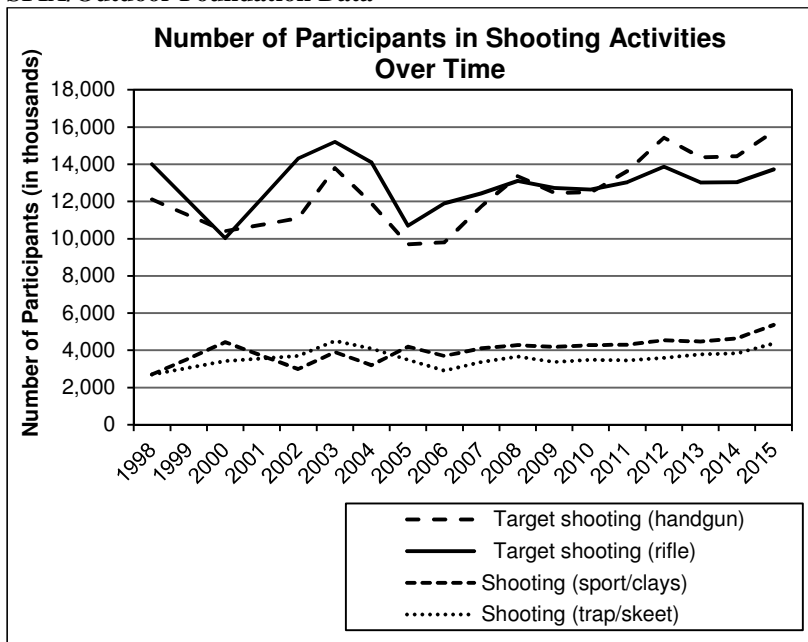
Data for 6 years old and older.

Table 1.4.1. Number of Participants in Shooting-Related Activities, SFIA/Outdoor Foundation Data[46]

	Millions of Participants													
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Target shooting (handgun)	11.1	13.8	11.9	9.7	9.8	11.7	13.4	12.5	12.5	13.6	15.4	14.4	14.4	15.7
Target shooting (rifle)	14.3	15.2	14.1	10.7	11.9	12.4	13.1	12.7	12.6	13.0	13.9	13.0	13.0	13.7
Shooting (sport/ clays)	3.0	3.9	3.2	4.2	3.7	4.1	4.3	4.2	4.3	4.3	4.5	4.5	4.6	5.4
Shooting (trap/ skeet)	3.7	4.5	4.1	3.5	2.9	3.4	3.7	3.4	3.5	3.5	3.6	3.8	3.8	4.4

The NSGA[47] data, available for 2003 to 2014, show an overall increase in target shooting, as well as a slight increase in target shooting with an airgun (Figure 1.4.2 and Table 1.4.2). Paintball, in these data, had a decline, and muzzleloading also had just a slight decline.

Figure 1.4.2. Number of Participants in Sport Shooting Activities, NSGA Data[48]
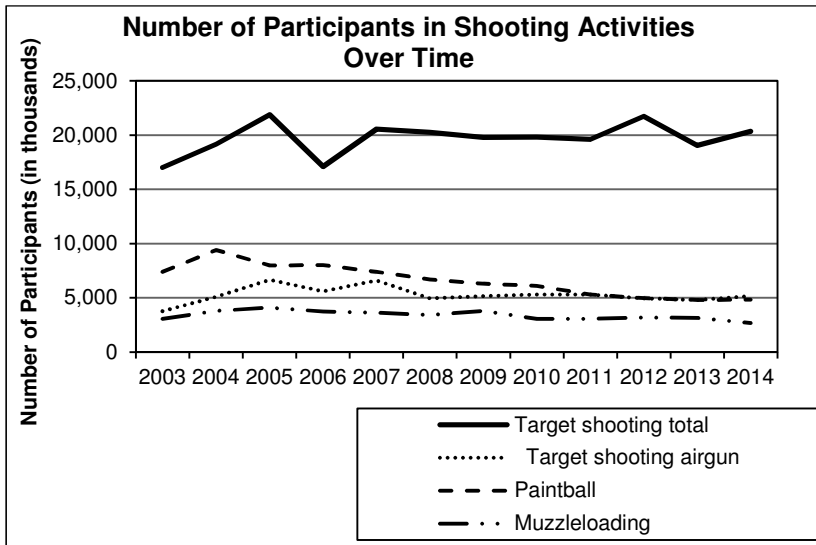
Data for 7 years old and older.

Table 1.4.2. Number of Participants in Shooting-Related Activities, NSGA Data[49]

	Millions of Participants											
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Target shooting total	17.0	19.2	21.9	17.1	20.5	20.3	19.8	19.8	19.6	21.7	19.0	20.4
Target shooting airgun	3.8	5.1	6.7	5.6	6.6	5.0	5.2	5.3	5.3	4.9	4.8	5.1
Paintball	7.4	9.4	8.0	8.0	7.4	6.7	6.3	6.1	5.3	5.0	4.8	4.8
Muzzleloading	3.1	3.8	4.1	3.7	3.6	3.4	3.8	3.1	3.1	3.2	3.2	2.7
Data for 7 years old and older.												

The National Shooting Sports Foundation (NSSF) commissioned Responsive Management to conduct three sport shooting studies, covering participation in 2009, 2012, and 2014.[50] Based on these three data points, it appears that there has been an increase in every major shooting activity (Figure 1.4.3 shows the rate). In particular, the data suggest that target shooting with a handgun has had a relatively large increase in recent years.

Figure 1.4.3. Participation Rate in Shooting-Related Activities, Responsive Management Data[51]
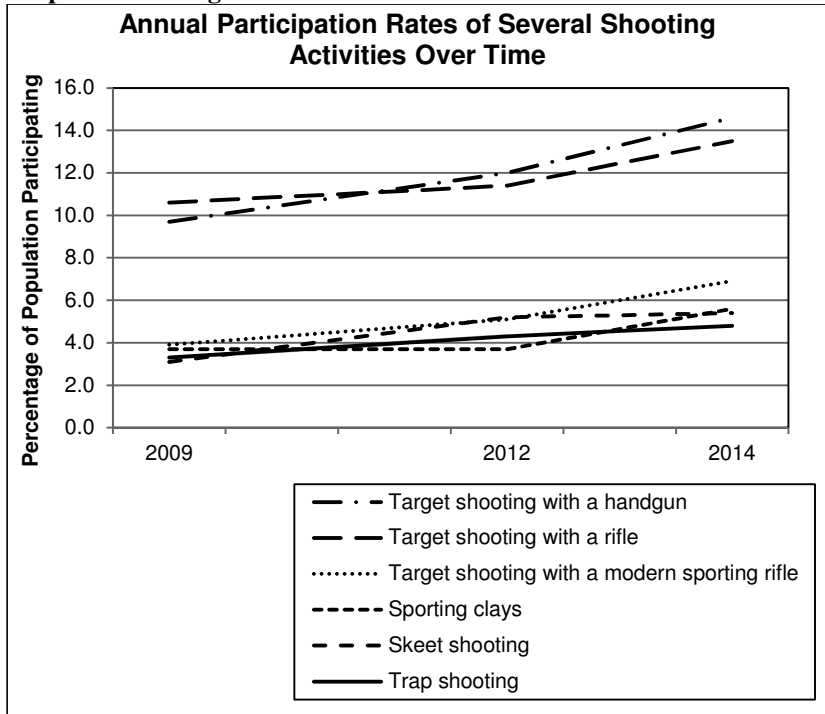
Data for 18 years old and older.

DEMOGRAPHIC ANALYSES OF SPORT SHOOTERS

This section looks at demographic characteristics of sport shooters. The report first examines all characteristics together before taking a look at individual characteristics by themselves.

Characteristics of Sport Shooters Examined Together

Figure 1.4.4 shows several demographic characteristics on a single graph from the aforementioned study conducted for the NSSF regarding sport shooting in 2014.[52] The figure specifically shows the overall percentage of the general public that participates in sport shooting (the gray bar) and the percentages of various groups that participate in sport shooting. Those demographic groups above the gray bar have participation rates higher than the overall rate (i.e., they are more likely to participate in sport shooting than are respondents overall), and those groups below the gray bar have participation rates lower than the overall rate.

Figure 1.4.4 shows the obvious connection between hunting and sport shooting, with 73.6% of hunters having also gone sport shooting (broadly defined to include informal target shooting, but limited to firearms, not archery) in the same year. It also shows that 31.7% of males participated in target/sport shooting (compared to only 12.6% of females, shown in the last bar at the bottom of Figure 1.4.4). In addition, younger people are associated with participation in sport shooting. (The regions in the analysis correspond to the USFWS regions, previously shown in Figure 1.1.11, with Regions 1 and 2 making up the West; Regions 3 and 4 making up the Midwest; Regions 5, 6, and 7 making up the South; and Regions 8 and 9 making up the Northeast.)

Figure 1.4.4. Characteristics of Sport Shooters[53]

Percent of each of the following groups who target or sport shot in 2014:

Group	Percent
Went hunting in 2014	73.6
Male	31.7
18 to 34	29.4
35 to 54	26.8
Lives in a small city or town or rural area	25.0
Lives in the Midwest	24.8
Lives in the West	22.8
Lives in the South	22.0
Total	21.9
Lives in an urban or suburban area	18.7
Lives in the Northeast	17.0
55 or older	15.1
Did not hunt in 2014	13.2
Female	12.6

Examples Explaining How to Interpret Graph:

73.6% of hunters went target or sport shooting in 2014 (meaning that 26.4% of hunters did *not* go target or sport shooting in 2014).

31.7% of males went target shooting in 2014 (meaning that 68.3% of males did not go target shooting).

29.4% of those respondents 18-34 years old went target shooting (meaning that 70.6% of people in that age group did not go target shooting).

These are all above the national rate (21.9%) shown by the gray bar.

Percent

Data for 18 years old and older.

Gender

As shown in Figure 1.4.4 previously, approximately 32% of males reportedly went sport shooting (again to include plinking as well as more formalized sport shooting), while only roughly 13% of females did so.

Another way to examine gender is shown in Figure 1.4.5, which shows that 70% of sport shooters in 2014 were male, while only 30% were female—or in other words, males outnumber females by more than 2 to 1 in the sport shooting community.

Figure 1.4.5. Gender of Sport Shooters, Responsive Management Data[54]
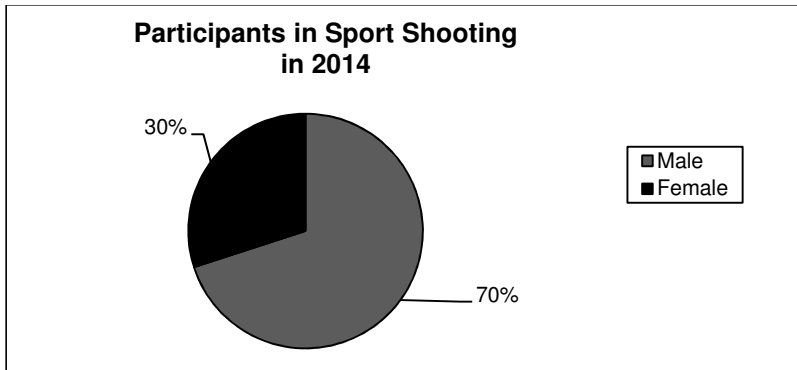
Data for 18 years old and older.

Age

A breakdown of sport shooters into age groups (only those 18 years old and older were included in the study) is shown in Figure 1.4.6. The largest group in sport shooting is the range of 35-54 years old, accounting for 42% of all sport shooters in 2014; this group is closely followed by the range of 18-34 years old (37%).

Figure 1.4.6. Age of Sport Shooters, Responsive Management Data[55]
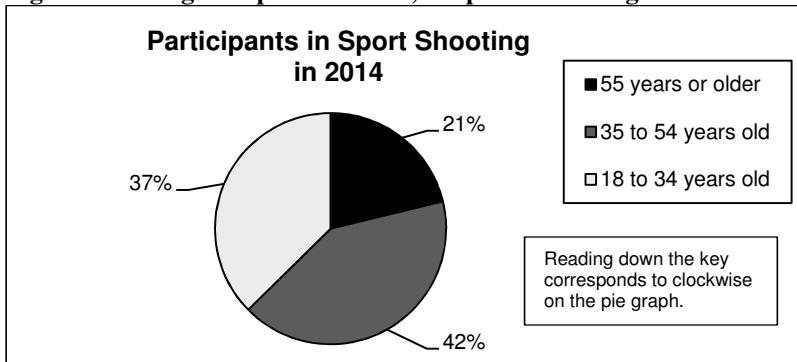
Data for 18 years old and older.

Residential Area

For this demographic factor, respondents chose from four broad types of residential area on the rural-urban continuum. Small city and towns and rural areas predominate as places of residences of sport shooters (Figure 1.4.7).

Figure 1.4.7. Residential Area of Sport Shooters, Responsive Management Data[56]
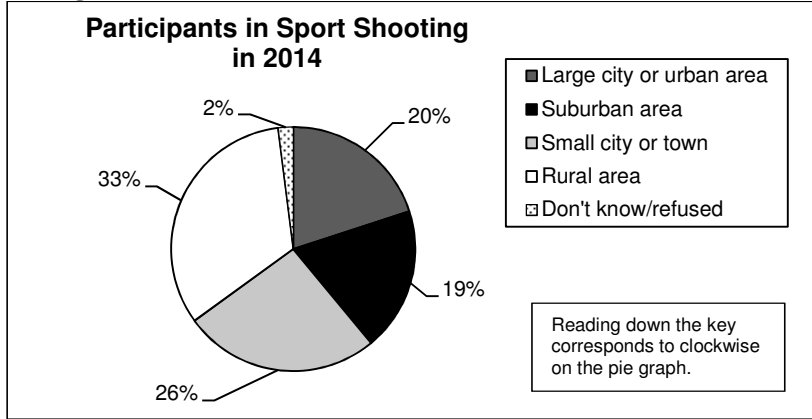
Data for 18 years old and older.

Geographic Region

Figure 1.4.8 from Responsive Management's study for the NSSF shows the importance of the South in sport shooting, with 37% of sport shooters living in the South.

Figure 1.4.8. Geographical Area of Sport Shooters, Responsive Management Data[57]
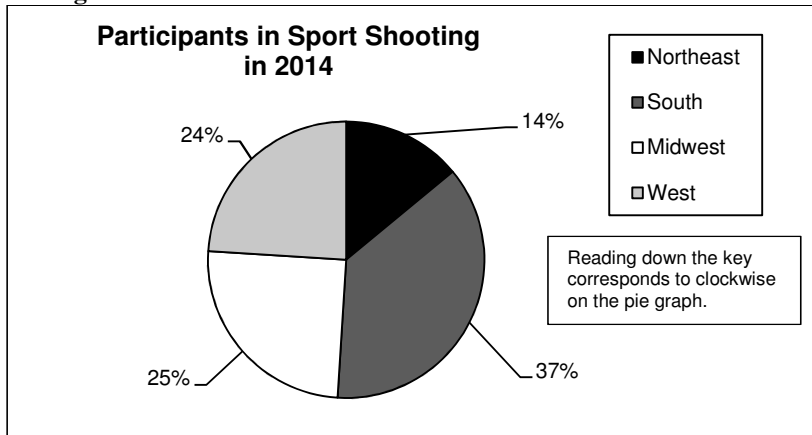
Data for 18 years old and older.

NEW SPORT SHOOTERS

The aforementioned survey conducted by Responsive Management[58] found that almost 15% of sport shooters who had gone sport shooting at least once in 2014 were new to the sport—new being those initiated within the 5 years previous to the survey. Further analysis of the data from the survey examined the demographic characteristics of those new shooters, who had relatively high percentages of women, non-hunters, and urban/suburban dwellers (Table 1.4.3 and Figure 1.4.9). Table 1.4.3 shows the characteristics of established shooters versus new shooters. For instance, 26% of established shooters are female, while 50% of new shooters are female.

Table 1.4.3. Established Shooters Compared To New Shooters

	Established Target/Sport Shooters	New Target/Sport Shooters
Average age	43 years	32 years
Percentage who are female	26%	50%
Percentage who live in urban/suburban area	37%	56%
Percentage who hunted in 2014	51%	19%
Percentage who got started older than age 18	19%	73%
Data for 18 years old and older.		

A different way to look at the data is Figure 1.4.9, which shows the percentage of various groups who are new shooters. As a baseline, 14.8% of all shooters are new shooters (the gray bar). Those groups above the bar are positively correlated with being a new shooter. For instance, 25.9% of female target/sport shooters are new shooters (compared to 14.8% of shooters overall who are new and 10.2% of male shooters who are new shooters). Likewise, 23.7% of non-hunting shooters and 20.7% of urban/suburban shooters are new sport shooters, compared to 14.8% overall.

Figure 1.4.9. Characteristics of New Sport Shooters[59]

Among all target/sport shooters, the percent of each of the following groups who are new shooters:

Group	Percent
18 to 34	26.9
Female	25.9
Did not hunt in 2014	23.7
Lives in an urban or suburban area	20.7
Lives in the Midwest	18.0
Did not participate in archery in 2014	17.2
Lives in the Northeast	15.8
Total	14.8
Lives in the South	13.3
Lives in the West	13.3
Lives in a small city or town or rural area	10.8
Male	10.2
Participated in archery in 2014	9.2
35 to 54	8.0
55 or older	6.5
Went hunting in 2014	5.4

Examples Explaining How to Interpret Graph:

26.9% of target shooters who are 18-34 years old are new to shooting (meaning that 73.1% of shooters in that age group are *not* new to shooting).

25.9% of female shooters are new to shooting (meaning that 74.1% of female shooters are not new to shooting).

23.7% of shooters who do not hunt are new to shooting (meaning that 76.3% of shooters who do not hunt are not new to shooting).

These are all above the rate among shooters overall (14.8%) who are new to shooting, shown by the gray bar.

Percent

Data for 18 years old and older.

1.5. PARTICIPATION IN ARCHERY

Archery participation can encompass both target shooting with archery as well as bowhunting, and some organizations count participation in "archery" differently from other organizations. Perhaps a place to start is to look at the intersection of target archery and bowhunting. In a study by Responsive Management for the Archery Trade Association,[60] the data suggested that roughly two-thirds of adult archery participants are exclusively archery target shooters (65%), while the 35% who remain go bowhunting either in addition to target shooting or exclusive of it (Figure 1.5.1).

Figure 1.5.1. Breakdown of Target Archery and Bowhunting Participants[61]

Participants in Archery or Bowhunting in 2015

☐ Target archery only

☐ Target archery and bowhunting

■ Bowhunting only

Reading down the key corresponds to clockwise on the pie graph.

12%

23%

65%
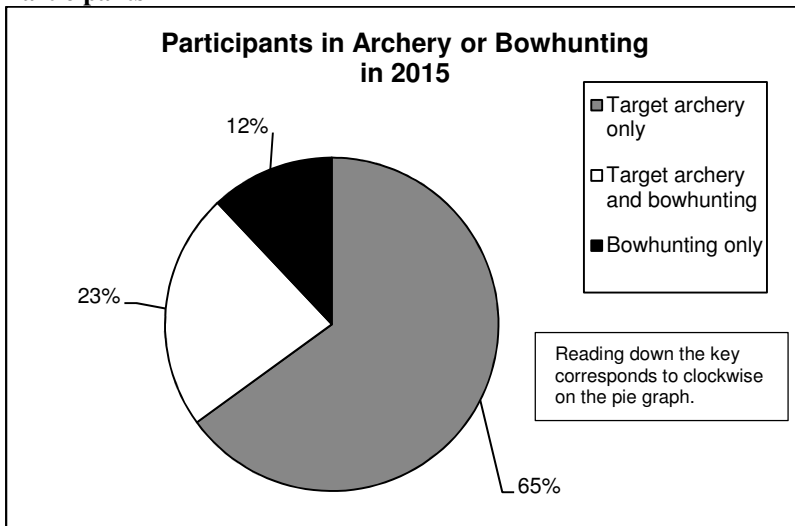
Data for 18 years old and older.

TRENDS IN PARTICIPATION IN ARCHERY

Recent years have seen an increase in archery rivaled by few other sports. It is likely that the release of *Brave*, *The Hunger Games* (both the books and the movies), *The Hobbit*, *The Avengers*, and several television series spurred interest in archery in recent years. For instance, data from the SFIA/Outdoor Foundation[62] show a rise in the number of archery participants ages 6 years and older from 1998 to 2015, going from 7.1 million to 8.4 million over the time period, with some ups and downs (Figure 1.5.2). (Note that the report is not specific regarding what constitutes participation in archery, but it appears that it may exclude bowhunting because that activity was tracked under "hunting.")

Figure 1.5.2. Number of Participants in Archery, SFIA/Outdoor Foundation Data[63]

Number of Participants in Archery Over Time
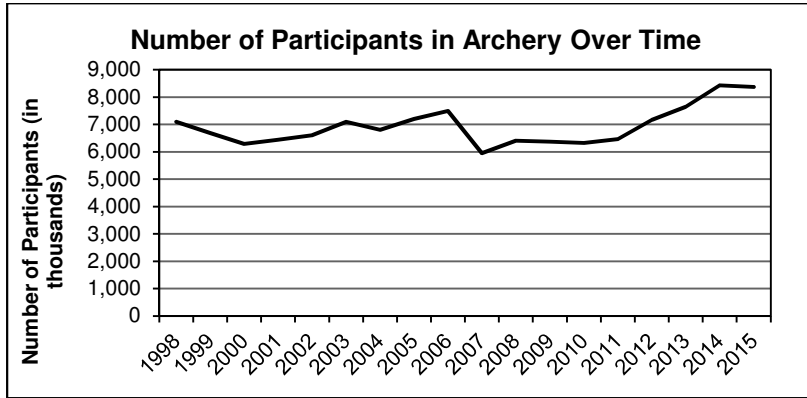
Data for 6 years old and older.

NSGA data,[64] on the other hand, show a fairly steady rise from 2003 to 2015, going from 3.9 million in 2003 to 8.4 million in 2015 (Figure 1.5.3). These data exclude bowhunting, as the data were specifically identified as target archery.

In considering a slightly shorter timeframe, Responsive Management has participation data for archery in the United States in 2012, 2014, and 2015.[65] It also shows a rise overall, going from an estimated 8.0 million adult participants in 2012 to 9.9 million in 2015 (Figure 1.5.4). This rise was not evenly distributed, however: the number of adult target-only participants (i.e., they did not bowhunt) rose from 4.4 million in 2012 to 6.5 million in 2015, while the trend of those doing any bowhunting (either bowhunting exclusively or bowhunting and archery target shooting together) was flat, at 3.6 million in 2012 and at 3.5 million in 2015.

Figure 1.5.3. Number of Participants in Target Archery, NSGA Data[66]

Number of Participants in Target Archery Over Time
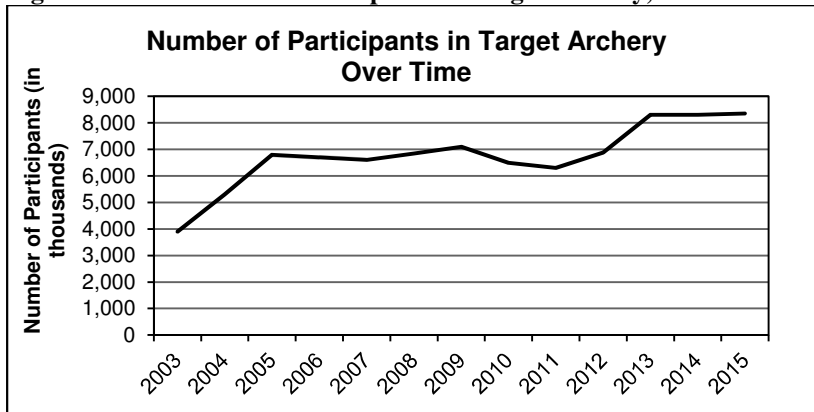
Data for 7 years old and older.

Figure 1.5.4. Number of Participants in Archery, Responsive Management Data[67]
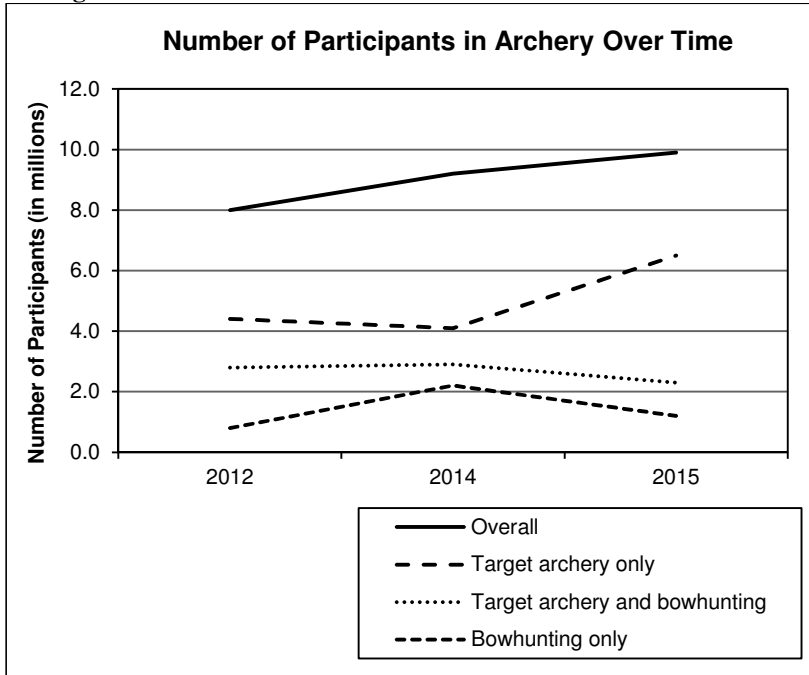
Data for 18 years old and older.

DEMOGRAPHIC ANALYSES OF ARCHERY PARTICIPANTS

This section looks at gender, age, education, residential area, and region of adult archery participants. In these analyses, archery participation includes both target shooting and bowhunting. Only those 18 years old and older are included in the analyses.

Characteristics of Archery Participants Examined Together

Figure 1.5.5 shows demographic characteristics on a single graph from a study conducted for the ATA regarding archery participation in 2015. Shown on the graph is the overall percentage of the general public that participates in any archery or bowhunting (the gray bar) and the percentages of various groups that participate. Figure 1.5.5 indicates that 14.5% of males participated in archery (compared to only 6.7% of females). In addition, younger people, those from the Midwest or South, and rural people are associated with participation in archery.[68] (The regions in the analysis correspond to the USFWS regions, previously shown in Figure 1.1.11, with Regions 1 and 2 making up the West; Regions 3 and 4 making up the Midwest; Regions 5, 6, and 7 making up the South; and Regions 8 and 9 making up the Northeast.)

Figure 1.5.5. Characteristics of Archery Participants[69]

Percent of each of the following groups who participated in archery in 2015:

Group	Percent
Male	14.5
Below median age (55)	13.7
Lives in the Midwest region	12.4
Lives in a small town or city or rural area	12.3
Education is less than a bachelor's degree	11.0
Lives in the South region	10.9
Total	10.5
Education is a bachelor's degree or higher	10.2
Lives in the Northeast region	10.1
Lives in an urban or suburban area	9.0
Lives in the West region	8.4
Female	6.7
At or above median age (55)	5.4

Percent

Examples Explaining How to Interpret Graph:

14.5% of males participated in archery in 2015 (meaning that 85.5% of males did *not* participate in archery in 2015).

13.7% of those below the median age participated in archery in 2015 (meaning that 86.3% of younger people did not participate in archery in 2015).

These are above the national rate (10.5%) shown by the gray bar.

Conversely, below the gray bar, only 5.4% of those respondents at or above the median age participated in archery in 2015 (meaning that 94.6% of people in that age group did not participate in archery).

Data for 18 years old and older.

Gender

Responsive Management research shows that 66% of *adult* archery participants are male (Figure 1.5.6).[70] This analysis only includes adults; children would have a somewhat different gender breakdown.

Figure 1.5.6. Gender of Archery Participants,
Responsive Management Data[71]

Participants in Archery
in 2015

34%

66%

Male
Female
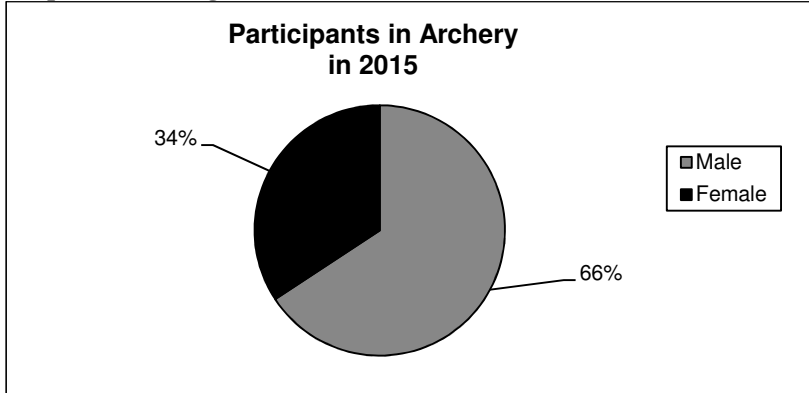
Data for 18 years old and older.

Age

Responsive Management research shows the age breakdown of adult archery participants (Figure 1.5.7).[72] As with sport shooting (with a firearm), the young and middle age groups are much more prominent than those 55 years old and older.

Figure 1.5.7. Age of Archery Participants,
Responsive Management Data[73]

Participants in Archery
in 2015

14%

44%

42%

55 years or older

35 to 54 years old

18 to 34 years old
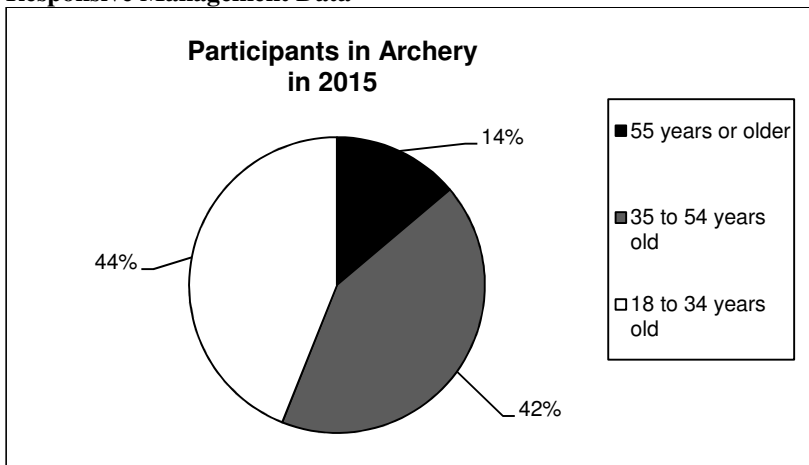
Data for 18 years old and older.

Residential Area

Four broad types of residential area on the rural-urban continuum were presented to respondents, who chose which best described where they lived. Small city and towns and rural areas predominate as places of residences of archery participants (Figure 1.5.8).[74]

Figure 1.5.8. Residential Area of Sport Shooters, Responsive Management Data[75]

Participants in Archery in 2015

- ■ Large city or urban area
- ■ Suburban area
- □ Small city or town
- ▣ Rural area
- ☒ Don't know / refused

2%
21%
26%
28%
23%

Reading down the key corresponds to clockwise on the pie graph.
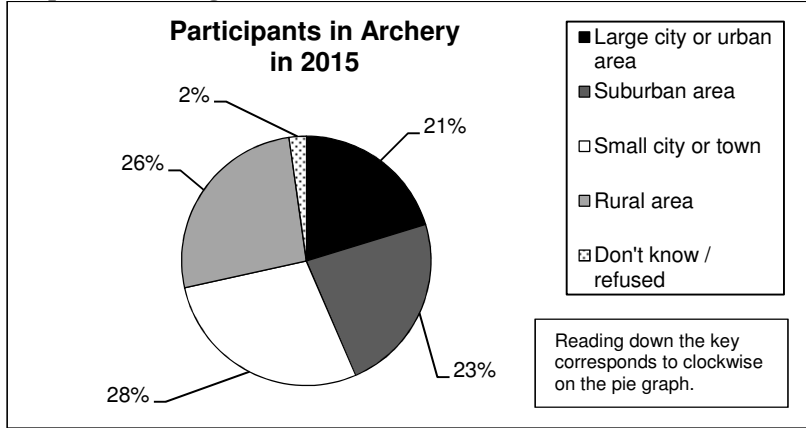
Data for 18 years old and older.

Geographical Area

As with shooting, the South makes up the largest share of adult archery participants (Figure 1.5.9).[76] The Midwest, however, is also of prominence.

Figure 1.5.9. Geographic Area of Sport Shooters, Responsive Management Data[77]

Participants in Archery in 2015

- ■ Northeast
- ■ South
- □ Midwest
- ▣ West

18%
21%
25%
36%

Reading down the key corresponds to clockwise on the pie graph.
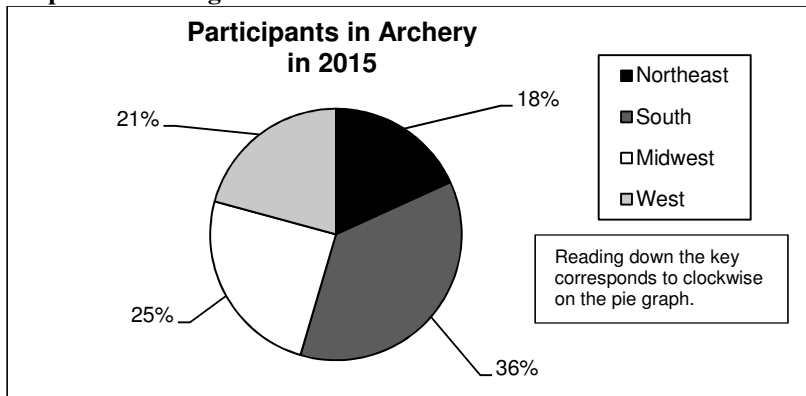
Data for 18 years old and older.

CHAPTER 1 ACTION ITEMS[78]

➢ **Successful R3 efforts must be planned and coordinated using the best and most current information available. As such, the timely reporting of national and state-by-state hunting and fishing license sales data is essential.**

While this task certainly represents a time-consuming and challenging effort (de-duplicating license holders, verifying sales numbers, etc.), any lag between the time licenses are sold and when those sales are calculated and reported means that the R3 community is not operating with the latest data—this in turn impacts the ability to discern accurate participation rates.

➢ **The ideal measurement of participation in the four activities would be an annual standardized survey conducted each January to assess participation during the previous year.**

The goal of such a survey would be for agencies and organizations to know by February of each year participation rates for the previous calendar year. Another possibility would be a survey conducted on a trimester basis throughout the year to eliminate potential inaccuracies due to recall bias.

➢ **In tracking participation in hunting, fishing, sport shooting, and archery, be aware of the variation in rates by data source. Consider broad trends indicated by the totality of data sources.**

➢ **Take note of participation criteria, definitions, and other fine print in surveys.**

Surveys can only be useful if their data are properly understood—R3 professionals should make a point of closely reading all survey methodologies to understand what the survey is measuring and how it is measuring it. For example, surveys may assess participation through license sales, reported participation, or both; for reported participation, surveys may distinguish between participating at least once versus more avid participation. The survey's definition of an outing or trip may also differentiate between partial and full days of participation. These details must be understood before the data can be correctly interpreted.

➢ **Recognize declining hunting and fishing participation in the broader context of flat or declining rates in some other outdoor recreational activities, including camping and canoeing.**

It is useful to view hunting and fishing participation trends as one aspect of the larger picture of Americans' involvement in natural

resource-based recreation—this perspective illustrates that the challenges facing R3 coordinators and resource managers are not limited to hunting and fishing alone.

➢ **Be aware of the evolving trends in the demographic makeup of hunting, fishing, sport shooting, and archery participants, and the implications of these trends on how to design and market programs. Sport shooting and archery, in particular, have seen a notable influx of female participants in recent years.**

➢ **Recognize the importance of scientific survey sampling techniques in assessing participation rates.**

It is widely understood among agency professionals that wildlife and other natural resources will be managed using only sound science; similarly, R3 professionals employ a scientific approach in the design and evaluation of R3 programs. It follows that participation rates in the four activities must also be determined using only the most rigorous scientific methods. For this reason, it is imperative that R3 professionals have a working knowledge of probability-based random sampling, a bedrock principle of survey methodology and the key dividing line between scientific and nonscientific data collection. Probability-based sampling means that every individual within the population has a known chance of being chosen to participate in the survey.

➢ **Be aware of the pitfalls of surveys that do not measure participation through probability-based random sampling of the general population—online panel surveys, in particular, have drawbacks affecting their ability to accurately determine rates of participation in the four activities.**

Online surveys of the general population can undercut the probability sampling principle, resulting in bias and non-representative results. For example, an online survey of the general population may exclude respondents with certain demographic characteristics (e.g., rural residents who have limited online access) and, therefore, skew research results. This is especially important because rural residents are more likely to participate in hunting, fishing, sport shooting, and archery. In general, surveys conducted using a means of participation that is not shared by all in the study population violate the probability-based sampling principle.

Surveys that forgo probability-based sampling may lead to inaccurate assumptions and conclusions. For example, one prominent online panel survey failed to reflect the upward trend in sport shooting participation between 2009 and 2015, despite this trend being documented in scientific surveys as well as external sources such as

media coverage, firearms and ammunition sales, Pittman-Robertson tax revenues, FBI background checks for new firearms purchasers, and reports on the rising economic impacts of the firearms and ammunition industries.

CHAPTER 2: IMPROVING R3 STRATEGY AND PROGRAM DESIGN

CHAPTER OVERVIEW

➢ **Consistent with the biological side of fish and wildlife management that is based on the best biological science, R3 strategy and program design must be based on a scientific, deliberate, and orderly process entailing the use of the best available data.**

➢ **Setting clear goals and objectives at the outset is a critical aspect of the strategic planning necessary for all successful R3 programs.**

➢ **It is vital that R3 programs span the stages of the participation adoption model—a continuum of programs must exist to accommodate all levels of experience and familiarity. R3 programs and initiatives should target individual stages of adoption, including awareness, interest, trial, and adoption/continuation.**

➢ **Programs and efforts can be evaluated in different ways, but an evaluation component in general is essential.**

This chapter discusses the importance of coordinating R3 efforts the right way—specifically, through a data-based, sound scientific approach entailing clearly stated goals and the development of programs through trial and error and subsequent evaluation. The chapter also covers the implications of the participation adoption model, a framework of stages detailing how people become and stay involved in new recreational activities. The chapter concludes with an overview of evaluation methodologies and strategies, including examples of pre- and post-program evaluation survey instruments.

2.1. RECRUITMENT, RETENTION, AND REACTIVATION—THE RIGHT WAY

Participation rates in hunting, fishing, sport shooting, and archery reinforce the need for R3 efforts to be handled the right way—with at least two of the activities showing broad declines in participation, programs to bring new participants into the fold are needed now more than ever. Compounding the issue of unsteady participation trends in the four activities is the fact that many agency R3 specialists today operate under budget constraints or with minimal staff support. R3 programs and initiatives must therefore be implemented in such a way as to guarantee efficient use of limited resources and, in so doing, maximize the likelihood of a return on investment. More important than the specifics of R3 planning and resource allocation, however, is recognition of a basic principle that must undergird all program design: the idea that scientific principles—the same parameters used to guide the management of fish and wildlife populations and their habitat— also be applied to the management and coordination of R3 efforts.

Throughout the last century, the fish and wildlife management community has had great success in bringing back various wildlife populations. Table 2.1.1 shows a handful of the most prominent examples.[79]

Table 2.1.1. Examples of Successful Recoveries of Populations

Species	Population in 1900	Population Today
Wild turkey	< 650,000	> 7 million
White-tailed deer	< 500,000	> 30 million
Wood duck	Extremely rare	5.5 million
Rocky Mountain elk	40,000	1 million
Pronghorn antelope	13,000	1 million

The resurgence of these species was no accident, nor was it the product of guesswork or management through blind optimism. Rather, these once-struggling populations successfully rebounded because biologists and resource managers applied scientific principles. Fish and wildlife management is largely governed by the North American Model of Wildlife Conservation, the sixth tenet of which dictates the use of science as the proper tool for the discharge of wildlife policy. Essentially, this ensures that decision-making affecting the management of wildlife populations and their habitat reflects a scientific, deliberate, and orderly process. The use of science as the standard operating procedure for executing fish and wildlife management does not end at the fish and wildlife populations—it also extends to the management of human populations, a cornerstone of the paradigm too often treated casually and unscientifically.

THE EXAMPLE OF THE WILD TURKEY

The recovery of the wild turkey in America provides a useful example illustrating the importance of a scientific approach for the management of *all* populations.

After being decimated to the point of near-extinction, the wild turkey was brought back thanks to the use of sound science in the reintroduction strategy. In short, the recovery of wild turkey was marked by a process of trial and error entailing a hypothesis, experimental testing, and subsequent refinement of the approach. Early attempts at bringing back the species entailed the use of hatchery programs, an approach that seemed intuitive to wildlife biologists at the time. However, when the pen-raised birds were then released into the wild, they quickly succumbed to predators, disease, and other threats of the natural world which they were poorly equipped to handle. It was only when wild turkeys were trapped in areas where they had thrived and then released into new habitat that the species began to flourish on its own successfully.[80] Through scientific principles, biologists were able to determine the right way forward.

The comeback of the wild turkey serves as a lesson for R3 specialists today: rather than manage based on what *feels* like the right way forward, the obligation should be to determine conclusively what has and has not worked and then to apply those findings to future efforts. The only way to successfully increase participation and build support for the four activities at the center of this handbook will be through a scientific approach to R3 efforts.

THE PEN-RAISED TURKEY APPROACH TO R3

Prior research has identified some of the most common reasons why R3 programs and efforts fail—reasons that collectively make up the "pen-raised turkey approach" to R3 management. Particularly useful is a list of these from the NSSF's *Best Practices Workbook for Hunting and Shooting Recruitment and Retention*:[81]

- **The feel-good factor:** Rather than scientifically assess whether programs have achieved their objectives, program providers "evaluate" programs based solely on visibly obvious accomplishments (pairing new participants with a mentor, observing a newcomer harvest an animal or catch a fish, etc.).

- **Inertia:** Rather than determine the best approach based on data, program providers fall back on the ways things have always been done.

- **Inadequate evaluation:** Program providers fail to properly assess the impacts of programs; this may occur through the complete absence of an evaluation component or through an evaluation that does not properly compare program outcomes to program goals and objectives.

- **Fear of findings:** A sub-issue of inadequate evaluation, some program providers may hesitate to fully or properly evaluate their program because they are afraid of what they may find (e.g., a failure to change attitudes or increase participation, or too much money spent for too few results).

- **Lack of critical agency or organizational resources:** Providers are afforded too little time, money, or staff support to make programs a success.

- **Lack of research:** In designing and implementing programs, program providers fail to consult or apply research findings on how to successfully implement R3 efforts.

- **Inadequate marketing:** Program providers fail to properly customize marketing campaigns so that specific audiences are targeted; programs attempt to be all things to all people and, as a result, fail to find the right audiences.

- **Failure to plan for "wild cards":** Unforeseen obstacles arising from organizational or resource shortcomings will inevitably force program providers to brainstorm on short notice and plan for practical solutions.

- **The desire for instant gratification:** Programs are not given time to work; efforts are canceled because of discouraging initial results, eliminating the opportunity for refinement or improvement.

- **Inadequate support from current participants:** Established hunters, anglers, sport shooters, or archers may in some cases react negatively to the prospect of newcomers entering the sports. This is especially a factor when resource limitations come into play (e.g., a finite amount of public hunting land in an area, which may already be crowded).

Some of the solutions to overcoming and avoiding these pitfalls are discussed in other chapters (for example, see Chapter 3 for an extensive discussion of how to market R3 programs). However, the list is presented here to reinforce the point that the most convenient or intuitive ways of coordinating a program or effort do not always amount to the *best* ways (i.e., the most scientific ways). Understanding this ahead of time may make the difference in a program's success or failure.

Improving Program Design

Barb Gigar

Having been involved in aspects of R3 for almost 30 years, I have seen an evolution of understanding of the need for a variety of tools to engage and serve our customers, which are at the core of successful R3. I was originally charged with the very simplistic goal of creating a "fishing education" program for schools; the notion being that youth just needed to acquire skills and try fishing to increase participation.

Fish Iowa! began with a basic spincasting module to be used in P.E., after-school programs, and for clinics and camps. It was soon apparent that, while it engaged youth, many of them needed more support to really become anglers, especially if their family did not participate. So, *Fish Iowa!* supported longer-term programs through after-school programs and 4H and encouraged our local partners to host family fishing events. We reached out to park and recreation departments in larger communities to provide programs in their parks. We worked more on providing information about where to fish and how to fish through our website. DNR got active in marketing and social media.

All these efforts address R3 barriers, but none of them independent of the others really moved the R3 needle. In very few instances do all efforts, or a majority of them, happen concurrently in a local geographic area. The challenge is not just to figure out what is needed to address identified barriers to fishing participation, then provide activities and efforts that meet those needs. We have done that in many cases but have yet to fully assemble activities and efforts into an inviting pathway for individuals to follow from initial engagement to ongoing participation. The last part requires that our target audience (youth and families) have access to appropriate programming, fishing information, basic fishing opportunities, and social support (family, friends, etc.) that create what I call a local "fishing community." We have had some success in working with partners to provide several elements in a given locale when partners work together to provide programming that is complementary and cross-promoted, fishing information is communicated to target audiences through their preferred methods, and fishing access (i.e., small ponds with easily caught fish) is readily available.

At the state (or larger) level, R3 managers must provide sound R3 resources and process guidance that can be used in several venues by different partners who do the on-the-ground implementation so that they can assemble the elements of a "fishing community." It is critical to determine the target group in a specific area, determine where they are on the R3 continuum, and assess what barriers or threats deter participation in fishing, then work with local partners to develop R3 efforts to address barriers.

This requires determining which organizations, agencies, and networks 1) have goals that align with fishing participation, 2) have access to the desired target audience(s), and 3) have the capacity (with support) to engage/support that audience at a local level. It is essential to work

with local groups to coordinate efforts that build the "fishing community," evaluate what works, and then adjust. We have had successful efforts in one community reaching out to locavores for instance, then we bombed in another community working with similar partners and networks, so do not assume what works in one location will work the same way in another location. Reach out to local partners and draw on their expertise in each instance to determine barriers, capacity, and a targeted approach.

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2.2. STRATEGIC PLANNING FOR SUCCESSFUL PROGRAMS

The importance of setting goals cannot be overstated—properly defining goals at the outset of a program or initiative will not only help to guide strategies throughout the course of the effort but will also establish the desired endpoint against which to measure and evaluate progress. The creation of objectives is equally important, as the latter are specific, measurable metrics tied to program outputs. Strategies to fulfill the objectives can then be determined.

NARROWLY DEFINED GOALS

Narrowly defining goals is essential, as broadly stated goals mean different things to different people. As an example, a commonly heard goal in many circles is the need to "educate the public." But what exactly does this mean? Does it refer to the need to change behaviors, increase knowledge, influence attitudes, or some combination of these? The ambiguity in the wording of the goal leaves open the potential for a misalignment of efforts or a lack of clarity in the direction and intent of the initiative.

One might assume that all R3 efforts share common and even obvious goals, but this is perhaps not so straightforward an expectation. Even an apparently narrowly defined goal like creating more hunters, anglers, sport shooters, and archers may lead to differing interpretations. Fish and wildlife agencies, for example, may assume that the charge is to sell more hunting and fishing licenses. Manufacturers and industry groups, on the other hand, may view as the highest priority the need to sell more hunting,

fishing, shooting, and archery equipment. Sportsmen's groups and conservation organizations, meanwhile, may simply work to build interest in and support for the four activities so that the traditions persist into the future. In the end, the result is multiple efforts proceeding from laudable but potentially vague goals that may not align with one another.

OBJECTIVES AND STRATEGIES

Douglas M. Crowe's *Comprehensive Planning for Wildlife Resources*[82] stresses the need for goals to reflect the mission or philosophy of the agency or organization coordinating the effort—this is especially important in terms of the ability for goals to implicitly acknowledge any policy constraints within which the program or effort is to be managed. Objectives, which refer to exactly what will be carried out, function best when established by those directly responsible for fulfilling them. Objectives provide guidance in terms of both decision-making and evaluation. Objectives should be "realistic and attainable," should focus on the "products" of the program in question, and should be defined "with a level of precision consistent with the desired level of management." The next component of planning entails the development of strategies. Strategies should align with objectives but should be developed based on the broadest possible involvement within an agency or organization—indeed, strategies may even exceed the purview or abilities of the coordinating agency or organization. Crowe recommends that strategies be grouped into one of four categories:

- Strategies whose implementation is directly influenced by the agency or organization;
- Strategies whose implementation requires the cooperation of political bodies;
- Strategies whose implementation requires the cooperation of other government agencies; or
- Strategies whose implementation requires the support of the private sector.

R3 Program Design Reforms

Jason Kool

Re-Designing R3 Programs
Recently research has documented that many individuals attending hunting R3 programming are primarily kids coming from hunting families with a hunting background. This is no fault to the organizers of the program, but if organizations or agencies truly want to make the most of their R3 efforts, it is probably time to review or even redesign their programs with a focus on selecting the right audiences, maximizing the participant experience and developing the mentor or social-support.

In considering potential changes to the R3 programs in general, it is important to recognize the challenge of affecting a long-term behavior change in someone. If the goal of the R3 program to "create a hunter" from a true novice, they are often very limited in capacity due to the current short-term, limited contact program formats. Indeed, in some R3 events that I've helped with, parents drop their children off with a stranger to hunt. In others, participants come but do not have any friends who also are participating, thus they lack any and all social support, which has been proven to be a key ingredient.

Moreover, by targeting youth, even though the desire might be present, a youth cannot drive, lacks income, and is possibly more influenced by the evaluation of subjective norms. Therefore, if hunter R3 programs are trying to recruit new youth into hunting, it might be better to focus more on a social-support structure and expand the program to a mentorship style, similar to Big Brother/Big Sisters. Another alternative would be to focus on adults because they do not have the same innate age barriers that youth do to participation (e.g., ability to drive, money, ability to buy equipment). However, if youth are the focus, requiring parents and friends (as a social-support structure) to attend would be a good alternative to the current format of allowing an unfamiliar person to take a novice hunting. This component is often overlooked in many R3 programs, as parents often bring their children to a program where the kids know few individuals and don't know their mentor.

User-Experience Focus
By learning about participant motivations for coming to R3 programming, prior to the program, the R3 program organizers might be able to select the right program and help facilitate moving the participant into the next hunter stage by meeting their pre-determined motivational goals. For example, if the motivation is to learn about hunting from an expert, the program organizers should focus on the entirety of the hunt. From pre-hunt scouting and planning, to harvest and game care, an emphasis should be placed on the entirety of the hunt. This will help to develop the participant's competence to do it again independently or with someone other than the mentor. If the motivation is to achieve a harvest, place participants strategically and expand the program format to ensure that the best chance for harvest occurs. If the motivation is to be with friends and family, allow them to hunt together. If the motivation is to get out in nature, let the participant explore and enjoy nature trying to get close to game and maybe a harvest will occur.

Ultimately, as research indicates, if participants in an R3 program are from the "right" audience, have the "right" experience in which they

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can meet their motivational goals, have the ability to develop competence in skills and knowledge, and have the support of their subjective norms, they are extremely likely to continue in their hunting participation or have the change of behavior R3 programs are seeking. However, if participants do not fulfill their pre-determined goals (e.g., obtain the competence) and lack familial and/or friend support, the impact of the experience of the entire program may influence the participant but not fully meet the behavior change R3 programs are seeking, even though participants may have harvested something.

Role of Mentors
It is possible that R3 programs originated with the idea that they would replace or supplement the traditional role played by family or close friends. However, no literature indicates that mere youth exposure of an activity absent ongoing social support will lead to hunting adoption. According to a 2011 Responsive Management study (*Evaluating the Effectiveness of Hunting, Sport Shooting, and Fishing Recruitment and Retention Programs*), current R3 programs are increasing factual knowledge but cannot facilitate the process of becoming a hunter without social support. Supplementing technical training absent the role of bonding or friendship is akin to planting seeds in a garden but giving them no water or fertilizer. In other words, youth R3 programs possibly make the unstated assumption that exposure to hunting is all that is necessary for someone to be a life-long hunter.

As they are currently implemented, many R3 programs do not have their volunteers act as mentors as much as they act as hunting guides. Consequently, we cannot logically expect that participants without prior hunting experience and without a social-support network will adopt hunting on the basis of a single weekend experience led by an adult volunteer.

It is important that newcomers to hunting be engaged in learning as many aspects about the activity as possible. To the extent practical, mentors should involve participants in all phases of hunt preparation, especially scouting and obtaining permission to hunt lands, in order to achieve a true apprentice experience. However, moving beyond serving as hunting guides will require a longer commitment on the part of volunteers and participants.

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2.3. BROAD-BASED R3 EFFORTS

The complete picture of recruitment, retention, and reactivation depends on a broad base of individual programs and initiatives customized to specific groups—there is no one-size-fits-all approach allowing efforts to be all things to all people. Programs and efforts must be tailored to specific groups based on their core needs, which depend on prior exposure to and experience with the activity in question as well as the degree to which people self-identify as prospective, current, or lapsed participants. Program development begins with identification of the group that the program will target. Fortunately, ample research exists to identify the various stages of recruitment, retention, and reactivation—these models make the R3 process simply a matter of ensuring the availability of programmatic options that correspond with each development stage.

THE PARTICIPATION ADOPTION MODEL

Decades ago, research from Cornell University established recruitment and retention as a continuing process with individual stages.[83] The initial sequence of stages was developed from research examining the importance of social-psychological influences on hunter safety course students in New York State. (While this initial research focused strictly on hunting, the findings have implications on R3 efforts for all four of the activities covered in this handbook.)

Stages of Adoption

The earliest iteration of the adoption model for recruitment and retention consisted of four general stages, with each stage corresponding to a specific period in the personal development of the prospective hunter: entry, socialization, development, and continuation.

The non-hunter first becomes aware of the activity (entry stage) before transitioning into a potential hunter after growing more interested through social support and cultural encouragement (socialization stage). In the subsequent stage, after trying out hunting and gaining confidence, the potential hunter becomes an apprentice hunter and then a recruited hunter. The continuation stage that follows sees the recruited hunter taking one of two paths: successfully continuing with hunting, or becoming sporadic in participation before potentially dropping out of the sport altogether. In the former scenario, the person assumes the role of a retained hunter through continued self-identification; in the latter scenario, the person lapses out and assumes the earlier role of potential hunter, where socialization and development must begin again.[84]

Support Throughout the Adoption Process

Other research concludes that the stages are not necessarily linear: participants may move through stages at various points depending on how they specialize in the activity (e.g., the type of hunting, fishing, or shooting equipment they use or the species they pursue).[85] Movement through the

stages is largely dependent on factors such as age, socioeconomic characteristics, and sociocultural support.[86]

Subsequent research from Cornell refined the adoption model to expand on the targeted programming and "intervention" strategies (i.e., ways for agencies to intervene with information and other forms of support) specific to each stage in the R3 process. While those in traditional hunting, fishing, and sport shooting communities (i.e., areas where hunting, fishing, and sport shooting are the cultural norms) need comparatively little such intervention from fish and wildlife agency programs, intervention initiatives are sorely needed for those who have never been exposed to hunting, fishing, or sport shooting or who have had only minimal exposure.[87]

Matthews[88] envisioned strategies for intervention according to four stages of the adoption process: awareness, interest, trial, and adoption/ continuation. This grouping serves as the framework for targeted programs and other R3 initiatives:

- **Awareness Stage:** With a focus on public relations, the principal strategies are promotional campaigns such as National Hunting and Fishing Day and Free Fishing Days. A general goal in this stage is public familiarity with and acceptance of the activities.

- **Interest Stage:** Zeroing in on recruitment, opportunities in this stage should focus on providing initial threshold experiences, such as fishing derbies, casting contests, and shooting events. The intended outcome is the initial spark of interest.

- **Trial Stage:** This stage centers on training of the new participant and focuses on education programs for improving knowledge, skills, and behavior, such as self-sufficiency with equipment. Intervention strategies include hunter education courses, youth hunts, camps, fishing clinics, and specialized programs such as the Becoming an Outdoors Woman Program. The eventual outcome is trial of the activity over multiple occasions.

- **Adoption/Continuation Stage:** The final stage is one of retention, with the most important strategies leading to the strengthening of social networks to ensure long-term commitment to the activity. Apprentice/ mentoring programs and community club involvement are important aspects contributing to the person's continued self-identity as a hunter, angler, sport shooter, or archer.

Table 2.3.1. The Adoption Model Stages of Participation[89]

Stages of Participation in Activities and Associated Strategies for Recruitment, Retention, and Reactivation

| Public relations and promotion campaigns | → AWARENESS |

Recruitment; providing threshold experiences → INITIAL INTEREST

Education programs; access programs → TRIAL

Retention; building social support → ADOPTION AND CONTINUATION
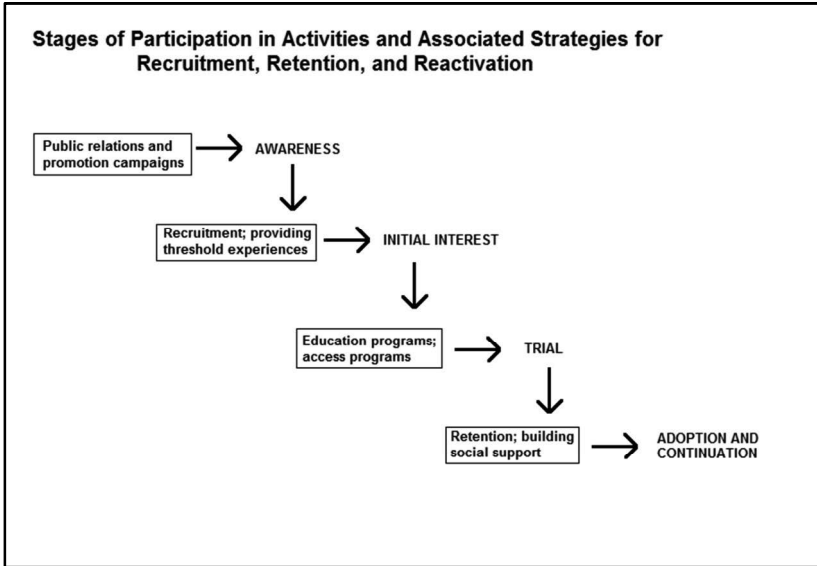
By providing a sequence of events and programs that bring people from "cradle to grave" in their participation, agencies and organizations will be able to continuously stimulate prospective and developing hunters, anglers, shooters, and archers through progressive levels of challenge and instruction. The need to move beyond "one and done" events that offer non-customized instruction to undifferentiated groups of participants (novice and experienced individuals, those from traditional and nontraditional backgrounds, etc.) has been affirmed in other research as well, notably a large-scale NSSF/Responsive Management study with hunters and sport shooters of various avidity levels—from nonparticipants and those with very limited experience to established and longtime participants.[90]

This study, which entailed a nationwide series of focus groups and surveys with hunters and sport shooters, concluded with a recommendation stressing the need for a continuum of program offerings to ensure an effective retention strategy. This recommendation was based on the concept that people who stay active in a sport tend to move from a continuum of simplicity to more specialized activities—in essence, avidity is linked to more specialization. This tendency is consistent with the natural progression through the adoption model stages.

Categorizing Programs by Stages of the Adoption Model

Researchers at the Wildlife Management Institute later refined the adoption model further by modifying the paths taken by participants during the final stage (referring to the decision to continue with the sport) to result in either retention or reactivation.[91] The former refers to an active participant continuing to participate with no letup; the latter refers to the process of

lapsing out of participation before being brought back to the activity. The former is envisioned as occurring with or without social support, but the latter almost universally occurs only with social support.

This iteration of the model, formally designated as the Outdoor Recreation Adoption Model, was later applied to a major study conducted to determine how R3 hunting programs sponsored by state agencies and nonprofit organizations corresponded with or addressed specific stages of the adoption model (in other words, whether programs were created to generate awareness and interest, provide opportunities for trial, or foster adoption and continuation).[92] The program inventory, completed for the Wildlife Management Institute and the Association of Fish and Wildlife Agencies, identified more than 400 hunting programs nationwide and also established standardized categories for common types of programs, including youth hunts; advanced training courses and seminars; youth events; women's events; family events; industry/corporate events; nontraditional participant recruitment initiatives; camp programs; mentoring programs; shooting sports programs; outdoor expos and events; and a miscellaneous category for other types of programs. The study also determined the perceived effectiveness of each R3 program and inventoried the evaluation methods in place for the programs.

An ongoing recommendation from the research community has been for agencies and organizations that coordinate R3 programs to classify their programs in terms of which stages in the adoption model they address. This classification can then be used to identify any programmatic gaps that remain to be filled. For example, it may be that an organization's programs focus too heavily on the initial stages of awareness and interest but offer little to nothing in terms of additional trial and more specialized opportunity (i.e., the retention phase following self-identification as an active participant).

Research on how programs align with stages of the adoption model is also available on the fishing side specifically, most recently through a series of recommendations and strategies jointly produced by the Aquatic Resources Education Association and the Recreational Boating and Fishing Foundation. In this document, the researchers prioritize specific examples of R3 initiatives that may be applied to the various stages of angler development. For example, stocking programs, promotional giveaways, mobile applications, and license purchase incentives all have varying levels of potential impact, depending on when and how they are deployed.[93]

While studies focusing on hunting and fishing have been mentioned here as examples, it should be noted that the implications of the participation adoption theory apply to sport shooting and archery as well as hunting and fishing.

It is worth noting that the Outdoor Recreation Adoption Model has continued to be refined for its applicability to hunting, fishing, sport shooting, and archery. Some researchers[94] discussed antecedents necessary for the adoption of a recreational activity: opportunity, knowledge, a favorable social milieu, and receptiveness. Other researchers[95] saw the need to differentiate between retention (i.e., simple continuation) and reactivation (i.e., a period of participation and then cessation, which becomes reactivation when the participant starts up with the activity again).

A Model Perspective

Matt Dunfee

"All models are wrong; some are useful." I didn't author that quote but, like generations of budding scientists before me, was flogged with it on a regular basis by advisors and colleagues eager to curtail my enthusiasm for organizing the intricacies of the universe into convenient boxes and predictable patterns. It's an important lesson to learn. The world and its systems present infinite resistance toward our attempts to model and predict them, with one of the more thorny of those systems being humans and their behaviors. I've always liked the way Dave Case captured the essence of working with the human side of natural resource management. "Human dimension work," he said, "is not rocket science; it's a whole lot harder." The field of human behavior research, unlike chemistry or astrophysics, doesn't have tidy, elegant algorithms that precisely predict immutable physical laws. Why? Because, in the words of one sociologist who will remain unnamed, "People can be crazy."

Oversimplification? Yes. But, like many banal platitudes, it holds an element of truth. Specifically, the recognition that people are highly variable, unique entities that are influenced by a myriad of individual and social variables that work to govern their actions, behaviors, and attitudes. This condition is at the heart of what makes influencing outdoor recreationists so challenging, let alone modeling or predicting their behavior. It is also why, for over three decades, the organizations, agencies, and individuals attempting to do so have so often fallen short. This is tricky stuff. But it's not because we weren't trying. Studies completed in the past decade have firmly documented that there has been no shortage of national and local R3 effort. A lack of doing things hasn't been the problem. It's more that, until recently, we haven't been willing to focus all that effort and, by extension, passion into a logical, disciplined approach. We didn't use available knowledge to build a logical framework capable of organizing and addressing the layers of problems associated with altering the behaviors and, in many cases,

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entire lifestyles of individuals we asked to join the ranks of hunters, anglers, trappers, or recreational shooters. There are, unquestionably, numerous reasons why we didn't do this, but I think one of most influential is our inherent hesitation to trust in academic models that we know are not entirely accurate. Unfortunately, this has led many of us to throw the baby out with the bathwater. Most of us failed to recognize that, just because a model or framework of thinking is imperfect, it doesn't mean it isn't useful.

Fortunately, in 2010, a group of biologists, outdoor educators, and public outreach specialists recognized this and, after meeting to identify the current and future threats to hunting and target shooting, drafted what we now call the Outdoor Recreation Adoption Model (ORAM). They didn't invent or develop anything particularly novel or original. They were simply willing to re-order their thinking according to known fundamentals of human decision-making and use those fundamentals to create a model that turned out to be extremely useful to R3. (Those interested in reading the history of the ORAM and the research that preceded it should reference the National Hunting and Shooting Sports Action Plan.)

The model has been described as a "pathway," a "customer life-cycle approach," and an "R3 map." In part, all of these are correct, but they, like the model they describe, are incomplete. The truth is simpler: the ORAM merely presents one way to understand the process that an individual follows in adopting a new activity or idea. The heart of the model lies in the hypothesis that accepting and participating in a new activity is a PROCESS involving not one, but many discrete decisions and influencers over time; decisions complicated by differences in the lifestyles and social values of different people. This process is simple to state, and even model, but its ramifications are much more nuanced and perhaps difficult to accept.

First, if we overlay the goals of R3 onto the human decision-making process, it becomes readily apparent that our efforts must be aligned with that decision-making process of the specific individuals we hope to influence regarding their ultimate decision to participate. That means we have to know well before we design an R3 effort for them something about the individuals we are targeting, what they need, and what is stopping them from participating. This is the horse before the cart model. Know what you need to do before you do it. Or, to put it frankly, give them what they need, not what we think they need.

Secondly, a process approach to R3 puts a stake through the heart of the ever-alluring silver bullet approach. There is no "one thing" that will bring more participants into the fold. No perfect program, no 100% effective campaign. The process of adopting a new activity is a long highway that requires many rest stops. Very rarely can one organization build and support all those rest stops. So, if you turn your back on your partners, the road will end well short of its goal.

Third, and perhaps most difficult to accept, the ORAM and the process it reflects take time. Not only the time needed for an individual to become a participant, but more importantly, time for the R3 implementers and stakeholders to integrate this process approach to R3 into their organizations. We haven't built our R3 engines to handle long road trips. In many cases, we don't have the capacity, tools, partnerships, or resources to play the long game. It will take time to get there.

But, of course, there is hope. This document is evidence of that. Knowing what to do is a big step in winning the battle, but remember, "knowing" and "effectively acting" are very different activities. We know so much more about the process of becoming an outdoor participant then we used to. In recent years, organizations like the Council to Advance Hunting and the Shooting Sports, the Recreational Boating and Fishing Foundation, and many others have taken the lead in providing the strategies, research, and cooperation needed to help R3 stakeholders focus their efforts and build momentum. We have our models now. They're not perfect, but neither are people. Let's use what we know, be ready to learn from our mistakes, and share what we have learned. The future of the "outdoor-sapien" depends on it.

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IMPLICATIONS OF THE FINDINGS FROM R3 PROGRAM RESEARCH

As has been discussed, one of the most important functions of the participation adoption model is to clarify how programs specific to each stage in the development process should be designed. Some program characteristics are important because they address aspects specific to a certain stage in the model; other program characteristics are of general importance and apply to all R3 initiatives.

The following recommendations are based on the findings of an extensive research study conducted by Responsive Management and the National Wild Turkey Federation that evaluated the outcomes of roughly 70 hunting, fishing, and sport shooting R3 programs nationwide.[96] The evaluation, which entailed pre- and post-program surveys of program participants, examined the characteristics common to the programs most successful at increasing positive attitudes toward and interest and participation in hunting, fishing, and sport shooting. Guidelines for R3 program design include the following:

Successful R3 programs provide a positive social atmosphere and encourage interactions among participants after events: Social reinforcement in the form of a strong support network is vital to one's development as a hunter, angler, sport shooter, or archer. Many programs in the evaluation entailed field days, hands-on demonstrations, camps, and other open air events in which participants had the opportunity to socialize, meet other people, and make new friends—these types of programs will be the most effective and enjoy the greatest participation. Prior research has shown that participants of all ages regard the desire to have fun as a key motivating factor for getting involved in hunting, shooting, and fishing. Both youth and adults alike desire programs that are fun and enjoyable, and a social atmosphere (particularly one that encourages interaction and follow-up after program events) will make participants more likely to return to the program and other programs like it.

Successful R3 programs provide age- and audience-appropriate activities: As the adoption model makes clear, all R3 programs should be tailored to specific age groups and audiences; one-size-fits-all programs, while inclusive and structured for convenience, may nonetheless alienate certain participants by being too specialized, too general, not sophisticated enough, too challenging, or simply unappealing. Participants who outgrow certain programs or activities as they acquire new skills and grow more advanced in their learning will require new challenges. For example, youth hunters initiated through small game hunting will eventually require opportunities to pursue bigger game as a way of progressing to the next level of the sport. The most effective programs will be the ones that guide participants along a path of specialization according to age, audience, and overall experience level.

Successful R3 programs train instructors: R3 programs are only as good as the instructors, teachers, mentors, and guides they employ. Prior research suggests that individuals who enroll in a program to learn a new skill desire to receive instruction from a capable, trained expert. All programs should therefore develop standards in instructor training as a way of ensuring consistency in the direction and focus of program content. Instructor training will help to ensure that programs are being taught in a dependable, proven manner with reliable techniques.

Successful R3 programs consider the skill levels of participants: The degree of difficulty and/or competitiveness of program activities should match the interests and goals of participants. It is highly important for R3 programs to provide newcomers, especially younger individuals, with early feelings of achievement and clear indications of success or accomplishment to ensure their continued interest. Opportunities to increase confidence and develop skills are essential to any effective R3 program. Particularly challenging or competitive activities may alienate those who are just beginning to learn or develop skills in a particular area—skeet shooting or sporting clay shooting events, for example, may be fun for intermediate or more advanced shooters but may prove difficult and potentially discouraging for beginners. The skill levels of participants and the activities in which they participate should be kept in mind during the planning and development of programs.

Successful R3 programs match instructor/participant backgrounds and demographics: Whenever possible, R3 programs should strive to involve instructors who share common demographic traits with participants of the program. Research has shown that participants are most comfortable learning from those who they consider to be like themselves. One example comes from the evaluation results of a state fishing program, which found that new female anglers were most comfortable receiving instruction from other females. Programs that match participant and instructor backgrounds and demographics will encourage not only feelings of trust and security but an overall sense of identification—the feeling that hunting, fishing, shooting, and archery take place in an inclusive atmosphere and are not activities dominated by a certain type of person or group. This concept is reinforced in the following comment heard from a Responsive Management focus group participant: "You buy things that look like you."

Successful R3 programs contextualize activities as a way of encouraging crossover appeal: Hunting, fishing, shooting, and archery often benefit from an introductory approach that surrounds these activities with opportunities to learn about a variety of other outdoors topics and skills. For example, camps that paired instruction on hunting, fishing, and sport shooting with other opportunities to participate in activities like mountaineering, biology and ecology exercises, and survival techniques, tended to appeal strongly to younger audiences interested in trying new things. Further, the purposes of hunting and fishing are generally

communicated better in the context of wider concepts like conservation and wildlife management, which contextualize the activities and encourage crossover appeal.

Successful R3 programs provide the next step: The model for any effective R3 initiative is a true cradle-to-grave approach, as mentioned previously: the participant is introduced to an activity through an initial event or program, is provided next-step information on how to become proficient and increasingly experienced, and is continually notified of follow-up opportunities paving the way toward mastery of hunting, fishing, shooting, or archery. Such an approach will guarantee continued involvement and dedication to the activity—participants who never reach a ceiling in their development will have reason to continue participating.

As mentioned previously, any agency or organization that sponsors R3 programs should assess and categorize programs by progression and skill level along a continuum of learning (e.g., beginner, intermediate, advanced): Evaluation of programs must consider the respective goals of each program based on participant skill level and intended outcomes. While several hundred R3 programs are available throughout the United States, they address different aspects of hunting, fishing, sport shooting, and archery, and therefore are intended to connect with different audiences and markets. To identify and track useful milestones in the development of those new to the activities, the R3 community must envision programs as existing on a continuum of objectives; programs should then be categorized based on purpose and intent (i.e., beginner-, intermediate-, or advanced-level programs). The consistent, communitywide assessment of programs by type will ensure the proper evaluation of results and accomplishments.

Communicating Effectively About R3

Phil T. Seng and David J. Case

Most R3 program managers are quick to agree that communicating effectively is extremely important to the success of their efforts. But what does that mean? What is "communication," anyway? There are many technical definitions, but one we like a lot comes from business/marketing expert Nido Qubein:

> *Communication occurs when the right person says the right thing, to the right people, at the right place, at the right time, and in the right way to be heard and understood, and to produce the desired response.*

continued

That's a lot of stuff that has to "go right." How do we ensure we get even half of these things right—especially given that marketing experts estimate the average American is exposed to 4,000 to 10,000 advertising messages every day? How do we cut through that clutter?

The key to communicating effectively about R3—or about *anything*, for that matter—is to approach it systematically, with purpose. Too often, our attempts at communication and outreach are random and haphazard. We need to begin by being very intentional about what and how we communicate. We need to identify as specifically as possible:

1. Objective – What is our reason for communication? What do we want people to know, feel, or do as a result of receiving our messaging?
2. Target Audience – Who are we trying to reach with our messaging? Be as specific as possible. Just saying "the general public" is not helpful. In today's world of micro-targeting, there really is no such thing as the general public any longer. Our communications will be much more effective if we can segment our audiences into meaningful groups and subgroups and then communicate specifically to them.
3. Key Messages – What can we say to our target audience to get them to have the desired response? It is best if we can test our proposed messages on actual members of our target audiences, because they will almost always surprise us with the messages that appeal to them. The simple fact is that we are not them, so our attempts to identify messages that ring true to them may be well off the mark.
4. Media/Vehicles – What are the best mechanisms to use to reach our target audiences "where they live?" Certainly, the budget will have impact on which media we can use and how frequently, but the first step is to identify optimal solutions. The optimal medium for a 60-year-old Baby Boomer is likely to be very different from a Millennial.
5. Evaluation – Did it work? How will we know if it worked? The best way to assess success is to measure against the specific objectives you set at the beginning. There are many ways to do this, from simple to sophisticated. The most important things are to be intentional about what you do and then incorporate whatever you learn into your next round of communications.

The field of communications is one of those "messy" social sciences that refuses to be governed by absolutes. We like to say "It's not rocket science—it's much harder than that." Two plus two does not always

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equal four. Every time you think that you've found the perfect
combination of messages and audiences to achieve your objectives…
people change their minds or their attitudes, and the messages that used
to work well are no longer as compelling. Or you implement a
campaign in a different part of the country and find that the audience
there does not respond in the same way as the audience in the first
region.

That's why it's important to go through the steps above with every new
communications effort. Having experience from previous efforts is
wonderful, but it does not necessarily mean you're prepared for the next
communications challenge. A key tenet for every person involved in
communications is to not assume anything—or at least as little as
possible. Every specific target audience is different, and the target is
often moving.

In these days when participation in hunting, fishing, shooting, and
archery is often declining or struggling to remain stable (with notable
exceptions in certain activities or among certain audiences), it is
critically important to make the best use of the limited resources the
community has available. When applied systematically, the
communication disciplines can have huge impact on making R3
programs successful, helping to ensure that hunting, fishing, shooting,
and archery remain part of our nation's heritage.

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2.4. PROGRAM EVALUATION

As alluded to throughout this chapter, a critical aspect of R3 efforts that
must not be overlooked is an evaluation component to measure the progress
and ultimate effectiveness of efforts. The stated goals and objectives and
demonstrated results of programs should be continually compared and
assessed. Evaluations allow coordinators and sponsoring agencies to make

new and possibly unanticipated observations about the effects and results of programs, including the post-program behaviors of participants. Findings from evaluations can be used not only to fine-tune programmatic content but to determine how to better allocate funding and other critical resources. This fine-tuning could also be termed "adaptive management" in that lessons learned during implementation of the program can be immediately used to better the program. As explained by R3 expert Keith Warnke,[97] "In response to the results of continuing evaluation, our programs . . . will be adapted to use the resources we have and compliment the needs and desires of our customers and potential customers."

MEASURING THE IMPACTS OF PROGRAMS AND EFFORTS

Evaluation has long been thought of as an essential component in the planning and management of programs and initiatives. In their overview of the phases of the policy process, Brewer and deLeon[98] state that evaluation serves the purpose of "comparing expected and actual performance per established criteria" (i.e., goals and objectives documented at the outset) and "assigning responsibility for any discrepancies in performance uncovered as part of the evaluation process."

Crowe, in his research[99] on strategic planning for agencies, considers evaluation an essential way for organizations to hold themselves accountable, and in doing so moving beyond what he terms the "we are doing great things" mindset. Crowe also views evaluation as a method for shifting "from efficiency to effectiveness" by examining the measurable progress of objectives established at the outset of the initiative.

Wall[100] considers evaluation to be part of an adaptive management process, a "purposeful, systematic, and careful" analysis of information that measures impacts and determines areas for improvement. Describing the formal evaluation process, Wall recommends first framing the evaluation by identifying specific goals for the evaluation itself, assessing available resources, and establishing an evaluation timeline.

Research from NSSF and DJ Case and Associates[101] has established standard best practices for the evaluation of R3 programs. To begin with, evaluation must be thought of as a continuous process that begins during the planning stage and continues through implementation: the initial evaluative question to be asked during the planning period is whether the initiative is even needed and why. Following this, evaluations (especially summary evaluations that occur at the end of programs) must consider the goals and objectives initially laid out during the program planning stage, as these provide the baseline against which progress may be measured. As a general rule, evaluations must receive adequate financial and administrative support—the evaluation component must be factored into a program's budget from the start.

NSSF research on best practices also considers evaluation to be a method of determining both short-term program outputs (e.g., number of participants completing a program) as well as longer-term benefits and outcomes (e.g., increased hunting participation as determined through license sales). Evaluation can be accomplished through multiple forms of assessment entailing the use of different tools—the nature of the program or initiative will dictate the evaluation format. For example, programs intended to foster new skills or knowledge in people may be best evaluated by surveying participants; on the other hand, a program intended to encourage lapsed hunters to purchase licenses may require an analysis of license sales to determine the impact of the initiative.

AN OVERVIEW OF EVALUATION METHODOLOGIES

There are numerous ways to evaluate R3 programs, with some methods entailing data collected directly from those involved in the programs and other methods using supplemental information to determine impacts:

- **Surveys** are one of the most commonly used forms of evaluation. They may be administered to participants after an event or program (i.e., as a form of exit interview to determine overall impressions), or both before *and* after a program as a way of measuring changes in interest, attitudes, participation rates, and other characteristics. Surveys provide quantitative data that may be analyzed for statistical significance. Numerous factors may affect the quality of the survey data, including questionnaire design, sampling procedures, and the analysis of results.

- **Focus groups** are a qualitative form of evaluation entailing in-depth, structured discussions with small groups of people (generally between 10-12 individuals) about their experiences or opinions. Focus groups are a form of evaluation through the process of interaction; they allow for extensive probing of topics, follow-up, group discussion, and observation of emotional responses to topics—aspects that cannot be measured in a quantitative survey. Qualitative evaluation sacrifices reliability for increased validity: while focus group findings cannot be replicated statistically as can a survey (high reliability), they provide a more valid understanding of the topic (high validity).

- **Direct observation** is a form of evaluating a program in real time: coordinators or other knowledgeable individuals may observe program events and draw conclusions based on their observations of participant-instructor interaction, the skills or proficiency of participants, feedback from those engaged in the program, and other areas.

- **The Modified Delphi Method** brings individuals together to formulate conclusions or consensus based on potentially differing opinions or perspectives. The iterative process may take place in person or via mail or email, with coordination handled by a facilitator or group manager.

- **Reflective essays** are a method of inviting participants to explain, in their own words, their development or growth in the activity in question. Qualitative content analysis is then used to examine impacts.

- **Previously existing data** entails the use of other evaluation results or assessments for the program in question. It must be noted that conclusions that depend entirely on such preexisting information are necessarily limited because no new data are being collected.

- **Proxy indicators** allow for the evaluation of program impacts using outside means, such as agency hunting or fishing license sales or Pittman-Robertson excise tax revenues from hunting and shooting equipment. Because proxy indicators are an indirect form of evaluation focusing on longer-term program outcomes, precautions must be exercised in attempting to discern causation from correlation.

As mentioned, surveys represent one of the most common and effective forms of evaluation, as quantitative data from program participants or coordinators can be used to pinpoint strengths, weaknesses, and areas for improvement. Surveys may be conducted in several different ways, as described in an overview of approaches by Wall and Powell et al.[102] A cross-sectional approach (in which a representative sample is taken) offers a snapshot of a population at a given time. Another approach entails a comparison of one group versus another by surveying members of each group. Other survey methods are designed to measure change, such as a quasi-experimental approach comparing pre- and post-program results, or a longitudinal study that employs multiple surveys to examine change over an extended period.

The section that follows offers additional guidelines for planning, designing, and conducting evaluation surveys.

Adaptive Management: It's Not Just for Ducks Anymore

Keith Warnke

On a very similar track, but 30 years later, many of us involved in recruitment, retention and reactivation are applying the adaptive management approach so effectively implemented in the North American Waterfowl Management Plan (NAWMP).

Over the years as R3 grew in importance and priority at the national level, many efforts gravitated naturally to introductory programs modeled on popular leisure activities like soccer or golf (an interesting example, as golf participation has declined by 6% since 2011). That is, we believed that we needed to get more kids involved in hunting. In my state, Wisconsin DNR promoted youth hunting, created special early

continued

seasons for young hunters, and reduced the minimum hunting age. Furthermore, in 1997 we established a Learn to Hunt (LTH) program, which waived season dates and bag limits for novices. We speculated that these actions would incentivize partners to sponsor special training hunt weekends (referred to as LTHs). New hunters are limited to participating in only one LTH for any particular species.

The Wisconsin DNR and our partners promoted and hosted hundreds of LTHs over the years. We recruited kids from hunter safety courses to participate; partnering NGOs members brought children and grandchildren to their first guided hunting experience prior to the regular hunting season; and thousands of participants, sponsors, and mentors seemingly worked to address the threat of declining hunter numbers. The questions we forgot to ask were: What are our goals? And, how are we going measure our achievements? It was analogous to creating a lot of waterfowl feeding grounds without realizing that it was nesting habitat that was in short supply.

The results: by 2010 the number of hunters in Wisconsin had declined by approximately 6.5% since 2000, and modeled projections estimated a further 25% reduction in the coming 20 years. A program evaluation of our LTH program found:
- There were no clearly defined goals for LTH.
- 80% of participants had fathers who hunted.
- 70% of participants had been hunting prior to attending.
- 86% of participants were 16 years old or less.
- We had no way to track participants and whether they continued.
- The program was reaching hunters and hunters' kids.

We had enthusiasm and momentum but lacked direction. Essentially, LTH resulted in our taking our children hunting. Just because participants reported positive experiences with LTH and reported that they were very likely to hunt at a later date did not mean that the program was effective at reversing the declining trend. In our case, it simply meant that participants were already hunters when they came to LTH. We were not reaching new hunters. As applied, our efforts would not stop future declines.

How Did the Wisconsin DNR Respond?
Thirty years ago scientists joined forces to develop the North American Waterfowl Management Plan. The Council to Advance Hunting and the Shooting Sports now has a National Hunting and Shooting Sports Action Plan modeled on that original waterfowl effort. In Wisconsin,

we built our R3 plan to follow the national plan and took the additional step to integrate our R3 efforts to include hunting, angling, trapping, and recreational shooting sports to take advantage of the natural connections.

In our plan, we established measurable goals.
1. Mitigate the projected decline through effective R3 strategies. The goal is to have one-half percent more participants each year than our models predict.
2. Increase support for and acceptance of hunting, trapping, angling and shooting sports.

Tracking all participants in our R3 programs is a priority. Everyone is now assigned a DNR customer identification number at the *beginning* of the experience so we can evaluate the outcome.

Our R3 programs are mapped on the Outdoor Recreation Adoption Model and evaluated for their effectiveness at moving interested novices into the recruited stages of hunting. This requires connections, repeated contacts, and true mentoring or a mentor surrogate to facilitate progression along the model.

Evaluation is important. We "mark" all participants and know which programs individuals have participated in. This allows us to perform a mark-recapture survival analysis on license purchase history and avidity to evaluate R3 programs.

Finally, we are applying an adaptive management approach. In response to the results of continuing evaluation, our programs, offerings, and goals will be adapted to use the resources we have and compliment the needs and desires of our customers and potential customers. Our R3 effort is a continual cycle of improvement of techniques working toward a strategic goal. In the end, similar to waterfowl management, if we apply adaptive management theory, we will find effective R3 techniques and programs. When we apply and implement proven techniques and programs, we can begin turn the curve on R3.

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Advantages and Disadvantages of Survey Modes

A commonly encountered question when planning an evaluation survey concerns the mode of data collection: should participants be interviewed in person, by telephone, by mail, or through an online questionnaire? In the end, each mode presents its own unique set of advantages and disadvantages, as summarized in Table 2.4.1[103] (Parts 1 through 3).

Table 2.4.1. Advantages and Disadvantages of Survey Modes (Part 1)

Survey Mode	Advantages	Disadvantages
Telephone	• One of the fastest data collection methods • Along with mail, typically achieves the most representative sample (telephone ownership is near universal) • Power of persuasion through interaction with live telephone interviewer • Easy for person to respond with minimal effort • Higher response rates because of multiple callbacks • Accuracy through Computer-Assisted Telephone Interviewing (CATI) software • Ensures all survey questions are answered • Ensures appropriate respondent is contacted and answering the survey • Can provide anonymity • Eco-friendly: minimal environmental impact because of reduced use of paper and energy consumption	• Costs are moderate to high • CATI software required (may be costly to set up if not already available) • Technical expertise required • Answering machines / screening can impact response rates • Limitations on survey length • For general population surveys, best sampling procedure requires purchase of the sample • For general population surveys, sample must include both landline and cellular numbers • Area codes for cellular phones typically reflect where the phone was purchased, not necessarily where the owner currently resides • For program participants, the sample needs to be as representative as possible of all participants; this can be difficult to achieve • Use of graphic or visual aids is not possible • Interviewers must be hired or volunteers trained
Mail	• Provides excellent coverage (address-based sampling) and allows for the most representative sample • Does not require large staff • Respondent convenience (can choose time and place to answer survey) • Can use graphics or visual aids *(continued)*	• Responses are usually biased toward males in general population studies • Lower coverage rates for named respondents • Response rates depend on group • Multiple mailings required (costly) • Obtaining a sufficient response rate can take 6 weeks or longer *(continued)*

Table 2.4.1. Advantages and Disadvantages of Survey Modes (Part 2)

Survey Mode	Advantages	Disadvantages
Mail (continued)	• Flexibility in types of questions that can be asked (ranking of multiple items, tabulations, etc.) • Ability to include incentives to assist in increasing response rates	• Cannot verify correct respondent • Cannot guarantee respondent understands questions: U.S. Department of Education and National Institute of Literacy figures indicate that 14% of U.S. adults read below a basic level (i.e., functionally illiterate) while 29% read at a most basic level (a total of 43% of adults being illiterate or able to read only at a basic level); further, The Literacy Company finds that 50% of U.S. adults are unable to read an eighth grade-level book • Cannot guarantee that respondent will fill out survey properly (e.g., instructions may be ignored) • Not possible to probe or clarify • Many questions often left blank • Data entry costs • Possibility of data entry error • Management of mailings can be labor intensive • No power of persuasion—many times only those with vested interest choose to respond (self-selection) • Not environmentally friendly
Personal Interviews	• Best for personal interaction, including probing and clarifying of questions • Allows for in-depth exploration of issues • Allows for observation of nonverbal responses/cues • Greater tolerance for survey length • Almost any type of question can be asked • Can use graphics or visual aids • Power of persuasion through interaction with live interviewer: high response rates (harder to decline in person)	• Very costly • Very time-consuming • Geographical limitations: for program participants, this may not be feasible if the program has many participants spread across areas • Possible interviewer bias • Possible interpretation bias • Possible acquiescence bias • Respondents lose feeling of anonymity • May have no second chance to convert refusal into completed survey

Table 2.4.1. Advantages and Disadvantages of Survey Modes (Part 3)

Personal Interviews (continued)	• Ensures all survey questions are answered • For general population surveys, housing units or location intercepts can be used to obtain sample (no list needs to be purchased)	• May not be representative sample • May be more difficult to hire and train interviewers (travel may be required)
Web / Online	• Anonymity • One of the fastest data collection methods • Costs are low • Computerized data collection • Can use graphics or visual aids • Flexibility in types of questions that can be asked (ranking of multiple items, tabulations, etc.) • For closed populations with known email or internet access (i.e., complete coverage through email addresses or internet access), online surveys are a good option	• For open-ended general population surveys, data will not be representative (non-probability sampling) • For open-ended online surveys placed on the web for anyone to respond, results may be manipulated by people sharing the link to likeminded individuals • Cannot verify correct respondent • Populations less likely to have online access (e.g., rural or older residents) are systemically excluded • Online survey panels usually consist of "professional survey takers" • For program participants, ensuring the representativeness of the sample can be challenging, usually requiring the survey have a code to participate to ensure only participants are taking the survey • Difficult to accurately calculate response rate • Difficult to assess nonresponse bias • Cannot guarantee respondent understands questions (see the discussion of literacy rates above in the disadvantages of mail surveys) • No power of persuasion—many times only those with vested interest choose to respond (self-selection)

Developing Survey Questionnaires

Obtaining useful survey results begins with the development of a high-quality survey questionnaire. Perhaps most importantly, the questionnaire must consist of neutral, unbiased questions. Leading questions intended to influence the respondent's answer must be avoided if the evaluation results are to carry weight. Equally important is the inclusion of single-concept questions; a survey that introduces multiple ideas or that poses different inquiries within the same question may confuse the respondent and render the answer unclear or ambiguous.

The wording of survey questions must also take into consideration the age and anticipated reading level of survey respondents; for example, if a program consists mainly of middle school participants, the survey questions should be developed with that age group in mind. Unfamiliar survey terminology runs the risk of alienating the respondent and discouraging participation in the survey. As a general rule, the writers of surveys should strive for simplicity and clarity in question wording.

Some evaluations employ multiple surveys, such as pre- and post-program questionnaires, that ask the same questions twice. It is important that questions that are intended to reflect changes that occur between the start and end of a program be identical in their wording in both surveys, as any deviations may alter the perceived meaning of the question and therefore render comparisons invalid.

Survey writers must also account for the importance of ensuring (and assuring) respondent anonymity. This becomes especially important when the respondent is asked his or her opinion on aspects in which there are vested interests or feelings, such as a program instructor's knowledge or the quality of the teaching methods in the program—a respondent who is concerned about the survey responses being linked to his or her name is unlikely to provide anything but positive impressions. Evaluators drafting surveys must also anticipate the effect of question placement, particularly when answers to one question (or the question itself) run the risk of influencing answers to or perceptions of another question later in the survey.

Finally, evaluators must be conscious of the length of surveys that are administered to program participants. While it is tempting to view surveys as an opportunity to collect data on a range of topics, a survey whose length makes it burdensome for the respondent to complete will suffer from a low response rate and will cost more to administer. A good rule of thumb for survey design, regardless of the mode of data collection, is to ensure that the questionnaire takes no longer than ten to fifteen minutes to complete.

Determining a Survey Sampling Plan

In many cases, R3 programs are evaluated through surveys distributed to every program participant—in effect, a complete census of participants as

opposed to a representative sample. Oftentimes, however, it is not feasible to obtain a completed survey (or set of surveys) from every participant, which is when sampling becomes necessary.

The key obligation in survey sampling is to ensure that the sample is representative of the population under study (e.g., program participants as a whole). This is accomplished through random sampling, a method of making certain that each person in the population has an equal likelihood of being selecting for the survey. A biased approach is one that systematically excludes a certain group from survey participation; for example, a survey conducted entirely by email will exclude any program participants who lack an email address or who do not have internet access. This bias then carries over to the survey results, which, given the systematic exclusion of a set of participants based on a certain characteristic, cannot be said to be representative of participants as a whole.

Of course, it is not always feasible for program coordinators to adhere strictly to random sampling—for many evaluations, some feedback is better than no feedback at all, which is when other sampling approaches come into play. Table 2.4.2, based on research from Wall,[104] summarizes the major approaches to survey sampling.

Table 2.4.2. Overview of Survey Sampling Approaches[105]

Method	Definition	Typical Action
Random Sampling	Every person in the population has an equal chance of being selected	Put all names in a hat and draw the sample from the names, or give every person a number and use a random number generator to select the sample.
Systematic Sampling	Every n^{th} member of the population is sampled	From a list of numbered names, start at a random point and pick every 10th (or any other number) person.
Stratified Sampling	The population is divided into two or more strata (groups) and each strata is sampled	Divide the overall group according to the groups of interest (e.g., hunters and anglers, males and females) and randomly select a sample within each group.
Convenience Sampling	Sampling is done as it is convenient	Select people who walk by, volunteer, or make themselves available. Note the high likelihood for bias in this approach, although some evaluation feedback may be better than none at all.

Evaluation Using Pre- and Post-Program Surveys

As many R3 programs are daylong or even multi-day events intended to create immersive experiences for participants, pre- and post-event surveys represent one of the most valuable methods of program evaluation. When the results are analyzed together, findings from pre- and post-program

surveys can graphically illustrate changes in attitudes, interest levels, participation rates, behaviors, and other areas.

The sample results in Figure 2.4.1, which illustrate changes in interest in target shooting, hunting, and fishing, as well as the percentages of respondents self-identifying as either an angler, shooter, or hunter, are taken from an evaluation of programs conducted by Responsive Management and the National Wild Turkey Federation between 2010 and 2014.[106]

Figure 2.4.1. Sample Pre and Post Results from Program Evaluation[107]
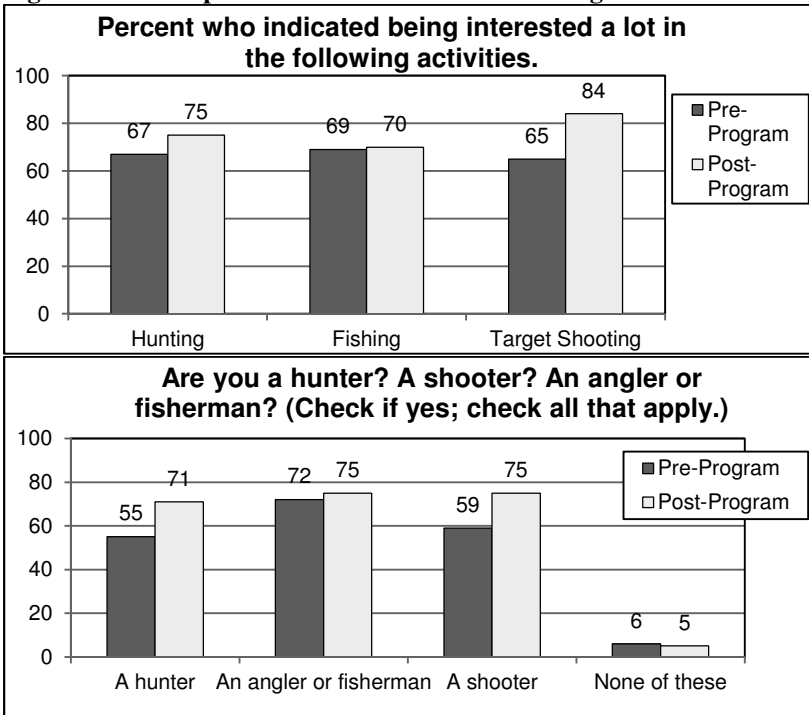
Social Habitats for Hunting: A Broader Context for R3 Programming

Lincoln R. Larson, Richard C. Stedman, Daniel J. Decker, William F. Siemer, and Michael R. Quartuch

"It takes a hunter to make a hunter." This adage has been a central tenet of R3 efforts for decades, with good reason. Numerous studies have shown that positive family and peer mentoring experiences guide individuals following the traditional pathway into hunting. However, as our understanding of the complex social systems that influence

continued

contemporary hunters and hunting has improved, we see that in most situations more influences are at work.

Research on hunter recruitment and retention has historically focused on understanding an individual's progression in becoming a hunter, beginning with awareness and interest followed by apprenticeship experience, socialization into hunting culture, and ultimately adoption of hunting and sustained engagement in hunting-related activities. Although insightful, this model does not identify all the complex social and environmental factors that impact an individual's adoption of hunting.

We believe that the efficacy of R3 efforts will increase if guided by a comprehensive multi-level conceptual framework that considers the broader "social habitat" for hunting. This habitat includes dynamic, hierarchical social structures and forces that influence hunting recruitment and retention at the individual, *micro* (e.g., family), *meso* (e.g., community), and *macro* (e.g., society) levels, as shown in the figure below. At the individual level, motivational and satisfaction-oriented explanations are offered to predict hunting participation, integrating cognitive factors such as values, beliefs, attitudes, and social norms. But many of these individual-level factors are directly influenced by the *micro* level of social structure: family and hunting mentors.

Nested Levels of Social Structure Interacting to Influence Hunter Recruitment and Retention
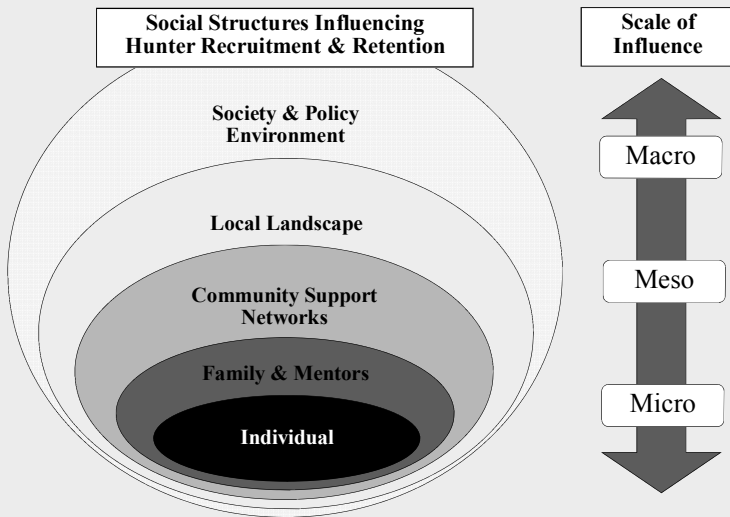
We know that today, as in the past, for most hunters the family provides the foundation for hunting socialization. Family-supported hunters are more likely to hunt at an earlier age and usually develop a deeper, more enduring connection with hunting. When family support is absent, other mentors play a critical role in the hunting experience, providing guidance for a non-traditional pathway to becoming a hunter. This is particularly true among the growing ranks of female hunters, who often cite spouses or significant others as key hunting mentors. R3 efforts attempting to replicate these relationships and conditions often struggle, however, because the hunting socialization process takes time. This is where the *meso* level of social structure, community support networks, and hunting associates can play an important role.

Secondary socialization agents such as peers, community networks and organizations (e.g., local hunting clubs), and other hunting associates (i.e., people who do not themselves hunt but associate with hunters, participate in hunting-related activities, and receive benefits from hunting) are also important drivers of recruitment and retention. These agents may be particularly important for hunters lacking support from immediate family members or those living where hunting is not embedded in local culture. Access to hunting land, an essential ingredient for hunting activity, is a byproduct of social processes (e.g., landowner access policies, hunter-landowner relationships, land-use decisions) that often originate at the *meso* level of social structure. R3 efforts should invest in efforts to understand and influence processes that alleviate social and psychological barriers to hunting access.

Forces operating at the *macro* level of social structure, society, and policy environment might pose the greatest challenges and opportunities for R3 practitioners. This level encompasses the broad ideological and institutional patterns, policies, and changes in American culture that shape the social habitat for hunting. The *macro* level includes policies of state and federal agencies to regulate hunting activities and land use, which facilitate or impede recruitment and retention by liberalizing or constraining hunting opportunities. It also includes changes such as shifting demographic patterns, urbanization, and evolving relationships between humans and nature. Collectively, these changes mean that traditional hunting socialization mechanisms are becoming less common in modern society.

As fewer Americans experience direct connections with hunting, media portrayal of hunting increasingly influences social acceptance of hunting and hunters. Many depictions of hunting in the media focus on trophy animals, with few emphasizing broader connections to resource stewardship and wildlife conservation. Nevertheless, a wave of recent books and articles portraying hunting as an ecological and civic

responsibility (e.g., *The Mindful Carnivore*, *Call of the Mild*) presents counter-conceptualizations of hunting, helping to create an emerging concept of hunters that appeals to more diverse audiences. Knowledge of the impacts of these conflicting *macro*-level forces on support for and participation in hunting is not well established. More research is needed to examine the implications of interacting social structures at this scale.

Our work suggests that R3 programming should continue to embrace traditional hunting socialization processes (including the important role of mentors), but it should also expand to consider and account for the factors and forces that make up the broader social habitat for hunting. As more people enter hunting through non-traditional pathways, an expanded view of hunting and hunters could better inform programs and policies to achieve desired R3 goals in specific contexts.

For more detail about the social habitat framework, see
Larson, L.; D. Decker; R. Stedman; W. Siemer; and M. Baumer. 2014. "Exploring the Social Habitat for Hunting: A Comprehensive View of Factors Influencing Hunter Recruitment and Retention." *Human Dimensions of Wildlife* 19(2): 105-122.

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Pre- and Post-Program Survey Instrument Templates

Customizable survey evaluation templates are available from several sources, notably the Wildlife Management Institute. Included at the end of this chapter are the survey instruments developed for the previously mentioned evaluation of hunting, fishing, and sport shooting programs conducted by Responsive Management and the National Wild Turkey Federation.[108] For this evaluation, separate questionnaires were developed for adult and youth participants, which ensured that appropriate survey wording was used for each group.

Additionally, while the study evaluated many different types of programs (i.e., those focusing only on hunting, fishing, or shooting, as well as programs focusing on some combination of the three activities), the same standardized survey instruments were used to gather data for each program—this meant that, regardless the program's focus, the surveys asked participants questions about all three activities. This was done to anticipate the potential for crossover learning experiences in each program, such as when a hunting program influenced a participant's impressions of fishing and/or sport shooting.

The survey instruments consist of questions on the following topics:

• Interest in hunting, fishing, and sport shooting.
• Participation in hunting, fishing, and sport shooting.
• Likelihood of future participation.
• Participation in other hunting, fishing, and sport shooting programs;
• Attitudes toward hunting, fishing, and sport shooting in general.
• Ratings of knowledge about hunting, fishing, and sport shooting, their state agency, and related issues.
• Equipment purchasing behavior.
• License purchasing behavior.
• Membership in sportsmen's and conservation organizations.
• Opinions on the importance of stewardship and conservation.
• Sources of information about the program (pre-program survey only).
• Program ratings, characteristics, and preferences (post-program only).

In many cases, identical questions for some of the topics are included in both surveys as a way to measure changes in responses. Note that while these survey instruments offer a framework for question format and subject matter, they may be customized for specific R3 programs.

The pre-program survey instrument is shown first, with questions separated in the tables by topic and by the wording used for the adult and youth versions. The post-program survey instrument follows. Note that *italics* show directions to you, the reader, and are not presented to survey respondents.

GUIDELINES FOR SURVEY ADMINISTRATION

Evaluations in general, particularly longer-term evaluations involving the use of pre- and post-program surveys, are time-intensive and require substantial planning and coordination. Nevertheless, such evaluations almost always provide invaluable insights into programs and their outcomes. Adhering to the following guidelines when administering surveys will help to ensure the success of program evaluations:

- **Ensure adequate awareness of the evaluation survey(s):** Program coordinators should inform participants of the evaluation and encourage them to respond to any surveys distributed. Such notice is especially important when surveys are administered following the end of a program, when coordinators no longer have the opportunity to interact with participants. Widespread awareness of the evaluation among participants will help to guarantee the best possible survey response rate. Allow time for participants to ask questions about the evaluation, which will reduce the likelihood for people to be caught off guard by a phone call, mailing, or email inviting them to participate in the survey.

- **Be aware of privacy laws affecting survey administration:** Privacy laws regarding contact with minors differ by state—in some states, laws may prevent agencies or organizations from releasing private contact information, especially if a third party is handling the evaluation. It may be necessary for program coordinators to circulate permission slips to facilitate participation from youth participants, particularly if a third party is involved in the evaluation. While permission slips may allow participants to "opt out" of the survey, they nonetheless may be a necessary step in certain circumstances.

- **Ensure trustworthy agency/organization branding on surveys:** As mentioned, it is sometimes necessary for agencies and organizations to enlist the services of third-party contractors when planning and conducting evaluations. To legitimize the evaluation and ensure the best possible response rates for data collection, the names and logos of the agency or organization sponsoring the program should be used in all evaluation materials. Participants are more likely to volunteer their time for a survey if they are aware that the agency or organization supports the study and encourages their participation.

- **Maintain the validity of pre- and post-program comparisons:** Pre- and post-program surveys offer the opportunity to use identical questions or sets of questions included in both surveys to examine notable changes in attitudes, behaviors, etc. However, any pre- and post-program comparisons should include only those participants who complete *both* surveys; otherwise, the comparison will not be of the same individuals, and the results may be misleading. The matching of respondents in the pre- and post-program samples can be accomplished through the use of unique identification numbers, which should be assigned to participants at the beginning of the program.

- **Plan for respondent attrition:** When conducting surveys both before and after program events, evaluators must be cognizant of the

likelihood of survey attrition, meaning a drop-off in the number of individuals who respond to additional surveys after the first one. Survey attrition is problematic from the standpoint of maintaining enough respondents to allow for the reliable analysis of data. To plan for attrition, program coordinators should attempt to oversample during the initial survey, such as by conducting twice as many surveys as needed for the post-program survey. Adhering to the other guidelines will also help to lessen attrition between surveys: by establishing a relationship with participants during program events and making them aware of the evaluation procedures, coordinators will help to ensure sufficient survey response rates.

- **Maintain survey data in a central location:** The management of survey data must be closely supervised, especially when evaluations require that multiple volunteers help to administer hard copy surveys. For some modes of surveying, data storage is handled quite simply, such as when an online survey platform maintains all data on a central web server. However, surveys administered from multiple locations or via multiple interviewers must be tracked and accounted for, as every completed questionnaire represents valuable data.

EVALUATING OUTPUTS VERSUS OUTCOMES

A final note concerns the importance of keeping evaluations in perspective, especially by remaining mindful of the difference between goals and objectives. Successfully fulfilled objectives result in outputs, while successfully met goals result in outcomes. It is worth noting, though, that formal evaluations and other metrics used to measure program success may sometimes miss the "big picture" point of R3 programs—namely, that such initiatives are designed to create new participants or reactivate lapsed ones. There is a danger in becoming overly distracted by program *outputs* (the number of participants who complete a program, for example) over program *outcomes* (the number of actual new participants initiated into the sport, or an uptick in license sales as a result of a program).

For instance, an online webpage designed to help in recruitment may be judged on the number of page views it generates, but there is no guarantee that those page views lead to increased participation. While metrics like page views are important to measure, program bottom lines must also be measured, as ultimately, it is the bottom line that dictates the success or failure of a program.

Simpler Is Better

Mark Whitney

While much of the focus on R3 efforts is centered on developing and conducting programs, especially recruitment programs, there are many things a state fish and wildlife agency can do, other than programs, to positively affect recruitment, retention, and reactivation. In very general terms, Georgia's best efforts can be grouped under the heading of *SIMPLICITY*. How often do we hear people express confusion about the appropriate licenses to purchase and where and when they can hunt on public lands? How often do we hear about their difficulty in finding and understanding all of the rules, regulations, and laws to hunt and/or fish legally? In the worst case scenarios, this confusion leads current sportsmen to abandon hunting and fishing as recreational pursuits and discourages potential new customers from engaging in these activities.

Two examples come to mind. First, I have friends who have abandoned hunting migratory birds, especially doves, due to fear of violating regulations on baiting. The understandable complexity of determining if a field has been baited or illegally manipulated or whether you are shooting birds that are traveling to or from an unknown baited site on adjacent lands represents too great a potential for violating state or federal statutes. Second, I recently helped a family of hunters who had moved from another state decipher Georgia's regulations and opportunities for hunting deer on our state-managed lands. Before they met me, they had considered giving up hunting because our regulations, seasons, and public hunting opportunities were different than where they lived previously and were presenting a challenge for them to fully understand. Their frustration caused them to consider giving up hunting altogether.

These incidents, and others like them, attest to a need for us to consider whether we have created more barriers to participation than we realize. And, if our intent is to engage earnestly in R3, shouldn't we look for every chance to eliminate barriers? In other words, shouldn't every decision we make moving forward be viewed through the lens of how this action impacts R3 in my state? That's the question we have been asking ourselves in Georgia for the past 5 years, and it has led us to consider regulatory, licensing, access, and communications changes. Additionally, we are beginning to effectively use technology to keep our active hunters engaged and to recruit new ones.

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We actively listen to our customers and attempt to deliver the things they tell us are important. We communicate regularly through email, social media, and blogs to give timely stories, information, and updates on topics of interest. We provide a forum on which they can comment, brag, post photographs, or share with their friends. Through these channels we are able to collect information that we can use to deliver products that are in demand by our hunters and anglers.

A few things we are trying that we believe will help us to increase our R3 successes involve our electronic licensing system, targeted email communications, better access to public angling and hunting information and resources, and regulatory changes to simplify license requirements. Each of these has either been requested of us by our customers or proven to be effective through marketing research. For example, we recently demonstrated, in collaboration with the Recreational Boating and Fishing Foundation, that targeted email communications sent to lapsed anglers resulted in more than 6,000 licenses purchased, and 27 were lifetime licenses! We've used our electronic license system to simplify decision-making by activity, and we sell license packages that include all needed licenses for that activity. We do this for resident and non-resident license purchasers. Currently advertised license packages include Avid Angler, Public Lands Hunter/Angler, Waterfowl Hunter, Deer/Turkey Hunter, and Hog Hunter, just to name a few. In the first four months, 16,000 customers have taken advantage of these package choices, and our customers have provided feedback on their appreciation for this simplification.

Additionally, we are using web-based mapping to provide better information on the hunting and fishing opportunities available on public lands and water and currently are investigating incorporating ArcGIS data to better inform hunters of opportunities. These efforts will place recreational opportunities at the fingertips of new and existing sportsmen. And lastly, we have identified licenses to eliminate, or combine, to effectively reduce the number of licenses required by a hunter or angler, thus reducing confusion among license buyers. Our Department will suggest simplified license structures at the first opportunity presented by our General Assembly.

Although every state may not have the same flexibility to make adjustments like those above, ultimately, our objective should be to adhere to the KISS (keep it simple stupid) axiom and keep

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things as simple as we possibly can. After all, simpler is better and provides greater customer service. The simpler we make it for people to get engaged, or stay engaged, the better our results in R3.

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CHAPTER 2 ACTION ITEMS[109]

➢ **Develop R3 programs using an approach consistent with the scientific method.**

Establish goals and objectives using a scientific and orderly process, plan target markets accordingly, and prepare to refine programs and initiatives as necessary using trial and error. Also make use of the ample research available drawn from past lessons learned through R3 planning, such as NSSF's Best Practices Workbook for Hunting and Shooting Recruitment and Retention. In designing R3 programs, adhere to the list of guidelines discussed previously in this chapter:

- Provide a positive social atmosphere.
- Provide age- and audience-appropriate activities.
- Properly train R3 instructors.
- Consider the skill levels of participants.
- Match instructor/participant backgrounds and demographics.
- Contextualize activities to encourage crossover appeal.
- Provide the next step.
- Categorize programs along a continuum of learning.

➢ **Before developing R3 programs, establish clearly defined goals and objectives and commit them to writing.**

There are several paths to fulfilling the goals of the National Action Plan and increasing support for and participation in hunting, fishing, sport shooting, and archery: 1) increase hunting and fishing license sales, 2) keep current participants involved in the four activities, 3) encourage active participants to take part in the activities more often, 4) encourage dropouts to return to the activities, 5) encourage sporadic participants to participate more often and consistently, 6) encourage participation in the four activities among market segments that have not

tried the activities, 7) maintain high satisfaction levels among active participants, and 8) develop a culture that is conducive to and supportive of the main activities. Each of these goals would be applicable to a different target market, with specific objectives and tailored products, programs, services, and messages for each market. In short, each goal dictates different strategies. It is therefore important to identify goals up-front and to develop corresponding objectives for each R3 effort.

➢ **Be aware of the tendency for R3 programs to fail due to inadequate funds and effort.**

Insufficient funds or resources can doom R3 efforts. Agencies and organizations must ensure that funds and resources are commensurate with the importance of R3. Full-time personnel should be assigned to R3 coordination (part-time attention is simply not enough).

➢ **Inventory existing R3 efforts and plan new efforts using the Outdoor Recreation Adoption Model as a roadmap to ensure that programs span the complete "cradle to grave" continuum.**

Agencies and organizations in every state should have in place initiatives that initially generate awareness among residents in the four activities; prospective hunters, anglers, shooters, and archers should then have opportunities to take part in initiatives that get them interested, allow them to try the activities, and then provide subsequent steps for continued involvement. The "one and done" program model is not sufficient for creating lifelong participants.

➢ **Introductory programs are the necessary first step and should be advertised as such.**

Emphasize the introductory nature of initial R3 programs in advertising and promotional materials—perhaps the most important target market is the market that has yet to be properly introduced to the four activities. In crafting initiatives designed for this introductory stage, work to create a comfortable social atmosphere within the programs— this will foster relationships and encourage continued involvement.

➢ **Keep things as simple as possible initially, as overly complicated procedures or processes may discourage beginners from pursuing the activities further.**

➢ **An encouraging social support structure is especially important to the success of youth R3 programs.**

For this reason, the most effective youth programs will likely be ones that successfully encourage youth to attend with their friends and family members.

Another recommended strategy is for R3 coordinators to partner with organizations like Big Brothers, Big Sisters and 4H that have already developed social support networks. Considerations in identifying partnering organizations include potential overlap in common goals (i.e., getting kids outside), access to target audiences, and the capacity to engage with or support the audience at the local level. Also note that social influence on prospective participants ranges from the individual and family levels to the wider community and society levels.

➢ **To the extent possible, tailor the R3 program experience to the central motivations of participants.**

Emphasis may be placed on different programmatic aspects depending on whether participants are principally motivated to learn a new skill (such as self-defense, target archery, or the basics of how to fish), to harvest an animal, or simply to get out in nature, to name just a few common motivations. Program coordinators may be able to assess participant motivations through a pre-event questionnaire or during some other portion of the registration process; knowing motivations will help to set expectations, which may help guide the overall content and structure of the program or course.

➢ **Camaraderie tends to be a key motivation for repeat participants.**

Emphasize camaraderie as a way to boost participation and spread awareness via word-of-mouth. Note that in programs that target specific demographic groups, camaraderie tends to be a tremendous motivator for participation.

➢ **As the relative proficiency of participants improves, demand for advanced courses is likely to increase.**

Plan advanced courses according to demand; allow participants to advance or "graduate" according to their experience levels. This will keep participants interested in working to fulfill personal goals, which will act as a retention mechanism.

➢ **Evaluate R3 programs and efforts extensively and continually.**

Evaluation is an essential component to R3 efforts, allowing coordinators to determine the extent to which goals and objectives have been met. Evaluation is the principal mechanism for program improvement and refinement; evaluating efforts helps to ensure the wise and appropriate allocation of funds and efforts. An evaluation

component should be incorporated into the budgeting and planning of every R3 effort.

➢ **Apply the same scientific strategies and techniques to program evaluation that are used to guide the design and development of the programs themselves.**

Whether through new data collection or proxy indicators of performance and success, evaluation should be handled scientifically and systemically—in short, evaluation should be taken as seriously as any other agency or organizational endeavor. Consider the advantages and disadvantages of each potential evaluation method, and craft evaluation tools or instruments that collect feedback in a neutral, unbiased manner. Use existing survey evaluation templates that have been created specifically for the purposes of R3 evaluation, such as the surveys developed by WMI and Responsive Management. Plan evaluation procedures well in advance to ensure sufficient awareness among participants, and address any questions ahead of time.

➢ **Remain focused on program outcomes over outputs: the goal of every evaluation should be to provide evidence that the program or initiative is increasing support for or participation in the four activities—everything else is secondary.**

Survey Templates

Interest in Hunting, Fishing, and Shooting Activities and Self-Identification as a Hunter, Angler, or Shooter (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**
[The four participation questions are randomized so that they are not presented in the same order.]	
[All of the "How interested" questions have the answer set shown below.] 　*Very interested* 　*Somewhat interested* 　*Not at all interested* 　*Don't know*	*[All of the "How interested" questions have the answer set shown below.]* 　*A lot* 　*A little* 　*Not at all* 　*Don't know*
How interested would you say you currently are in HUNTING? Are you very interested, somewhat interested, or not at all interested?	How interested are you in HUNTING? Are you interested a lot, a little, or not at all?
How interested would you say you currently are in FISHING? Are you very interested, somewhat interested, or not at all interested?	How interested are you in FISHING? Are you interested a lot, a little, or not at all?
How interested would you say you currently are in SPORT OR TARGET SHOOTING? Are you very interested, somewhat interested, or not at all interested?	How interested are you in SHOOTING? Are you interested a lot, a little, or not at all?
How interested would you say you currently are in ARCHERY? Are you very interested, somewhat interested, or not at all interested?	How interested are you in ARCHERY? Are you interested a lot, a little, or not at all?
[These four questions use the same randomization as the questions above.]	
[All of the "Do you consider yourself" questions have the answer set shown below.] 　*Yes* 　*No* 　*Don't know*	*[All of the "Are you a" questions have the answer set shown below.]* 　*Yes* 　*No* 　*Don't know*
Do you currently consider yourself a hunter?	Are you a hunter?
Do you currently consider yourself an angler? (IF DOES NOT KNOW TERM: A fisherman is an angler.)	Are you a fisherman?
Do you currently consider yourself a sport shooter?	Are you a shooter?
Do you currently consider yourself an archery participant?	Are you a archery shooter? (IF ASKED: Archery means shooting a bow and arrow.)

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Participation in Hunting, Fishing, and Shooting Activities (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**
Please tell me if you have ever participated in each of the following activities. How about…? (READ LIST; CHECK ALL THAT APPLY) Hunting with a rifle or shotgun Bow hunting Target shooting with a rifle Target shooting with a handgun Trap shooting Skeet shooting Shooting sporting clays Archery target shooting Recreational freshwater fishing Recreational saltwater fishing None of these	Have you ever been…? (READ LIST; CHECK ALL THAT APPLY) Hunting with a rifle or shotgun Bow hunting (Hunting with a bow and arrow) Target shooting with a rifle (Shooting a rifle at a target, such as a bullseye, other paper target, or soda cans.) Target shooting with a handgun (Shooting a handgun at a target, such as a bullseye, other paper target, or soda cans.) Trap shooting (A game of shotgun shooting at clay targets.) Skeet shooting (A game of shotgun shooting at clay targets.) Shooting sporting clays (A game of shotgun shooting at clay targets.) Archery target shooting (Shooting a bow and arrow at a target, such as a bullseye or other paper target.) Freshwater fishing (Fishing in rivers, streams, lakes, or ponds.) Saltwater fishing (Fishing in the ocean or a bay.) None of these
[IF HAVE NOT PARTICIPATED] What are the main reasons you have never participated in any [HUNTING / FISHING / SHOOTING] activities? (DO NOT READ LIST; CHECK ALL THAT APPLY) (SUGGESTED ANSWER OPTIONS) Didn't want to go Didn't have anyone to go with Didn't know where / have anywhere to go Didn't have any way to get there Didn't have enough time Had other interests / hobbies Thought hunting / shooting is boring Thought hunting / shooting is too dangerous Hunting / shooting equipment cost too much Hunting license cost too much Didn't have any / enough information about hunting / shooting Other (ENTER OTHER) Don't know	*[IF HAVE NOT PARTICIPATED]* Can you please tell me why you have not been [HUNTING / FISHING / SHOOTING] before? (DO NOT READ LIST; CHECK ALL THAT APPLY) (SUGGESTED ANSWER OPTIONS) Didn't want to go Didn't have anyone to go with Didn't know where / have anywhere to go Didn't have any way to get there Didn't have enough time Had other interests / hobbies Thought hunting / fishing / shooting is boring Thought hunting / fishing / shooting is too dangerous / scary Don't like guns Scared of guns Parents wouldn't let me Not a "cool" thing or activity to do Hunting / fishing / shooting equipment cost too much Hunting / fishing license cost too much Didn't have any / enough information about hunting / fishing / shooting Other (ENTER OTHER) Don't know

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Participation in Hunting, Fishing, and Shooting Activities (continued) (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**

[IF PARTICIPATED IN ONE OR MORE HUNTING ACTIVITIES] How many of the past 5 years have you been HUNTING?
 	
__ (ENTER NUMBER OF YEARS)
	[IF PARTICIPATED IN ONE OR MORE HUNTING ACTIVITIES] Do you HUNT a lot, a little, or not at all?
	    A lot
	    A little
	    Not at all
	    Don't know

[IF PARTICIPATED IN ONE OR MORE HUNTING ACTIVITIES] About how many days did you typically HUNT in a year for the past 5 years?
 	
__ (ENTER NUMBER OF DAYS)
	[IF PARTICIPATED IN ONE OR MORE HUNTING ACTIVITIES] Have you been HUNTING in the past year?
	    Yes
	    No
	    Don't know

[IF PARTICIPATED IN ONE OR MORE HUNTING ACTIVITIES] How would you rate your expertise as a HUNTER?
    Beginner
    Intermediate
    Advanced
    Don't know
	[IF PARTICIPATED IN ONE OR MORE HUNTING ACTIVITIES] How would you rate your skill as a HUNTER? Would you say you are a beginner, intermediate, or advanced hunter?
	    Beginner
	    Intermediate
	    Advanced
	    Don't know

[IF PARTICIPATED IN ONE OR MORE FISHING ACTIVITIES] How many of the past 5 years have you been FISHING?
 	
(ENTER NUMBER OF YEARS)
	[IF PARTICIPATED IN ONE OR MORE FISHING ACTIVITIES] Do you FISH a lot, a little, or not at all?
	    A lot
	    A little
	    Not at all
	    Don't know

[IF PARTICIPATED IN ONE OR MORE FISHING ACTIVITIES] About how many days did you typically FISH in a year for the past 5 years?
 	
(ENTER NUMBER OF DAYS)
	[IF PARTICIPATED IN ONE OR MORE FISHING ACTIVITIES] Have you been FISHING in the past year?
	    Yes
	    No
	    Don't know

[IF PARTICIPATED IN ONE OR MORE FISHING ACTIVITIES] How would you rate your expertise as an ANGLER?
    Beginner
    Intermediate
    Advanced
    Don't know
	[IF PARTICIPATED IN ONE OR MORE FISHING ACTIVITIES] How would you rate your skill as an ANGLER or FISHERMAN? Would you say you are a beginner, intermediate, or advanced angler?
	    Beginner
	    Intermediate
	    Advanced
	    Don't know

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Participation in Hunting, Fishing, and Shooting Activities (continued) (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**

[IF PARTICIPATED IN ONE OR MORE SHOOTING ACTIVITIES] How many of the past 5 years have you been SHOOTING?
 	
__ (ENTER NUMBER OF YEARS)
	[IF PARTICIPATED IN ONE OR MORE SHOOTING ACTIVITIES] Do you SHOOT a lot, a little, or not at all?
	    A lot
	    A little
	    Not at all
	    Don't know

[IF PARTICIPATED IN ONE OR MORE SHOOTING ACTIVITIES] About how many days did you typically SHOOT in a year for the past 5 years?
 	
__ (ENTER NUMBER OF DAYS)
	[IF PARTICIPATED IN ONE OR MORE SHOOTING ACTIVITIES] Have you been SHOOTING in the past year?
	    Yes
	    No
	    Don't know

[IF PARTICIPATED IN ONE OR MORE SHOOTING ACTIVITIES] How would you rate your expertise as a SHOOTER?
    Beginner
    Intermediate
    Advanced
    Don't know
	[IF PARTICIPATED IN ONE OR MORE SHOOTING ACTIVITIES] How would you rate your skill as a SHOOTER? Would you say you are a beginner, intermediate, or advanced shooter?
	    Beginner
	    Intermediate
	    Advanced
	    Don't know

[IF PARTICIPATED IN ONE OR MORE ARCHERY ACTIVITIES] How many of the past 5 years have you been participating in ARCHERY?
 	
__ (ENTER NUMBER OF YEARS)
	[IF PARTICIPATED IN ONE OR MORE ARCHERY ACTIVITIES] Do you shoot a BOW AND ARROW a lot, a little, or not at all?
	    A lot
	    A little
	    Not at all
	    Don't know

[IF PARTICIPATED IN ONE OR MORE ARCHERY ACTIVITIES] About how many days did you typically participate in ARCHERY in a year for the past 5 years?
 	
__ (ENTER NUMBER OF DAYS)
	[IF PARTICIPATED IN ONE OR MORE ARCHERY ACTIVITIES] Have you been shooting a BOW AND ARROW in the past year?
	    Yes
	    No
	    Don't know

[IF PARTICIPATED IN ONE OR MORE ARCHERY ACTIVITIES] How would you rate your expertise as an ARCHER?
    Beginner
    Intermediate
    Advanced
    Don't know
	[IF PARTICIPATED IN ONE OR MORE ARCHERY ACTIVITIES] How would you rate your skill as a BOW AND ARROW shooter? Would you say you are a beginner, intermediate, or advanced bow and arrow shooter?
	    Beginner
	    Intermediate
	    Advanced
	    Don't know

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Likelihood of Future Participation (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**

[Hunting, fishing, and shooting questions would be randomized. All of the likelihood questions have the answer set shown below.]
     Very likely
     Somewhat likely
     Not at all likely
     Don't know	

How likely are you to go HUNTING in the next 12 months?	How likely are you to go HUNTING in the next year?
[IF NOT AT ALL LIKELY TO GO] How about in the next 5 years?	
How likely are you to go FISHING in the next 12 months?	How likely are you to go FISHING in the next year?
[IF NOT AT ALL LIKELY TO GO] How about in the next 5 years?	
How likely are you to go SHOOTING in the next 12 months?	How likely are you to go SHOOTING in the next year?
[IF NOT AT ALL LIKELY TO GO] How about in the next 5 years?	
How likely are you to participate in ARCHERY in the next 12 months?	How likely are you to go shooting a BOW AND ARROW in the next year?
[IF NOT AT ALL LIKELY TO GO] How about in the next 5 years?	

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Participation in Other Hunting, Fishing, and Shooting Programs (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**

Have you ever participated in the [PROGRAM NAME] program before? (That is, the same program you are currently signed up for.)
     Yes
     No
     Don't know
	Have you ever been in the [PROGRAM NAME] program before? (That is, the same program you are now signed up for.)
	     Yes
	     No
	     Don't know

Have you ever participated in any hunting, shooting, or fishing programs other than the [PROGRAM NAME] program that you are currently signed up for? (IF YES: What are the names of the other programs you have participated in?)
 	
     (ENTER OTHER PROGRAM NAMES)
	Have you ever been in any hunting, shooting, or fishing programs other than the [PROGRAM NAME] program that you are now signed up for? (IF YES: What are the names of the other programs you have been in?)
	
	     (ENTER OTHER PROGRAM NAMES)

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Attitudes Toward Hunting, Fishing, and Shooting in General (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**
[The three support/oppose or approve/disapprove questions are randomized so that they are not presented in the same order.]	
[All of these questions have the answer set shown below.] 　*Strongly support* 　*Moderately support* 　*Neither support nor oppose* 　*Moderately oppose* 　*Strongly oppose* 　*Don't know*	
In general, do you support or oppose legal, regulated hunting?	Do you approve or disapprove of hunting when it is legal to do so?
Do you support or oppose legal, recreational fishing?	Do you approve or disapprove of fishing when it is legal to do so?
Do you support or oppose target or sport shooting?	Do you approve or disapprove of target or sport shooting?

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Attitudes Toward Stewardship and Conservation (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**

[All of these questions have the answer set shown below.]
    Extremely important
    Very important
    Somewhat important
    Slightly important
    Not at all important
    Don't know	

How important is it to you that natural areas exist for enjoying and experiencing nature?	How important is it to you that there are natural areas, like woods, forests, fields, and rivers, where people can visit and to enjoy or have fun?
How important is it to you personally for YOU to enjoy and experience nature?	How important is it to you that YOU personally get the chance to visit and enjoy natural areas like woods, forests, fields, or rivers?
How important is it to you that fish and wildlife resources and habitat are properly managed and conserved?	How important is it to you that fish and wild animals are taken care of and the areas where they live are protected?
How important is it to you personally to participate in efforts to conserve fish and wildlife resources and habitat in your area?	How important is it to you to do things to help take care of fish and wildlife and to protect the areas where they live?
How important is it to you to think about how YOUR activities might affect fish and wildlife and their habitat?	How important is it to you to think about how YOUR activities and the things you do might help or harm fish, wild animals, and the areas where they live?
How important is it to you personally that YOU act responsibly in the field while hunting, shooting, or fishing?	How important is it to you to be responsible when you are hunting, shooting, or fishing?
How important is it to you personally to VOICE YOUR OPINION in support of conservation of fish and wildlife resources and habitat, such as writing a letter to a government official or representative?	How important is it to you to tell other people what you think could be done to help take care of fish and wild animals and to protect the areas where they live? For example, maybe telling a teacher or writing to your Congressman about an idea to clean up a stream.
How important is it to you personally to TAKE ACTION in support of the conservation of fish and wildlife resources and habitat, such as participating in activities like cleaning up a waterway?	How important is it to you to do something that helps take care fish and wild animals or to protect the areas where they live? For example, actually helping a group or club clean up a stream or pick up litter?
How important is it to you that fish and wildlife resources are being properly managed and conserved?	How important is it to you that fish and wild animals are taken care of in the best way possible?
How important is it to you that fish and wildlife resources and habitat are conserved for future generations?	How important is it to you that fish and wild animals are taken care of and the areas where they live are protected so that people in the future will be able to enjoy them?

Ratings of Knowledge About Hunting, Shooting, Fishing, Their State Agency, and Related Issues (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**

[All of the knowledge questions have the answer set shown below.]
   A great deal
   A moderate amount
   A little
   Nothing at all
   Don't know
	[All of the knowledge questions have the answer set shown below.]
	   A lot
	   A little
	   Nothing at all
	   Don't know

How much would you say you currently know about each of the following? Would you say you know a great deal, a moderate amount, a little, or nothing at all? [HUNTING / FISHING / SHOOTING / ARCHERY] in general [HUNTING / FISHING / SHOOTING / ARCHERY] equipment [HUNTING / FISHING / SHOOTING / ARCHERY] methods Where to go to [HUNT / FISH / SHOOT / participate in ARCHERY] [HUNTING / FISHING / SHOOTING / ARCHERY] opportunities [HUNTING / FISHING / SHOOTING / ARCHERY] safety [HUNTING / FISHING / SHOOTING / ARCHERY] ethics Conservation Fish and wildlife management	How much do you know about each of the following? Would you say you know a lot, a little, or nothing at all? [HUNTING / FISHING / SHOOTING / SHOOTING A BOW AND ARROW] in general [HUNTING / FISHING / SHOOTING / ARCHERY] equipment [HUNTING / FISHING / SHOOTING / ARCHERY] methods (IF ASKED: Methods mean different ways or techniques for HUNTING / FISHING / SHOOTING / SHOOTING A BOW AND ARROW].) Where to go to [HUNT / FISH / SHOOT / shoot a BOW AND ARROW] [HUNTING / FISHING / SHOOTING / ARCHERY] opportunities, that is, where and when to go [HUNTING / FISHING / SHOOTING / ARCHERY] safety [HUNTING / FISHING / SHOOTING / ARCHERY] ethics, that is, appropriate and considerate behavior Conservation Fish and wildlife management

How much would you say you currently know about the government agency most responsible for managing hunting and fishing in [STATE OF RESIDENCE]?
   A great deal
   A moderate amount
   A little
   Nothing at all
   Don't know
	How much do you know about the government agency or organization that manages hunting and fishing in [STATE OF RESIDENCE]?
	(Manages means selling hunting and fishing licenses, making hunting and fishing laws and regulations, and taking care of other areas of fish and wildlife.)
	   A lot
	   A little
	   Nothing at all
	   Don't know

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Ratings of Knowledge About Hunting, Shooting, Fishing, Their State Agency, and Related Issues (continued) (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**
How do you think the government agency most responsible for managing hunting and fishing in [STATE OF RESIDENCE] is funded? (SUGGESTED ANSWER OPTIONS, NOT NECESSARILY TO BE READ OR SHOWN TO RESPONDENT; CHECK ALL THAT APPLY) Taxes (nothing specific) Hunting and fishing licenses Excise taxes on hunting and fishing equipment Taxes on motorboat fuel General state revenue General federal revenue State income tax check-off / nongame donations Fines Don't know Other (ENTER OTHER)	
Which government agency would you say is most responsible for managing hunting and fishing in [STATE OF RESIDENCE]? (ENTER NAME)	Can you name the government agency or organization that manages hunting and fishing in [STATE OF RESIDENCE]? (Manages means selling hunting and fishing licenses, making hunting and fishing laws and regulations, and taking care of other areas of fish and wildlife.) (ENTER NAME)

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Purchase or Acquisition of Equipment (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**
Have you purchased any HUNTING equipment in the past 5 years? Yes No Don't know	Have you gotten any HUNTING equipment in the past year? Yes No Don't know
[IF PURCHASED HUNTING EQUIPMENT] About what were your total expenses for the HUNTING equipment you purchased in the past 5 years? (ENTER AMOUNT)	

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Purchase or Acquisition of Equipment (Pre-Program Survey) (continued)	
Adult Question Wording	**Youth Question Wording**
Have you purchased any FISHING equipment in the past 5 years? 　　Yes 　　No 　　Don't know	Have you gotten any FISHING equipment in the past year? 　　Yes 　　No 　　Don't know
[IF PURCHASED FISHING EQUIPMENT] About what were your total expenses for the FISHING equipment you purchased in the past 5 years? 　　(ENTER AMOUNT)	
Have you purchased any SHOOTING equipment in the past 5 years? 　　Yes 　　No 　　Don't know	Have you gotten any SHOOTING equipment in the past year? 　　Yes 　　No 　　Don't know
[IF PURCHASED SHOOTING EQUIPMENT] About what were your total expenses for the SHOOTING equipment you purchased in the past 5 years? 　　(ENTER AMOUNT)	
Have you purchased any ARCHERY equipment in the past 5 years? 　　Yes 　　No 　　Don't know	Have you gotten any ARCHERY equipment, such as bows and arrows, in the past year? 　　Yes 　　No 　　Don't know
[IF PURCHASED ARCHERY EQUIPMENT] About what were your total expenses for the ARCHERY equipment you purchased in the past 5 years? 　　(ENTER AMOUNT)	

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Purchase of Licenses (Pre-Program Survey)
Adult Question Wording (youth are not asked)
Have you ever bought a HUNTING license? 　　Yes 　　No 　　Don't know
[IF BOUGHT A HUNTING LICENSE] How many of the past 5 years have you bought a [STATE OF RESIDENCE] HUNTING license? 　　(ENTER NUMBER OF YEARS)
[IF BOUGHT A HUNTING LICENSE] How about an out-of-state HUNTING license? (How many of the past 5 years have you bought one?) (ENTER NUMBER OF YEARS)

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Purchase of Licenses (Pre-Program Survey) (continued)
Adult Question Wording (youth are not asked)

Have you ever bought a FISHING license?
    Yes
    No
    Don't know

[IF BOUGHT A FISHING LICENSE] How many of the past 5 years have you bought a [STATE OF RESIDENCE] fishing license?   (ENTER NUMBER OF YEARS)
[IF BOUGHT A FISHING LICENSE] How about an out-of-state FISHING license? (How many of the past 5 years have you bought one?)   (ENTER NUMBER OF YEARS)

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Membership in Sportsmen's and Conservation Organizations (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**

In the past 5 years have you been a member of or donated to any SPORTSMEN'S organizations?
    Yes
    No
    Don't know
	Do you belong to any clubs or groups that do outdoor activities, such as hunting, fishing, shooting, archery, camping, or hiking?
	    Yes
	    No
	    Don't know

In the past 5 years have you been a member of or donated to any CONSERVATION organizations?
    Yes
    No
    Don't know	

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Sources of Information (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**

Where did you learn about the [PROGRAM NAME] program you are currently signed up for?
(OPEN-ENDED; THE ANSWER SET WOULD DEPEND ON WHERE INFORMATION ABOUT THE PROGRAM WAS DISSEMINATED.)
	Where did you hear or read about the [PROGRAM NAME] program you are now signed up for?
	(OPEN-ENDED; THE ANSWER SET WOULD DEPEND ON WHERE INFORMATION ABOUT THE PROGRAM WAS DISSEMINATED, BUT FOR CHILDREN SHOULD INCLUDE THE LIST PROVIDED BELOW; CHECK ALL THAT APPLY)
	    Parent
	    Other family
	    Friends
	    Teacher

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Demographic Information (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**

Does anyone in your family currently [HUNT / FISH / SHOOT]?
    Yes
    No
    Don't know
	Does anyone else in your family currently [HUNT / FISH / SHOOT]?
	    Yes
	    No
	    Don't know

[IF SOMEONE IN FAMILY HUNTS / SHOOTS / FISHES]
Who [HUNTS / SHOOTS / FISHES] in your family?
(CHECK ALL THAT APPLY)
    Son(s)
    Daughter(s)
    Father
    Mother
    Brother(s)
    Sister(s)
    Uncle(s)
    Aunt(s)
    Cousin(s)
    Grandfather(s)
    Grandmother(s)
    Other (ENTER OTHER)
    Don't know
	[IF SOMEONE IN FAMILY HUNTS / SHOOTS / FISHES]
	Who else [HUNTS / SHOOTS / FISHES] in your family?
	(CHECK ALL THAT APPLY)
	    Father
	    Mother
	    Brother(s)
	    Sister(s)
	    Uncle(s)
	    Aunt(s)
	    Cousin(s)
	    Grandfather(s)
	    Grandmother(s)
	    Other (ENTER OTHER)
	    Don't know

Do you consider your place of residence to be a large city or urban area, a suburban area, a small city or town, a rural area on a farm or ranch, or a rural area NOT on a farm or ranch?
    Large city or urban area
    Suburban area
    Small city or town
    Rural area on a farm or ranch
    Rural area NOT on a farm or ranch
    Don't know
    Refused
	Do you live in a large city, a suburb or just outside of a large city, a small city or town, on a farm, or a rural area but NOT on a farm?
	    Large city
	    Suburb or just outside of a large city
	    Small city or town
	    Farm or ranch
	    Rural area NOT on a farm or ranch
	    Don't know
	    Refused

What is the highest level of education you have completed?
    Not a high school graduate
    High school graduate or equivalent
    Some college or trade school, no degree
    Associate's degree or trade school degree
    Bachelor's degree
    Master's degree
    Professional or doctorate degree (e.g., M.D. or Ph.D.)
    Don't know
    Refused
	What grade are you in at school?
	    7th
	    8th
	    9th
	    10th
	    11th
	    12th
	    Don't know
	    Refused

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Demographic Information (continued) (Pre-Program Survey)	
Adult Question Wording	**Youth Question Wording**

	What types of grades do you get in school?
	    Mostly As and Bs
	    Mostly Bs and Cs
	    Mostly Cs and Ds
	    Mostly Ds and Fs
	    Don't know
	    Refused

	How likely do you think it is that you will go to college?
	    Very likely
	    Somewhat likely
	    Not at all likely
	    Don't know

What races or ethnic backgrounds do you consider yourself, and please mention all that apply?
(CHECK ALL THAT APPLY)
    White or Caucasian
    Black or African-American
    Hispanic or Latino
    Native American or Alaskan native or Aleutian
    Native Hawaiian
    Middle Eastern
    East Asian (from Japan, China, Korea, Philippines, etc.)
    South Asian (from India, Pakistan, Bangladesh, etc.)
    African (NOT African-American)
    Other
    Don't know
    Refused
	What race are you?
	(DO NOT READ LIST; CHECK ALL THAT APPLY)
	    White or Caucasian
	    Black or African-American
	    Hispanic or Latino
	    Native American or Alaskan native or Aleutian
	    Native Hawaiian
	    Middle Eastern
	    East Asian (from Japan, China, Korea, Philippines, etc.)
	    South Asian (from India, Pakistan, Bangladesh, etc.)
	    African (NOT African-American)
	    Other
	    Don't know
	    Refused

What is your age? (ENTER AGE)	

What is your gender?
    (ENTER GENDER)
	What is your gender?
	    (ENTER GENDER)

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Interest in Hunting, Fishing, and Shooting Activities and Self-Identification as a Hunter, Shooter, or Angler (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**
[The four participation questions are randomized so that they are not presented in the same order.]	

[All of the "How interested" questions have the answer set shown below.]
  Very interested
  Somewhat interested
  Not at all interested
  Don't know
	[All of the "How interested" questions have the answer set shown below.]
	  A lot
	  A little
	  Not at all
	  Don't know

How interested would you say you currently are in HUNTING? Are you very interested, somewhat interested, or not at all interested?	How interested are you in HUNTING? Are you interested a lot, a little, or not at all?
How about FISHING? (How interested would you say you currently are in FISHING?)	How interested are you in FISHING? (Are you interested a lot, a little, or not at all?)
How about SHOOTING? (How interested would you say you currently are in SHOOTING?)	How interested are you in SHOOTING, that is shooting at a target, such as a bullseye, other paper target, or soda cans? (Are you interested a lot, a little, or not at all?)
How interested would you say you currently are in ARCHERY? Are you very interested, somewhat interested, or not at all interested?	How interested are you in ARCHERY? Are you interested a lot, a little, or not at all?
[These four questions use the same randomization as the questions above.]	

[All of the "Do you consider yourself" questions have the answer set shown below.]
  Yes
  No
  Don't know
	[All of the "Are you a" questions have the answer set shown below.]
	  Yes
	  No
	  Don't know

Do you currently consider yourself a hunter?	Are you a hunter?
Do you currently consider yourself an angler? (IF DOES NOT KNOW TERM: A fisherman is an angler.)	Are you a fisherman?
Do you currently consider yourself a sport shooter?	Are you a shooter?
Do you currently consider yourself an archery participant?	Are you a archery shooter? (IF ASKED: Archery means shooting a bow and arrow.)

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Post-Program Participation in Hunting, Fishing, and Shooting Activities (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**

Please tell me if you have participated in each of the following activities SINCE you completed the [PROGRAM NAME] program. How about…? (READ LIST; CHECK ALL THAT APPLY)
    Hunting with a rifle or shotgun
    Bow hunting
    Target shooting with a rifle
    Target shooting with a handgun
    Trap shooting
    Skeet shooting
    Shooting sporting clays
    Archery target shooting
    Recreational freshwater fishing
    Recreational saltwater fishing
    None of these
	Please tell me if you done the following activities SINCE you finished the [PROGRAM NAME] program. (READ LIST; CHECK ALL THAT APPLY)
	    Hunting with a rifle or shotgun
	    Bow hunting (Hunting with a bow and arrow)
	    Target shooting with a rifle (Shooting a rifle at a target, such as a bullseye, other paper target, or soda cans.)
	    Target shooting with a handgun (Shooting a handgun at a target, such as a bullseye, other paper target, or soda cans.)
	    Trap shooting (A game of shotgun shooting at clay targets.)
	    Skeet shooting (A game of shotgun shooting at clay targets.)
	    Shooting sporting clays (A game of shotgun shooting at clay targets.)
	    Archery target shooting (Shooting a bow and arrow at a target, such as a bullseye or other paper target.)
	    Freshwater fishing (Fishing in rivers, streams, lakes, or ponds.)
	    Saltwater fishing (Fishing in the ocean or a bay.)
	    None of these

[IF HAVE NOT PARTICIPATED SINCE FINISHING PROGRAM]
What are the main reasons you have not participated in any [HUNTING / FISHING / SHOOTING / ARCHERY] activities since completing the program? (DO NOT READ LIST; CHECK ALL THAT APPLY) (SUGGESTED ANSWER OPTIONS)
    Have not yet but plan to
    Didn't want to go
    Didn't have anyone to go with
    Didn't know where / have anywhere to go
    Didn't have any way to get there
    Didn't have enough time
    Had other interests / hobbies
    Thought hunting / fishing / shooting is boring
    Thought hunting / fishing / shooting is too dangerous
    Hunting / fishing / shooting equipment cost too much
    Hunting license cost too much
    Other (ENTER OTHER)
    Don't know
	[IF HAVE NOT PARTICIPATED SINCE FINISHING PROGRAM]
	Can you please tell me why you have not been [HUNTING / FISHING / SHOOTING / ARCHERY] since finishing the program? (DO NOT READ LIST; CHECK ALL THAT APPLY) (SUGGESTED ANSWER OPTIONS)
	    Have not yet but plan to
	    Didn't want to go
	    Didn't have anyone to go with
	    Didn't know where / have anywhere to go
	    Didn't have any way to get there
	    Didn't have enough time
	    Had other interests / hobbies
	    Thought hunting / fishing / shooting is boring
	    Thought hunting / fishing / shooting is too dangerous / scary
	    Don't like guns
	    Scared of guns
	    Parents wouldn't let me
	    Not a "cool" thing or activity to do
	    Hunting / fishing / shooting equipment cost too much
	    Hunting / fishing license cost too much
	    Other (ENTER OTHER)
	    Don't know

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Post-Program Participation in Hunting, Fishing, and Shooting Activities (continued) (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**

[IF PARTICIPATED IN ONE OR MORE HUNTING ACTIVITIES] How would you rate your expertise as a HUNTER?
    Beginner
    Intermediate
    Advanced
    Don't know
	[IF PARTICIPATED IN ONE OR MORE HUNTING ACTIVITIES] How would you rate your skill as a HUNTER? Would you say you are a beginner, intermediate, or advanced hunter?
	    Beginner
	    Intermediate
	    Advanced
	    Don't know

[IF PARTICIPATED IN ONE OR MORE FISHING ACTIVITIES] How would you rate your expertise as an ANGLER?
    Beginner
    Intermediate
    Advanced
    Don't know
	[IF PARTICIPATED IN ONE OR MORE FISHING ACTIVITIES] How would you rate your skill as an ANGLER or FISHERMAN? Would you say you are a beginner, intermediate, or advanced angler?
	    Beginner
	    Intermediate
	    Advanced
	    Don't know

[IF PARTICIPATED IN ONE OR MORE SHOOTING ACTIVITIES] How would you rate your expertise as a SHOOTER?
    Beginner
    Intermediate
    Advanced
    Don't know
	[IF PARTICIPATED IN ONE OR MORE SHOOTING ACTIVITIES] How would you rate your skill as a SHOOTER? Would you say you are a beginner, intermediate, or advanced shooter?
	    Beginner
	    Intermediate
	    Advanced
	    Don't know

[IF PARTICIPATED IN ONE OR MORE ARCHERY ACTIVITIES] How would you rate your expertise as a an ARCHER?
    Beginner
    Intermediate
    Advanced
    Don't know
	[IF PARTICIPATED IN ONE OR MORE ARCHERY ACTIVITIES] How would you rate your skill as a BOW AND ARROW shooter? Would you say you are a beginner, intermediate, or advanced bow and arrow shooter?
	    Beginner
	    Intermediate
	    Advanced
	    Don't know

Would you say your participation in [HUNTING / FISHING / SHOOTING] activities in general has increased, stayed about the same, or decreased SINCE participating in the [PROGRAM NAME] program?
    Increased
    Stayed about the same
    Decreased
    Don't know
	Do you [HUNT / FISH / SHOOT] more, about the same, or less SINCE you finished the [PROGRAM NAME] program?
	    Increased
	    Stayed about the same
	    Decreased
	    Don't know

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Likelihood of Future Participation (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**

[Hunting, fishing, and shooting questions would be randomized. All of the likelihood questions have the answer set shown below.]
     Very likely
     Somewhat likely
     Not at all likely
     Don't know	

How likely are you to go HUNTING in the next 12 months?	How likely are you to go HUNTING in the next year?
[IF NOT AT ALL LIKELY TO GO] How about in the next 5 years?	
How likely are you to go FISHING in the next 12 months?	How likely are you to go FISHING in the next year?
[IF NOT AT ALL LIKELY TO GO] How about in the next 5 years?	
How likely are you to go SHOOTING in the next 12 months?	How likely are you to go SHOOTING in the next year?
[IF NOT AT ALL LIKELY TO GO] How about in the next 5 years?	
How likely are you to participate in ARCHERY in the next 12 months?	How likely are you to go shooting a BOW AND ARROW in the next year?
[IF NOT AT ALL LIKELY TO GO] How about in the next 5 years?	

Participation in Other Hunting, Fishing, and Shooting Programs (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**

How likely are you to participate in another [HUNTING / FISHING / SHOOTING / ARCHERY] program in the future?
     Very likely
     Somewhat likely
     Not at all likely
     Don't know
	How likely are you to take or sign up for another [HUNTING / FISHING / SHOOTING / ARCHERY] program in the future?
	     Very likely
	     Somewhat likely
	     Not at all likely
	     Don't know

Attitudes Toward Hunting, Fishing, and Shooting in General (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**
[The three support/oppose or approve/disapprove questions are randomized so that they are not presented in the same order.]	

[All of these questions have the answer set shown below.]
     Strongly support
     Moderately support
     Neither support nor oppose
     Moderately oppose
     Strongly oppose
     Don't know	

In general, do you support or oppose legal, regulated hunting?	Do you approve or disapprove of hunting when it is legal to do so?
Do you support or oppose legal, recreational fishing?	Do you approve or disapprove of fishing when it is legal to do so?
Do you support or oppose target or sport shooting?	Do you approve or disapprove of target or sport shooting?

Template on this page taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Attitudes Toward Stewardship and Conservation (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**

[All of these questions have the answer set shown below.]
    Extremely important
    Very important
    Somewhat important
    Slightly important
    Not at all important
    Don't know	

How important is it to you that natural areas exist for enjoying and experiencing nature?	How important is it to you that there are natural areas, like woods, forests, fields, and rivers, where people can visit and to enjoy or have fun?
How important is it to you personally for YOU to enjoy and experience nature?	How important is it to you that YOU personally get the chance to visit and enjoy natural areas like woods, forests, fields, or rivers?
How important is it to you that fish and wildlife resources and habitat are properly managed and conserved?	How important is it to you that fish and wild animals are taken care of and the areas where they live are protected?
How important is it to you personally to participate in efforts to conserve fish and wildlife resources and habitat in your area?	How important is it to you to do things to help take care of fish and wildlife and to protect the areas where they live?
How important is it to you to think about how YOUR activities might affect fish and wildlife and their habitat?	How important is it to you to think about how YOUR activities and the things you do might help or harm fish, wild animals, and the areas where they live?
How important is it to you personally that YOU act responsibly in the field while hunting, shooting, or fishing?	How important is it to you to be responsible when you are hunting, shooting, or fishing?
How important is it to you personally to VOICE YOUR OPINION in support of conservation of fish and wildlife resources and habitat, such as writing a letter to a government official or representative?	How important is it to you to tell other people what you think could be done to help take care of fish and wild animals and to protect the areas where they live? For example, maybe telling a teacher or writing to your congressman about an idea to clean up a stream.
How important is it to you personally to TAKE ACTION in support of the conservation of fish and wildlife resources and habitat, such as participating in activities like cleaning up a waterway?	How important is it to you to do something that helps take care fish and wild animals or to protect the areas where they live? For example, actually helping a group or club clean up a stream or pick up litter?
How important is it to you that fish and wildlife resources are being properly managed and conserved?	How important is it to you that fish and wild animals are taken care of in the best way possible?
How important is it to you that fish and wildlife resources and habitat are conserved for future generations?	How important is it to you that fish and wild animals are taken care of and the areas where they live are protected so that people in the future will be able to enjoy them?

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Ratings of Knowledge About Hunting, Shooting, Fishing, Their State Agency, and Related Issues (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**

[All of the knowledge questions have the answer set shown below.]
   A great deal
   A moderate amount
   A little
   Nothing at all
   Don't know
	[All of the knowledge questions have the answer set shown below.]
	   A lot
	   A little
	   Nothing at all
	   Don't know

How much would you say the [PROGRAM NAME] program increased your knowledge about each of the following? Would you say the program increased your knowledge a great deal, a moderate amount, a little, or not at all? [HUNTING / FISHING / SHOOTING / ARCHERY] in general [HUNTING / FISHING / SHOOTING / ARCHERY] equipment [HUNTING / FISHING / SHOOTING / ARCHERY] methods Where to go to [HUNT / FISH / SHOOT / participate in ARCHERY] [HUNTING / FISHING / SHOOTING / ARCHERY] opportunities [HUNTING / FISHING / SHOOTING / ARCHERY] safety [HUNTING / FISHING / SHOOTING / ARCHERY] ethics Conservation Fish and wildlife management	How much did the [PROGRAM NAME] program teach you about each of the following? Would you say the program taught you a lot, a little, or nothing at all? [HUNTING / FISHING / SHOOTING / SHOOTING A BOW AND ARROW] in general [HUNTING / FISHING / SHOOTING / ARCHERY] equipment [HUNTING / FISHING / SHOOTING / ARCHERY] methods (IF ASKED: Methods mean different ways or techniques for HUNTING / FISHING / SHOOTING / SHOOTING A BOW AND ARROW].) Where to go to [HUNT / FISH / SHOOT / shoot a BOW AND ARROW] [HUNTING / FISHING / SHOOTING / ARCHERY] opportunities, that is, where and when to go [HUNTING / FISHING / SHOOTING / ARCHERY] safety [HUNTING / FISHING / SHOOTING / ARCHERY] ethics, that is, appropriate and considerate behavior Conservation Fish and wildlife management

Which government agency would you say is most responsible for managing hunting and fishing in [STATE OF RESIDENCE]?
 	
   (ENTER NAME)
	Can you name the government agency or organization that manages hunting and fishing in [STATE OF RESIDENCE]? (Manages means selling hunting and fishing licenses, making hunting and fishing laws and regulations, and taking care of other areas of fish and wildlife.)
	
	   (ENTER NAME)

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Ratings of Knowledge About Hunting, Shooting, Fishing, Their State Agency, and Related Issues (continued) (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**
The [STATE AGENCY NAME] is responsible for managing hunting and fishing in [STATE OF RESIDENCE]. How much would you say the [PROGRAM NAME] program increased your knowledge about the [STATE AGENCY NAME]? 　A great deal 　A moderate amount 　A little 　Not at all 　Don't know	The [STATE AGENCY NAME] manages hunting and fishing in [STATE OF RESIDENCE]. How much would you say the [PROGRAM NAME] program taught you about the [STATE AGENCY NAME]? 　A lot 　A little 　Nothing at all 　Don't know
How do you think the [STATE AGENCY NAME] is funded? (SUGGESTED ANSWER OPTIONS, NOT NECESSARILY TO BE READ OR SHOWN TO RESPONDENT; CHECK ALL THAT APPLY) 　Taxes (nothing specific) 　Hunting and fishing licenses 　Excise taxes on hunting and fishing equipment 　Taxes on motorboat fuel 　General state revenue 　General federal revenue 　State income tax check-off / nongame donations 　Fines 　Don't know 　Other　(ENTER OTHER)	

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Purchase or Acquisition of Equipment After Program (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**
Have you purchased any HUNTING equipment SINCE you completed the [PROGRAM NAME] program that you would not have otherwise purchased? 　Yes 　No 　Don't know	Have you gotten any HUNTING equipment SINCE you finished the [PROGRAM NAME] program? 　Yes 　No 　Don't know
[IF PURCHASED HUNTING EQUIPMENT] About what were your total expenses for this equipment? 　(ENTER AMOUNT)	

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Purchase or Acquisition of Equipment After Program (Post-Program Survey) (continued)	
Adult Question Wording	**Youth Question Wording**
Have you purchased any FISHING equipment SINCE you completed the [PROGRAM NAME] program that you would not have otherwise purchased? 　　Yes 　　No 　　Don't know	Have you gotten any FISHING equipment SINCE you finished the [PROGRAM NAME] program? 　　Yes 　　No 　　Don't know
[IF PURCHASED FISHING EQUIPMENT] About what were your total expenses for this equipment? 　　(ENTER AMOUNT)	
Have you purchased any SHOOTING equipment SINCE you completed the [PROGRAM NAME] program that you would not have otherwise purchased? 　　Yes 　　No 　　Don't know	Have you gotten any SHOOTING equipment SINCE you finished the [PROGRAM NAME] program? 　　Yes 　　No 　　Don't know
[IF PURCHASED SHOOTING EQUIPMENT] About what were your total expenses for this equipment? 　　(ENTER AMOUNT)	
Have you purchased any ARCHERY equipment SINCE you completed the [PROGRAM NAME] program that you would not have otherwise purchased? 　　Yes 　　No 　　Don't know	Have you gotten any ARCHERY equipment SINCE you finished the [PROGRAM NAME] program? 　　Yes 　　No 　　Don't know
[IF PURCHASED ARCHERY EQUIPMENT] About what were your total expenses for this equipment? 　　(ENTER AMOUNT)	

Purchase of Licenses (Post-Program Survey)
Adult Question Wording (youth are not asked)
Have you bought or do you plan to buy a HUNTING license SINCE you completed the program? 　　Yes, have bought a license 　　Yes, plan to buy a license 　　No, have not bought nor plan to buy license 　　Don't know
[IF BOUGHT A HUNTING LICENSE] Did you purchase a [STATE OF RESIDENCE] license, an out-of-state HUNTING license, or both since you completed the program? 　　State license only 　　Out-of-state license only 　　Both 　　Don't know

Purchase of Licenses (Post-Program Survey) (continued)
Adult Question Wording (youth are not asked)
Have you bought or do you plan to buy a FISHING license SINCE you completed the program? Yes, have bought a license Yes, plan to buy a license No, have not bought nor plan to buy license Don't know
[IF BOUGHT A FISHING LICENSE] Did you purchase a [STATE OF RESIDENCE] license, an out-of-state FISHING license, or both since you completed the program? State license only Out-of-state license only Both Don't know

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Membership in Sportsmen's and Conservation Organizations (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**
Have you become a member of or donated to any SPORTSMEN'S organizations SINCE you completed the program? Yes No Don't know	Have you joined any clubs or groups that do outdoor activities, such as hunting, shooting, fishing, archery, camping, or hiking, SINCE you finished the program? Yes No Don't know
Have you become a member of or donated to any CONSERVATION organizations SINCE you completed the program? Yes No Don't know	

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Program Ratings, Characteristics, and Preferences (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**

What were your main reasons for participating in the program?
 	
(DO NOT READ LIST; CHECK ALL THAT APPLY)
    To improve hunting skills
    To improve shooting skills
    To improve fishing skills
    To satisfy hunting / shooting education requirement / certification
    To attend with / introduce friend / family member to hunting / fishing / shooting
    To meet other people
    Other (ENTER OTHER)
	What were your main reasons for taking the program?
	
	(DO NOT READ LIST; CHECK ALL THAT APPLY)
	    To improve hunting skills / learn how to hunt / hunt better
	    To improve shooting skills / learn how to shoot / shoot better
	    To improve fishing skills / learn how to fish / fish better
	    To satisfy hunting / shooting education requirement / certification
	    Required by my school
	    To attend with / introduce friend / family member to hunting / fishing / shooting
	    Because a friend / family member wanted me to
	    To try hunting / fishing / shooting
	    To meet other people
	    Because I was curious about or interested in hunting / fishing / shooting
	    To see what I might be missing by not participating in hunting / fishing / shooting
	    Other (ENTER OTHER)
	    Don't know

Overall, how would you rate the program? Would you say it was excellent, good, fair, or poor?
    Excellent
    Good
    Fair
    Poor
    Don't know
	Overall, how much did you like the program?
	    A lot
	    A little
	    Not at all
	    Don't know

How much did the program increase your interest in HUNTING? Would you say a great deal, a moderate amount, a little, or not at all?
    A great deal
    A moderate amount
    A little
    Not at all
    Don't know
	Did the program make you more interested, about the same, or less interested in HUNTING?
	    A lot more interested
	    A little more interested
	    About the same
	    Less interested
	    Don't know

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

| Program Ratings, Characteristics, and Preferences (continued) (Post-Program Survey) ||
Adult Question Wording	Youth Question Wording

[All of the interest questions have the answer set shown below.]
    A great deal
    A moderate amount
    A little
    Nothing at all
    Don't know
	[All of the interest questions have the answer set shown below.]
	    A lot more interested
	    A little more interested
	    About the same
	    Less interested
	    Don't know

How much did the program help you improve your [HUNTING / FISHING / SHOOTING / ARCHERY] skills?	Did your [HUNTING / FISHING / SHOOTING / ARCHERY] skills get better while taking the program?
How much did the program increase your interest in HUNTING? Would you say a great deal, a moderate amount, a little, or not at all?	Did the program make you more interested, about the same, or less interested in HUNTING?
How much did the program increase your interest in FISHING? Would you say a great deal, a moderate amount, a little, or not at all?	Did the program make you more interested, about the same, or less interested in FISHING?
How much did the program increase your interest in SHOOTING? Would you say a great deal, a moderate amount, a little, or not at all?	Did the program make you more interested, about the same, or less interested in SHOOTING?
How much did the program increase your interest in ARCHERY? Would you say a great deal, a moderate amount, a little, or not at all?	Did the program make you more interested, about the same, or less interested in shooting a BOW AND ARROW?
How much did the program help you increase your confidence when [HUNTING / FISHING / SHOOTING / participating in ARCHERY]?	Do you feel more confident, about the same, or less confident when [HUNTING / FISHING / SHOOTING / shooting a BOW AND ARROW] since you finished the program?

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Program Ratings, Characteristics, and Preferences (continued) (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**

[All of the aspects that are rated have the answer set shown below.]
    Excellent
    Good
    Fair
    Poor
    Not applicable
    Don't know
	[All of the aspects that are rated have the answer set shown below.]
	    A lot
	    A little
	    Not at all
	    Not applicable
	    Don't know

How would you rate each of the following aspects of the program? (Would you rate this aspect of the program as excellent, good, fair, or poor?)
 	
(LIST OF ASPECTS)
    Instructor
    Location
    Program facilities
    Organization of the program
    Cost of the program
    Quality of information presented
    Amount of information presented
    Usefulness or practicality of information presented
    Equipment provided
    Time provided to practice skills
    Time provided to ask questions
    Quality of responses to questions
	How much did you like each of the following parts of the program? (Did you like this part of the program a lot, a little, or not at all?)
	
	(LIST OF ASPECTS)
	    Instructor or teacher
	    City, town, or neighborhood where the program was taught
	    Building or outdoor area where the program was taught
	    Way the program was taught
	    Quality of information taught
	    Amount of information taught
	    Usefulness of information taught
	    Equipment provided for the program
	    Amount of time you had to practice skills
	    Amount of time you had to ask questions
	    Answers to your questions
	    Preparing you to [HUNT / FISH / SHOOT] on your own or with your family
	    Time of the year the program was held (for example, winter, spring, summer, or fall)
	    Time of the day the program was held (for example, morning, afternoon, or night)

Was the instructor male or female?
    Male
    Female
    Don't know
	Was the instructor or teacher male or female?
	    Male
	    Female
	    Don't know

How long was the program?
    2 to 3 hours
    Half a day
    1 day
    2 days
    3 days
    More than 3 days
    Don't know
	How long was the program?
	    2 to 3 hours
	    Half a day
	    1 day
	    2 days
	    3 days
	    More than 3 days
	    Don't know

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

Program Ratings, Characteristics, and Preferences (continued) (Post-Program Survey)	
Adult Question Wording	**Youth Question Wording**

Would you say the program was too long, about the right length, or too short?
    Too long
    About the right length
    Too short
    Don't know
	Would you say the program was too long, about the right length, or too short?
	    Too long
	    About the right length
	    Too short
	    Don't know

How long do you think the program should be?
    2 to 3 hours
    Half a day
    1 day
    2 days
    3 days
    More than 3 days
    Don't know
	How long do you think the program should be?
	    2 to 3 hours
	    Half a day
	    1 day
	    2 days
	    3 days
	    More than 3 days
	    Don't know

Do you think the program should be on weekends only, weekdays only, or a combination of both?
    Weekends only (IF ASKED: Saturdays and/or Sundays)
    Weekdays only (IF ASKED: Mondays – Fridays, one or more days)
    Combination of both
    Don't know
	Do you think the program should be on weekends only, weekdays only, or a combination of both?
	    Weekends only (IF ASKED: Saturdays and/or Sundays)
	    Weekdays only (IF ASKED: Mondays – Fridays, one or more days)
	    Combination of both
	    Don't know

About how many participants would you say there were in the program you participated in?
    (ENTER NUMBER OF PARTICIPANTS)
	About how many students were in the program you were in?
	    (ENTER NUMBER OF PARTICIPANTS)

In your opinion, was the number of participants in the program too many, about the right number, or too few?
    Too many
    About the right number
    Too few
    Don't know
	Do you think there were too many, about the right number, or too few students in the program?
	    Too many
	    About the right number
	    Too few
	    Don't know

In your opinion, was the program content too advanced, about the right skill level, or too novice?
    Too advanced
    About the right skill level
    Too novice
    Don't know
	Was the information taught in the program too hard, about right, or too easy?
	    Too hard
	    About right
	    Too easy
	    Don't know

In your opinion, did the program provide too many, about the right amount, or too few hands-on opportunities?
    Too many
    About the right amount
    Too few
    Don't know
	Did the program have too many, about the right amount, or too few opportunities or chances to practice what you were learning?
	    Too many
	    About the right amount
	    Too few
	    Don't know

Template taken from surveys conducted for the project, *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs*, developed by Responsive Management and the National Wild Turkey Federation.

CHAPTER 3: TARGET MARKETS AND IMPROVING SOURCES OF INFORMATION FOR PARTICIPANTS

CHAPTER OVERVIEW

➢ **Past studies found that about 2 in 5 state residents can name their state fish and wildlife agency (or a close enough derivative). This obviously varies substantially from state to state. Also, about a fifth to a quarter of state residents in past studies said that they knew a great deal or a moderate amount about their state's fish and wildlife agency. Together, the results suggest that the public is largely ill-informed about their state's fish and wildlife agency.**

➢ **Some R3 programs have increased name recognition of the state's fish and wildlife agency among participants, a positive aspect of the R3 programs. Programs should strive, in the course of their other activities, to increase agency name recognition.**

➢ **Awareness of R3 programs in general is low. In one study, the majority of hunters and shooters, for instance, could *not* name a program encouraging participation in their sport.**

➢ **An analysis of R3 programs participants suggests that the most typical youth participant is a male youth from 10 to 12 years old, white, from a small city or town. Nonetheless, about a quarter of youth were female. Additionally, suburban or large city/urban area youth made up about a quarter of program participants.**

➢ **Adult program participants were more diverse, with about half being female, and well more than a third living in suburban areas or large city/urban areas.**

➢ **For the most part, youth in R3 programs are being drawn from families in which another member hunts, fishes, or sport shoots: 87% of them in one study that examined the demographic characteristics of participants in more than 60 programs. Among adults in the same study, 73% had a family member who hunts, fishes, or sport shoots.**

➢ **A marketing approach to R3 programs is essential; a marketing approach is a process with (at least) four-steps: a situational assessment to see where the agency/organization is, the development of a marketing objective that sees where the agency/organization wants to be, the development and implementation of the marketing strategy to get the agency/organization there, and then an assessment of the effort to see if the marketing strategy got the agency/organization to the objectives.**

➢ **The general public, or any other group such as hunters, anglers, sport shooters, or archers, is not homogenous. There may be traits that are more common with one group, but there is a danger in stereotyping, as any such group is really a collection of subsets. The developers of R3 programs need to consider their specific target markets—non-participant, lapsed, sporadic, avid, and very avid groups will probably all respond to different themes or actions and should each be approached uniquely.**

➢ **The last part of this chapter contains a collection of R3 program assessments showing the effectiveness of programs and detailing the pros and cons of each program. In part because of the issues detailed in the previous bullet—the diversity of subsets within any group—it is difficult to make broad statements about what outreach or programs will work across the board. Instead, the case studies are useful for those developing or managing similar R3 programs. Nonetheless, a few findings emerged.**

➢ **A commonality of successful programs is that they were fairly narrowly targeted. Programs aimed at a wide general audience do not do as well as those more narrowly focused. A corollary to this is that there is no one-size-fits-all program that will be successful everywhere to every audience.**

➢ **Email was often the most cost-effective because of its low cost, compared to mailings or media buys.**

➢ **Direct mail is expensive and so, therefore, is cost-effective if narrowly focused rather than sent out to a wide, general audience.**

➢ **Television and radio are effective, in general, but expensive as well.
No definite conclusions were reached regarding this media.**

➢ **No themes emerged as universally effective. So much depends on
state and local conditions that any definitive statement on themes is
perilous. (That being said, the terms "environment" and
"environmental" do not resonate well, particularly with hunters.)**

This chapter looks at two related topics—target markets and sources of
information. They are related in that the sources of information used for
outreach are not independent of identifying the target market intended for
the outreach. For this reason, this chapter examines both of these related
topics together.

3.1. AWARENESS OF R3 PROGRAMS AND EFFORTS

Before examining awareness of R3 programs themselves, this report takes a
step back to first look at awareness of state fish and wildlife agencies.
Studies in the past decade found that only 16% of residents in northeastern
states[110] could correctly name the state agency most responsible for
managing and protecting fish and wildlife in the state, and another 25%
named a close derivative of the name (a sum of 41%). In that same study,
northeastern state residents were also asked to self-rate their knowledge
level about their state's fish and wildlife agency, and only 19% knew a
great deal or a moderate amount about their state agency (Figure 3.1.1).

**Figure 3.1.1. Knowledge of State's Fish and Wildlife Agency in
the Northeast**[111]

**The [AGENCY] is responsible for
managing and protecting fish and
wildlife in [STATE]. Before this survey,
would you say you knew a great deal, a
moderate amount, a little, or nothing
about the [AGENCY]?**

A great deal — 4
A moderate amount — 15
A little — 42
Nothing — 36
Don't know — 3

Percent

The survey used the name of the state agency in the question wording and the name of the state for each respondent; for instance, in Virginia, the question would have been worded, "The Virginia Department of Game and Inland Fisheries is responsible for managing and protecting fish and wildlife in Virginia. Before this survey, would you say you knew a great deal, a moderate amount, a little, or nothing about the Virginia Department of Game and Inland Fisheries?"

A similar line of questioning was used in a survey of residents of southeastern states.[112] In this survey, 20% of residents named the correct agency, and another 18% named a close derivative (a sum of 38%). Additionally, 7% knew (prior to the survey) a great deal and 19% knew a moderate amount about the agency, which sums to 26% (Figure 3.1.2).

Figure 3.1.2. Knowledge of State's Fish and Wildlife Agency in the Southeast[113]
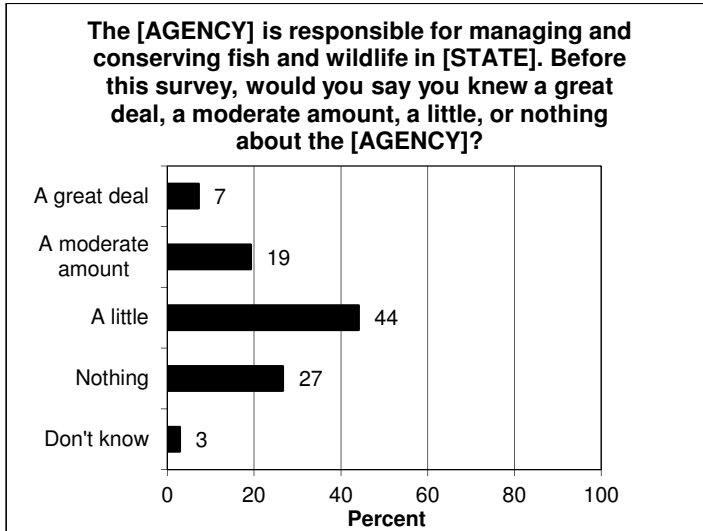
More recently, a survey for a study of human-wildlife conflicts[114] in the northeastern states also asked about awareness of the state agency. This study found that 29% of northeastern state residents could name their state agency most responsible for managing wildlife in their state, and another 15% gave an essentially correct derivative of the agency name (this sums to 43%; rounding causes the apparent discrepancy in the sum, as the calculation was made on unrounded numbers). Those who had experienced damage from wildlife were slightly more likely to be able to name the agency (32% of those experiencing damage gave the correct name, and another 14% gave a close derivative).

There have been efforts to increase the public's awareness of agencies. A 2014 study[115] found positive results, indicating that R3 "programs are facilitating substantial increases in name-recognition awareness and knowledge of the state agencies responsible for managing hunting and fishing. Many programs demonstrated increases in excess of twenty-five percentage points between the pre- and post-program surveys, indicating that involvement in programs is noticeably helping to increase this awareness." This report went on to say that, in general, "state hunter education courses appeared to be among the most effective programs for generating awareness of the agency responsible for managing hunting, fishing, and wildlife management." Note, of course, that these increases in

awareness are among program participants (of the many programs that were examined in the study), not the general public. Nonetheless, the increase in awareness among participants is a positive sign.

In particular, several of the programs that were examined in the aforementioned 2014 study[116] were effective at increasing youth participants' knowledge of the state agency responsible for managing hunting and fishing in the state (Table 3.1.1). The positive gain in awareness was as much as 41% among the youth in the program, going from 24% of youth participants (in the top-ranked program in the table) before the program to 65% of them after the program who could correctly name the agency responsible for managing hunting and fishing in the state.

Table 3.1.1. Top Five Youth Programs for Increasing Knowledge of the State Agency[117]

Program	Percent who correctly named the government agency responsible for managing hunting and fishing in the state		Percent Gain
	Pre-Program Survey	Post-Program Survey	
Arizona Hunter Education	24	65	41
Kentucky Mentor-Youth Dove Hunt	27	67	40
Kentucky Conservation Camp	0	39	39
Allamakee Community School District's Conservation Club	38	75	*38
Arizona Wapiti Weekend	26	63	37
*Rounding to the nearest integer causes apparent discrepancy in the calculation of the difference.			

This same study also looked at awareness of the agency by adults who had participated in R3 programs (including those programs in which youth and adults participated together). It found an increase of as much as 38%, as shown in Table 3.1.2.

Table 3.1.2. Top Six Adult Programs for Increasing Knowledge of the State Agency[118]

Program	Percent who correctly named the government agency responsible for managing hunting and fishing in the state		Percent Gain
	Pre-Program Survey	Post-Program Survey	
Ladies Let's Go Fishing	31	69	38
Louisiana Women in the Wild Hunting Basics Workshop	63	94	31
Pennsylvania Family Fishing Program (2012/2013)	39	65	26
Becoming an Outdoors Woman*	40	58	18
Pennsylvania Three Rivers Challenge Fishing Program	33	47	**13
Wheelin' Sportsmen	75	88	13
*Sample pooled of several states that had this program. **Rounding to the nearest integer causes apparent discrepancy in the calculation of the difference.			

This handbook now turns its attention to awareness specifically of R3 programs. Past surveys have *not* found a high level of awareness. In one 2008 study,[119] just over half of active hunters (active in this study being defined as one who had hunted within the previous 2 years) were *not* aware of any programs that encourage hunters to hunt, and two-thirds of inactive hunters (being defined as having hunted at some time but not in the previous 2 years) were *not* aware (Figure 3.1.3). This same survey also asked sport shooters about awareness of programs encouraging shooting, with even more discouraging results: two-thirds of active sport shooters and three-fourths of inactive sport shooters were *not* aware of any such programs. Clearly, outreach regarding R3 programs still has much room for improvement in reaching participants.

Figure 3.1.3. Percentage Not Aware of Programs[120]

Percentage of hunters and sport shooters who are NOT aware of any programs encouraging participation in their sport.

Category	Percent
Active hunters	55
Inactive hunters	67
Active sport shooters	67
Inactive sport shooters	76
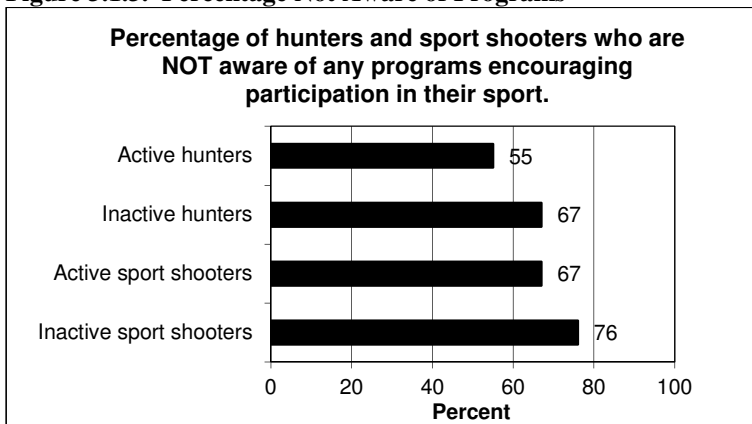
3.2. IDENTIFYING AUDIENCES TO TARGET FOR PROGRAMS AND EFFORTS

This section looks at the demographic makeup of R3 program participants in general. It then examines some non-traditional audiences that are targeted by some programs, such as those that cater to women or non-rural audiences. Only when the target market is identified can the best medium for outreach be selected.

GENERAL DEMOGRAPHIC MAKEUP OF PROGRAM PARTICIPANTS

A sampling of R3 programs was examined in a 2014 study.[121] While the sample was not truly random (it would be hard to even define what random would mean in trying to select programs to look at), it nonetheless consisted of 69 programs that were included in the study—a reasonably good representation from a selection of national and state-sponsored programs ranging in size and focus, and a large enough sample to be able to make some general statements. The analysis divided the samples into youth and adults, and the report first looks at youth who participated in the programs.

As Figure 3.2.1 shows, the most typical youth participant (using the mode as the "average") is a male youth from 10 to 12 years old, white, from a small city or town. The gender split favoring males is not surprising; nonetheless, there was a robust percentage of females involved. Age groups are fairly well distributed. Ethnicity results show that the overwhelming majority of R3 program participants are white, with very small minority participation. Finally, while rural farm and rural non-farm together (33%) and small city or town (38%) predominate, there is good representation from suburban areas (16%) and large cities (11%).

The adult demographic data are also shown. Unlike the youth programs, the adult participation is about evenly split between males (48%) and females (52%), and the age makeup of participants follows a bell curve, with the peak in the range of 35 to 45 years old (Figure 3.2.2). Like the youth participants, the adult participants are overwhelmingly white, again with little minority participation (Figure 3.2.3). The educational levels of adults are well distributed, with no one group predominating over the others (Figure 3.2.4). Lastly, Figure 3.2.5 shows that rural areas (27%), small cities/towns (32%), and suburban areas (24%) are all well-represented, with large cities (15%) having the lowest percentage.

Figure 3.2.1. Demographic Data on Youth Participants in R3 Programs[122]
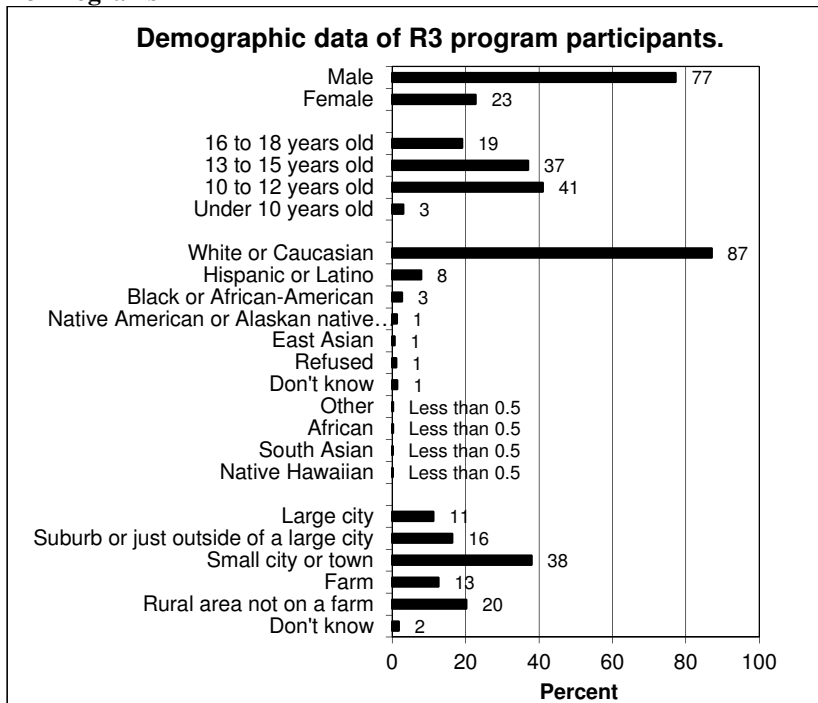
Truncated label is "Native American or Alaskan native or Aleutian."

**Acknowledging the Essential Marketing Guidelines of
"R3 Transformation"**

Brian Blank

In order to successfully achieve "R3 transformation," agencies, organizations, and industry groups must acknowledge the following five guidelines:

1. "Generational diversity" and the different ways in which various sub-groups of the general population congregate in the digital world must be understood.
2. Every dollar invested in youth recruitment at the expense of millennial recruitment is a dollar wasted.
3. Prioritizing investments in resources like biologists, tractors, and boats over adult recruitment programs is accelerating the demise of state agencies, making them poor stewards of those paying industry federal excise taxes.
4. Agencies that lack a full-blown marketing division staffed by experts who are afforded the same level of resources and respect as the wildlife, fisheries, information and education, and law enforcement divisions, will fail.
5. R3 programs cannot be maximized and the needle cannot truly be moved without the involvement of a professional marketing staff.

Adhering to these guidelines, the Kentucky Department of Fish and Wildlife Resources began offering formalized adult R3 courses in 2013. Hunting and fishing license sales revenues in subsequent years suggest the potential growing impact of these courses: $27.4 million in 2014, $28.9 million in 2015, and $29.6 million in 2016.

One example of how the Department markets its "Field to Fork" and "Hook and Cook" R3 programs to both current and future hunters and anglers is through banner advertisements at University of Kentucky basketball games. This approach is part of a comprehensive agency marketing plan that is present and active, formalized, strategic, converged, and both innovative and adaptive.

Brian Blank is the Director of Marketing for the Kentucky Department of Fish and Wildlife Resources. He received his bachelor's degree in history from Messiah College. His professional interests include social networking, community-based marketing, customer tracking, product evaluation, predictive analytics via big data mining, and customer recruitment and retention, including the use of grassroots efforts to reach new license buyers.

Figure 3.2.2. Gender and Age Data on Adult Participants in R3 Programs[123]
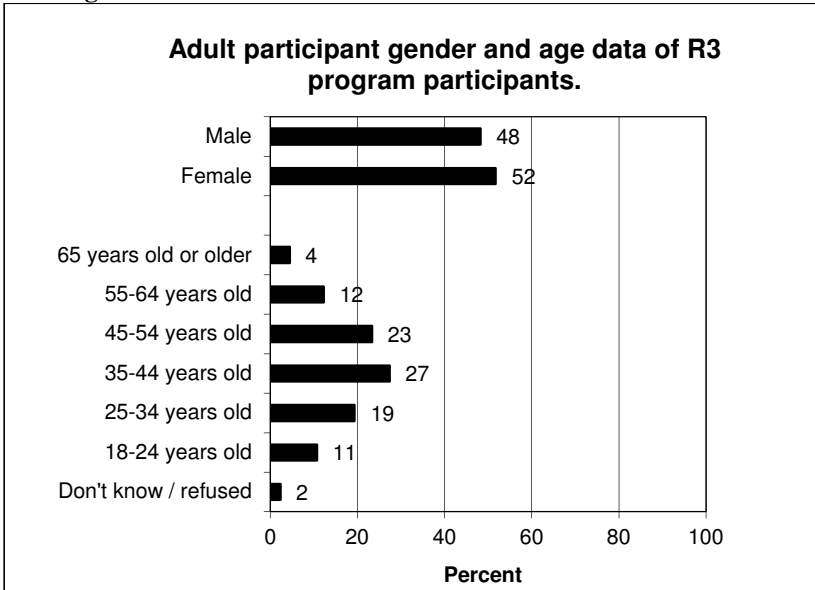
Figure 3.2.3. Ethnicity Data on Adult Participants in R3 Programs[124]
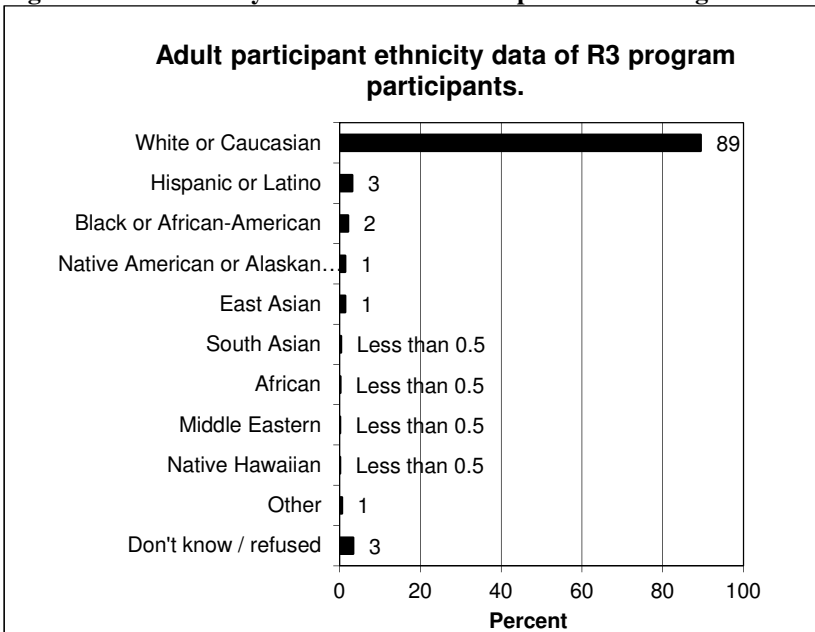
Truncated label is "Native American or Alaskan native or Aleutian."

Figure 3.2.4. Education Data on Adult Participants in R3 Programs[125]

Adult participant education data of R3 program participants.

Category	Percent
Not a high school graduate	3
High school graduate or equivalent	20
Some college or trade school, no degree	18
Associate's degree or trade school degree	12
Bachelor's degree	27
Master's degree	14
Professional or doctorate degree	4
Don't know / refused	2

Percent
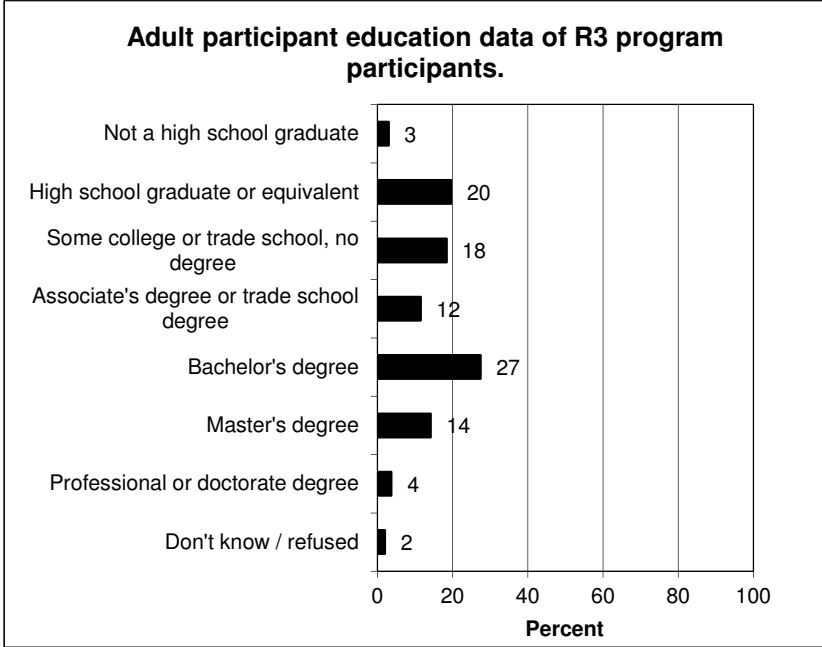
Figure 3.2.5. Residence Data on Adult Participants in R3 Programs[126]

Adult participant residence data of R3 program participants.

Category	Percent
Large city or urban area	15
Suburban area	24
Small city or town	32
Rural area on a farm or ranch	7
Rural area not on a farm or ranch	20
Don't know / refused	1

Percent
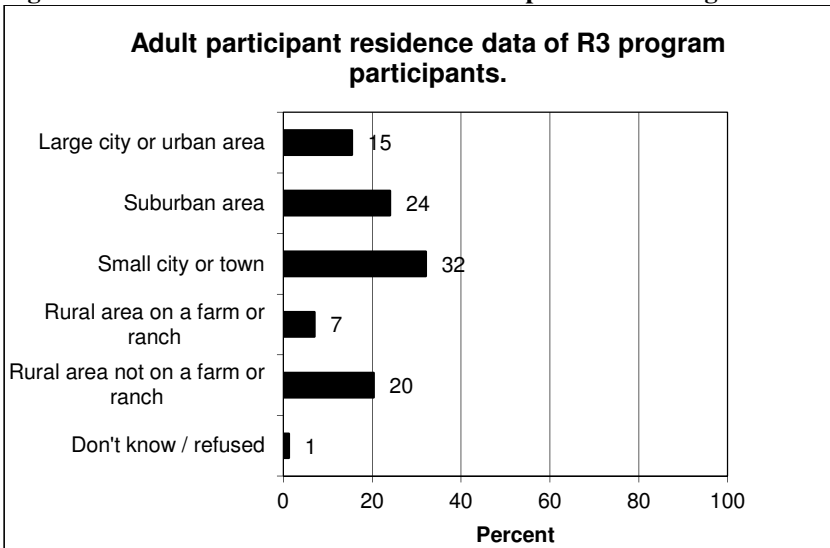
PREVIOUS EXPERIENCE OF PROGRAM PARTICIPANTS

In addition to strictly demographic information, the survey[127] for the aforementioned R3 program assessment looked at whether the participants came from hunting/fishing/shooting families. In this respect, the youth

participants are overwhelmingly "traditional" in that 87% of them had family members who hunted/fished/sport shot. The adult programs, though, had a slightly large share of those *without* family members doing the activity: 73% of adults had family members who hunted/fished/sport shot, but 26% did not. This latter 26% would be defined as a "non-traditional" adult audience.

Overwhelmingly, the R3 programs that were looked at drew from youth and adults with prior outdoor recreation experience. Figure 3.2.6 shows youths' activities, and Figure 3.2.7 shows adults' activities. In both, fishing predominates as a prior activity. Among youth, only 1% had *not* done any of the listed activities. Among adults, only 3% indicated that they had *not* done any of the listed activities. Although not shown on the graph, the surveys of youth and adults also found that 43% of each group had participated previously in an R3 program.

Figure 3.2.6. Prior Activities of Youth Participants in R3 Programs[128]

Have you ever done any of the following? (Youth.)

Activity	Percent
Freshwater fishing	89
Target shooting with a rifle	71
Hunting with a rifle or shotgun	65
Archery target shooting	61
Target shooting with a handgun	44
Trap shooting	43
Skeet shooting	42
Shooting sporting clays	39
Saltwater fishing	30
Bowhunting	26
None of these	1

Multiple Responses Allowed

Percent

Figure 3.2.7. Prior Activities of Adult Participants in R3 Programs[129]

Please tell me if you have ever participated in each of the following activities. (Adults.)

Activity	Percent
Recreational freshwater fishing	90
Target shooting with a rifle	69
Target shooting with a handgun	61
Hunting with a rifle or shotgun	55
Recreational saltwater fishing	54
Archery target shooting	51
Skeet shooting	41
Shooting sporting clays	39
Trap shooting	37
Bowhunting	26
None of these	3

Multiple Responses Allowed

97% participated in at least one outdoor activity

Lessons For Advancing The 3 Rs: Explain The Big Picture!

Michael Sabbeth

Several years ago, I took my son, Erik, then twenty, to shoot doves in Argentina. He shot many doves, but the lessons he learned were more meaningful than the challenges of the hunting experience. Our host explained how the doves annually destroyed tens of thousands of tons of grain, negatively impacting food prices. The dove shooting industry brought much-needed millions of dollars of revenue to Argentina, providing employment and increasing people's standards of living. The big picture was patiently explained.

During our trip, my host asked Erik if he wanted to hunt a barren aged female buffalo that was wounding younger buffalo and destroying property. Erik did. More than having a successful hunt, Erik entered the fire center of conservation, learning that romanticizing animals from

continued

afar often leads to policies that destroy them. He came to understand the brutal reality of wild animals' lives and that the cost of fantastical wishing that animals' lives were idyllic was the destruction of animals. Erik lived the counterintuitive truth that hunting sustains the animals.

The Big Picture

With guidance from me and our host, the big picture was persuasively presented to Erik. The ethos of hunting transcends the hunt. Inherent in hunting are layers of insight that merit acknowledgment and evaluation. The hunter, of course, should aspire to be ethical, and the well-educated hunter knows the big picture demands multi-level ethical duties to the land, to society, to one's self and, of course, to the animals.

But ethical behavior does not simply manifest like the crabgrass on my lawn. Ethical behavior is the consequence of personal honor and integrity, characteristics that must be taught and continuously nurtured. Presenting the big picture and developing a hunter's honor are the most effective methods for achieving the trilogy of the 3 Rs.

The primary skill required of the hunting advocate desiring to achieve the 3 Rs is discerning the potential hunter's deepest values and then persuasively showing how hunting harmonizes with those values and breathes life into them. Love of wildlife, wanting healthy sustainable animal populations, treating wild animals ethically, preserving and enriching habitat, consuming organic protein from the hunt: all these and others are virtues that hunting offers that are consistent with the values of the large majority of people. On the warp and woof of conversation and experience, Erik uncovered values previously unexplored but that were discovered as if mining them in a rich seam of ore. Illuminating this big picture component will advance the 3 Rs most successfully.

The North American Model of Wildlife Conservation offers an illustrative example for seeing the big picture. The Model is the foundation for hunting and game management in the United States. But the Model means nothing unless it is encased in our unique political economic system that values individual liberty, free markets, a somewhat transparent tax system that is reasonably honest, the right to possess and use firearms, and the ability to have leisure time to hunt. The willingness of each hunter and potential hunter to see his or her role in this big picture will be a powerful driving force for advancing the 3 Rs.

Most people place great trust in the positive impact in an argument of facts, logic, and science. Such trust is unjustified. Truth is not self-actualizing; reality does not advance itself like a steamroller; scientific evidence is worthless unless the audience is credibly persuaded that the evidence has value.

A vital component of the big picture is, thus, the articulate presentation that these truths matter. That is, that science and facts are consistent with the values of the potential or existing hunter. The success of implementing the 3 Rs is dependent largely on persuading people that truth is relevant to the audience's world view and self-image.

Similarly, the effective advancement of the 3 Rs will be achieved when ethics is transformed from an abstraction to tangible specific actions that support the values of the hunter and enhance hunting's honor.

As a rule, people are drawn to activities that enrich their lives, enhance their dignity, and make them better people. When Erik accompanies me on hunting events supporting Wounded Warriors and Paralyzed Veterans of America, as examples, he sees hunting in a broader context: achieving virtuous goals by helping others. Hunting makes Erik proud. His grasp of hunting's picture enlarges. He is inspired to be an advocate for hunting and a dedicated participant. Introduced to hunting by me and sharing values that we find virtuous, the experiences that provided direction and purpose in nurturing Erik's participation in hunting serve as an effective model for implementing the 3 Rs.

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3.3. A MARKETING APPROACH TO PROGRAMS AND EFFORTS

Marketing is too often equated with hard selling, cheap selling, or trickery; however, marketing as used in this handbook is not simply selling. A marketing expert, Phil Kotler,[130] notes that selling focuses on the needs and desires of the *seller*, while marketing considers the needs and desires of the potential *customers*. Rather than an approach of "selling" something that the customer may not really need, a marketing approach first identifies what the customer needs and then tailors the product to the needs.

Marketing is a deliberate and orderly process that begins with identified markets and ends with programs, products, services, and/or strategies. The marketing process assists agencies and organizations (hereinafter in this section, "organization" will be all-encompassing and include agencies or any entity of a similar nature) in making the right decisions because it takes them through a series of smaller decisions and information gathering efforts that assist in reaching the ultimate decision. In a marketing approach, the end program, product, service, or strategy becomes evident in the process.

Within the context of R3 programs, marketing is the deliberate and orderly step-by-step process of first defining what it is that is to be achieved; understanding and defining different groups of constituents (markets) through research; and then tailoring programs, products, and services to meet those needs through the manipulation of the marketing mix (marketing mix consisting of product, price, place, and promotion). The purpose of marketing in organizations is to both better meet the goals of the organization and to better meet the needs of its constituents to provide them with quality programs, products, and services.

THE MARKETING PROCESS

Successful marketing begins with the development of a quality marketing plan. A marketing plan spells out the goals, strategies, and tactics that the organization will use in reaching its objectives. The marketing process follows the standard format for good planning. It asks:

- Where are we now? (This is a situation assessment.)

- Where do we want to be? (This means developing precise objectives.)

- How will we get there? (Marketing strategies.)

- Did we get there? (Evaluation.)

SITUATION ASSESSMENT (WHERE ARE WE NOW?)

A situation assessment has the organization take a careful look at where it is at present. The elements[131] of the situation assessment include:

Mission Statement

Every natural resource and outdoor recreation organization should have a mission statement. A mission statement lets people know why the organization exists and what it is trying to achieve. Everything that follows in the marketing plan is based directly on the mission statement of the organization.

Goals

Goals define the management philosophies within which objectives are pursued. Goals are broad and lofty statements about the desired program outcome. For example, the goal of a natural resource or outdoor recreation organization might be to "increase the number of newly recruited anglers nationwide." Committing goals to paper becomes more important as one gets further into the marketing plan.

Business Identification

What exactly is one's business? A business should be defined based on a market need and not on a product that serves that need. For example, people choose to listen to music. This desire creates a market need. A product, such as a compact disc, is the result of how that market need is filled. Fulfilling this need led to the creation of 78 rpm records, then long-playing albums, then compact discs, and now online files. Again, there is an important distinction to make between the product used to deliver the music (e.g., record, compact disc, downloaded music file) and the market need itself (e.g., a customer's desire to listen to music). Phil Kotler[132] observed, "Products are transient, but basic market needs endure." When thinking strategically, focus on market needs not on products.

Identify Publics

There is no such thing as one "general public"; instead, the public is made up of many disparate groups and might better be thought of as plural: general publics Research indicates that people's relation to natural resource and outdoor recreation issues is affected by a variety of factors, including their age, ethnicity, gender, income, level of education, and other variables. A list of one's publics is important in identifying one's place in a particular market.

Choose Publics

A commonly heard phrase in marketing is that "you can't be all things to all people." Marketing means making choices, and making choices means deciding specifically which groups will be targeted. Different markets require different strategies. It is alright to choose more than one market to target, but it is important to keep in mind that each group may require different strategies.

Current Conditions

The trend-identification portion of the marketing process allows an organization to become proactive rather than reactive. Current conditions can be assessed by looking at opportunities and threats, which correspond to an organization's strengths and weaknesses. Some refer to this as a "SWOT" analysis, which refers to an analysis of Strengths, Weaknesses, Opportunities, and Threats (an example is shown in Figure 3.3.1).

Figure 3.3.1. SWOT Analysis Model[133]
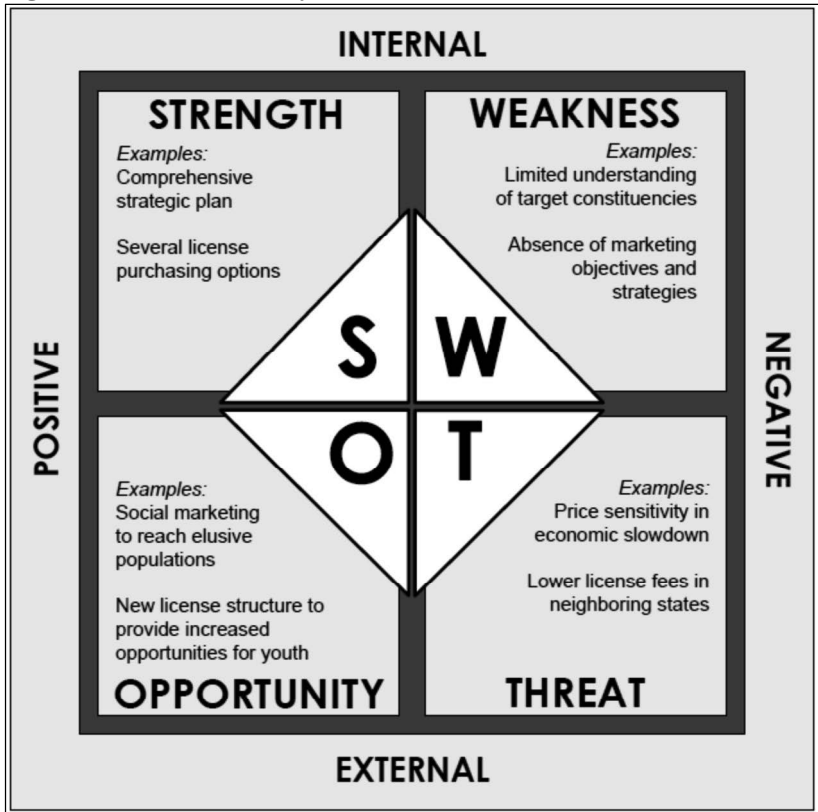
MARKETING OBJECTIVES (WHERE DO WE WANT TO BE?)

Once the situation assessment is complete, in which a natural resource or outdoor recreation organization identifies where it is, the next step is for the organization to decide where it wants to be. Objectives are directed toward the accomplishment of goals and are specific and measurable statements of what, when, and how much will be achieved.

Many programs and initiatives fail from the start because objectives are not agreed upon and written down by those involved. Overall, taking the time to complete a situation assessment is extremely valuable. After all, if an

organization does not know where it is or where it wants to be, how will it get there?

MARKETING STRATEGY (HOW WILL WE GET THERE?)
At this point, the marketing plan has identified where the organization is and where it wants to be. The "marketing strategy" section of the marketing plan identifies how it will get there.

Market Segmentation
First, the market should be segmented; this section of the marketing plan identifies the specific market segment(s). Who are they exactly? There is no such thing as a single general public. Additionally, what are the demographic characteristics of the market segment? What do they want and what do they need? What are their attitudes and opinions about the product, program, or service? Social science and market research is the key to better understanding these markets. There are numerous ways to better understand these markets, including focus group research and quantitative opinion and attitude surveys.

Once a market has been identified, a program, product, or service is tailored to the specific market. Marketing mix—product, price, place, and promotion—is the set of controllable variables that are used to tailor the program, product, or service to the target market.

Product
Product is the most important element in this mix. A product or service is what the natural resource or outdoor recreation organization offers the market—from sport shooting opportunities to information on fishing resources or hunting areas. It is important to recognize that an organization has many product lines. It is also important to differentiate between a product's features and a product's benefits. A feature is the makeup of the product or service; a benefit is what the constituent or customer receives. Focus on the benefits of the product, not the features. Identify the most important benefits the product has for the market and communicate those benefits.

Price
Price is another variable in the marketing mix. Price issues can have profound effects on natural resource and outdoor recreation organizations. Price can be manipulated in a variety of ways; the most obvious is the actual cost. What does the product cost? Does it cost the same to fish on a lake or stream during the week as on the weekend? Does it cost the same to buy a pass to a busy park and visit once or twice a year as it does to visit one hundred or more times a year? Price is an excellent way to tailor the overall product to a market to achieve an organization's objective.

Place

Place refers to the physical location where the product or service is offered. Are fishing licenses sold at the park locations where people might want to fish? Does this affect demand and sales? Are shooting ranges located near large urban centers or are they located in sparsely settled areas? Identify where the product is located (or promoted or "sold") and ask if it meets the needs of the target market.

Promotion

The promotion mix includes online sources, magazines, newspapers, brochures, direct contacts, and television/radio coverage. Promotion options are nearly limitless, and it is vital to keep in mind the target market. At this point in the marketing process, the market—who they are, what they want, and their opinions, attitudes and values—have been identified. A product, program, or service has been developed and tailored that precisely fits that market's needs. The benefits of the product, program, or service have been identified. Because of this, the medium most likely to reach the target market can be selected effectively.

When developing promotional materials, natural resource and outdoor recreation organizations should keep in mind the difference between the tools of promotion and the goals of promotion. Just because an agency has developed full-color advertisements, radio ads, or a website does not automatically mean it has increased knowledge levels, changed attitudes, or increased participation. Real success should be measured in quantified attitude changes, total sales, increased awareness, or increases in fishing, hunting, sport shooting, and archery participation. The objective is not to develop advertisements or brochures but to foster awareness, change attitudes, or increase outdoor recreation participation. Again, it is important to separate the means and the ends of programs, products, and services.

Customer-Focused R3 Strategies

Chris Willard

If we want to attract new anglers and hunters, we must first understand them and the challenges that they will face as they learn to fish or hunt. No matter their motivations, new participants all begin their journey with certain desires, aspirations, and dreams. These are success factors that we can use to our advantage. There are certain missions, or tasks that must be achieved, in order to become a hunter. We have to help them successfully accomplish these. And they will undoubtedly have fears and objections, and they will encounter obstacles along the way. These are failure factors that we have to address and minimize if we want them to continue their journey towards becoming hunters.

continued

The Customer Journey was developed as a tool to help our agency focus on our customers' needs, and it has helped functional units throughout the agency visualize how they can contribute to our R3 efforts. Simply stated, the Customer Journey is a framework that helps us improve our customers' experience. It documents the customer experience through their perspective (not ours), helping us understand their needs and what we are (or are not) doing to meet them. Efforts undertaken by the agency to meet a customer's particular need throughout the journey are called touchpoints.

The journey is not linear—customers can jump from one phase to another based on a number of factors. They may interact with some touchpoints and miss others entirely. Our job is to understand the different moments of impact that customers could have when choosing whether or not to hunt, and then set those customers up to succeed by providing high-value touch-points that support them.

This type of customer-focused approach makes it easier to engage teams throughout the agency, in addition to highlighting pathways for inter-organizational cooperative efforts. Everyone who has a stake in increasing fishing and hunting participation should be well-versed on what our customers are asking, what they need (and who can best deliver it), how they feel at different points of the journey, and what we are doing to deliver an exceptional experience. Putting this map at the heart of the conversation will help every team and every organization work toward a common goal—the customer's engagement throughout the process.

When you map out how people become aware of fishing and hunting and progress towards participation, it becomes very evident where they may get hung up and what they are missing. You literally start to see what they see, and from there you see the holes. It's these "ah-ha" moments that should steer where we put our attention and resources.

During the stages, we strive to identify the different moments of interaction (touchpoints) we have available to connect and engage our customers as they try to reach their goals. These are our customers' "needs" as they try to learn the basics: Is fishing/hunting for me? What do I need to fish/hunt and how do I get it? How do I fish/hunt? Where can I fish/hunt? This includes moments that happen offsite, onsite, through marketing, in person, via the web or printed media, etc. Some of these touchpoints are more critical than others (often called "moments of truth"), and the goal is to map these out and then work to create them more often in the customer's favor. For example, for new adults to consider hunting as a potential activity, they have to believe

continued

that "people like them" hunt. If we don't make hunting relevant to them as individuals, then they likely won't move beyond the consideration of hunting. What touchpoints can we create and deploy to make hunting relevant to the audiences we hope to attract?

For each different phase, you will see gaps in what your customer's needs are and the touchpoints you have available to meet them. This will begin to highlight what you need to work on. It is also helpful to list out what teams or organizations are best suited to resolve these gaps. By doing this right in the journey map, we can see what the low-hanging fruit may be and why we might prioritize some action items over others moving forward.

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3.4. UNDERSTANDING TARGET MARKETS AND HOW TO REACH THEM

This section uses a case study of Iowa hunting and fishing license buyers.[134] The study examined three groups—one-time license buyers, inconsistent license buyers, and avid license buyers—which mirror the hunters' and anglers' progression along a continuum from initiation to fully engaged participant. This progression changes participants' motivations for hunting and fishing as well. Because these groups of hunters and anglers are different in their motivations based on where they are on the continuum, specific strategies and communications need to be tailored to each group.

This Iowa study clearly showed that one-time license buyers were participating primarily for social reasons—such as accompanying a friend or a spouse because they were asked or taking a child hunting or fishing who had asked to be taken. One-time license buyers were very loosely tied to hunting and fishing (if at all) as an activity in and of itself, and some certainly tried it only because they were asked.

Inconsistent license buyers in this study, on the other hand, were different in their motivations from one-time buyers. Although less avid than (obviously) the avid group, they were more closely tied to the activity than were one-time buyers. They wanted the resources to improve their skills and success. Social reasons, while still important, were less important than among the one-time buyers. The following goes into more detail about each

group in this study, applying the findings of the study in Iowa to make broader statements about sport participants in general.

ONE-TIME LICENSE BUYERS

One-time license buyers are just trying the sports, and the data suggest that they have a loose affiliation with the activities. For some of them, this is the first stage in their (hopeful) progression from first-time buyer to fully engaged participant.

The study suggested that messages and outreach to this group should focus on the social and familial aspects that prompted them to try the sports in the first place and should concentrate on just getting them to further participate and become more active. Participation among one-time license buyers is closely tied to social reasons—they are often trying the sports with friends or family members. Indeed, an important message to get people to try these sports would not be aimed at them but would be aimed instead at avid participants, and the message should stress the importance of mentoring others and inviting others to come hunting or fishing.

It is important to realize that some within this group will never become fully engaged participants. A natural consequence of getting many people to try an activity for the first time is that some naturally will not enjoy it. While the hunting and fishing industries strive to have many people try the activities with the hope that some of those people will stay engaged in the activities, it is also normal that a certain portion will simply never become engaged, and they may be beyond the influence of agencies or organizations in this decision to not pursue hunting and fishing further.

Nonetheless, messages that were deemed effective in the survey for this Iowa study (each with at least 60% saying it would be *very* or *somewhat* effective at encouraging participation) by one-time hunting license buyers included:

- Make memories. Take your family hunting. (70% say it would be effective)
- Get close to nature. Spend time in Iowa's great outdoors when you go hunting. (66%)
- Make a difference to Iowa conservation when you buy a hunting license. (65%)
- Iowa's heritage. Take part in the tradition of hunting in Iowa. (62%)
- Get active. Get healthy. Go hunting today. (62%)
- Join the fun and excitement in Iowa's fields and woods. Go hunting. (60%)

Messages that one-time anglers rated as effective (each with at least 60% saying it would be *very* or *somewhat* effective) included:

- Make memories. Take your family fishing. (75%)
- Get close to nature. Spend time in Iowa's great outdoors when you go fishing. (72%)
- Make a difference to Iowa conservation when you buy a fishing license. (66%)
- Get active. Get healthy. Go fishing today. (61%)

Methods for disseminating information to one-time hunting license buyers that were rated (by the hunters themselves) as effective include the Department website, a Department news release, or a postcard. Methods for disseminating information to one-time fishing license buyers that were rated (by the anglers themselves) as effective include the Department website, an email or letter from their local Department biologist with fishing tips for their area, or a postcard. Messages aimed at one-time buyers of both sports (and those who have not yet tried the sports) should be more general in content; one-time buyers are not yet at the stage where they need specific information.

INCONSISTENT LICENSE BUYERS
Inconsistent hunters and anglers are on the cusp of becoming more fully engaged participants (or, unfortunately, of dropping out of the sports). It is at this stage when more specific constraints come into play—access, for instance. These hunters and anglers need more specific information to encourage their participation, such as where they can go to participate. They are at the stage where they want to increase their skill and success. Helping make their experiences positive by addressing problems with the sports (such as access) is important for these hunters and anglers. This is the stage in which their dependence on others should be somewhat curtailed—the stage, in other words, in which they might go out on their own or be the initiator of a hunting or fishing trip rather than always tagging along with somebody else.

Messages that inconsistent hunters deemed effective (each with at least 60% saying it would be *very* or *somewhat* effective) included:

- Make memories. Take your family hunting. (77%)
- Get close to nature. Spend time in Iowa's great outdoors when you go hunting. (72%)
- Iowa's heritage. Take part in the tradition of hunting in Iowa. (69%)
- Make a difference to Iowa conservation when you buy a hunting license. (67%)
- Get active. Get healthy. Go hunting today. (64%)
- Join the fun and excitement in Iowa's fields and woods. Go hunting. (61%)
- Get insider tips on where to hunt in your local area. Go hunting today. (61%)

Messages that inconsistent anglers rated as effective (each with at least 60% saying it would be *very* or *somewhat* effective) included:

- Get close to nature. Spend time in Iowa's great outdoors when you go fishing. (72%)
- Make memories. Take your family fishing. (72%)
- Make a difference to Iowa conservation when you buy a fishing license. (66%)
- Get insider tips on where to fish in your local area. Go fishing today. (60%)

Methods for providing inconsistent hunters and anglers with information that would encourage greater participation are largely the same among the two sporting groups, and they include the Department website, an email or letter from their local Department biologist with hunting/fishing tips for their area, a Department news release, or a postcard. It is at this stage when messages and outreach with more specialized information will resonate.

AVID LICENSE BUYERS

Finally, addressing avid license buyers is a matter of making sure they continue participating in the sports—they are already closely affiliated with them. They, too, will benefit from specific information—places where access has been provided or improved, for instance. They would also likely respond to "back to nature" outreach, as they have a higher percentage, compared to those less avid, who went hunting to be close to nature. The data suggested that they were encouraged to participate when others (children, for instance) asked to be taken hunting or fishing.

While messages were not tested on these respondents (the context would have made no sense because the messages were aimed at those who were not buying licenses every year—avid hunters and anglers, by definition in the study, had purchased every or almost every year), it seems logical to intuit that they would respond to the messages that appealed more to the inconsistent license buyers than to the one-time license buyers. After all, the avid license buyers are closer on the continuum to the inconsistent license buyers than to the one-timers.

Nonetheless, there are messages that this group should be exposed to: they should be encouraged to take others hunting and fishing. The evidence is overwhelming that the route of initiation in which a novice is encouraged, invited, and mentored by another person is the best way to increase participation and license sales. Messages that link the future of hunting and fishing to current avid hunters' and anglers' encouragement of others will be effective at this stage.

FINAL COMMENTS ON THE IOWA CASE STUDY

The simple lesson is that license buyers do not compose a homogenous group; rather, license buyers comprise avid participants down to those just

giving the sport a try or just accompanying someone else for the first time. This wide diversity of those who buy hunting or fishing licenses has to be accounted for.

3.5. MESSAGE AND MEDIA TESTING

This section now looks at some recent assessments of R3 efforts, assessing both the message themes as well as delivery methods. The results are all over the board, so to speak, so a neat summary would be misleading, as each state and each program has its own set of nuanced differences from other states and other programs. In other words, each state has unique variables that affect its residents and its outdoor recreationists, and the primary lesson taken from the examination of the program may be one thing in one state and another in another state. Nonetheless, these case studies can be a valuable tool for those developing R3 outreach. This review of case studies does not include every project that pertained to messages and media; rather, the review contains just a selection of projects whose assessments give insight into the topic.

LAPSED HUNTING LICENSE BUYERS: 2013 STUDY

One study explored the efforts to entice lapsed hunting license buyers in Virginia to purchase a license.[135] The study explored message themes and methods of delivery. A primary finding was that the treatment group of lapsed hunters, regardless of the method of delivery or the message received, purchased a general hunting license for the 2012-2013 hunting season at a slightly higher rate than did the control group (i.e. the group that did not receive the outreach); however, the difference is not statistically significant (Table 3.5.1). Therefore, the best that can be said is that this finding is positive, but not definitive, and should be explored further in other studies.

Table 3.5.1. Rate of License Purchasing Among Hunters Receiving Outreach and Hunters Without Outreach[136]

	Outreach Group	Control Group
Number of Hunters*	38,832	21,101
Number of Licenses Purchased	1,938	1,041
Purchase Rate	5.0%	4.9%
*For the outreach group, this is the number of hunters for whom an attempted contact was made with the outreach (whether contact could actually be made or not); for the control group, this is simply the number of hunters that were analyzed.		

In addition to looking at the effect of the outreach overall, the study explored the methods of delivery, comparing email, letter, postcard, and telephone call. The most effective delivery method was through email (Table 3.5.2). The total response rate to messages delivered by email was 5.6%, compared to 4.9% for the overall control group.

Table 3.5.2. Rate of License Purchasing Among Hunters Receiving Outreach, by Type of Outreach Method[137]

	Number of Attempted Contacts	Number of Licenses Purchased	Purchase Rate
Email	9,778	551	5.6%
Letter	9,702	490	5.1%
Postcard	9,715	479	4.9%
Telephone	9,690	471	4.9%

This study of Virginia hunters also looked at various message themes. The images noted in the parentheses were included in the email, letter, and postcard contacts. Obviously, the telephone calls had no visual materials. The themes were as follows:

> *Traditional Appeal:* "Protect the Heritage, Hunt Virginia" (image of three generations of hunters together)
>
> *Naturalistic Appeal:* "Connect with Nature, Hunt Virginia" (image of single hunter in attractive natural setting)
>
> *Emotional Appeal:* "Share the Experience, Hunt Virginia" (image of hunting buddies)
>
> *Informational / Public Land Appeal:* "300,000 Reasons to Hunt Virginia: More than 300,000 acres of land are publicly available for hunting in Virginia."
> (image of hunters in natural setting)
>
> *Opportunity Appeal:* "Join the Excitement, Hunt Virginia: In less than 30 years, the deer harvest in Virginia has nearly tripled and has consistently been 215,000 or higher each year since 2001."
> (image of several deer in an open field)

The most effective message overall for the marketing campaign was the opportunity appeal, with the message, "Join the Excitement, Hunt Virginia," as shown in Table 3.5.3. However, the difference is not statistically significant, so the evidence is not definitive. At best, one could say that it appears that the opportunity appeal had positive results, although more testing of this theme would need to be conducted.

Table 3.5.3. Rate of License Purchasing Among Hunters Receiving Outreach[138]

	Number of Attempted Contacts	Number of Licenses Purchased	Purchase Rate
Traditional	7,788	385	4.9%
Naturalistic	7,759	384	4.9%
Emotional	7,775	355	4.6%
Informational	7,759	390	5.0%
Opportunity	7,751	424	5.5%
Total	38,832	1,938	5.0%

Among those who were contacted with outreach (either an email, letter, postcard, or telephone call), only 20% recalled being contacted—fully 80%

had no memory of the contact. The method that had the highest percentage recalling the contact was by letter (31% remembered receiving a letter), followed by telephone (21%) and postcard (18%). At the bottom, only 11% remembered receiving an email.

In a follow-up question, those who remembered receiving an email, letter, or postcard were asked about whether they had read the material: 44% had read all of the material, and 22% had read some of it. Otherwise, 27% had glanced at it but had not really read it, and 6% had not looked at it at all. Of those who remembered receiving a telephone call, 59% had listened to the end of the call, 13% had listened to some of it but had terminated the call before it was over, 15% had terminated the call immediately, and the remainder of 15% did not remember what they had done (although they remembered getting the telephone call).

The study suggests that email, while relatively inexpensive, is also the most forgettable. However, it was associated with the highest purchase rate of the four methods. Cause and effect cannot be established, however, and it may be that there is another reason that the email group bought at a higher rate. The study was inconclusive regarding methods.

Regarding themes for appealing to lapsed hunters, the "opportunity" theme performed the best. On the other end, the "emotional" appeal had the lowest percentage of subsequent purchasers.

LAPSED HUNTING LICENSE BUYERS: 2009 STUDY

Another study[139] directed at lapsed hunting license buyers in Virginia was conducted by Responsive Management, Southwick Associates, Tammy Sapp, and the NSSF. In the telephone survey portion of the project, 14 questions tested themes that might encourage lapsed hunters to purchase a license (strictly speaking, there were 19 questions, with 14 questions that tested themes and 5 questions that asked about incentives for purchasing a hunting license or that entailed having the state take actions, as shown in Figure 3.5.1).

Figure 3.5.1. Outreach Themes Tested in Study

Things That Would Make Hunters Likely To Purchase a Virginia Hunting License That Were Asked About in the Survey

(Would this make you very likely, somewhat likely, or not at all likely to purchase a Virginia hunting license during a year that you otherwise might not?) (Order of questions randomized to eliminate order bias.)

14 Themes

Being reminded that hunting is important for wildlife management?

Being reminded that hunting is important for the conservation of land and natural resources?

Being reminded that hunting is important for the conservation of wildlife?

Being reminded that purchasing a hunting license helps fund conservation of wildlife?

Being reminded that hunting provides an environmentally friendly source of food?

Being reminded that you can hunt elk in Virginia?

Being reminded that it is important to continue the hunting heritage of this country?

Being reminded that hunting helps people learn the value of wildlife and natural resources?

Being reminded that hunting helps people relax?

Being reminded that hunting helps people connect with nature?

Being reminded that hunting is peaceful?

Being reminded that hunting is important to your family?

Being reminded that you can bond with family and friends while hunting?

Being reminded about the thrill or excitement you get from hunting?

5 License Incentives / State Actions

If a family hunting license was available in Virginia?

Being able to attend an outdoors show free with the purchase of your Virginia hunting license?

Just having more specific information about hunting opportunities in Virginia made available?

Receiving a reminder about when hunting seasons for specific species will start?

Receiving a reminder to purchase your license?

The top themes that resonated (i.e., the themes with the highest percentages of respondents saying that the items would make them *very* likely to purchase a Virginia hunting license) are listed below, each with more than a third of respondents saying it would make them *very* likely to purchase a license. Also shown in parentheses is the percentage who said the message would make them either *very* or *somewhat* likely to purchase a license.

- Being reminded that it is important to continue the hunting heritage of this country (48% *very* likely, 78% *very* or *somewhat* likely).

- Being reminded that hunting helps people relax (43% *very* likely, 69% *very* or *somewhat* likely).

- Being reminded that hunting helps people learn the value of wildlife and natural resources (42% *very* likely, 71% *very* or *somewhat* likely).

- Being reminded that hunting provides an environmentally friendly source of food (41% *very* likely, 73% *very* or *somewhat* likely).

- Being reminded that hunting helps people connect with nature (38% *very* likely, 65% *very* or *somewhat* likely).

- Being reminded that purchasing a hunting license helps fund conservation of wildlife (37% *very* likely, 70% *very* or *somewhat* likely).

- Being reminded that hunting is peaceful (37% *very* likely, 61% *very* or *somewhat* likely).

The full results of the questions above are shown in Figures 3.5.2 and 3.5.3. These figures include the themes tested as well as license incentives/state actions. Along with the results of the theme testing, the results show that the top state action/license incentive was the family hunting license being available. As mentioned previously, the order of the questions was randomized to eliminate order bias.

Figure 3.5.2. Outreach Themes: Ratings of Very Effective[140]

Percent who indicated that the following would be very likely to make them purchase a Virginia hunting license during a year that they otherwise might not purchase one.

Theme	Percent
Being reminded that it is important to continue the hunting heritage of this country	48
Being reminded that hunting helps people relax	43
Being reminded that hunting helps people learn the value of wildlife and natural…	42
Being reminded that hunting provides an environmentally friendly source of food	41
Being reminded that hunting helps people connect with nature	38
Being reminded that purchasing a hunting license helps fund conservation of wildlife	37
Being reminded that hunting is peaceful	37
If a family hunting license was available in Virginia	34
Being reminded that you can bond with family and friends	33
Being reminded that hunting is important for the conservation of wildlife	30
Being able to attend an outdoors show free with the purchase of your Virginia hunting…	30
Being reminded about the thrill or excitement you get from hunting	29
Being reminded that hunting is important to your family	27
Receiving a reminder about when hunting seasons for specific species will start	27
Having more specific information about hunting opportunities in Virginia made…	26
Being reminded that hunting is important for the conservation of land and natural resources	25
Being reminded that you can hunt elk in Virginia	23
Being reminded that hunting is important for wildlife management	20
Receiving a reminder to purchase your license	19

Gray bars = license incentives or actions that state would take

Black bars = themes

Percent (0, 20, 40, 60, 80, 100)

Truncated labels are:
"Being reminded that hunting helps people learn the value of wildlife and natural resources."
"Being able to attend an outdoors show free with the purchase of your Virginia hunting license."
"Having more specific information about hunting opportunities in Virginia made available."

Figure 3.5.3. Outreach Themes: Ratings of Very or Somewhat Effective[141]

Percent who indicated that the following would be very or somewhat likely to make them purchase a Virginia hunting license during a year that they otherwise might not purchase one.

Theme	Percent
Being reminded that it is important to continue the hunting heritage of this country	78
Being reminded that hunting provides an environmentally friendly source of food	73
Being reminded that hunting helps people learn the value of wildlife and natural resources	71
Being reminded that purchasing a hunting license helps fund conservation of wildlife	70
Being reminded that hunting helps people relax	69
Being reminded that hunting helps people connect with nature	65
Being reminded about the thrill or excitement you get from hunting	64
If a family hunting license was available in Virginia	64
Being reminded that hunting is important for the conservation of wildlife	62
Being reminded that you can bond with family and friends	62
Being reminded that hunting is peaceful	61
Being able to attend an outdoors show free with the purchase of your Virginia hunting license	60
Having more specific information about hunting opportunities in Virginia made available	56
Being reminded that hunting is important to your family	53
Being reminded that hunting is important for the conservation of land and natural resources	52
Being reminded that hunting is important for wildlife management	47
Being reminded that you can hunt elk in Virginia	46
Receiving a reminder about when hunting seasons for specific species will start	46
Receiving a reminder to purchase your license	38

Gray bars = license incentives or actions that state would take

Black bars = themes

Percent (0, 20, 40, 60, 80, 100)

Along with the 17 messages that were tested, the study also tested 36 words or short phrases, as shown in Figure 3.5.4. Specifically, respondents were asked to indicate if the word/phrase had a positive association with hunting, a neutral association, or a negative association with hunting. Again, the order of the questions was randomized to eliminate order bias.

Figure 3.5.4. Outreach Words and Phrases Tested in Study[142]

Words and Phrases That Were Asked About in the Survey (Does this have a positive, negative, or neutral association with hunting?)		
Conserve	Friends	Quality time
Environment	Relaxing	Connect to nature
Economical	Tradition	The basics
Family	Stewardship	Preserve
Active	Manage	Protect
Thrill	Outdoor lifestyle	Expensive
Heritage	Conservation funding	Memories
Natural	Organic	Fun
Quality	Investment	Excitement
Conservation	Roots	Escape
Environmentally friendly	Peaceful	Wildlife management
Inexpensive	Get away from it all	Healthy

In this list, 8 of the 36 words and phrases had at least 90% of respondents making a positive association, as shown in Figure 3.5.5: connect to nature (96%), quality time (94%), fun (94%), get away from it all (93%), relaxing (92%), memories (91%), excitement (91%), and heritage (90%).

On the least positive end of the continuum (listed from the bottom up) are the following: expensive (21% say this has a positive association with hunting), investment (43%), organic (47%), inexpensive (48%), roots (58%), and economical (59%).

Figure 3.5.5. Positive and Negative Reaction To Outreach Words and Phrases[143]

Percent who indicated that the following had a positive / neutral / negative association with hunting.
(Numbers show percentage saying positive association and negative association.)

Word/Phrase	Positive	Negative
Connect to nature	96	0
Quality time	94	0
Fun	94	0
Get away from it all	93	2
Relaxing	92	1
Memories	91	1
Excitement	91	1
Heritage	90	1
Healthy	89	1
Conservation	88	1
Family	87	2
Friends	87	0
Tradition	85	2
Outdoor lifestyle	85	2
Active	84	2
Natural	84	2
Peaceful	83	1
Wildlife management	83	2
Environmentally friendly	82	3
Conserve	80	4
Environment	79	5
Protect	79	5
Conservation funding	77	5
Stewardship	76	3
Manage	75	3
Preserve	75	5
Thrill	74	5
Quality	74	1
Escape	71	6
The basics	68	2
Economical	59	5
Roots	58	4
Inexpensive	48	16
Organic	47	10
Investment	43	9
Expensive	21	41

Legend: ■ Positive ▨ Neutral ☐ Negative

The final aspect of this study examined 28 messages that might encourage lapsed hunters to purchase a hunting license; these are shown in Figure 3.5.6. As was done with the other lists presented to respondents, the order of the questions was randomized to eliminate order bias. Three of the messages stand out, each with at least half of respondents saying it would be very effective:

- Make memories. Take someone special hunting. (54% rated it very effective)
- Hunting—protect the heritage, protect the environment. (also 54%)
- Hunting bonds family. Share the experience. (50%)

Six more messages rank above the rest, all with 44% or more saying it would be very effective at getting them to buy a Virginia hunting license:

- Connect to nature, hunt Virginia. (47%)
- Hunters, the original stewards of the land. (46%)
- Hunting connects family and friends. (46%)
- Buy a license, take a friend, make memories. (45%)
- Purchase a Virginia hunting license and help conserve wildlife. (44%)
- Connect with nature, connect with family. Hunt Virginia. (44%)

The full results are included in Table 3.5.4.

Figure 3.5.6. Outreach Statements Tested in Study[144]

Messages Presented to Respondents in the Survey
(Do you think this message would be very effective, somewhat effective, or not at all effective at getting you to buy a Virginia hunting license during a year that you otherwise might not?)

Get outside, hunt Virginia. Only a license away.

Buy your license, help conserve the environment.

Hunters, the original stewards of the land.

Make memories. Take someone special hunting.

Buy your license today, plan your trip today. Visit www.dgif.virginia.gov/hunting.

Hunting is a source of quality, naturally replenished food.

Hunting - big game, big fun, big benefits. Hunt Virginia. Buy your license.

Hunting is an investment with many returns.

Buy your license, help conserve habitat.

Life is short. Break free and go hunting.

Buy a license, take a friend, make memories.

Unwind the time, hunt Virginia.

Hunting provides healthy, organic meat, no hormones or chemicals.

Hunting - protect the heritage, protect the environment.

Hunting - it's our nature.

Purchase a Virginia hunting license and help conserve wildlife.

Need a break? Peace awaits you in Virginia's outdoors. Go hunting.

Hunting bonds family. Share the experience.

Hunting season only comes once a year - don't miss it.

Hunt Virginia and reduce your carbon footprint with a local, organic source of meat.

Hunting - make memories, fund conservation. Buy a license.

Connect to nature, hunt Virginia.

Purchase a Virginia hunting license and help manage wildlife.

Hunting connects family and friends.

Hunting - pass on the tradition. It starts with a license.

Big game, big fun. Hunt Virginia. [or Small game, big fun. Hunt Virginia.]*

Connect with nature, connect with family. Hunt Virginia.

Life is short, don't miss the hunting season. Buy your license today.

*This message used the term, "Big game," for hunters who indicated that they hunted bear, deer, elk, or wild turkey in the species question earlier in the survey; the message used the term, "Small game," for hunters who did not hunt any of the big game species *and* who indicated hunting for fox, raccoon, small game, and/or waterfowl. All remaining respondents (those who hunted some other species or who answered "Don't know" to the species question) were randomized between "Big game" and "Small game."

Table 3.5.4. Results of Statements Tested in Study[145]

Statement (ranked by percentage saying the statement would be *very* effective)	Very effective	Somewhat effective	Not effective	Don't know
Hunting - protect the heritage, protect the environment.	54	30	15	1
Make memories. Take someone special hunting.	54	30	15	1
Hunting bonds family. Share the experience.	50	36	12	2
Connect to nature, hunt Virginia.	47	35	16	2
Hunters, the original stewards of the land.	46	30	21	3
Hunting connects family and friends.	46	36	17	1
Buy a license, take a friend, make memories.	45	36	18	1
Connect with nature, connect with family. Hunt Virginia.	44	39	15	2
Purchase a Virginia hunting license and help conserve wildlife.	44	39	16	1
Buy your license, help conserve habitat.	42	40	17	1
Hunting - make memories, fund conservation. Buy a license.	42	38	19	1
Life is short. Break free and go hunting.	42	30	27	1
Hunting - it's our nature.	40	40	20	0
Need a break? Peace awaits you in Virginia's outdoors. Go hunting.	40	38	21	1
Hunting is an investment with many returns.	39	34	25	2
Purchase a Virginia hunting license and help manage wildlife.	39	39	20	2
Hunting - big game, big fun, big benefits. Hunt Virginia. Buy your license.	38	35	25	2
Hunting is a source of quality, naturally replenished food.	38	36	25	1
Hunting - pass on the tradition. It starts with a license.	37	39	21	3
Unwind the time, hunt Virginia.	37	31	30	2
Hunting provides healthy, organic meat, no hormones or chemicals.	36	30	33	1
Hunting season only comes once a year - don't miss it.	34	41	22	3
Buy your license, help conserve the environment.	33	42	23	2
Get outside, hunt Virginia. Only a license away.	32	43	22	3
Big/small game, big fun. Hunt Virginia.	30	46	21	3
Buy your license today, plan your trip today. Visit www.dgif.virginia.gov/hunting.	26	35	36	3
Hunt Virginia and reduce your carbon footprint with a local, organic source of meat.	25	27	43	5
Life is short, don't miss the hunting season. Buy your license today.	25	39	34	2

Based on these data, the report went on to make some recommendations about message content and methods:

- The report advised using the top three messages (or variations of the messages using similar themes, phrases, and words) rated by respondents as very or somewhat effective at getting them to buy a hunting license during a year that they otherwise might not.

- The report advised using messages and outreach materials that incorporate the "passing on the hunting heritage" theme.
- The report advised using the words, phrases, and concepts of "connect," "share," "make memories," and "heritage."
- The report advised against using the term "environment" or other words, phrases, and concepts related to the theme of "environmentally friendly," "eco-friendly," or "going green" unless it is blended or used with another theme (other than the direct "buy a license" theme), such as the hunting heritage theme.
- The report advised against using the term "conserve" without being specific about what is being conserved.
- The report advised using messages and outreach materials that appeal to passing on the hunting heritage, connecting, making memories, and bonding with someone special, but the report advised being non-specific (e.g., someone special) or being all inclusive (e.g., friends and family) regarding who "someone special" is (with the caveat immediately below).
- The report advised against making family the primary or central person/people in messages and campaign materials when that appeal is linked to passing on the hunting heritage, connecting, making memories, and bonding.
- The report suggested addressing availability and quality of hunting opportunities on public land in messages and outreach materials.
- The report advised against using "buy a license" as the primary or dominant theme in messages and campaign materials.

RECREATIONAL BOATING AND FISHING FOUNDATION AND ITS TAKE ME FISHING CAMPAIGN

The ongoing "Take Me Fishing" national campaign of the Recreational Boating and Fishing Foundation (RBFF) is the centerpiece of the its R3 efforts. Many separate efforts or campaigns have been conducted under the Take Me Fishing umbrella that are discussed here, as well as some efforts that are apparently outside of the Take Me Fishing campaign. An evaluation of the various campaigns, based on several annual evaluation reports, was conducted in 2016.[146] Results below are taken from that 2016 report as well as other reports available from the RBFF on its website. Note that Take Me Fishing is sometimes referred to by its acronym in the reports, "TMF."

RBFF Take Me Fishing Advertising

The first RBFF report[147] that is detailed here is an evaluation of audience awareness of the TMF brand and logo, as well as response to social media; the report was conducted in 2016, but it also includes data from previous studies from 2010 through 2015. The 2016 study was based on 1,200 online panel respondents from 25 to 54 years old, with annual household incomes from $50,000 to $150,000, and have an interest in the outdoors and outdoor activities. The sample was stratified to be 70% male and 30% female.

The study tested television ads, radio ads, online ads, and print ads. The sample was segmented as follows:

- Occasional anglers (fished in the past 2 years, but not more than 3 times).
- Lapsed anglers (fished as an adult, but not in the past 2 years, but is somewhat or very likely to go fishing in the next 2 years).
- Family outdoor (participated in one or more outdoor activities in the past year, and is married with children in the household).
- Outdoor enthusiasts (participated in one or more outdoor activities in the past year, and has no children in the household).

The study reported that TMF brand awareness had increased, among those who recalled seeing, hearing, or reading any advertisement for outdoor leisure or recreational activities in the previous year, from 10% overall in 2010 to 64% overall in 2016 (note: this is among those who first answered that they recalled seeing/hearing/reading an ad) (Table 3.5.5). The report does not say the percentage who answered the precursor question in the affirmative so that they received this question.

Table 3.5.5. Take Me Fishing Brand Awareness[148]

	2010	2011	2012	2013	2014	2015	2016
Overall	10%	18%	31%	34%	43%	41%	64%
Lapsed Anglers				14%	10%	40%	9%
Occasional Anglers				30%	41%	38%	118%
Family Outdoors				40%	52%	51%	88%
Outdoor Enthusiasts				25%	31%	29%	8%

These percentages are out of those who previously had answered a question that they recalled any advertisement for outdoor leisure or recreational activities. The report did not indicate the percentages who recalled ads in the precursor question.

In a follow-up question, those who recalled the Take Me Fishing phrase most commonly recall it from online advertising (74% were exposed to it this way), followed by television ads (63%), magazine ads (59%), radio ads (39%), and postcards (31%).

Take Me Fishing advertising was assessed by showing the advertisements to respondents. The ads were rated for their relevance to respondents, their clarity (comprehension), whether they attracted the respondents' attention, and whether they would influence behavior. (For the digital ads/online survey, the comprehension question was not asked.) Each of these variables has a score from the survey, as shown in Table 3.5.6. From the four variables, an overall score was also calculated, as indicated in the right-most column. All the scores are close, with only 5% separating the highest (television, at 86%) from the lowest (both types of digital ads at 81%).

Table 3.5.6. Reported Influence of TMF Advertising[149]

	Relevance	Comprehension	Attention	Behavioral Effect	Overall Ad Effect
Print ads	83%	84%	83%	82%	83%
Radio ads	81%	83%	81%	81%	82%
Television ads	87%	86%	85%	84%	86%
General digital ads	81%	not asked	82%	80%	81%
Disney digital ads	81%	not asked	81%	81%	81%

Revenues From Fishing License Marketing Program and Boat Registration Marketing Program

Another RBFF report[150] summarized progress of various programs as well as the fiscal effects of two of its projects to the participating states. The Fishing License Marketing Program began in 2008 as a direct mail program to encourage lapsed anglers to return to fishing. The Boat Registration Marketing Program began in 2009 as a pilot program to encourage lapsed boat owners to renew their boat registrations. Based on the reported revenues, these RBFF programs appear to be effective (Table 3.5.7).

Table 3.5.7. State Participation and Reported Revenue from RBFF Programs[151]

	States Participating in 2013	States Participating in 2014	States Participating in 2015	Reported Revenue* in 2014	Reported Revenue* in 2015
Fishing License Marketing Program	35	40	40	$4.6	$5.4
Boat Registration Marketing Program	15	19	21	$1.7	$1.6

* In millions of dollars.

RBFF Website

A website effectiveness survey[152] was conducted for the RBFF in 2013. It found high satisfaction with the website, as rated by both visitors to the site as well as those who had not visited the site and were surveyed (the survey directed them to the site, and then they were asked to rate elements of it, but they had not gone to the site prior to being directed to go to it as part of the survey). A large majority of site visitors (83%) and non-visitors (80%) were very or somewhat satisfied overall with the TakeMeFishing.org.

This website survey asked about various aspects of the site. All aspects had relatively high percentages of site visitors being satisfied (Table 3.5.8), particularly the site's clarity (note that three years of survey research on the site are included). Table 3.5.9 shows the results among non-visitors, also relatively high, particularly the site's availability and clarity. Other aspects of the website were rated on an excellent-poor scale or an ease-of-use scale, as shown in Tables 3.5.10 and 3.5.11.

Table 3.5.8. Satisfaction With Various Aspects of the Take Me Fishing Website Among Site Visitors[153]

	Percent Very or Somewhat Satisfied		
	2011	**2012**	**2013**
Site's usefulness	80%	84%	82%
Site's clarity (being easy to understand)	84%	86%	86%
Site's timeliness (up-to-date/current content)	78%	81%	81%
Site's utility (meeting user's information needs)	77%	80%	79%
Site's credibility	82%	85%	83%
Page load speed	80%	81%	81%
Search result speed	80%	81%	80%
How well links worked	82%	81%	79%
Site's availability	82%	84%	83%

Table 3.5.9. Satisfaction With Various Aspects of the Take Me Fishing Website Among Site Non-Visitors[154]

	Percent Very or Somewhat Satisfied		
	2011	**2012**	**2013**
Site's usefulness	78%	82%	82%
Site's clarity (being easy to understand)	83%	86%	84%
Site's timeliness (up-to-date/current content)	75%	78%	79%
Site's utility (meeting user's information needs)	76%	79%	77%
Site's credibility	78%	78%	75%
Page load speed	80%	83%	83%
Search result speed	74%	82%	81%
How well links worked	79%	83%	83%
Site's availability	81%	84%	84%

Table 3.5.10. Ratings of Other Aspects of the Take Me Fishing Website Among Site Visitors[155]

	Percent Saying Excellent or Good / Very or Somewhat Easy		
	2011	**2012**	**2013**
Site's navigation or menu structure	80%	82%	80%
Site's search function	78%	80%	78%
How difficult was it to find the items and information of most interest to you?	74%	81%	80%

Table 3.5.11. Ratings of Other Aspects of the Take Me Fishing Website Among Site Non-Visitors[156]

	Percent Saying Excellent or Good / Very or Somewhat Easy		
	2011	2012	2013
Site's navigation or menu structure	78%	83%	87%
Site's search function	75%	80%	82%
How difficult was it to find the items and information of most interest to you?	80%	80%	77%

RBFF Georgia New Angler Retention Pilot Program

This program[157] used email contacts to encourage new anglers to continue to purchase licenses and go fishing. The sample consisted of anglers who had purchased a fishing license in 2015 but had not purchased one in the previous four years (from 2011 through 2014). The report states that "new anglers . . . with valid email addresses were selected as the target audience for this retention effort. These were divided into five groups with 10% of the total set aside as a control group . . . and the remaining treatment group divided evenly across the remaining four groups."

The treatment was as follows:

> All five groups received a 'thank you' email upon license purchase. All of the treatment groups received email reminders the following year to renew their license. Two of the groups received additional emails with four monthly newsletters containing fishing-specific content and a follow-up survey. Additionally, the renewal notices included a discount promotion for early renewal for two of the groups while it was not mentioned for the other two treatment groups. The $2.75 transaction fee was waived if the license was renewed before it expired.

Four renewal reminder emails were sent based on the license expiration date of each angler as follows. The first was sent 30 days before his/her license expired, a second sent 1 week before his/her license expired, a third send 1 day before his/her license expired, and the fourth sent 30 days after his/her license expired.

All four of the treatment groups showed increases in renewal rates compared to the control group (Table 3.5.12). The email reminders generated an increase of 4.7% in the renewal rate compared to the control group. The groups whose reminder included the discount promotion for early renewal had statistically significant greater renewal rates compared the groups that did not receive the promotion for the discount. Groups that received emails with newsletters had slightly lower renewal rates compared to the groups not receiving these emails, but the difference in renewal rates were not statistically significant.

Table 3.5.12. Effect of Reminders, Newsletters, and Discounts on Fishing License Purchases[158]

Group	Renewal Rate	Amount of Lift
Control (no contact)	19.2%	
Reminders	23.9%	4.8%
Reminders with discount	24.7%	5.5%
Newsletters and reminders	22.5%	3.3%
Newsletters and reminders with discount	24.3%	5.1%
Total treatment group	23.9%	4.7%

The report went on to assess the discounts and newsletters. Regarding the discounts, the report stated that the "reminders promoting the discount increased the renewal rate by 1.3%." However, regarding the newsletters, the report states that "the groups receiving newsletters had a slightly lower renewal rate compared to groups not receiving the newsletter."

2009 Programmatic Assessment of the Recreational Boating and Fishing Foundation

Although this is now nearly a decade old as of this writing, the 2009 programmatic assessment[159] remains a good resource for both a how-to-do manual of R3 programs but also as a historical resource for where some R3 programs of the RBFF have been. Some of the findings can be used as baselines against which to evaluate subsequent efforts.

The RBFF's assessment for recruitment and retention indicated that the Foundation directly assisted state boating and fishing agencies to promote participation in 9 states in 2006, a number that grew to 30 states in 2009.

There were an estimated 530,000 unique site visitors to the "Take Me Fishing" website in 2006; this number grew to 2,418,000 visitors in 2009. In the latter year, the RBFF tracked the number of site visitors who clicked on the link to their state's fish and wildlife agency (i.e., a license referral): 224,000 site visitors clicked on the link to their state's agency fishing license purchase page.

This report noted that RBFF's most important result (as of 2008) in its state outreach efforts was the development and launch of its State Direct Mail Marketing Program. It was estimated that the Direct Mail Marketing Program helped states sell approximately 224,000 fishing licenses and permits in 29 of 30 states. It was also estimated that the program contributed $4.1 million in gross revenue to fish and wildlife management efforts as of that date.

This report also discussed the "Anglers' Legacy" project, launched in 2006, which invited anglers to "Take someone fishing and share your passion for fishing with someone new." Anglers' Legacy, supported by professional anglers, manufacturers, and others, enlisted avid anglers to take at least one person on a first-time fishing outing each year, thereby becoming an "ambassador" of the sport of fishing.

The following year, RBFF enlisted the assistance of manufacturers to run the print campaign as a pro bono public service announcement in their publications, and the RBFF developed the Anglers' Legacy "Hymnal," which was a pocket-sized booklet with boating and fishing statistics, anecdotal suggestions, and situational guidelines to help manufacturers' and retailers' ambassadors to deliver the Anglers' Legacy messages.

An assessment consisted of a survey of 7,500 ambassadors. Based on the survey, it is estimated that each ambassador generated an "initial $120 in fishing tackle equipment sales, $150+ in boating supplies . . . and more than three fishing license sales." The ambassadors were estimated to each have taken 4.5 persons fishing since taking the Anglers' Legacy pledge.

SOCIAL MEDIA'S INFLUENCE ON HUNTING AND SPORT SHOOTING PARTICIPATION

This study[160] consisted of surveys of three groups: the general population of North Dakota, hunters residing in the state, and sport shooters in the state. Overall, the data suggested that, while many North Dakotans visit social media websites like Facebook, Twitter, and YouTube to obtain information about recreational activities and opportunities, such sites have not replaced more traditional means like the Internet in general, word-of-mouth, and print newspapers (or, to be more exact, social media sites had not replaced traditional sources at the time of this study). However, because about half of North Dakota residents, slightly less than half of North Dakota hunters, and a little over a quarter of North Dakota shooters are fairly regular users of social media, and because social media, relative to many other outreach methods, provide timely and cost-effective opportunities for information dissemination, social media communications strategies should certainly be utilized by agencies as often as possible.

Additionally, the survey data appear to confirm that social media outreach will be most effective in the targeting of younger markets: use of social media was more common among members of the general population and hunters than among sport shooters, and sport shooters as a whole tended to be older than the other two respondent groups (respondents younger than the median age of 47 years old also showed greater propensity for social media use than did respondents the median age or older). Also, because the survey found that social media use is more common among females than males, agencies may be able to help generate increased interest and participation from younger women by focusing on this type of outreach.

Figure 3.5.7 shows how often various groups use social media. As can be seen, social media use is lower among hunters and sport shooters compared to the general population. Nonetheless, there is still robust use of social media by those engaging in the sports, particularly hunting. Facebook is the most popular of the social media sites: 86% of residents who go to social media sites, 76% of hunters who do so, and 79% of sport shooters who go to social media sites go to Facebook. By way of comparison, the next

nearest site is YouTube, only at 24%, 29%, and 13% among the three
groups who use social media. Note that this study was in 2012, fairly
recently, although social media and Internet use is changing at a fast pace.

**Figure 3.5.7. Use of Social Media Among North Dakota Residents,
Hunters, and Sport Shooters**[161]
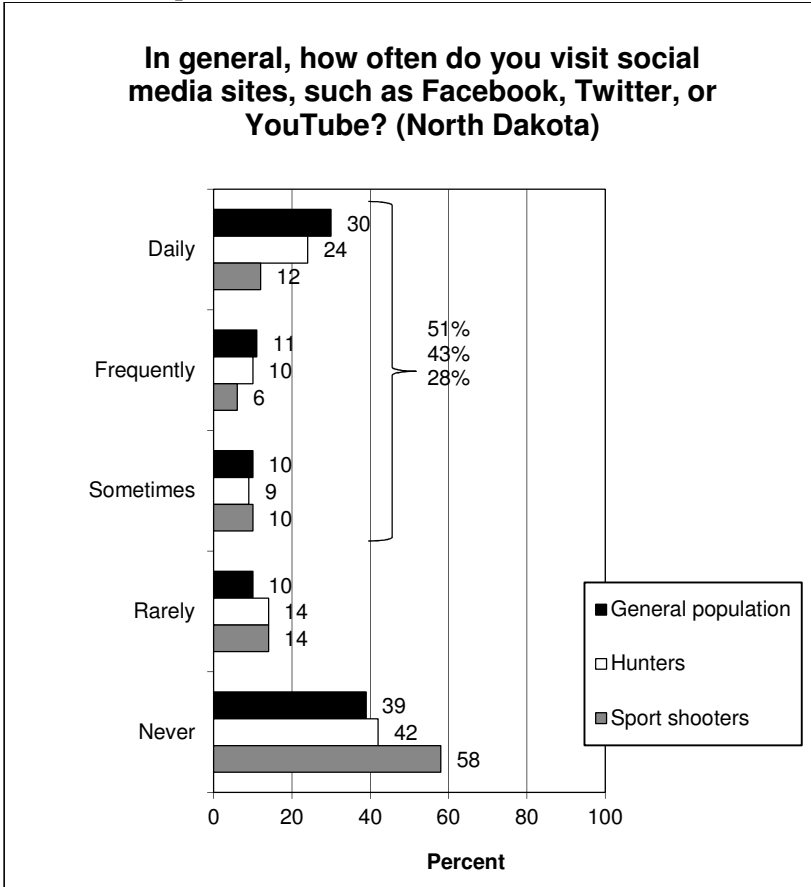
In follow-up to the question about use of social media, the survey asked
about engagement with particular entities. It found that 12% of North
Dakota residents, 10% of hunters, and 3% of sport shooters "engage with
any specific agencies, organizations, or providers of recreational activities
or opportunities" on social media (Figure 3.5.8). While these are not large
percentages, they nonetheless represent thousands of people at the state
level.

Figure 3.5.8. Engagement With Recreation Providers on Social Media[162]

In terms of Facebook, Twitter, or other social media sites you might visit, do you engage with any specific agencies, organizations, or providers of recreational activitites or opportunities?

Yes — General population: 12, Hunters: 10, Sport shooters: 3

No — General population: 49, Hunters: 47, Sport shooters: 39

Don't know — General population: 0, Hunters: 1, Sport shooters: 0

Does not visit any social media sites — General population: 39, Hunters: 42, Sport shooters: 58

■ General population
□ Hunters
■ Sport shooters

Percent

MINNESOTA RADIO CAMPAIGN

This study examined license sales in one year when a radio ad campaign aired versus license sales from the previous year in which there was no radio campaign.[163] Hunting license sales were tracked in four ways. The first was an examination of the overall sales in the two weeks immediately prior to the opening day of deer season. The second looked at overall sales in the nine days after opening day. The third way to track the data examined overall sales regardless of time period. Finally, the fourth way sales were tracked was among women.

The study found that there was a 53% increase in license sales in the two weeks prior to the season when comparing the campaign year to the prior year. However, the study notes that there were other factors believed to have played a part in that increase, the primary one being a change in license structure that year; the campaign itself likely played only a small part in that increase.

More positive results were found when comparing the nine days after the opening day (Figure 3.5.9). This time period was seen as being less influenced by the license structure change because "the regulation changes that enabled people to procrastinate in their purchase of licenses prior to the opening of [the] season had no effect once the season actually began." In this time period, there was a 36% increase over the same time period in the prior year.

Figure 3.5.9. Comparison of License Sales in Specific Time Period During Radio Campaign Year Versus the Prior Year[164]
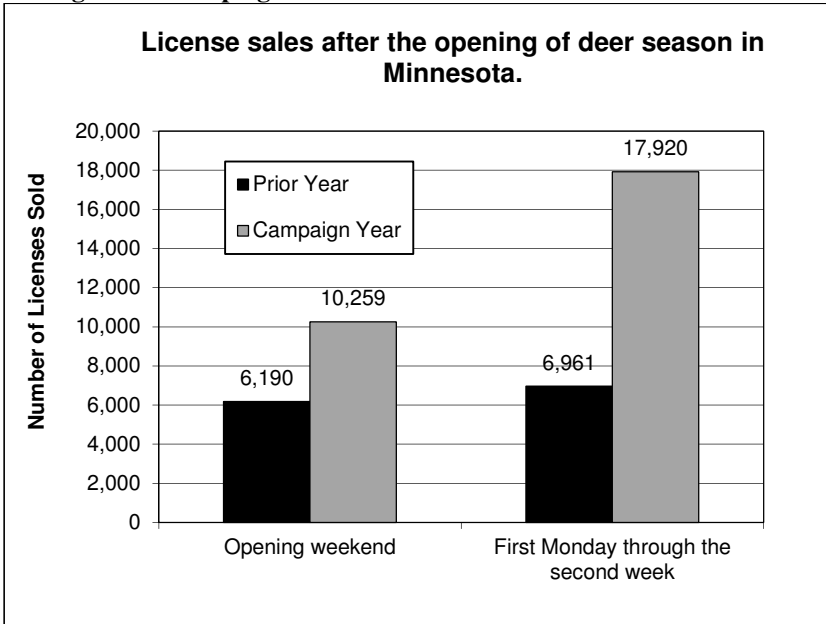
The third way that sales were tracked examined overall sales for the entire year. In looking at overall sales, the campaign year had a 2.7% increase over the prior year in total hunting license sales.

The fourth way to look at sales was among women; however, these results were inconclusive. This is in part because of some license structure changes that had occurred, which changed the way some groups purchased licenses.

Despite the lack of conclusive data on women purchasing behavior in the two years considered in the study, the assessment found positive results prompted by the radio advertising campaign. The final assessment indicated that the "Keeping Hunting in the Mainstream" campaign was a success, leading to increased sales of hunting licenses.

TENNESSEE HUNTING LICENSE SALES CAMPAIGN

Tennessee's hunting license marketing plan[165] entailed a multi-step process. The marketing team, which included agency staff, D.J. Case and Associates, and Southwick Associates, first conducted a situation analysis to analyze previous license sales data and gather information about current outreach programs and existing agency marketing and outreach plans. The analysis of license sales data and the situation analysis guided hunting license sales campaign plan development.

The agency marketing director and D.J. Case then developed a detailed, integrated, hunting license sales campaign based on results of the situation analysis. The campaign plan included specific, actionable goals, measurable objectives, target audiences, strategies, budget, timeline, and evaluation components. The campaign was then implemented, consisting primarily of television and radio ads and flyers distributed in electric bills (through a partnership with the state's Rural Electric Coop). The plan included treatment areas (in which the campaign was run) and control areas. The report about the campaign states:

> Although treatment and control areas were paired based on similar demographics, the pairings did not have identical demographics. Therefore, in order to evaluate license sales, the 2006 treatment area was compared to both the 2005 treatment area license sales and the five-year trend of treatment area license sales. The percent change in the treatment area was calculated and then compared to the percent change in the control area.

The assessment had a complicating factor: the agency had implemented a significant license fee increase in 2005, and it is commonly understood that a license fee increase often causes a drop in overall units sold, especially the first year of the increase. Therefore, the assessment was essentially going to measure the rate of decline to see if the decline was less (or reversed) in treatment areas. In other words, a successful campaign in this case still might *not* show an overall gain in license sales. Specifically:

> The primary method used to compare license sales in treatment vs. control areas was to determine the number of license units sold in 2006 in the treatment area and compare it to the average number of license units sold in the past five years in the treatment area. This provides the percentage change in 2006 vs. the five-year trend. Similarly, the percentage change in 2006 vs. the five-year trend was calculated for the control area. After the percentage change for the treatment and controls was established, the percent difference between the two numbers was calculated. This percent difference reflects the impact (positive or negative) of the campaign on the treatment area.

The evaluation was tracked monthly for five license types. The treatment areas performed better by 3.80% overall, but they particularly did well in the Resident Sportsman license (Table 3.5.13).

Table 3.5.13. Percentage Difference in License Sales Rate Between Treatment and Control Areas[166]

License Type	Sept.	Oct.	Nov.	Dec.	Total
Resident Combo	- 1.06	7.60	3.17	- 8.48	1.04
Resident Sportsman	8.22	15.60	- 5.54	49.00	8.26
Resident Big Game Gun	10.04	5.40	4.56	2.49	4.30
Resident Big Game Archery	1.32	9.51	- 15.07	44.11	2.85
Resident Big Game Muzzleloader	12.79	6.54	1.19	3.91	2.81
Total % Difference	3.60	8.72	3.65	0.88	3.80

The treatment areas were also compared temporally to themselves. In other words, 2005 sales and 2006 sales were compared in the treatment areas (the treatment areas only received treatment in 2006, so the comparison is of the same area without and with treatment). In this comparison, the treatment appeared to have an effect, with an increase of 8.10% in license sales over the previous year (Table 3.5.14).

Table 3.5.14. Percentage Difference in License Sales Rate Between 2005 and 2006 in the Treatment Areas[167]

License Type	Sept.	Oct.	Nov.	Dec.	Total
Resident Combo	18.16	- 0.28	- 2.10	- 5.40	4.96
Resident Sportsman	46.04	27.34	7.53	5.32	29.95
Resident Big Game Gun	32.08	9.95	2.68	- 1.31	4.52
Resident Big Game Archery	25.06	- 0.92	- 8.48	47.62	16.27
Resident Big Game Muzzleloader	44.49	28.66	6.06	- 9.01	10.91
Total % Difference	24.45	7.73	1.93	- 3.11	8.10

In summary, the report found that, even with the price hike, "the treatment area performed better than the control area, in both units sold and total revenue. The pro-active marketing campaign helped Tennessee to not only avoid the decline, but to actually increase license sales."

The report also stated that the treatment areas "consistently outperformed sales in the control area, when comparing percent difference in sales over the five-year trend." It noted that the agency "sold 1,220 more licenses in the treatment area than would have been sold had the campaign not been implemented," which represents $48,683 in revenue. Finally, the report concluded that, if "the campaign were implemented statewide and similar results experienced, an additional 65,600 hunters would purchase a license, generating $2.5 million in revenue."

TENNESSEE ADVERTISING OF YOUTH DOVE HUNTS

This project[168] was specific to youth dove hunts and may, therefore, not be applicable to R3 efforts in general, but it has valuable information. It entailed producing advertisements promoting multiple hunting opportunities and purchasing time on television and radio outlets in the middle and

western parts of the state (the "treatment area"). Additionally, hunters were sent direct mail in the treatment area. The report stated that the control area received only the "normal" amount of promotion, indicating that regular promotional activities outside of the youth dove hunt advertisements were *not* halted in the treatment area.

In the subsequent assessment, the "data suggests that the campaign produced 311 more H.I.P. [Harvest Information Program[169]] requests in the treatment area than would have been seen with no media campaign." Based on the stated budget in the report, which was $33,848 for the media campaign, the cost was $108.84 per additional H.I.P. request. The report did not include a cost-benefit analysis, but certainly this effort would have some long-term benefits that are not monetary, if participants were more likely to become long-term hunters. If the campaign were done statewide, the cost per additional H.I.P. permit would undoubtedly come down because the development cost of the advertisements would be less per person, but by how much would remain to be seen (and could not be judged because the report did not parse out how much of the media budget went to development of advertisements and how much went to purchasing the advertising time).

MONTANA HUNTING LICENSE MARKETING CAMPAIGN

Montana's R3 effort[170] examined here was a marketing campaign that focused on a three-wave direct mailing featuring the slogan, "ReConnect: Get Back into the Montana Hunt." Mailings included a letter from the agency director, a refrigerator magnet with the "ReConnect" message, and a newsletter with local hunting tips and other information. In addition, a media campaign was conducted wherein regional staff in the treatment area placed stories with local newspapers, conducted media interviews, and held a hunting workshop to encourage the target audience to buy hunting licenses. The report on the campaign explains the assessment methodology:

> To assess effectiveness, hunters were divided into three treatment groups and a control group. In the Flathead region, one treatment group was subjected to an integrated media campaign as well as three mailings. A second treatment group in the Flathead region was subjected to the integrated media campaign, but did not receive the mailings. A treatment group in the rest of the state . . . received mailings, but was not subjected to any other parts of the media campaign. The control group for this study consisted of individuals in the [rest of state] who received no mailings and were not subjected to the integrated media campaign.

Note that the "rest of state" that received mailings only received two mailings, not three. For this reason, the "Mail Only Area (Rest of State)" does not have a value for "After Mailing #3" in Table 3.5.15.

Table 3.5.15. License Sales in Treatment Areas Compared To Non-Treatment Areas[171]

	Media Only Area (Flat-head)	Media and Mail Area (Flat-head)	Mail Only Area (Rest of State)	Control Area (Rest of State)	Effect of Doing Mail Effort Alone (Mail Only Area – Control Area)	Effect of Adding Mail To Media Effort (Media and Mail – Media Only)	Effect of Doing Media Effort Alone (Media Only Area – Control Area)	Effect of Doing Media and Mail Effort (Media and Mail Area – Control Area)
After Mailing #1	12.3	12.2	10.6	9.7	+ 0.9	- 0.1	+ 2.6	+ 2.5
After Mailing #2	16.7	16.4	15.4	14.6	+ 0.8	- 0.3	+ 2.1	+ 1.8
% Change After Second Mailing	+ 4.4	+ 4.2	+ 4.8	+ 4.9		- 0.2		
After Mailing #3	20.1	20.2				+ 0.1		
% Change After Third Mailing	+ 3.4	+ 3.8				+ 0.4		
Total % Change	+ 7.8	+ 8.0				+ 0.2		

The results suggest that the *media and mail* campaign produced a gain when compared to the control area. The area of the combined media and mail campaign had a purchase rate of 16.4%, compared to the control area's rate of 14.6% at the time period of the second treatment, a difference of 1.8%. (No comparison after the third mailing was made because the control area's value was not shown in the report in this table.)

The next comparison looks at the *media only* campaign versus the control area that received no media campaign, and it looks at the time period represented by the "after mailing #2" (no mailings were made in either location, but the comparison looks at the time after the second mailing was made). In this comparison, the media only area had a purchase rate of 16.7%, while the control area was at 14.6%; this was a gain of 2.1% made by media campaign.

A third comparison looks at the *mail only* area versus the control area. The data show that the mail only area had a purchase rate of 15.4%, compared to the control area at that time period of 14.6%, which was a gain of 0.8%.

This difference was considered negligible, suggesting that the mail campaign by itself was not worthwhile.

Finally, a comparison looks at the effect of adding the mailing to the media campaign. This examination looks at the area that had the media and mailing (with a purchase rate of 20.2% after the third mailing) compared to the area that had only the media campaign (with a purchase rate of 20.1% at the time of the third mailing), which is a difference of 0.1%, well below the threshold for the mailing to be considered effective.

In summary, the media campaign was considered worthwhile. On the other hand, the mailings were *not* considered worthwhile, whether by themselves or whether added to the media campaign. As the assessment says, "Results show that sending mailings only to all lapsed hunters may have some benefit, but the overall response rate [i.e., the rate of purchase of licenses] is low compared to using an integrated media approach, and the return on investment . . . could be negative."

OHIO PROMOTIONAL BROCHURE

In this effort, the Ohio Department of Natural Resources developed and distributed a promotional brochure on hunting opportunities in the state.[172] The brochure was distributed to approximately 30,000 hunters who were identified as having a low probability of continued hunting participation, and then an assessment was made on its effect.

Two groups were tested: those considered to have a moderate likelihood of purchasing a license and continuing participation, and those considered to have a low likelihood of purchasing a license and continuing participation. A third test was also run that was aimed at those with a low likelihood, and this test entailed sending the brochure as well as another incentive (a hat with "We've Got Game" on it and a logo of the NSSF). These groups were compared to "control" groups that did not receive a brochure or any other incentive.

The assessment concluded that the brochure alone was not cost-effective. For the moderate likelihood group, the slight increase in hunting license purchasing (which was not statistically significant anyway) did not offset the cost of the brochure and mailing. For the low likelihood group that received only the brochure, the slight increase (not statistically significant) again did not offset the cost. Finally, the low likelihood group that received the brochure *and* the hat had a slight increase in purchasing, and in this case it was statistically significant; however, the increased cost of the incentive meant that the increase did *not* offset the cost of the campaign.

OHIO POSTCARD MAILINGS

This R3 effort[173] entailed mailing postcard reminders to four sets of hunters who had not purchased a hunting license in the previous year: sporadic hunters (considered to have a low likelihood of continued participation),

occasional hunters (considered to have a moderate likelihood of continued participation), avid hunters (those who had not bought a license in the immediate previous year but had bought a license in 3 of the 4 years previous to that), and another of avid hunters (those who had not bought a license in the immediate previous year but had bought a license in all 4 of the 4 years previous to that). This was a "multi-touch" effort in that more than one mailing was sent to hunters. The four groups that received the postcards were compared to four groups with the same parameters of participation that did *not* receive postcards.

The multi-touch postcard mailing did not appear to influence participation in the sporadic hunter group or in either of the avid hunter groups. However, the evidence suggests that the postcard mailings influenced the occasional hunter group. In this group, 34.2% of the mailing group subsequently bought a license, compared to 31.0% of the non-mailing group, and this difference was statistically significant.

When factoring in the cost of the mailings, this increase in license sales that may have been prompted by the postcards is cost-effective. In other words, the mailing is estimated to have generated more revenue in license sales than the cost of the mailings. However, the margin was slight, and the cost of first identifying the four groups was not included in the cost analysis.

OHIO LARGE INCENTIVE PROGRAM
This project first identified lapsed hunters for a targeted mailing.[174] Concurrently, the agency developed marketing materials, in consultation with advertising professionals, including materials offering an opportunity to win gift certificates for outdoor gear with the purchase of a hunting license. The materials were distributed via a letter, with a follow-up reminder postcard. There was also a website created to allow hunters to register for the outdoor gear prize drawing.

The project sent mailings to two groups: sporadic hunters (considered to have a low likelihood of continued participation) and occasional hunters (considered to have a moderate likelihood of continued participation). Two additional control groups were identified; these groups did not receive a mailing and were used for comparison to the "treatment" groups (i.e., the groups that received the mailing).

The report states that the "large incentive offer seemed to have more of an effect among sporadic hunters than among occasional hunters." The assessment found that 20.96% of sporadic hunters in the treatment group bought a hunting license, compared to 18.82% of hunters in the control group. (For occasional hunters, the percentages were 46.05% in the treatment group and 46.10% in the control group, not markedly different.) Among the sporadic hunters, "this large incentive approach was not effective at increasing participation or license purchases among Ohio hunters deemed likely to lapse from hunting." (Obviously, for occasional

hunters, because the treatment group actually had a lower rate of purchase, the large incentive approach was not effective.)

NEW HAMPSHIRE ADVERTISING CAMPAIGN, DIRECT MAILING, AND LAPSED HUNTER DISCOUNT COUPONS

This project[175] had several components. These included the development of advertising for print, radio, and television; partnerships with retailers to offer license discounts; and a direct mailing to lapsed hunters.

The report indicates that "the campaign did not change the churn rate when comparing the target area to the statewide numbers." The effort also did not appear to increase the percentage of hunting education graduates who buy a license and go hunting. Regarding the discount cards that were provided to be used with the partner retailers, the report indicates that "few discount cards were used" and went on to say that "the retailer impact is thought to have been minimal."

ENCOURAGING HUNTER EDUCATION PARTICIPANTS TO PURCHASE A HUNTING LICENSE

This study first discussed the percentage of hunter education course graduates who went on to purchase a hunting license in Alabama, Georgia, and Kentucky: 70% (Alabama), 76% (Georgia), and 78% (Kentucky) of hunter education course graduates subsequently purchased a license in that season. The project[176] was aimed at those who did *not* purchase a license.

The study entailed a marketing campaign to encourage hunter education graduates who had not yet purchased a hunting license to do so. The campaign distributed license purchase reminders to hunter education course graduates in those three states. An evaluation then determined the effectiveness of the delivery methods, of the messages themselves, and of the specific combinations of method and message.

Overall, the campaign tested single and multiple wave messaging strategies employing four different delivery methods (email, letter, postcard, and telephone call) and the following five unique messages (note that some information included in the messages, such as public hunting land acreage, varied by state, as indicated by brackets):

1. *Traditional / Emotional Appeal:* "This Season, Get Together, Get Outside, and Make Memories with the Many Great Hunting Opportunities in [State]!"
   (included an image of several hunters smiling together, holding squirrel harvested)

2. *Naturalistic Appeal:* "This Season, Connect with the Great Outdoors and Enjoy the Peace and Relaxation of Nature Through the Many Great Hunting Opportunities in [State]!"
   (included an image of white-tailed deer in natural forest setting)

3. *Informational Appeal – Private Lands:* "This Season, Take Advantage of the Many Great Hunting Opportunities in [State]! In addition to [Over 756,000 / Nearly a Million / More Than 1.5 Million] Acres of Wildlife Management Areas and Other Public Hunting Lands in [State], Private Land Hunting Opportunities May be Available Near You as Well—It Never Hurts to Ask."
(included an image of hunter hunting on tract of private land with farmhouse in distance; note that the wording was different for each state, as shown)

4. *Informational Appeal – Hunting Seasons:* "This Season, Take Advantage of the Many Great Hunting Opportunities in [State]! [State] Hunters Can Hunt White-Tailed Deer, Wild Turkey, Small Game, Waterfowl, and Many Other Species."
(included a collage image of several different popular hunting species)

5. *Informational Appeal – WMAs:* "This Season, Take Advantage of the Many Great Hunting Opportunities in [State]! [State] Hunters Have Access to [Over 756,000 / Nearly a Million / More Than 1.5 Million] Acres of Wildlife Management Areas and Other Public Hunting Lands."
(included an image of several hunters walking on a WMA tract of land; note that the wording was different for each state, as shown)

On emails and postcards (i.e., the two delivery methods suited to the use of graphic or visual elements), the appeals included a hunting-related image (no images were used with letters or, obviously, telephone calls). Messages and images were based partly on previous research with hunters but also incorporated specific images and other content provided by the three partner agencies. In addition to the hunting-related appeals and images, each post card included a reminder to purchase a state hunting license and provided a web address and toll-free telephone number to do so. For messages delivered via email, a direct, clickable link to the license purchasing website was provided.

The study was further designed to test the effects of single wave and multiple wave messages. The marketing campaign included two waves of emails, letters, and postcards. (Although the first wave of telephone calls resulted in reasonable success, the researchers made the decision to conduct only a single wave of telephone messages following some minor negative feedback from recipients regarding license purchase reminder messages or "marketing calls" conducted on behalf of a government agency.) Some hunter education course graduates received only one message, and some received two messages to evaluate whether multiple mailings further increased the lift in license purchases.

Individual sample groups of hunter education graduates who had not purchased a hunting license were randomly selected for each individual combination of method and message. No recipient ever received more than one type of message, nor did anyone receive a message by more than one

method of delivery. This design resulted in 35 different treatment groups, as follows. For each of five messages, there were two groups for email, to for letter, and two for postcard—depending on whether one email, letter, or postcard were sent or multiple emails, letters, or postcards were sent— making six of the groups for each message. In addition, there was a seventh group for each message consisting of those who received a telephone call (only one telephone contact was made). A control group that did not receive any messages by any methods was also established for calculating the lift.

One comparison looked at all treatment groups together, regardless of message, versus the control group. For two of the three states, the treatment groups bought licenses at a higher rate than did the control group (Table 3.5.16). However, only in Alabama was there a substantial gain.

Table 3.5.16. Effect of Treatment Overall Versus Control Group[177]

	Purchase Rate in Alabama	**Purchase Rate in Georgia**	**Purchase Rate in Kentucky**
Treatment Group	6.5%	0.9%	0.3%
Control Group	5.0%	1.0%	0.0%
Amount of Gain	1.5%	No gain	0.3%

The assessment also included a look at the delivery method (Table 3.5.17). Three of the methods were compared to the same control group; there was a separate control group for the telephone call method in Alabama and Georgia. In all three states, email faired the best, particularly in Alabama where email produced a 5.7% boost.

Table 3.5.17. Treatment Versus Control Group by Delivery Method[178]

	Email	**Letter**	**Postcard**	**Telephone Call**
Alabama				
Treatment Group	10.7%	5.5%	6.0%	4.9%
Control Group		5.0		3.9%
Amount of Gain	*5.7%*	*0.5%*	*1.0%*	*1.0%*
Georgia				
Treatment Group	1.7%	0.9%	0.9%	0.5%
Control Group		1.0%		0.7%
Amount of Gain	*0.7%*	*no gain*	*no gain*	*no gain*
Kentucky				
Treatment Group	0.6%	0.5%	0.1%	0.1%
Control Group		0.0%		
Amount of Gain	*0.6%*	*0.5%*	*0.1%*	*0.1%*

The comparison looked at the type of message, regardless of delivery method, as shown in Table 3.5.18. In this comparison, Message 5 (with a gain of 2.3%) did the best in Alabama, followed closely by Messages 3 and 4 (both with a gain of 1.5%). In Georgia, Message 3 did the best, but it was not a substantial gain (only 0.1%), and no other message in Georgia

produced any gain. Finally, in Kentucky, Message 4 (0.8% gain) did the
best, but, again, it was not a substantial gain.

**Table 3.5.18. Treatment Versus Control Group by Message, All
Delivery Methods**[179]

	Treatment Group	Control Group	Amount of Gain
Alabama			
Message 1	5.9%		0.9%
Message 2	6.1%		1.1%
Message 3	6.5%	5.0%	1.5%
Message 4	6.5%		1.5%
Message 5	7.3%		2.3%
Georgia			
Message 1	0.9%		no gain
Message 2	1.0%		no gain
Message 3	1.1%	1.0%	0.1%
Message 4	1.0%		no gain
Message 5	0.6%		no gain
Kentucky			
Message 1	0.1%		0.1%
Message 2	0.0%		0.0%
Message 3	0.5%	0.0%	0.5%
Message 4	0.8%		0.8%
Message 5	0.2%		0.2%

The final comparison looked at all messages and all delivery methods
together. (Note that Kentucky had too few license purchasers for this
analysis to be run. For this reason, tables are only available for Alabama
and Georgia.) The combination resulting in the highest lift for the
marketing campaign in Alabama was Message 2 (naturalistic appeal)
delivered by email (Table 3.5.19). This combination of message and
delivery method resulted in a 133.91% lift in license sales among hunter
education graduates. The total purchase rate for Message 2 delivered by
email was 11.6%, compared to 10.7% for any email message, 6.1% for
Message 2 using any delivery method, and 5.0% for the overall Alabama
control group. The increase in comparison to the control group is
statistically significant.

The combination of email and Message 5 produced a lift of 6.66 percentage
points compared to the overall control group. The increase in comparison
to the control group is statistically significant. In addition to the top
combination of message and delivery method described above, every other
combination of a message with email as the delivery method resulted in
statistically significant differences between the Alabama treatment and
control groups: Message 3 delivered by email resulted in a purchase rate of
10.91%; Message 1 delivered by email resulted in a purchase rate of
10.80%; Message 5 delivered by email resulted in a purchase rate of
10.79%; and Message 4 delivered by email resulted in a purchase rate of
9.18%.

Table 3.5.19. Treatment Versus Control Group by Message and Delivery Method, Alabama[180]

		Treatment Group	Control Group	Amount of Gain	Estimated Increase in License Sales Due To Campaign
Email	Message 1	10.80%		5.83%	117.24%
	Message 2	11.63%		6.66%	133.91%
	Message 3	10.91%		5.94%	119.42%
	Message 4	9.18%		4.21%	84.65%
	Message 5	10.79%		5.82%	116.93%
Letter	Message 1	3.15%		no gain	no gain
	Message 2	4.78%		no gain	no gain
	Message 3	6.21%	4.97%	1.24%	24.94%
	Message 4	6.41%		1.44%	28.95%
	Message 5	6.87%		1.90%	38.22%
Postcard	Message 1	7.65%		2.68%	53.79%
	Message 2	4.34%		no gain	no gain
	Message 3	4.99%		0.02%	0.47%
	Message 4	8.33%		3.36%	67.45%
	Message 5	4.23%		no gain	no gain
Telephone Call	Message 1	4.47%		0.52%	13.16%
	Message 2	4.48%		0.53%	13.38%
	Message 3	4.95%	3.95%	1.00%	25.46%
	Message 4	5.02%		1.07%	27.05%
	Message 5	5.55%		1.60%	40.48%

Continuing the analysis of media and messages in Alabama shown in Table 3.5.19, none of the combinations of message and delivery by letter resulted in statistically significant differences between the treatment and control group purchase rates. One combination of message and delivery by postcard resulted in a statistically significant difference between the treatment and control group purchase rates: Message 4 (informational appeal—hunting seasons) delivered by postcard resulted in a 67.45% lift in license sales among hunter education graduates. Similarly, one combination of message and delivery by telephone call resulted in a statistically significant difference between the treatment and control group purchase rates: Message 5 (informational appeal—WMAs) delivered by telephone call resulted in a 40.48% lift in license sales among hunter education graduates.

Now turning to the results in Georgia, the analysis found that the combination resulting in the highest lift for the marketing campaign in Georgia was Message 4 (informational appeal—hunting seasons) delivered by email, which resulted in a 165.95% lift in hunting license sales among

Georgia hunter education graduates (Table 3.5.20). The total purchase rate for Message 4 delivered by email was 2.6%, compared to 1.7% for any email message, 1.0% for Message 4 using any delivery method, and 1.0% for the overall Georgia control group. The combination of email and Message 4 produced a lift of 1.60 percentage points compared to the overall control group. The increase in comparison to the control group is statistically significant.

Table 3.5.20. Treatment Versus Control Group by Message and Delivery Method, Georgia[181]

		Treatment Group	Control Group	Amount of Gain	Estimated Increase in License Sales Due To Campaign
Email	Message 1	1.00%		0.04%	4.24%
	Message 2	1.53%		0.57%	58.76%
	Message 3	2.05%		1.09%	112.76%
	Message 4	2.56%		1.60%	165.95%
	Message 5	1.53%		0.57%	59.57%
Letter	Message 1	1.53%		0.57%	58.76%
	Message 2	1.54%		0.58%	60.40%
	Message 3	0.50%	0.96%	no gain	no gain
	Message 4	1.00%		0.04%	4.24%
	Message 5	0.00%		no gain	no gain
Postcard	Message 1	1.03%		0.07%	6.93%
	Message 2	2.01%		1.05%	108.49%
	Message 3	1.01%		0.05%	4.77%
	Message 4	0.51%		no gain	no gain
	Message 5	0.00%		no gain	no gain
Telephone Call	Message 1	0.74%		0.04%	5.78%
	Message 2	0.45%		no gain	no gain
	Message 3	0.59%	0.70%	no gain	no gain
	Message 4	0.45%		no gain	no gain
	Message 5	0.30%		no gain	no gain

No other combination of message and delivery method resulted in a statistically significant difference between the Georgia treatment and control group purchase rates. However, several other combinations did produce notable purchase rates. The purchase rate for Message 2 (naturalistic appeal) delivered by letter was 1.5%, compared to 0.9% for any letter message, 1.0% for Message 2 using any delivery method, and 1.0% for the overall Georgia control group. The combination of letter and Message 2 produced a lift of 0.58 percentage points compared to the overall control group.

The purchase rate for Message 2 (naturalistic appeal) delivered by postcard was 2.0%, compared to 0.9% for any postcard message, 1.0% for Message 2 using any delivery method, and 1.0% for the overall Georgia control group. The combination of postcard and Message 2 produced a lift of 1.05 percentage points compared to the overall control group. Finally, the purchase rate for Message 1 (traditional/emotional appeal) delivered by telephone call was 0.7%, compared to 0.5% for any telephone call message, 0.9% for Message 1 using any delivery method, and 0.7% for the Georgia telephone call control group. The combination of telephone call and Message 1 produced a lift of 0.04 percentage points compared to the telephone call control group.

A final part of the analysis looked at the effect of one contact versus a second contact, which was done by email, letter, and postcard (but not telephone, as explained previously).

A second wave of messages appeared to increase license purchases among Alabama hunter education graduates: for the entire campaign in Alabama, hunter education graduates who received a second message purchased hunting licenses at a higher rate than did those who received only a single message. The purchase rate was 7.8% for the multiple wave group, compared to 6.2% for the single wave group and 5.0% for the control group. The differences in these comparisons are statistically significant.

While Georgia hunter education graduates who received a second wave of messages purchased licenses at a slightly higher rate than did graduates who received just one message, the difference between the two groups is not statistically significant. The purchase rate for the multiple wave group was 1.2%, compared to 0.8% for the single wave group and 1.0% for the control group.

INCREASING PARTICIPATION IN QUOTA HUNTS

Florida conducted this project to increase the number of people who apply for and participate in Florida's quota hunts, including participation by beginning hunters.[182] This entailed identifying Florida hunters who had not applied for Florida's quota hunts or had discontinued applying in recent years, determining why these hunters had not applied or had stopped, and trying to influence them to participate in quota hunts via direct mail and email. The project also sought to encourage successful applicants to use the new guest permit available to each hunter to bring along a beginning hunter on these limited-entry hunts.

This campaign targeted Florida hunters who had not applied for quota hunt permits within the previous few years. These hunters were then divided into loyal (annual) hunters and infrequent hunters. An attempt was made to identify those who recently completed hunter education, as well.

Specifically, the effort was a direct mail campaign to encourage hunters to participate in quota hunts and to "bring a friend." The direct mail campaign also promoted the "Hunt Florida" website to learn how to apply for quota hunts and about the (then) recent changes to the program.

The target audience was segmented for analysis. The results found that every target audience segment increased its purchasing after the combination of the direct mail and direct email campaign (Table 3.5.21). The overall gain was 5.7% (a purchase rate of 25.3% compared to the control at 19.6%).

Table 3.5.21. Response To Direct Mail and Email Campaign in Florida[183]

	Control		Mail only		Mail and Email	
	#	**% who purchased license**	**#**	**% who purchased license**	**#**	**% who purchased license**
Lapsed Quota Applicants	2,537	17.9%	8,422	15.6%	4,180	20.0%
5-Year WMA Permit Purchasers	45	0.0%	170	8.2%	46	19.6%
WMA Annual Permit Purchasers (FY 08/09)	203	19.7%	1,204	17.9%	456	36.2%
WMA Annual Permit Purchasers (before FY 08/09)	1,140	28.0%	5,657	17.4%	1,549	32.6%
No previous record of WMA hunting	75	56.0%	177	58.8%	139	71.2%
Total	4,000	19.6%	15,630	16.9%	6,370	25.3%

Furthermore, the results suggest that the email was an integral part of the campaign, as the "mail only" column does not show positive results (except on the only category, "5-year WMA permit purchasers," that does not have a particularly high sample size because so few hunters fell into that category (the other sample sizes are quite robust). In other words, the "mail only" gain of 8.2% among that group is not notable because it represents so few people.

Note that the comparison is not completely straightforward because of the effect of undeliverable letters and "bounced back" email addresses. Of the 22,000 letters mailed, 774 were returned as undeliverable. Of the 9,412 emails sent, approximately 1,000 were undeliverable. There is no way to estimate the percentage of the control group who are actually no longer valid (i.e., who have moved out of the state or died). Although the exclusion or inclusion of these would affect how the percentage rates were determined, the results nonetheless suggest that the media and mail campaign would show an increase if conducted.

LOCAVORE PROGRAMS

One study[184] looked at seven pilot programs pertaining to cooking caught fish and harvested game. These programs were targeted to young adults in urban and suburban settings who had shown interest in locally grown or organic foods, in large part non-traditional audiences. The programs specifically targeted participants from non-traditional backgrounds who were thought to have lifestyles and social networks supportive of or conducive to hunting and/or fishing. Table 3.5.22 shows the listing of programs looked at in the study.

Table 3.5.22. Locavore Programs Examined in the Study[185]

Program	State
Taste of the Outdoors Hunting Program	Arkansas
Edible Outdoors Fishing Program	Iowa
Field to Fork Hunting Program	Kentucky
Hook and Cook Fishing Program	Kentucky
Hunting for Sustainability Program	South Dakota
Learning to Hunt for Food Program	Wisconsin
Fishing for Dinner Program	Wisconsin

The assessment methodology entailed the administration of surveys immediately before and following each program (pre- and post-program surveys); programs conducted in Iowa, Kentucky, and South Dakota also included participant surveys administered at the end of the hunting or fishing season (post-season surveys). A series of questions was repeated across the surveys to examine changes in confidence in various areas related to hunting and fishing.

By some measures, these programs had some quite successful aspects. They did indeed find non-traditional audiences: 44% of participants were female, 61% described their residence as urban or suburban (i.e., not rural or small city/town), and 78% had a bachelor's degree (with or without a higher degree). These statistics are all quite different from hunters and anglers as a whole. Perhaps even more important, 63% of participants in the hunting programs had never hunted before, and 8% of those in the fishing programs had never fished before. (Fishing is lower in part because so many people have fished at some time in their life, so there is simply a lower pool of people who have not done so.)

These programs were well-liked. Among all program participants, 73% rated the program a 5, and 96% rated the program a 4 or 5 (on a 1 to 5 scale, with 5 being the best rating). Also, 81% of hunting program participants and 85% of fishing program participants rated their hunting/fishing experiences during the program as a 5.

Post-program surveys found that 92% of all participants who completed a hunting program participated in a hunting, shooting, or archery activity after the program (hunting with firearms or archery equipment, target or sport shooting, or archery/crossbow shooting). Additionally, 52% of all

participants who completed a fishing program participated in either freshwater or saltwater fishing after the program.

Large percentages (70% of hunting program participants and 86% of fishing program participants) also indicated that they were likely to continue hunting/fishing after the program. Purchasing behaviors may also have been boosted: 85% of hunting program participants and 70% of fishing program participants purchased hunting/fishing equipment after the program.

The programs also improved participants' skills. Table 3.5.23 shows the average increases in confidence in skills/knowledge in various areas related to hunting, based on the 1-5 rating scale (with 1 being not at all confident and 5 being extremely confident). The average increases were calculated by comparing the differences between the average ratings in the pre- and post-program surveys among all participants who completed a hunting program. Table 3.5.24 shows the same for fishing locavore programs.

Table 3.5.23. Increase in Self-Rated Skill Level After Hunting Locavore Programs[186]

Area of Confidence in Skills/Knowledge—Hunting Programs	Average Increase in Rating (Comparing the Pre-Program and Post-Program Survey Results; Question Used a 1-5 Scale)
Ethical shot placement	2.17
Butchering and preservation	2.16
Field recovery of game	2.09
Field dressing	2.03
Scouting and choosing hunting spots	1.97
Identifying places to hunt (access)	1.78
Cooking harvested meat	1.31
Hunting seasons and regulations	1.29
Hunting license requirements	1.26
Firearm safety	1.00
Shooting skills	0.99

Table 3.5.24. Increase in Self-Rated Skill Level After Fishing Locavore Programs[187]

Area of Confidence in Skills/Knowledge—Fishing Programs	Average Increase in Rating (Comparing the Pre-Program and Post-Program Survey Results; Question Used a 1-5 Scale)
Preparation and cooking of fish	1.73
Fishing seasons and regulations	1.64
Cleaning fish	1.64
Identifying places to fish (access)	1.44
Using appropriate bait and lure to catch fish	1.36
Fishing technique	1.30
Choosing the right spot on the water to catch fish	1.30
Fishing license requirements	1.23

Newspapers, flyers, local food blogs, online advertisements and online content (including Facebook and Twitter), television, radio, and school email, as well as word-of-mouth, were the sources from which participants had heard of the programs.

CHAPTER 3 ACTION ITEMS[188]

➢ **Awareness of state fish and wildlife agencies is low; agencies should strive to gain better name recognition.**

➢ **R3 programs themselves should also attempt to raise awareness of the state's fish and wildlife agency.**

➢ **Awareness of R3 programs is also relatively low; outreach is needed to raise awareness of programs that outdoor recreationists can take advantage of.**

➢ **Many R3 programs are drawing from a pool of people who, for the most part, either already do the activity or would be highly likely to do the activity regardless of whether the R3 program existed. While there is a place for R3 programs aimed at this traditional audience, there need to be some R3 programs that draw from non-traditional audiences.**

➢ **R3 programs should consider a marketing approach, which is a process with (at least) four-steps: a situational assessment to see where the agency/organization is, the development of a marketing objective that sees where the agency/organization wants to be, the development and implementation of the marketing strategy to get the agency/organization there, and then an assessment of the effort**

to see if the marketing strategy got the agency/organization to the objectives.

➢ **R3 programs should not attempt to be a one-size-fits-all program. Because the general public is not homogenous, R3 programs must account for the different groups within the overall population and the different ways that they respond to various themes or actions.**

➢ **Many marketing campaigns were reviewed for this report. Although results vary widely from program to program, making concise summarization difficult, some generalities emerged. The overall finding, however, is simply that state and local conditions play a huge part in the success or failure of any effort, and no one silver bullet exists that will be successful in all places at all times. Some of the general findings follow.**

➢ **One finding of this review of programs is that many of the successful programs first identified specific markets to target (such as lapsed hunters or anglers) so that the marketing was to a somewhat narrow group rather than to the population as a whole. Therefore, ensure that programs have targeted populations for maximum effect.**

➢ **Direct mail, because of its relatively high expense, was often not cost-effective. If it is done, it needs to be a very targeted mailing to an identified group, such as lapsed anglers who had purchased a license in the past but not in the previous year. In such applications, when narrowly directed, mailings have worked because it reduces the number of letters/postcards sent and allows for specific messaging to that group.**

➢ **One program used fliers in utility bills, which was cost-effective because of a partnership between the utility company and the fish and wildlife agency—in other words, the program saved on mailing costs by using existing mail. A mailing done this way should be considered, if mailings are being considered.**

➢ **Email, because of its relatively low expense, was often cost-effective. Although in some studies not as memorable as paper letters, for instance, the low cost of email means that it is more cost-effective.**

➢ **Television and radio often showed positive results; however, their high costs are a consideration. Although they proved cost-effective in some instances, in other programs they were not particularly cost-effective.**

> ➢ **Message themes were also assessed. Unfortunately, there is no single, definitive finding. In one program, appealing to heritage worked well; in another program, heritage was the least effective message theme. Ecological appeals worked well in one program and seem to do well in general (but not "environmental," which is a word with much baggage attached apparently—"conservation" is generally perceived better than "environmental" in messages).**

> ➢ **Because the various programs had quite various methods for assessing their effectiveness, the results were not always comparable. Ensure that assessments of various efforts are comparable so that the most effective efforts can be identified. Unfortunately, some of the programs had assessments that were not entirely useful.**

CHAPTER 4. IMPROVING SKILLS AND TRAINING FOR PARTICIPANTS

CHAPTER OVERVIEW

➢ **Participants can be thought of as moving through stages of participation—moving from beginner to (hopefully) an avid participant. R3 efforts have to consider the stages that the participants are in so as to properly target their efforts on them.**

➢ **The traditional path of recruitment can be used as a basis for understanding how people become involved in hunting, fishing, sport shooting, and archery. Note that the traditional path is known for producing highly avid participants, but the traditional path cannot be used by all.**

➢ **Volunteering is highly important to R3 efforts, with mentoring, both informal mentoring and more structured mentoring, being an effective R3 effort. Mentored participants are more avid than those who are participating without a mentor.**

➢ **Volunteering in its broadest sense can include the loaning of lands or the loaning or giving of materials to an effort. Material donations can be either perishables or non-perishables, the former to include food or ammo, for instance, and the latter to include equipment.**

➢ **Volunteering also, and perhaps most importantly, includes donations of time and effort. Mentoring is one way to donate time and effort.**

➢ **The research suggests that participants in hunting, fishing, sport shooting, and archery tend to be favorable toward mentoring— with as much as 79% of hunters and 65% of sport shooters saying that they have taken a novice to participate in the sports.**

➢ **Retaining volunteers is important for any organization. Seen as important in retaining them are to allow them to provide feedback to the organization (i.e., make them feel that they are being listened to), provide them with training and structure within the volunteering environment, and reward or otherwise recognize them for their effort. Recognizing them in front of their peers is seen as particularly satisfying to them.**

➢ **This chapter also discusses various methods of providing education and outreach. The advantages of the classroom format is its face-to-face interaction that allows both instructors and students to clarify anything presented. It can also be more engaging to participants than the use of self-learning tools, and it may help reinforce a sense of belonging to a community.**

➢ **The disadvantages of the classroom format is that it is not always popular, particularly relative to hands-on activities. An obvious disadvantage is that the format is confining as far as one's schedule goes—self-learning tools can be generally used at any time, while a class has a definite time and place. Classrooms also require the infrastructure of the classroom itself—a community center for instance—and can reach capacity quickly depending on the size of the facility.**

➢ **Hands-on and in-the-field components have the decided advantage of being popular. Program participants generally like them, particularly compared to sitting in a classroom. They can help foster a social atmosphere as well, which is integral to retention efforts.**

➢ **A disadvantage of hands-on/field components is that they often cannot accommodate many people at a time. They can also be expensive (to get equipment, for instance) and time-consuming.**

➢ **Self-learning tools have the advantage of being relatively inexpensive to the consumer and can accommodate many topics. They are also convenient, by definition, to the person using them. In other words, the student can use them at any time.**

➢ **The disadvantage of self-learning tools is that they do not foster community, and they do not allow for the interaction or clarification that is sometimes needed. They also can have a lack of supervision.**

This chapter's theme emphasizes retention efforts—the word, "improving," implies that there had to be something to improve upon, some starting point that was already reached. So the chapter starts with a discussion of the progression through stages of participation. Next, the "traditional" path of recruitment and retention is presented as a basis for understanding initiation into hunting, fishing, sport shooting, and archery.

The chapter then examines volunteering and mentoring—deemed necessary to keep participants moving through the progression to avid participant. Finally, the chapter looks at various methods of providing education and outreach, with sections on the classroom setting, hands-on/in-the-field activities, and self-learning tools.

4.1. THE STEP-BY-STEP PROGRESSION

The participation adoption model discussed extensively in Chapter 2 forms the basis for the step-by-step progression discussed here. For this reason, it is useful to quickly review the model here because skills building is dependent on the participant's development stage. The model used here was developed by Matthews.[189] His four stages are described below and are shown in Figure 4.1.1 (it is also shown in Chapter 2 but is repeated here for the reader's convenience).

- **Awareness Stage:** A general goal in this stage is public familiarity with and acceptance of the activities.

- **Interest Stage:** The intended outcome at this stage is the initial spark of interest.

- **Trial Stage:** This stage centers on training of the new participant and focuses on education programs for improving knowledge, skills, and behavior, such as self-sufficiency with equipment. The eventual outcome is trial of the activity over multiple occasions.

- **Adoption/Continuation Stage:** The final stage is one of retention, with the most important strategies leading to the strengthening of social networks to ensure long-term commitment to the activity.

It is worth noting that some researchers[190] further segment the continuation stage to include "continuation with support," "continuation without support," and then "continuation and proponent" as the final stage.

Figure 4.1.1. Participation Adoption Model[191]

Stages of Participation in Activities and Associated Strategies for Recruitment, Retention, and Reactivation

| Public relations and promotion campaigns | → | AWARENESS |

↓

| Recruitment; providing threshold experiences | → | INITIAL INTEREST |

↓

| Education programs; access programs | → | TRIAL |

↓

| Retention; building social support | → | ADOPTION AND CONTINUATION |
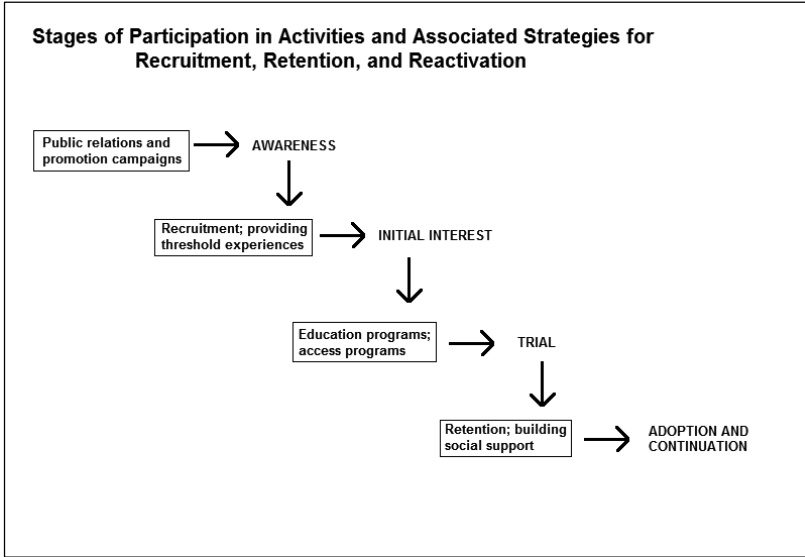
Another way to conceptualize the stages of development is shown in Figure 4.1.2 (it concerns hunting but can be applied to fishing, sport shooting, and archery).[192] This model shows that participants can move from any of the stages into a period of inactivity, which can then lead to desertion from the sport.

Figure 4.1.2. Modification of the Participation Adoption Model[193]

STAGES OF DEVELOPMENT OF INTEREST AND INVOLVEMENT IN HUNTING

| AWARENESS | → | INTEREST | → | TRIAL | → | CONTINUATION |

↑↓   ↑↓   ↑↓

| INACTIVITY |

↓   ↓   ↓

| DESERTION |
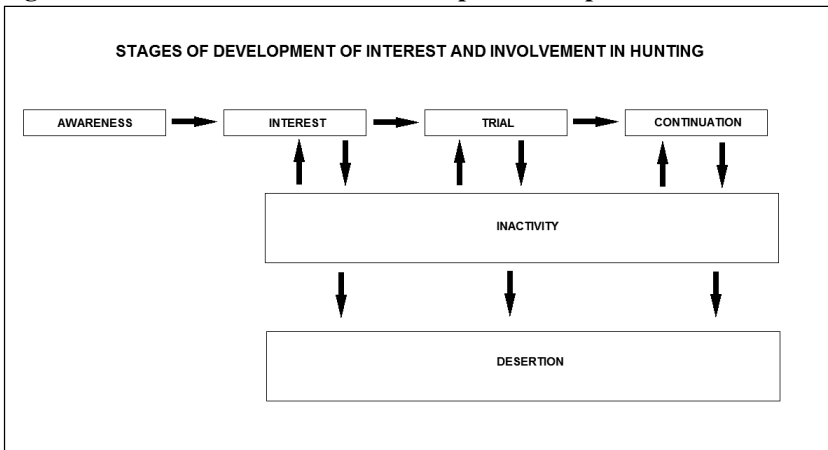
A third model[194] is shown in Figure 4.1.3, adapted by Larson et al. from work of Purdy et al. All the models share an important feature: that the process of recruitment, retention, and reactivation is composed of stages that the participant is in at any given time along the pathway. The latter two models also show fluid paths, with participants able to move in either

direction on the path. Any of these models would be useful as a basis for assessing where in the pathway the participant is and how any skills building programs and efforts support the participant's movement through the model to the continuation stage.

Figure 4.1.3. Hunter Recruitment and Retention Process Model[195]
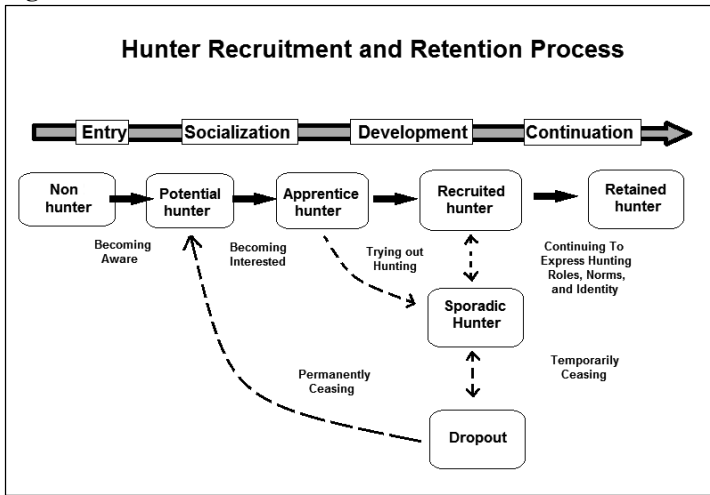
Welcoming Adult-Onset Hunters

Tovar Cerulli

The lead instructor was uneasy but curious. The student walking into his hunter-education class was two decades older than most. He also had a braid halfway down his back. Was this long-haired character an animal-rights activist bent on disrupting the course? Or was he, for some odd reason, seriously interested in learning to hunt?

It has been thirteen years since I walked into that rod and gun club, eleven since I cut off the braid. In that time, I have talked to many people about why they hunt. I have devoted special attention to those I call "adult-onset hunters," women and men who, like me, came to the pursuit later in life. As instructors across the country have noticed, a lot of us have been showing up in hunter-education classes lately.

This surge of interest in hunting can be traced to several origins. Most central is the so-called "food movement." Books like *The Omnivore's Dilemma* and films like *Food, Inc.* have made people

continued

more aware of the ethical implications and ecological impacts of what they eat. They want free-range chicken, grass-fed beef, and similar products now offered at food co-ops, farmers markets, and even supermarkets. For many new hunters, going after wild meat is a logical next step. In addition, the surge has been fueled by the "paleo" diet, the "primal" lifestyle movement, a revival of interest in traditional skills, and widespread efforts aimed at reconnecting both children and adults to nature.

In talking about hunting, these new hunters voice several key ideas. They say hunting provides them with a sense of connection and belonging. Partly, it connects them to humanity's ancestral roots. Primarily, it connects them to nature: land, animals, and the food chain. Procuring natural, healthy, non-industrial food is important to many. Hunting is a way to take direct, hands-on responsibility—both ethical and ecological—for some of their own sustenance.

They also say that hunting makes them feel more fully engaged with the land and their own senses: learning to track deer, striking up a call-and-response conversation with a wild turkey, or listening as the pre-dawn forest comes alive with birdsong. For many, hunting—the focused state of mind the pursuit demands and the gritty reality of taking wild meat—serves as a response, even an antidote, to the frenzied distractions and disconnections of modern life.

As these men and women take their first steps into hunting, there are several things that longtime hunters can do to help.

First and foremost, you can do what my lead instructor did during several after-class conversations with me: approach them with respect and curiosity. As he did, set aside any uneasiness you may feel and make the learning mutual. In addition to answering their questions, ask what draws them to hunting and listen with an open mind. Respect the differences between you, yet listen for common ground. You might be surprised by how many values you share.

Second, learn their language just as they are learning yours. They may talk about "reconnecting to nature" or "taking responsibility" or "organic meat." You may talk about "challenge" or "sport." Despite emphasis on different ideas, listen for notes that strike a common chord. Recall how you appreciate being immersed in nature and bringing home good meat you have taken yourself. And notice how they get engaged by the challenges of becoming a successful hunter.

Third, recognize that these new hunters often face obstacles. Many are unsure about taking the life of another animal. Many are uneasy with firearms and have little experience handling them. Most don't have any of the woods knowledge you learned as a kid. Many don't have places to hunt. Many lack close friends who hunt. Many carry negative stereotypes about hunters, have had bad experiences with hunters, and are put off by the outdoor industry's aggressive, macho portrayals of hunting. As a teacher and role model—as a kind of gatekeeper to the unfamiliar world of hunting—you can help them overcome these barriers.

Lastly, consider mentoring one or more of these new hunters personally and in-depth. It can be an extraordinarily rewarding experience, offering the chance to learn as much as you teach.

Adult-onset hunters are not just a few more boots in the field or a few more license dollars. We are ambassadors to the non-hunting public. In many cases, we are the only hunters in our families, workplaces, or circles of friends. In each of these spheres, we can bust stereotypes about hunters. We can also help the hunting community understand non-hunters' views. Ambassadors like us are crucial not only to ensuring the future of hunting but also to building the broad-based coalitions needed for effective wildlife conservation in the Twenty-First Century.

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4.2. THE "TRADITIONAL" PATH OF RECRUITMENT

This section is included not to show the way that recruitment should occur but to help with the reader's understanding of recruitment. Obviously, this "traditional" path of recruitment is not a panacea for the community—the utility of this handbook would be nil if its only recommendation was to have recruitment be done through family in a traditional path—but it serves to show a path that works and whose elements should, when appropriate, be emulated in R3 efforts.

THE PRIMARY ELEMENTS OF THE TRADITIONAL PATH

The traditional path should first be defined (it was developed to apply to hunters but is applicable to any of the activities of focus here). This can be

done simply by examining how most hunters come to be hunters. A study[196] that looked specifically at initiation found that hunters' most common age of hunting initiation is 10 to 12 years old, and a majority had hunted at least once by the age of 12. The first element of the traditional path is that it starts at a fairly early age.

This same study found that, among active hunters (those who had hunted within the 2 years previous to the survey), the large majority (68%) had first been taken hunting by their father, and another 7% by their grandfather. In other words, three-quarters had an initiation that could be described as paternal. Even when not through a father or grandfather, initiation is nearly always through family. For instance, a study of youth found that 92% of those youth who had hunted in the year previous to the survey had family members who hunt; only 8% came from non-hunting families.[197] The family connection makes up the second element of the traditional path.

A third element of the traditional path is the presence of a social support system—being around those who also participate in the activity. Research throughout the 1970s up to today suggests that the presence of a hunting culture is an important element of hunting initiation and continuation.[198] Other research reaffirms this. For instance, a nationwide survey[199] of hunters found that active hunters (those who had hunted in the 2 years previous to the survey) were more likely than inactive hunters (those who had hunted, but not in the 2 years previous to the survey) to have taken somebody hunting who was new to the sport, to have a family member who hunts, to have friends who hunt, and to have been a member of or donated to a conservation or sportsmen's organization. While these findings may seem obvious, that they were statistically confirmed is important in understanding avidity. Put another way, inactive hunters are less likely to have that social support system.

Further evidence regarding the social support system is that a small, but not insubstantial, percentage of hunters and anglers who drop out of the sports cite as a reason that they have nobody to go with and/or that their friends that they had gone hunting and fishing with were no longer around.[200] A corollary of sorts to this finding comes from a national study of Americans' participation in physical activity.[201] When non-participants were presented with a dozen possible things that might get them involved with a physical activity, the top two involved the social support system: having someone to take part with and having a friend take them along (Figure 4.2.1).

Figure 4.2.1. Things To Encourage Participation in Activities[202]
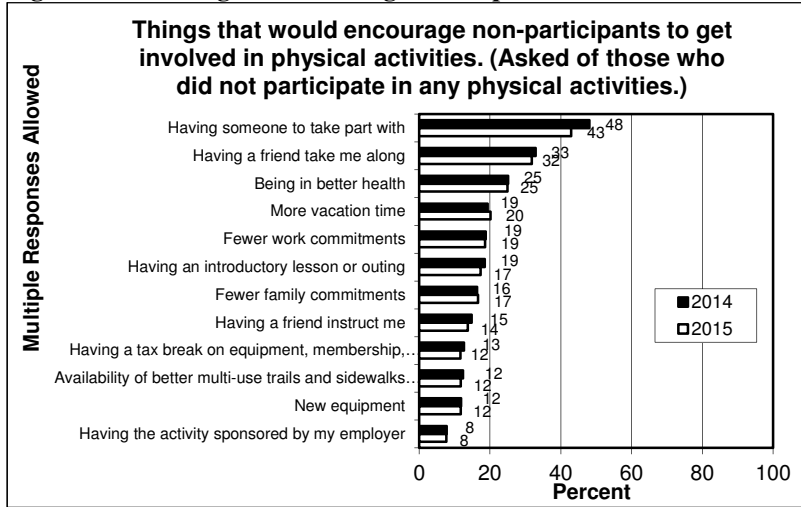
Truncated labels: "...on equipment, membership, fees, and instruction" and "...sidewalks in my neighborhood"

THE TRADITIONAL PATH AND AVIDITY

The above findings illustrate the three most important aspects of traditional initiation: a young starting age, initial experiences through family, and the presence of people who do the activity (i.e., a hunting, fishing, or sport shooting culture). The reason that the traditional path is important to examine is because it produces avid participants in hunting and fishing (and would presumably do so in sport shooting and archery). One researcher[203] found, for instance, that initiation in hunting that occurs before the age of 20 is more likely to produce a hunter with a long-term love of the sport.

Other research shows the same link between a younger starting age and higher avidity, as shown in Figure 4.2.2, which shows the number of days that hunters typically hunt in a year crosstabulated by their age of initiation.[204] In particular, a look at the percentages of each hunter group who typically hunt at the low end of the scale, from 1-5 days and from 6-10 days, shows this: those who were older when they started hunting are well represented in these responses that indicate low avidity. On the other hand, well represented at the upper end are those who started hunting early in life (and absent at the upper end are those who started hunting later in life).

Figure 4.2.2. Avidity and Age of Initiation Into Hunting[205]
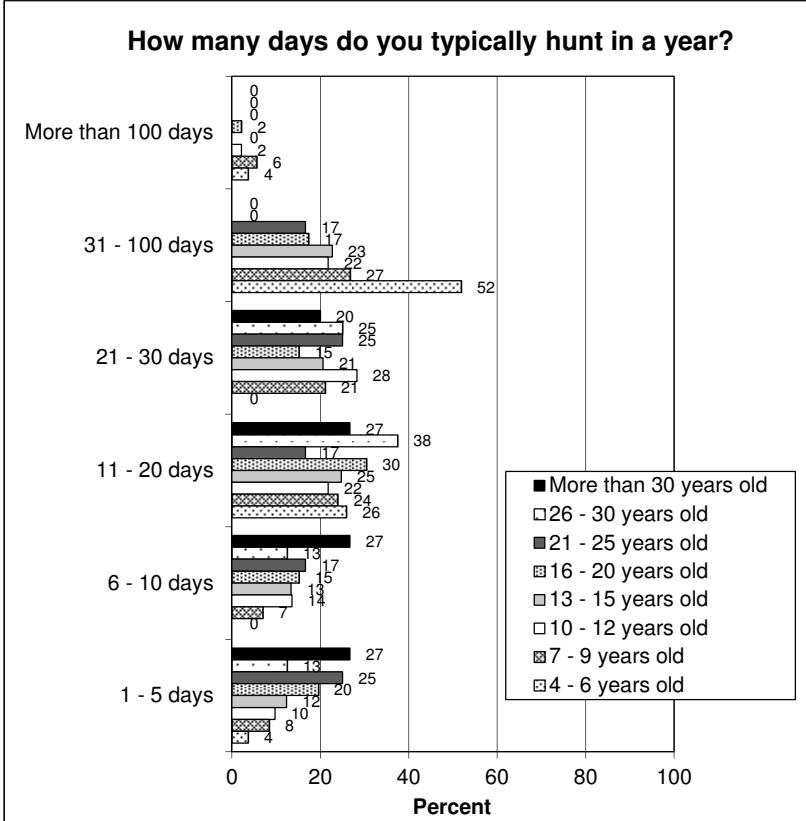
Being first taken hunting by family also is linked to avidity. The study cited directly above[206] also looked at the question of who first took the respondent hunting and the respondent's subsequent avidity. As shown in Figure 4.2.3, the study compared active hunters (those who had hunted within the 2 years previous to the survey) to inactive hunters (those who had hunted at some time in their life but not within the previous 2 years) and found that active hunters were more likely to have first been taken by a father (68% of active hunters, compared to 49% of inactive hunters), and active hunters were less likely to have first been taken by friends (8% of active hunters, compared to 15% of inactive hunters).

Figure 4.2.3. Avidity and Family Initiation Into Hunting[207]
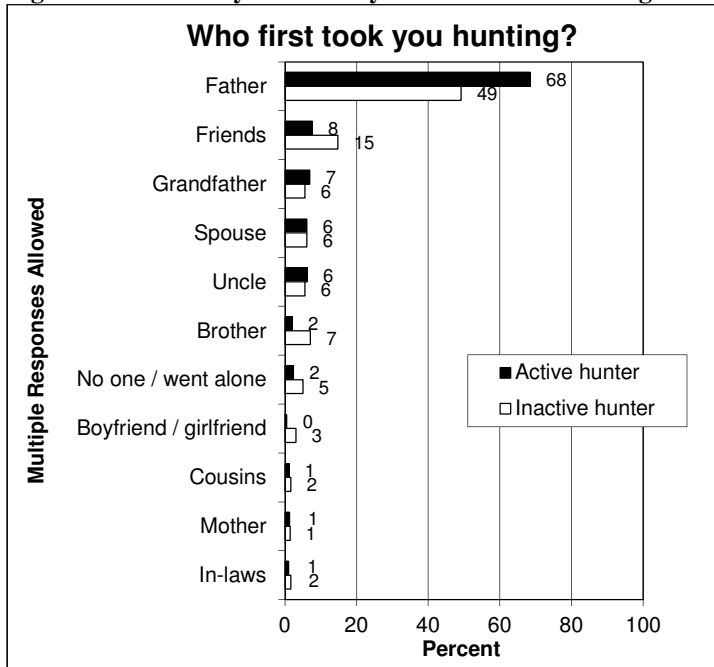
Other research shows that family and peer support is a key predictor of long-term hunting participation.[208] Clearly, this traditional path, as described above, leads to avid participants. This is a path wherein the participant starts at an early age and is introduced to the activity by a family member.

IMPLICATIONS OF THE TRADITIONAL PATH OF RECRUITMENT
But, of course, the "traditional" path is not the path that all can follow. Nor would the sporting community want to limit itself to recruiting only those who are able to follow the traditional path to recruitment. It may be that some elements of the traditional path, however, can be partly recreated in R3 efforts. In particular, initiation at a relatively young age is helpful in making lifelong participants, and some social support system must be available to participants to encourage them to continue in the activities.

Programs that take advantage of, or that encourage movement down, the traditional path receive high ratings on various satisfaction and subsequent behavioral measures. For instance, the Alabama Youth Dove Hunt, a program sponsored by the Alabama Department of Conservation and Natural Resources, has parents or other mentors participate with their children in the event, using a primary element of the traditional path. After the program, 96% of the youth participants said that they liked the program "a lot" (as opposed to "a little" or "not at all").[209] Post-program surveys also found that 75% of youth who had participated bought hunting equipment in the year after participating in the program; 96% of the youth

indicated that they had learned a lot or a little about hunting safety; and 96% also said that they had learned a lot or a little about hunting ethics. Additionally, 58% of the youth participants in the dove hunt rated their skills as "a lot" better (in a question that also gave them the choice of "a little better" or "not at all better"), and 88% were more confident about their hunting skills.

Chewing the Fat: Discussing the Ability to Recruit Foodies to Hunt

Adam L. Pettis

With the steady decline in hunting participation, recruitment specialists have sought efficient methods to increase hunter numbers. Recruitment specialists increasingly view alternative food supporters (e.g., local, organic, seasonal) as a partial remedy to this decline. Alternative food supporters (foodies) and hunters value similar food attributes. For example, wild game is a free range, often local, and often seasonal food source. Increases in alternative food popularity,[1] consumption of organic food,[2] and the number of hunters who cite "hunting for meat" as motivation to hunt[3] are reasons that recruitment specialists are interested in recruiting foodies to hunting.

In spite of the popularity of alternative foods research, most articles have overlooked wild game as an alternative food, instead focusing on traditional foods such as beef, milk, and vegetables. As a result, wild game meat motivations are under-researched as are the specific linkages between alternative food support, wild game consumption, and interest in hunting. To address this gap, I examined the link between support for various alternative food ideologies and support for hunting. This link is a key factor determining viability of foodie recruitment programs. There are any number of target groups with overlapping interests relative to wild game meat benefits and target group values that would not be expected to initiate hunting (e.g., gardeners, rock climbers, hikers). If foodies are generally favorable to hunting, recruitment becomes a relatively simple matter of distributing information such as how to process a deer or safely handle firearms. But, if foodies are not already favorable to hunting, recruitment becomes more difficult.

My research indicated that most nonhunters did not agree that wild game meat is preferable to conventional meat, and they also indicated a lack of support for wild game as a healthy food source. In contrast, hunters' agreement was 30-40% higher than nonhunters' on these items. Meanwhile, nonhunters and hunters share nearly identical support for traditional alternative food sources such as organic and local food.

continued

Further, I examined measures of alternative food support and wild game meat preferences in relation to engagement in and support for hunting. The data did not indicate that foodies were more likely to have hunted in the past or to support hunting as foodie identification increased. My findings were supported by subsequent datasets; for example, one study[4] found that foodies were not primed to support or engage in hunting.

Perhaps it is best to think of foodies as belonging to two types: producers and consumers. The producer is inclined to enter primary stages of food production while consumers either abstain from or are unable to perform production behaviors, instead purchasing alternative foods. But, hunters are motivated food producers, even if primary motivations are affiliative or trophy based. In a 2010 survey I conducted, over 99% of hunters consumed the meat they harvested.

Although some researchers[5] have found support for food-related hunting initiation programs, data I have collected indicate foodie recruitment is unlikely to blunt declining trends in hunting participation. Nonetheless, there are benefits to recruiting foodies even at low numbers. The increase of nontraditional hunting participants, particularly urban residents, has the potential to change the perception of hunting among nonhunters. Unfortunately, the sale of game meat is usually not permitted, leaving urban residents with limited game meat access. Studies[6] indicate that those who eat wild game hold favorable attitudes toward hunters. Because urban residents have more diffuse social bonds than rural residents,[7] urban hunters could be an important distributor of game meat and pro-hunting attitudes in urban settings.

Changing cooking norms might promote hunting among urban males. In a 2010 survey I conducted, just over 70% of rural men cooked their own game meat. For urban males, that number was closer to 90%. Men are cooking more than previous generations. Also, men are increasingly likely to cook for special occasions.[8] This may indicate an intersection between culture, food, and masculinity that could make hunting more valuable than the meat itself.

Although some Americans are increasingly selective in their food choices, and hunting is one of numerous means to fulfill their preference for alternative meat, my findings do not indicate that foodies are naturally inclined to value wild game meat or to support hunting. If this is the case, then the primary attribute sought by hunting recruiters is largely absent in foodies. In spite of this bleak outlook, the ability to improve the image of hunters by greater access to game meat and increased interest in cooking means that a limited number of foodies could positively and substantially improve the perception of hunters by nonhunters.

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[2] Lockie, S.; K. Lyons; G. Lawrence; and K. Mummery. 2002. "Eating 'Green:' Motivations Behind Organic Food Consumption in Australia." *Sociologia Ruralis* 42(1), 23–40. https://doi.org/10.1111/1467-9523.00200

[3] Responsive Management/National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Harrisonburg, VA: Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0.

[4] Tidball, K.; M. Tidball; L. Larson; P. Curtis; L. Poindexter; and R. Stedman. 2014. *Locavore Preferences for Wild Fish and Game: Implications for Wildlife Recreation in New York State* (Human Dimensions Research Unit Series Publication No. 14-06). Ithaca, NY: Department of Natural Resources, Cornell University.

[5] Responsive Management. 2016. *Locavore Pilot Pre-Program, Post-Program, and Post-Season Survey Results*. Retrieved November 17, 2016, from http://locavore.guide/content/locavore-pilot-pre-program-post-program-and-post-season-survey-results.

[6] Ljung, P.; S. Riley; and G. Ericsson. 2014. "Game Meat Consumption Feeds Urban Support of Traditional Use of Natural Resources." *Society and Natural Resources* 0(0), 1–13. https://doi.org/10.1080/08941920.2014.933929.
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[7] Sørensen, J. 2014. "Rural–Urban Differences in Bonding and Bridging Social Capital." *Regional Studies* 0(0), 1–20. https://doi.org/10.1080/00343404.2014.918945.

[8] Szabo, M. 2013. "Foodwork or Foodplay? Men's Domestic Cooking, Privilege and Leisure." *Sociology* 47(4), 623–638. https://doi.org/10.1177/0038038512448562.

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4.3. VOLUNTEERING AND MENTORING

Mentoring is a hugely important part of recruitment, retention, and reactivation—mentors are the ones who help move participants through the progression toward avid participant. Additionally, mentoring is largely a non-governmental and non-organizational endeavor. While agencies and organizations can support mentoring, the major part of it is done through those who are volunteering their time—whether officially volunteering time to an organization or informally "volunteering" time simply by mentoring a friend or family member. Nor can governmental and organizational entities perform all the mentoring necessary to ensure continued robust viability of the sports.

THE IMPORTANCE OF VOLUNTEERING AND MENTORING

As has been discussed previously, the most avid participants are those who were brought into the sports though mentors—in the traditional path described above through *family* mentors but a mentoring situation nonetheless—and who have a social support system. A survey[210] of youth regarding their participation in hunting presented them with various things that might make them want to go hunting (or hunting more if they already had hunted). For each item, respondents indicated if it would make them want to hunt (or hunt more) or not, as shown in Figure 4.3.1. The top two items that would encourage participation relate to mentoring ("your father asked you to go" and "another family member asked you to go") and the third relates to the social support system ("a friend asked you to go").

Figure 4.3.1. Things To Encourage Youth To Hunt[211]

I'm going to read a list of things that might make you want to go hunting or hunt more. Would it make you want to go hunting or hunt more if...?

	Percent
Your father asked you to go	56
Another family member asked you to go	50
A friend asked you to go	49
You could learn more at a hunter education class	42
You had better hunting and shooting skills	38
Your mother asked you to go	37
You could go with your school or on a field trip	37
You could learn more about guns	37
There was a hunting event near your home so you could learn more	37
You knew how to shoot a gun	36
You knew how to shoot a bow	35
You could eat the meat	35
There was a good place to go hunting near your home	35

Multiple Responses Allowed

Likewise, the same study asked youth about things to encourage fishing participation. Again, the top ranked items are those that pertain to the social system and mentoring (Figure 4.3.2).

Figure 4.3.2. Things To Encourage Youth To Fish[212]
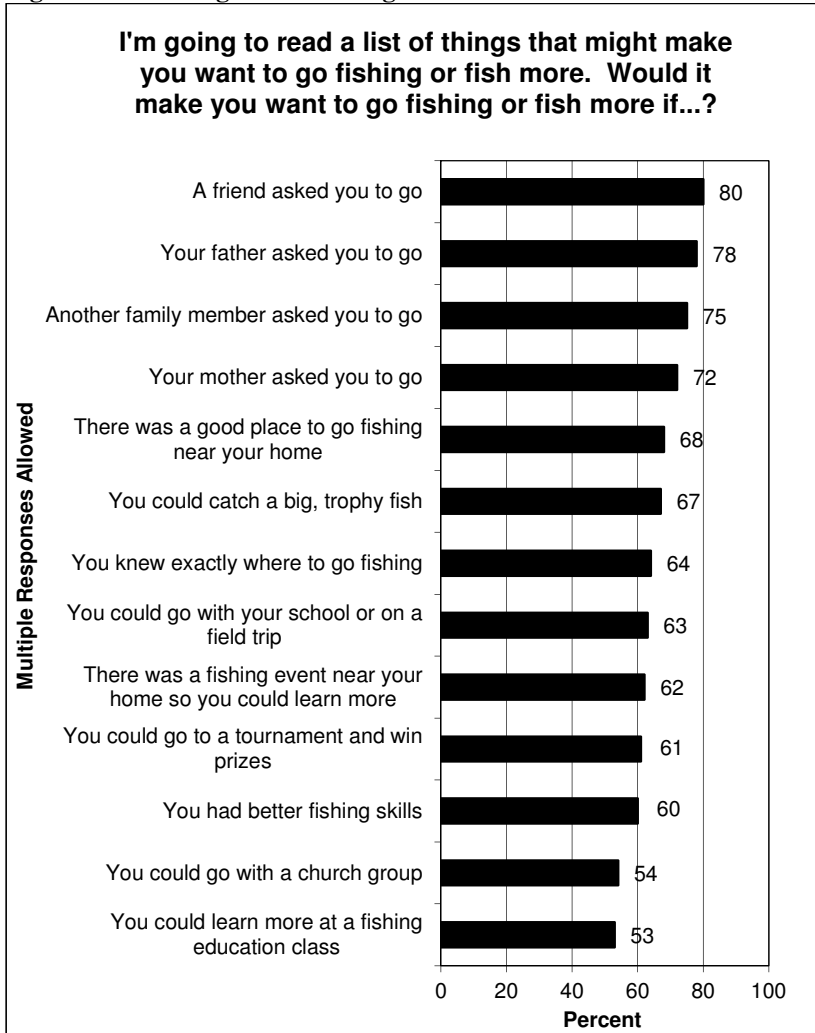
It is worth mentioning that mentored youths in one study had higher measures of avidity and satisfaction than did youths who had not been mentored.[213] Three measures in this regard were examined among youth hunters and youth anglers. On all three measures, the mentored youth had higher measures of avidity and satisfaction (Figures 4.3.3 and 4.3.4).

Figure 4.3.3. Mentors and Youth Hunting Avidity[214]

Youth hunters and the effect of mentors.

■ Youth hunter who had a mentor
☐ Youth hunter without a mentor

Likes hunting a lot	Very interested in going hunting	Has hunted in the past year
70	60	73
35	39	46
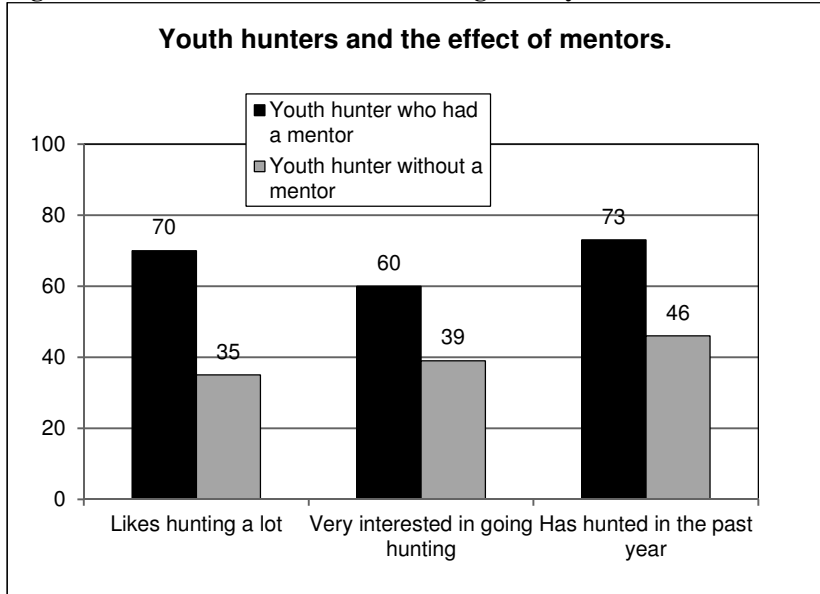
Figure 4.3.4. Mentors and Youth Fishing Avidity[215]

Youth anglers and the effect of mentors.

■ Youth angler who had a mentor
☐ Youth angler without a mentor

Likes fishing a lot	Very interested in going fishing	Has fished in the past year
60	65	79
39	47	65
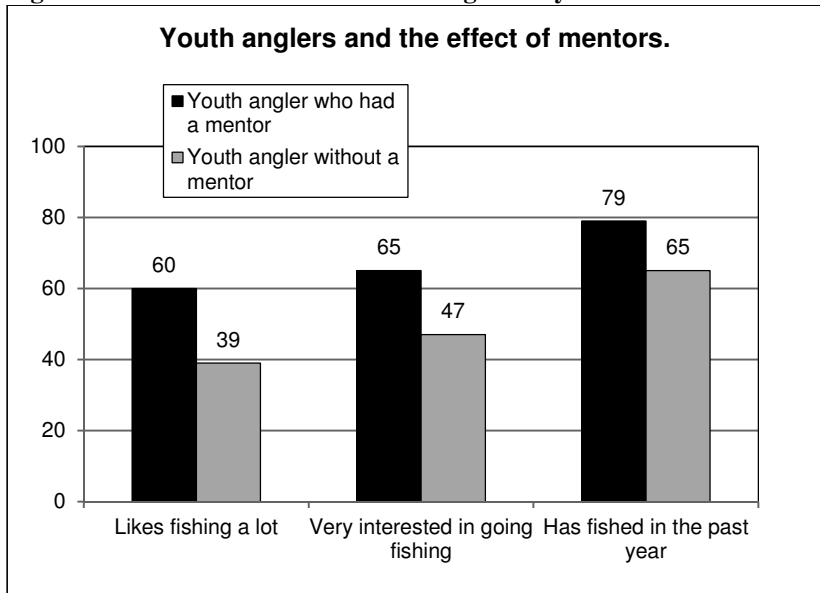
Interestingly, the mentoring process has a positive impact on the mentor's participation level as well as on the mentee's participation. For instance, a study[216] of fishing participation found that adults with children in their household had a higher participation rate in fishing than did adults without children (18.7% of adults with children in the household compared to 13.3% of adults without children in the household). While cause and effect

cannot be determined in this case, it seems intuitive that at least some of the increase in participation in the "with children" group would be because the adult is mentoring the child.

The above is presented simply to show the importance of volunteer efforts and mentoring to the hunting, fishing, sport shooting, and archery community. The rest of this section discusses the types of volunteering (of which mentoring is one type), the types of mentoring, and then a discussion of the characteristics of those who volunteer and mentor.

TYPES OF VOLUNTEERING

Before discussing mentoring specifically, it is worthwhile to first look at all the various types of volunteering in total; mentoring is only a single type of the multitudinous volunteer efforts that one can do. An examination of reports related to R3 efforts was made to first determine all of the types of volunteering (in its broadest sense to include donating time and money) that are at the heart of hunting, fishing, sport shooting, and archery.

Before looking at volunteering of time and effort (of which mentoring is one type), it is worthwhile to look at other volunteering. One such effort is the provision of land and/or facilities that make these efforts possible. For instance, many R3 programs make use of "loaned" land, such as Alabama's youth dove hunts and Indiana's youth pheasant hunts and workshops.[217] In the former, farmers allowed their lands to be used; in the latter, private clubs allowed their lands and facilities to be used. Large landowners and sportsmen's clubs provide the necessary land/facilities. Government owned land can also serve in similar efforts where available.

Materials are also donated, both perishables and non-perishables, the former including food, clay targets, ammunition, and even pen-raised pheasants, to name just a few; the latter including loaner firearms and hunter-orange vests, for example. Again, programs and efforts abound that use donated or loaned materials.[218]

A hugely important type of volunteering is that of time and effort. This includes time spent informally (i.e., not as part of a program or club) as well as in formalized programs, such as the Indiana Youth Pheasant Hunts and Workshops.[219] Volunteer roles include teaching skills in classroom and field settings, providing support services such as food service, and coordination of activities such as contacting other potential volunteers. Another volunteer role is as a mentor, and the focus of the next section is mentoring specifically.

TYPES OF MENTORING

One type of volunteer effort is mentoring, and there is no doubt that it is a hugely important part of R3 efforts. In fact, one concern expressed by the sporting community when this handbook was conceptualized was a lack of

mentors (as well as instructors and coaches) throughout the hunting, fishing, sport shooting, and archery adoption process.

Some mentoring is done informally (i.e., not through a program or organization), such as when a family member takes another family member hunting, fishing, or sport shooting. While this is, by definition, done outside of programs or organizations, this is not to say that some support of this type of mentoring cannot be undertaken. For instance, types of youth licenses are available that allow beginning hunters to try hunting with a licensed hunter (i.e., a mentor) along.

Other mentoring is done with the assistance of agencies and organizations in a formalized setting. These can be categorized according to their focus or to whom they focus on. Many are aimed at youth, with some aimed at certain subsets of youth (e.g., youth who are outside of the traditional path of recruitment). Many are also aimed at new participants; while these would typically be children, there are some programs that allow for any newcomer, adult or child, and some aimed at adults exclusively. Some serve at-risk youth. Finally, some mentoring efforts are aimed at helping those who have already participated to increase their avidity—in other words, focused on continuation rather than initiation. In some cases, these situations are less a mentoring situation and more a provision of companions.

Reference was made above to potential participants in hunting, fishing, sport shooting, and archery who come to those activities from outside of what has been heretofore described as the traditional path of recruitment. Certainly there is room for programs focused on them, as a study of 69 recruitment and retention programs[220] in 2014 found that just 13% of youth participants came from a family where no other person in the household participated in the activity.

Another study[221] that surveyed state agencies asked about audiences targeted with hunting communications as part of R3 efforts. It found that well less than half of the state agencies target non-traditional audiences with hunting-related communications as part of R3 efforts (Figure 4.3.5). Furthermore, the number of potential non-traditional hunters that participated in these programs was at most 8,900 people.

Figure 4.3.5. Audiences Targeted by State Agencies for Hunting-Related Communications[222]

Agencies that target the following audiences with hunting-related communications.

Multiple Responses Allowed

Existing hunters	38
New hunters	33
Lapsed hunters	20
Non-traditional participants	14
Transient hunters	5
Other	4

Number of state agencies
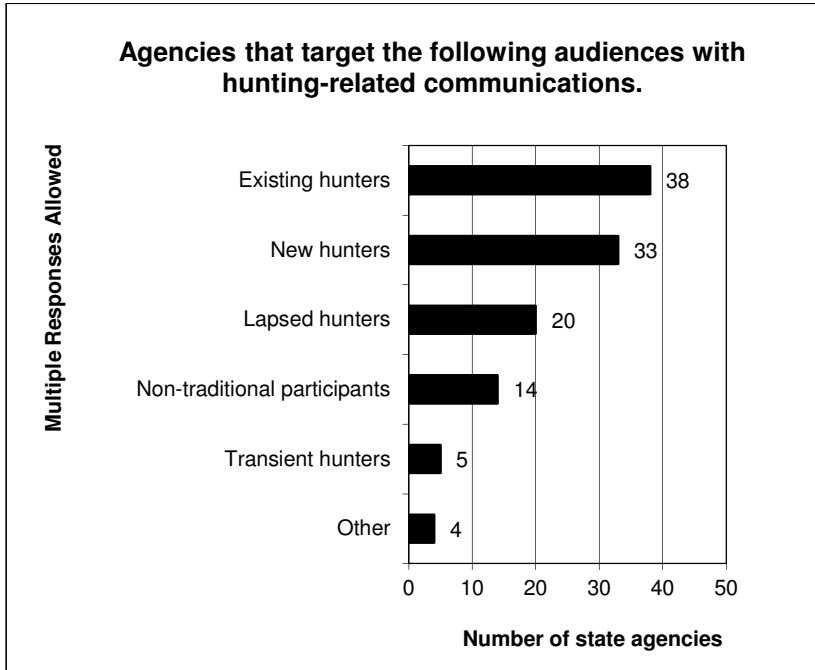
CHARACTERISTICS OF VOLUNTEERS AND MENTORS

Research found that the majority of active hunters (79%) reported that they had taken somebody hunting who was new to the sport.[223] The same research found that a majority of active sport shooters (65%) had taken somebody shooting new to the sport. Fortunately, these are fairly high percentages who are mentoring a newcomer, and efforts should strive to ensure that this percentage remains high.

Another way to look at who is likely to mentor comes from a survey[224] of state agencies that was conducted in 2009. The survey asked the 23 states that had indicated having mentoring hunting programs to name the partners in these programs (Figure 4.3.6). Local hunting clubs were the most common partners in mentoring programs at that time, and the National Wild Turkey Federation was also quite active.

Figure 4.3.6. Partners in Hunting Mentoring Programs[225]
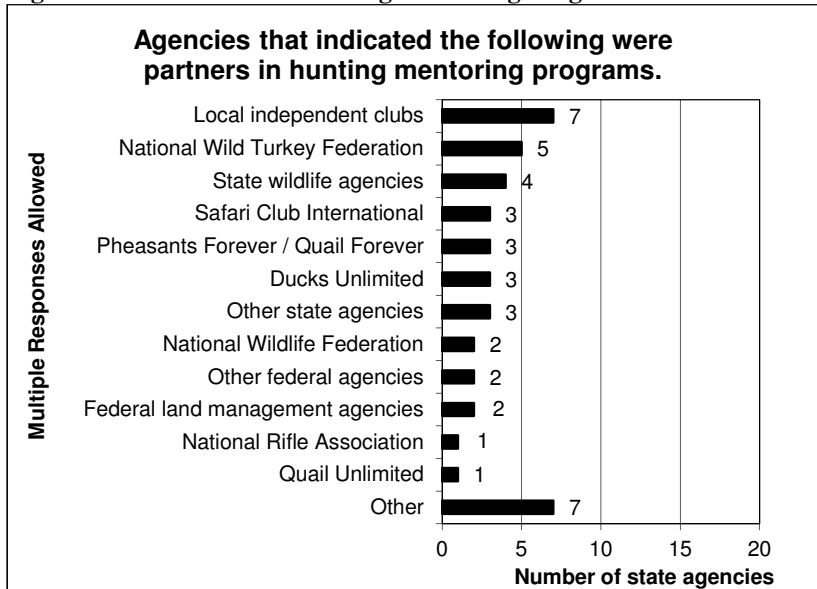
RETAINING VOLUNTEERS

The participation adoption models previously discussed have some relevance here because volunteers go through their own pathway—in other words, as one researcher[226] puts it, "There are steps in volunteer management that lead to engagement, involvement and retention of volunteers." The same researcher notes that the "motivation to join an organization can be very different from the motivation to stay." The implication is that strategies to recruit volunteers are different from the strategies to retain volunteers; furthermore, the strategies for retention will differ according to the volunteer's stage.

Regardless of the volunteer's stage, the research[227] on retaining volunteers suggests that several strategies are important for all volunteers across all stages. One of the most important ways to retain volunteers is to listen to them. Obtaining feedback from volunteers lets the volunteers know that they are valued, and they will feel more a part of the organization or endeavor.

Having a set volunteer policy helps define their roles and allows them to have expectations regarding how they will be treated and valued. Having a set of policies in place also reinforces that the organization is committed to its volunteers. It also ensures consistency in relationships that the organization has with its volunteers.

Providing proper training to volunteers is important, as well. A volunteer who feels aimless or unsure will not be a satisfied volunteer. Volunteers need to have the information and training to allow them to succeed.

Another important action an organization can take to retain volunteers is to recognize their work. Some set of rewards is helpful in making the volunteer feel valued. Rewards need not be expensive; it is the thought that counts in this case, particularly if awarded in front of the volunteer's peers.

Finally, having policies in place will make the ultimate strategy easier to carry out, which is to get rid of disruptive volunteers. A volunteer who is not on board with the strategy outlined by the organization can be counterproductive to the effort at hand. More importantly, though, is that a disruptive volunteer is bad for morale among the rest of the volunteers.

A further comment about rewarding volunteers is worthwhile here. Coordinators of educational efforts and other agency personnel have noted the importance of recognizing volunteers in some official way—such as through banquets or even certificates—as a way to encourage them to continue volunteering.[228] Short of an official recognition, some sort of follow-up contact is important, as a "no contact" approach runs the risk of making the volunteer feel abandoned and dropping out of the volunteer effort.

4.4. HUNTING, BOATING, FIREARMS, AND ARCHERY EDUCATION

The purpose of offering education in these activities, in addition to promoting safety, is two-fold: to enable participants to start in the sports (e.g., taking hunter education to be able to purchase a hunting license) and to encourage participants to continue in the sports. There is also a third element of education, as well, which is aimed at non-participants, who should learn some of the lessons offered (e.g., the important role that hunting serves in wildlife management). In short, educational efforts answer the who, what, how, when, where, and why regarding the activities on which this handbook focuses.

Before moving on in this discussion, a note regarding boating education. Boating is not, per se, a focus of this handbook. However, boating is an integral part of many anglers' and some hunters' participation in these sports. For this reason, it is appropriate to include boating in this discussion, particularly because of the serious consequences of poor boating practices. In fact, there is an interesting finding pertaining to this. Because hunting involves firearms, it seems intuitive to some people that hunting, statistically speaking, would be deadlier than fishing. However, in this case, the old saying, "Still waters run deep," is apropos.

Though seemingly innocuous, there are dangers even in still waters, and the evidence suggests that about twice as many anglers die annually pursuing their sport than do hunters, a fact that would come as a surprise to many people. A nationwide survey[229] question asked if U.S. residents agreed or disagreed with this statement: "Hunting causes more deaths among participants than does fishing." Half of the general public (50%) agreed

with this statement, but the statistics do not bear this out (although this analysis[230] was conducted about a decade ago, it assuredly holds true today). In the years that were considered in this analysis, the U.S. Coast Guard's Boating Statistics showed that 225 of the 710 boating accident deaths occurred to boaters who were fishing, and 6 of the 710 occurred to boaters who were hunting. Concurrently, there were approximately 100 hunters who had died from hunting accidents. The sum of annual hunter deaths while boating and annual hunter deaths from firearm accidents still was far less than the number of anglers who died in boating deaths (and this did not include anglers who may have died from falls into water while fishing from a stream bank). This discussion is not meant to unduly alarm anglers, or parents of children who want to fish; rather, it simply points out the necessity and value of education.

National Fishing in Schools Program and Its Role in Angling Recruitment

Katie Dement

The Fishing Education Foundation was established in 2009 due to demand. Its founding mission was to act as a funding source for schools wishing to participate in the National Fishing in Schools Program (NFSP). For numerous years prior, schools around the country had used academic resources provided by our education partner, The School of Fly Fishing.

Attendance at professional conferences made clear that teachers were interested, but were stymied by the cost of the academic tools and equipment they needed to teach. This loud demand, coupled with the success of the "*Archery in Schools*" program, led us to jump in with both feet with a fishing program patterned after the National Archery in the Schools Program (NASP).

To date, NFSP is installed in 250 schools in 25 states, reaching an estimated 15,000 to 25,000 K-12 students annually. Hundreds of additional schools have applied but, without funding support, have been unable to participate.

Unsurprisingly, the major challenge facing *"Fishing in Schools"* has been consistent funding. Approximately 90% of Fishing Education Foundation funds have been invested in schools to facilitate their participation. NFSP has been challenged with gaining support because the organization is not a traditional participant in the fish and wildlife arena. NFSP was established by private citizens endeavoring to establish a working relationship with agencies. Additionally, NFSP was

continued

not solely affiliated with a retail/corporate business (as was NASP). The organization was established to provide education: to teach youth traditional values, to increase recruitment numbers, to get youth outdoors, and to decrease the nature-deficit disorder we're seeing in young people today.

"Fishing in Schools," in our opinion guided by experience, has the capability to become a consistent, reliable, cost-effective recruitment tool. As a complete "turnkey" academic program that most agree is a good thing for our youth, NFSP has the potential to tap into our nation's 150,000 public and private schools that annually educate some 55,000,000 students.

The best far-reaching, cost-effective, and efficient way to deliver the knowledge and skills a young learner requires to be successfully "recruited" is in schools. After a school makes a one-time investment in NFSP, the "recruitment pipeline" opens. Every year, new students get a chance to learn about fishing. Learning is not constrained or encumbered by the unpredictability of bureaucratic issues that agencies are prone to suffer, such as budgets, personnel, retirement, and so forth. The schools are there, the students are there, and, ostensibly, both will always be there. Doesn't it make sense to embrace schools as a recruitment partner?

"Neither rain, or snow, or frozen lakes…" One huge advantage with *"Fishing in Schools"* is you don't need perfect weather…you don't need thawed ice—just go into the school gym and have at it 9 months of the year. After ice out, students go to the local lake in the middle of town and catch bluegill. Just get the kids to catch a fish, often their first fish. Now that is recruitment.

So how can *"Fishing in Schools"* strengthen its contribution as a linchpin of recruitment for new anglers?
   1. The spincast curriculum "*Cast A Lure, Catch A Student*" must be completed and made available.
   2. Training must be delivered via mobile app and online, so that location, travel budgets and time constraints are no longer an issue. This is being done now.
   3. The curriculum must be delivered in a mobile app and online to teachers and their students. NFSP has the teacher's edition done and is just now making available a mobile app for students.
   4. There must be a collective "buy-in" of interested parties: state and federal agencies, industry, public and private school systems. We must agree that, to be successful at recruiting anglers, the key is preparing our school teachers to teach, with proper training, equipment and curriculum.

continued

5. There must be a long-term, sustainable financial and personnel commitment crafted and adopted by parties.
6. State agencies must be willing to assume administration of the program.
7. R3 initiatives currently involve well-intentioned, passionate people who want to share their sport with youth but who lack the teaching skills or know-how to effectively teach. In schools, individuals who are educated to teach will teach the "recruits." State agencies would be well-served by employing educators, who are teachers first and foremost to execute the program, not fishermen. Without instruction that effectively and consistently trains school teachers, all the other stuff won't stick.
8. Agencies need to go out and recruit schools. Attending educational conferences specific for health and PE will enable agencies to meet face-to-face with decision makers.
9. States must budget for investment over the long term, based upon their vision as to what extent they can/will provide funding support. (NFSP usually provides matching funds and expects the school to meet the balance.)

Katie Dement co-founded the National Fishing in Schools Program and is the organization's Program Manager. She received her bachelor's degree in environmental studies, with an emphasis in environmental education, from Prescott College. Her professional interests are inspired by the belief that using fishing as a tool to connect or reconnect youth and adults alike to the outdoors will help conserve and preserve wild places for future generations.

The six questions (who, what, etc.) of education are each addressed here, starting with "who." Educational efforts must consider *who* should be targeted with education, and *what* aspect of the sports should be included in the education. As indicated above, there are at least three groups to target: potential or beginning participants, who receive education to allow them to start in the sports; ongoing participants, who receive education to encourage them to continue in the sports; and non-participants, who receive education to encourage them to accept the sports.

After the initial education, skills building is the next level up, answering the *how* question. To whom these educational efforts are intended (both of the participant groups) and what to include in them is dependent on the skill level.

Educational efforts answering *when* to hunt and *where* to hunt are both for participants. This represents the basic information that participants need to know to both be able to begin as well as to be able to continue their participation.

Finally, the *why* question needs to be disseminated to everybody. Participants need to know the value of hunting, for instance, but so do non-participants to help ensure their support of hunting. Educational efforts should show the benefits of these sports that everyone derives and that everyone should know about.

HUNTER, BOATER, AND FIREARM EDUCATION CLASSES AND FACILITIES

A concern that the sporting community had when discussing the development of this handbook was that there was (some felt) a lack of sufficient hunter education capacity to meet future demand. Evidence suggests that this is, indeed, the case in some states. A survey[231] of instructors of Connecticut's Conservation Education and Firearms Safety (CE/FS) Program asked them, in an open-ended question, to say what they thought were the most important weaknesses of the CE/FS Program. Their responses most commonly related to low course availability/attendance issues/lack of instructors—in other words, all these responses related wholly or in part to lack of capacity.

This same study[232] found that firearms course instructors and bowhunting course instructors were both split on whether the CE/FS Program was meeting demand for courses. Among firearms course instructors, 55% agreed that demand was being met, but 45% disagreed. Among bowhunting course instructors, 45% agreed and 45% disagreed (the rest responding neutrally). In both cases, there is no consensus among instructors that demand is being met. A component of this study was focus group research, and a focus group participant's quotation is illustrative of the problem:

> I do not think they are doing very well [meeting demand]. It's extremely difficult to get safety courses for hunter education. The minute it comes available, it's full. I called six different people before going through my congressman to get to [the program coordinator]. And ... [course] frequency needs to be increased because of demand. I know 15 guys who want to get their kids certified but are struggling.
>
> –Connecticut hunter.

Although the aforementioned study concerns only one state, its findings show that the concern about a possible lack of sufficient hunter education capacity is well founded in some places. This is not the only issue, however, that needs to be discussed regarding classroom instruction. The following discusses advantages of classroom instruction and the elements that are effective, and then it looks at the disadvantages.

For the following discussion, any references to a classroom format include any live interaction between instructor and course participants, which is usually in an actual classroom but now includes web-related presentations. These live interactions are distinguished in this discussion from self-

learning tools, which could include a recorded video of the presentation. In the latter, there is no live interaction.

Advantages of Classroom Instruction

The advantages of classroom instruction, and the elements that make it effective, include face-to-face interaction when in an actual classroom (depending on the software, there can also be face-to-face interaction online). An agency education program coordinator in one study[233] credited the physical classroom format with being able to provide greater "discussion, interaction, and tailored demonstrations" than non-classroom teaching.

The classroom environment offers instructors the chance to clarify anything that has been presented. The human interaction allows a question to be asked in a straightforward manner, as opposed to computerized "help" features that often cannot address specific nuances of the questions directly.

Other researchers have noted that the classroom environment can impart a sense of belonging to the student.[234] This reinforces the culture of hunting, fishing, sport shooting, or archery.

Disadvantages of Classroom Instruction

Some of the disadvantages to classroom instruction include the fact that it is not as well liked as hands-on activities. Put simply, participants in R3 programs[235] found non-classroom events and portions of programs to be more engaging and more fun than classroom settings.

The need for a physical classroom—in other words, a facility in which to hold classes—is another disadvantage of classroom instruction. By necessity, this form of teaching involves another entity in the mix—a community center or college or private club that has a classroom to use. Obviously, this can complicate the provision of classroom instruction.

Another disadvantage of classroom instruction is that a physical limitation of class size can quickly be reached—this can also include web-based presentations that have a limit in the number of people that can log into a session. Obviously, self-learning tools distributed via the Internet, for instance, have no such problems with capacity.

A factor to consider regarding increasing education capacity by offering courses at private hunting or sport shooting clubs is that those courses, according to focus group[236] discussions, sometimes fill up with club members who are taking the courses, leaving little room for non-members. The upshot, of course, is that the particular offering in question—at a club—may not appreciably increase capacity for non-members.

Another Factor To Consider Regarding Classroom Instruction

There is one aspect of this topic that falls into a miscellaneous category—it has not been discussed above but is important to mention. The study[237] cited above several times also found that hunters and sport shooters in Connecticut overwhelmingly said that they would support having the state allow those with prior firearms training, such as through the military or law enforcement, to take an abbreviated version of the state's hunter education course to obtain a hunting license. Not only would this eliminate unnecessary constraints to participation (i.e., unnecessary instruction on something the person already knows), but it could lessen the demand for these courses and, thereby, help ensure that capacity is not overwhelmed.

HANDS-ON AND FIELD COMPONENTS IN R3 EFFORTS

Generally quite popular, hands-on and field components come in many forms, such as shooting events at indoor target ranges to youth hunts on expansive dove fields.

Hunting and Fishing for Food

Moira M. Tidball and Keith G. Tidball

The Wild Harvest Table started as a celebration of the culinary bounty represented by wild game and fish in the Finger Lakes region of New York State and as an answer to the many questions posed by hunters and anglers and their family members about the nutritional quality of this food. As the Cornell Cooperative Extension Nutrition Educator from Seneca County, New York, I started the website in January 2009 as a resource for game and fish recipes, nutrition information, and preparation techniques. My husband and partner, Dr. Keith G. Tidball, Senior Extension Associate in the Department of Natural Resources (DNR) at Cornell, helped with the inception of the website and recognized potential research questions evolving from the project. With the help of Dr. Paul Curtis from DNR, we secured U.S. Department of Agriculture grant funding for "Leveraging the Locavore Movement: Exploring Family and Community Food Decision-Making" to examine how the locavore movement presents an opportunity to study and influence citizen's decision-making about procuring, preparing, and consuming wild fish and game.

Anecdotally and in popular literature, it seemed that many locavores, people who strive to source their food from their local community, were interested or open to the idea of hunting or fishing for meat. Books, such as *The Omnivore's Dilemma* by Michael Pollan, made people consider where and how their food was raised and offered hunting for food as the ultimate food connection. The concept of hunting for meat fits nicely into locavores' and foodies' concerns for sustainability, animal welfare, food ethics, nutritional value, and safe food supply. With this recognition and appreciation for hunting and fishing for food, would locavores actually seek to become hunters and anglers?

continued

Keith Tidball sought to find out if this food motivation would actually enhance hunter recruitment and retention. Keith, an avid hunter, angler, and conservationist, is always looking to discover or reopen pathways to conservation behaviors and believes strongly in the power of outdoor recreation to catalyze stewardship. He is working on hunter recruitment, retention, and reactivation in the context of therapeutic outdoor recreation for wounded veterans as well.

Moira is a prime example of a new hunter who was motivated by procuring healthy food. She creates recipes for the Wild Harvest Table with food as the motivation/reward for hunting and fishing. As a result of her work, she has found that some hunters did not know how to prepare the meat or had family members that did not like the meat but loved it when they had it properly prepared and presented in a "gourmet" way. The Wild Harvest Table website and programming was also created for the experienced hunter to give them new recipes and ideas to enjoy their quarry and be reinvigorated to harvest meat for culinary enjoyment.

All of the recipes include custom-created nutrition fact labels, which led to the discovery that many wild game species are missing from the USDA National Nutrient Database for Standard Reference. The Cornell research team collected brook trout, Canada goose, and ruffed grouse samples and had the nutrition analyses added to the National Nutrient Database for Standard Reference. Eastern wild turkey was also nutritionally analyzed in partnership with the New York State Department of Environmental Conservation and the National Wild Turkey Federation to be added to the national database. Wild game meat is a much leaner source of protein compared to their farm-raised brethren. For example, a Canada goose has half the amount of total fat by weight compared to a domestic goose. Along with nutrition information, the Wild Harvest Table website also has additional resources for educators and Extension professionals, such as compendiums for 4-H Shooting Sports, booklets for veteran hunts, and workshop teaching outlines for safely canning game meat.

Moira M. Tidball is the Human Ecology Nutrition Issue Leader at Cornell Cooperative Extension in Seneca County, New York. She received her culinary degree from Boston University and a master's degree in community nutrition from the University of Kentucky. Her professional interests include the nutritional and culinary benefits of local food, including wild game and fish.

Keith G. Tidball works in the Department of Natural Resources at Cornell University. He received his Ph.D. from Cornell University, his master's degree from George Washington University, and his bachelor's degree from the University of Kentucky. His professional interests include the identification and development of pathways and portals into conservation, to include outdoor recreation for wounded veterans.

Advantages of Hands-On and Field Components

When looking at advantages, perhaps the primary one is simply that these components are popular. Emblematic of this feeling is an analysis of R3 programs in a 2014 study[238] in which program participants were given a survey before and after participating. One question in the post-program survey asked if the participant thought there were too many, about the right amount, or too few hands-on opportunities/opportunities to practice skills (the wording depended on whether an adult or child participant was being interviewed). Out of 57 programs with large enough sample sizes for the analysis, 38 of the 57 had a greater percentage of participants wanting more hands-on opportunities than fewer, while only 6 of the 57 programs said the opposite (Table 4.4.1). Clearly, people like hands-on opportunities. (The table is arranged with those 6 of 57 wanting fewer hands-on opportunities on the top, followed by those with equal percentages saying "too many" and "too few," and then those with more saying that there are "too few" than "too many" hands-on opportunities at the bottom and continuing onto the next page.)

Table 4.4.1. Ratings of Hands-On Opportunities in Various Programs[239]

Program Surveyed ↓	Question asked about the number of hands-on opportunities that were provided in the program →	Percent of program participants giving response:			
		Too many	About the right number	Too few	Don't know
LA Mother/Child FUN Camp (youth)		10	60	0	30
SC Reel Kids Program		8	92	0	0
Pass It On Outdoors Mentors Program		14	79	7	0
KY Mentor-Youth Dove Hunt (youth)		13	80	7	0
WA Klineline Kids Fishing Event		12	79	9	0
AK Conservation Camp		10	83	8	0
AL Youth Dove Hunt (adult)		0	93	0	7
Boone and Crockett Club's Outdoor Adventure Camp		0	100	0	0
CO Outdoor Skills Day (adult)		0	100	0	0
CT Aquatic Resources Education Program (youth)		0	100	0	0
ID Youth Waterfowl Hunt		13	75	13	0
JAKES		0	100	0	0
LA Mother/Child FUN Camp (adult)		0	100	0	0
LA Women in the Wild Hunting Basics Workshop		0	100	0	0
MD Becoming an Outdoors Woman		0	100	0	0
MD Junior Hunter Field Day		0	100	0	0
MA Youth Pheasant Hunt		0	100	0	0
NM Mentored Youth Hunter Program		4	78	4	14
PA Family Fishing Program 2012-2013 (adult)		0	100	0	0
MN Youth Mentored Turkey Hunt		6	85	8	0
NH Becoming an Outdoors Woman		0	95	2	3
OR Mentored Youth Hunter Program		3	87	5	5
TX Youth Hunting Program		4	87	7	2
UT Youth Hunter Education Challenge		3	91	6	0
TN Wildlife Federation's Scholastic Clay Target Shooting Program		2	89	6	3

Table 4.4.1. Ratings of Hands-On Opportunities in Various Programs (continued)[240]

Program Surveyed ↓	Question asked about the number of hands-on opportunities that were provided in the program ⟶	Percent of program participants giving response:			
		Too many	About the right number	Too few	Don't know
Becoming an Outdoors Woman		0	93	5	2
KY Conservation Camp		6	83	11	0
Allamakee Community School District's Conservation Camp Club		0	94	6	0
TX Hunter Education Program		11	72	17	0
Wheelin' Sportsmen Program		0	94	6	0
AL Youth Dove Hunt (youth)		0	88	8	4
AZ Hunter Education Program (adult)		0	91	9	0
IA Hunter Education Program (youth)		3	84	12	0
MI Managed Waterfowl Hunt Program		0	92	9	0
VT Green Mountain Conservation Camp		2	86	11	0
AR Youth Shooting Sports Program		3	84	13	0
KY Mentor-Youth Dove Hunt (adult)		0	80	10	10
NE Becoming and Outdoors Family (adult)		0	90	10	0
Women in the Outdoors Program		0	89	11	0
AZ Hunter Education Program (youth)		0	88	12	0
NC Youth Hunter Education Skills Tournament		0	88	13	0
PA Three Rivers Challenge Fishing Program		0	87	13	0
FL Ladies, Let's Go Fishing		0	85	15	0
IA Hunter Education Program (adult)		0	82	18	0
WA Yakima Kids Fishing Event		6	65	24	5
TX Hunter Development Initiative (youth)		0	80	20	0
AZ Youth Turkey Hunt Mentored Camp		0	77	23	0
MS Youth Squirrel Hunt		0	77	23	0
NE Becoming and Outdoors Family (youth)		0	77	23	0
NE Youth Mentored Archery Hunting Program		0	77	23	0
GA Hunter Education Program (youth)		3	72	27	0
CT Aquatic Resources Education Program (adult)		0	75	25	0
GA Kids Fishing Program		0	75	25	0
IA Hunting and Conservation Camp		0	75	25	0
GA Hunter Education Program (adult)		2	53	38	7
AZ Wapiti Weekend		0	58	42	0
ID Youth Fishing Clinic		0	50	50	0

In another example from the aforementioned statewide study in Connecticut, when firearms and bowhunting course students were asked if the course provided too many, about the right amount, or too few hands-on opportunities, none of the students said that there were too many.[241] (For the record, 22% of firearms course participants and 27% of bowhunting course participants said that there were too few hands-on opportunities; 78% and 71%, respectively, said that there were about the right amount).

Hands-on and field components are good at fostering a social atmosphere—dovetailing into the need to pattern R3 efforts, where possible, on the traditional path.[242] Those instructors and mentors involved in R3 programs favorably noted that the hands-on components provided social interaction.

Disadvantages of Hands-On and Field Components
There are some downsides to hands-on and field components of educational and outreach efforts. One downside pertains to student capacity. Some hands-on/field components simply cannot accommodate many students at one time.

Another downside is that these components can sometimes be costly. Furthermore, the items used in this way can be degraded by their very use, adding to the overall cost because of the need to acquire more of the items.

SELF-LEARNING TOOLS
The tools for self-instruction include both online materials and paper materials, the former becoming obviously more important in today's world, and the latter in some instances no longer even available.

Advantages of Self-Learning Tools
When considering the use of websites for providing self-learning tools, one obvious advantage of a website is the sheer volume of material that can be accommodated on the site. For instance, the Take Me Fishing website of the Recreational Boating and Fishing Foundation asked website visitors to take a survey regarding their visit to that website.[243] As the survey results in 2013 show (Figure 4.4.1), there are a plethora of topics addressed by the website.

Figure 4.4.1. Information Obtained From *Take Me Fishing* Website[244]

What were you looking for on TakeMeFishing.org?

	Percent
Where to fish	57
General interest	55
What bait or tackle to use	45
State fishing regulations and rules	39
New equipment or tackle	35
How to fish	30
State fishing license	25
Child friendly fish. / boat. info.	25
Conservation	18
Boating regulations and rules	17
Fishing or boating charters	15
Where to boat	14
Boating safety	14
How to boat	8
Boat registration	7

Multiple Responses Allowed

Another important advantage of self-learning tools is that the student can learn at his or her own pace. Additionally, the self-learning sessions can take place at the time most convenient to the student. The most convenient place can also be used by those using self-learning tools, including his or her own house.

Disadvantages of Self-Learning Tools

While there is obviously a place for self-learning tools, they cannot wholly replace in-person interaction between instructor and student that a classroom provides, nor can they wholly replace the experience provided by hands-on and in-the-field activities. Illustrative of this feeling are the words of a firearms safety instructor:[245]

> I find it difficult to do away with an instructor in a class full of students in favor of some kid sitting in front of a computer. We always do the live fire the second day of the program. But with online, the first time you see these people, you've got to put a gun in their hands? To me, there's no replacing a teacher in a classroom.
>
> –Connecticut firearms safety course instructor.

Self-learning tools also do not generally include interaction with others in a social support system. Because of this, a person may develop their knowledge and skills in hunting, fishing, sport shooting, and archery but still not identify as a hunter, angler, sport shooter, or archer and still not feel part of a community. As has been detailed in this chapter previously, those with a social support system are more avid participants and more likely to continue in the sports than are those without the social support system.

Additionally, as discussed above, surveys suggest that classroom and hands-on instruction is more effective than self-administered instruction. However, online resources are in such a state of flux that definitive statements that will apply in the future about their effectiveness are hazardous, and certainly there is a role for self-learning tools in the R3 toolbox.

CHAPTER 4 ACTION ITEMS[246]

➢ **Recognize that the "traditional" path of hunting, fishing, shooting, or archery initiation occurs at a young age, with the beginner typically first being taken hunting, fishing, or shooting by his or her father or other male family member.**

Be aware that efforts to recruit new participants outside of the traditional hunting, fishing, and shooting communities will be relatively difficult; account for this when prioritizing recruitment efforts. Those

from outside the hunting, fishing, shooting, and archery communities may be more difficult targets in a recruitment campaign.

Understand that higher avidity in the four activities is linked to younger ages of initiation, and this, in turn, means that R3 programs have an important window of opportunity among potential participants under the age of 20.

➢ **The traditional, or natural, path entails the beginner being immersed in a culture supportive of the activity (particularly as this pertains to family members).**

Be aware that higher avidity in hunting, fishing, shooting, and archery is linked to participation with other family members and friends who take part in the activities. Initiation without immersion in the culture of the activities usually ends in cessation. Also, recognize that higher avidity is linked to being mentored by one's father.

➢ **Whenever possible, encourage recruitment activities that follow the traditional, or natural, path of initiation.**

This includes participation with family members, particularly in programs that encourage fathers (and other male family members to a lesser extent) to participate with their children.

Most hunters, anglers, and shooters participate with other people, especially family members. Agency decisions regarding licenses should consider the importance of family—it may be worth exploring "family" license options for newcomers.

➢ **Realize that immersion in a culture supportive of the activity in question requires that potential participants develop personal connections with the sports.**

There is more to becoming a lifelong participant than simply participating in the activities. The establishment of affinities for the sports and friends within the sports is more important than simple participation.

➢ **Encourage spouses to participate with one another, as recruitment rates for children are quite high in households in which both parents participate in the activity.**

Participation with friends is generally secondary to participation with family, particularly for new participants. While programs or efforts that encourage participation with friends can have utility, particularly with getting active participants to become more avid, note that familial

participation at the start is correlated to high avidity and high retention rates.

➢ **Include youth programs in the mix of R3 efforts; they are important in that they start participation at a young age.**

➢ **Recognize that annual events and repetitiveness foster the hunting, fishing, shooting, and archery cultures.**

When possible, develop programs that have annual events that participants can look forward to. The predictability fosters continued participation year after year and has the ability to enhance recruitment, retention, and reactivation. A scheduled event becomes a community affair and further reinforces the culture of the activity.

➢ **Ensure that newcomers start with simple activities within the sport.**

Research has generally found that participants who start with simpler activities—for example, hunters beginning with small game, anglers using a cane pole without a reel, or shooters starting with simple target shooting—have higher retention rates. Enhance opportunities for simple activities when targeting newcomers and especially youth in recruitment efforts. More challenging game to hunt or difficult fishing, shooting, or archery activities can cause early frustration and desertion; more challenging activities are best left for more experienced participants.

➢ **Follow-up programs after initiation, particularly within a short time after a participant's first experience, are critical.**

Develop programs that provide support after the first trial period. Research suggests that many lapsed participants are individuals who tried the activities but did not stay with them, particularly because there was no follow-up entailing a "next-level" step.

➢ **Encourage the use of one-on-one mentoring whenever possible, which has proven utility in recruitment and replicates the traditional recruitment path. Because the mentor-beginner relationship is so strong in hunting, fishing, and shooting, R3 programs must use this method when possible.**

Mentoring is linked to high levels of avidity, and one-on-one mentorship is by far the most effective recruitment strategy—participants who have had a mentor are more likely to remain active than are those who have not.

As a part of this, support efforts to prompt children to ask adults to take them hunting, fishing, or shooting. The top reason that mentors took

somebody who was new to the sport was because that person expressed interest in being taken. Programs that encourage people to ask a child to go hunting, fishing, or shooting are effective but represent only half of the equation—the other side of the equation is to encourage children (or others new to the sports) to ask to be taken.

➢ **When encouraging mentoring, use the term, "experience," such as "sharing the experience," because that word resonates well as a motivation for mentors.**

Encourage senior hunters, anglers, sport shooters, and archers who have dropped out because of age or health to pass on what they have learned to new participants. This mentoring strategy also has the benefit of encouraging more participation—i.e., retention—among those who otherwise would not go.

➢ **Develop mentoring programs centered around continuation rather than initiation.**

Helping inactive or lapsed participants to become more avid again is arguably as important as introducing newcomers to the activities.

➢ **Develop mentoring programs that match mentors with newcomers from nontraditional backgrounds.**

Those from nontraditional backgrounds (e.g., people residing in suburban or urban areas who do not come from hunting, fishing, or shooting families) may be the most in need of assistance with initiation, yet research has shown that they are often the least commonly targeted by current programs. Special effort should be made to reach these individuals and pair them with mentors from similar backgrounds.

➢ **Ensure that every area hunting club, shooting range, or sportsmen's organization have an active mentoring program, as these are some of the most important sources of effective mentors.**

➢ **Encourage mentors, hunter education instructors, and other teachers of the four activities to keep an open mind about student/mentee backgrounds and motivations.**

Mentors, instructors, and teachers should remain open to understanding the different reasons why people—especially adults—want to learn how to hunt, fish, or shoot. Instructors/mentors should be respectful of and curious about their students/mentees, attempt to learn the language of the latter by emphasizing ideas consistent with their motivations, and work to minimize social barriers that may inhibit newcomers' participation.

➢ **Recognize that volunteering goes beyond just mentoring.**

Many R3 programs depend on the voluntary donation of items such as land, club space, food, firearms, ammunition, and targets. R3 coordinators should impress upon potential partners the importance of the full range of voluntary possibilities, including what is perhaps the most important resource of all—time.

➢ **Provide volunteers with proper training and information, and develop standard policies to ensure consistency in the use and treatment of volunteers, including guidelines on how to resolve issues with disruptive volunteers.**

➢ **Solicit feedback from volunteers on a regular basis.**

Assess volunteer motivation and satisfaction at regular intervals; listen to volunteers and communicate to them their importance to the R3 effort.

➢ **Publicly recognize the efforts of volunteers.**

Oftentimes simple recognition of volunteers in front of their peers, especially those who go above and beyond typical duties, is a more effective approach than certificates, banquets, or more costly possibilities.

➢ **Educational efforts for hunting, fishing, sport shooting, and archery should target three distinct audiences: potential or beginning participants (to start them in the sports), ongoing participants (to encourage them to continue with the sports), and non-participants (to encourage them to accept the sports).**

➢ **When possible, explore the possibility of incorporating into school systems successful national programs such as the National Fishing in Schools Program (NFSP) and the National Archery in Schools Program (NASP).**

While there is often a need for agencies to liaise with schools to initiate the process, these national programs already have in place carefully designed curricula—in addition to proven track records demonstrating their effectiveness, national programs like NFSP and NASP save valuable time and effort thanks to the existing instructional content and methods built into each program.

➢ **Continually monitor the ability for both mandatory training courses and voluntary instructional courses to meet demand for them, and work to resolve issues with supply and demand as necessary.**

A case study examined in the research indicated that at least one agency faced challenges in trying to meet demand for its firearms safety and bowhunting education courses, and these issues may persist elsewhere. Ensuring an adequate supply for such courses (including physical locations as well as instructors to teach the courses) is a highly important aspect of recruitment.

➢ **Recognize that key positive attributes of traditional classroom courses include the ability for instructors to interact with students and clarify material as necessary, and the ability for the class to impart a sense of belonging and reinforce the culture of the activity.**

On the other hand, classroom courses are often difficult to offer because of the physical limitations for class sizes and the necessity of ensuring an adequate pool of instructors.

➢ **Encourage agencies to offer abbreviated versions of traditional hunter education courses for those with prior firearms training (such as military training), which may help to lessen demand to some extent and free up class space for true newcomers.**

➢ **Recognize that hands-on components of educational courses are generally quite popular and well-liked by students.**

While these tend to be the costliest and most time-consuming methods of instruction to offer, they also may be the most valuable, in that they allow for participants to practice their skills in the presence of a qualified instructor.

➢ **Be aware that while online self-learning tools allow students to learn at their own pace, opportunities to participate in hands-on instructional activities in the presence of instructors remain highly important.**

Another downside of self-learning options is the lack of interaction with other students, which removes the possibility for students to be immersed in the culture of the activity around other likeminded individuals.

➢ **While mandatory education itself does not appear to be a constraint to participation in hunting, the timing of the education may have some constraining effect: requiring a person to go through the entire education course before being able to even try hunting may discourage some from trying it at all.**

Work to structure hunter education requirements to allow the potential hunter to try the sport before requiring him or her to complete the full hunter education program—this is the concept behind apprentice hunting licenses that have been offered successfully in many states.

CHAPTER 5: INCREASING ACCESS AND IMPROVING FACILITIES

CHAPTER OVERVIEW

Components of Access

➢ **Access has two important aspects that should be considered: physical factors and social/psychological factors. Access involves the physical opportunities and locations to do these activities as well as participants' (or potential participants') awareness, perceptions, and attitudes regarding access.**

➢ **Another important factor to consider in access is the ownership of land: public land versus private land. Ways to secure access for hunting, fishing, sport shooting, and archery differ greatly depending on this factor.**

➢ **A typology of access factors is useful when considering access programs and efforts. This typology consists of physical aspects of access (availability, accessibility, and accommodation) and social/psychological aspects of access (awareness and assumptions). Availability is the actual existence of lands and waters. Accessibility is the ease of getting to those lands and waters. Accommodation is the ease of getting around once the recreationists is on the lands/waters. Awareness refers to knowing about that access. Finally, assumptions refers to perceptions (and misperceptions) about access. All of these five typologies should be considered in access efforts.**

➢ **Availability is the most basic of the factor typologies, but it is constricted by urbanization, which results in the loss of land that**

would be suitable for hunting, fishing, and sport shooting. It is also constricted by the closing of some lands by the landowners; although technically the land is still there, it is lost to recreationists.

➢ **Accessibility is also restricted when private landowners close their lands to access, often blocking other lands/waters that otherwise could be used. Road closures, as well, can affect the accessibility.**

➢ **Accommodation should be considered in efforts to improve access. If the land open for hunting and fishing presents terrain that is too difficult to move around in, then access can be, for all practicable purposes, restricted. Any access effort must consider whether the land in question can be feasibly used.**

➢ **Awareness refers to the knowledge of access. This is an important component simply because a lack of awareness of access is the same (until the recreationists is informed of the access) as not having access in the first place. Information about access cannot be ignored; otherwise, the provision of access has no utility.**

➢ **Assumptions also can be addressed by informational efforts. Wrong assumptions about access can, again, be as damaging as not having access in the first place.**

➢ **Note that crowding is a factor that can negatively affect access. Having access to lands that are undesirable because of crowding is nearly the same, to the recreationists seeking solitude, as having no lands/waters at all. Crowding is a commonly cited problem among recreationists, particularly hunters and anglers whose tolerance for crowds is, because of the nature of these activities, low.**

➢ **Urbanization presents many problems for access. The primary is simply the loss of lands (the land itself being developed as well as the required buffer zone around houses and businesses where hunting and sport shooting are banned. (Most states, for instance, do not allow hunting within a set distance from residences.) Urbanization also can have negative effects on the culture of hunting, fishing, and sport shooting, thereby creating a challenge to introduce young people to these activities.**

Hunting Access

➢ **Hunting access is inextricably tied to private lands access because most hunters use private lands. While public land use varies from state to state, as does the amount of public land in each state, nationally, about four to five times the number of hunters use private land exclusively than use public land exclusively. In general, hunters in the eastern part of the U.S. are more likely to**

use private land than hunters in the western part of the country. Given this situation, it is unfortunate that ratings of access to private lands are worse than ratings of access to public lands.

➢ Typically, hunters travel about 30 miles to get to their hunting location. Hunters from the western part of the U.S. generally travel farther than hunters in the eastern part.

➢ The majority of hunters indicate that they hunt on the same lands each year, and the majority of hunters hunt mostly on private lands. Putting the two together, hunters most commonly hunt on the same private lands each year (approximately 43% fall into this category).

➢ Lack of or difficulty with hunting access is a commonly cited problem among hunters and a common reason that hunters do not hunt as much as they would like. (Access is not the top problem mentioned, but it is the top problem which agencies and organizations can feasibly influence.)

➢ Nationally, just under half of hunters give a rating of access to hunt their preferred species as fair or poor. Furthermore, more than 4 out of 5 hunters give a rating below excellent (meaning that access could be better for them).

Fishing Access

➢ Several criteria affect fishing access. These include whether the angler is freshwater fishing or saltwater fishing as well as the types of those waters. Public and private land issues also affect fishing access. Finally, whether the angler is using a boat or not greatly affects access.

➢ The number of anglers participating in freshwater fishing far exceeds the number doing saltwater fishing. (The body of the chapter details exactly the percentage of anglers using various types of waters, both fresh and salt.)

➢ Anglers most commonly use the same lands each year to access their fishing spot, and the majority of anglers access their fishing spot from public land. The result is that anglers most commonly use public/same lands each year to access their fishing spots.

➢ About half of anglers use a private boat for their fishing; this applies to both freshwater and saltwater anglers altogether. Among those who use a boat for their fishing, nearly three quarters of those boating anglers use a public boat ramp.

➢ **Access ratings are better for fishing than the aforementioned access ratings for hunting. Only about 20% of anglers rate fishing access as fair or poor. However, 70% give a rating less than excellent, meaning that access could be better for these anglers. (It is worth noting that fish and wildlife professionals had a less favorable outlook regarding fishing access than did anglers.)**

Sport Shooting and Archery Access

➢ **The factors to consider in access for these activities is the type of sport shooting activity simply because the type dictates what is needed for the activity (e.g., skeet shooting requires vastly different lands and facilities than simple target shooting). Another factor to consider is whether the sport shooter seeks an indoor or an outdoor range (if the shooter needs a range at all).**

➢ **The research suggests that almost two-thirds of firearm sport shooters use a range, and a substantial percentage of sport shooters engage in clay target shooting. Outdoor range use is almost double indoor range use.**

➢ **About 90% of sport shooters give a rating of access that could be better (i.e., about 10% rate it excellent): 90% say sport shooting access to public lands could be better, 88% say sport shooting access to private lands could be better, and 89% say that the availability of ranges could be better.**

Providing Lands for Recreation

➢ **The body of the report discusses the various entities that provide lands for recreation: federal agencies, state and local governmental entities, not-for-profit organizations, and private landowners.**

➢ **At the federal level, the main providers of lands for recreation are the U.S. Fish and Wildlife Service (through the National Wildlife Refuge system), the U.S. Forest Service (through the National Forests and Grasslands), the National Park Service (although hunting is generally prohibited in most National Parks), the Bureau of Land Management, and the U.S. Army Corps of Engineers (applies mostly to fishing access and boat put-in facilities).**

➢ **Among state and local governmental entities, the state lands are the most important simply because they can offer larger tracts than can most local/municipal governments. Most states have land set aside for recreation; they are commonly called Wildlife Management Areas (WMAs) but go by other names, as well.**

➢ **Not-for-profit organizations are important players in providing access. They sometimes offer lands on their own but most often offer lands through existing state programs in partnerships.**

➢ **Private lands are commonly made accessible through state private lands access programs, as well as simply by the landowner on his/her own. Nonetheless, the private lands access programs are hugely important because of the large amount of land they affect and because they offer public access (some landowners on their own may offer access at their discretion, which is not truly public).**

➢ **Landowners' common concerns in deciding whether to allow access include privacy concerns, recreationist behavior, and liability. State governments and agencies have the most sway over liability because it can be affected by legislation and regulations. Behavior is harder to influence because it relies on education and information, which recreationists, unfortunately, can simply ignore. Privacy concerns are the hardest to address.**

➢ **The factors that private landowners consider in allowing access can be categorized, which helps in analyzing them and addressing them. These categories of factors are the landowners' opinion of and past experiences with recreationists (i.e., recreationists' behaviors), the objectives the landowners have for their land (most directly this concerns whether the recreation fits in and helps with the objectives—for instance, hunting helping with wildlife management and damage control), economic incentives for allowing access, liability issues, and landowners' attitudes toward certain activities (whether the landowner is fundamentally opposed to hunting, for instance).**

➢ **Recreationists desires also are important to consider. The body of the report details what recreationists look for—it varies greatly depending on the activity as well as on recreationists' motivations for participating in the activities. There is no one-size-fits-all approach because of this great variation in activities and motivations.**

➢ **Programs and efforts for providing lands for recreation that have shown success include the Conservation Reserve Program (although it does not guarantee access but does positively help in providing numbers of game animals), the Voluntary Public Access and Habitat Incentive Program, and state private lands access programs.**

➢ **One of the most successful efforts for providing facilities for aquatic recreation is the Sport Fish Restoration program, which**

has provisions for boating access. **This program carries most of the weight in providing boat access.**

➢ **Problems at boat access facilities that are the most commonly cited pertain to crowding and parking issues at the sites rather than to the lack of certain other amenities such as fish cleaning stations and so forth.**

➢ **The top consideration regarding providing shooting ranges is simply proximity to the range. Research suggests that demand for a range falls sharply for sport shooters more than a half-hour away from the range. The research suggests that multiple smaller ranges with fewer amenities but fairly evenly distributed throughout an area would be better than a centrally located facility that has more amenities but is a farther drive for most sport shooters.**

➢ **Information on access is an important component. As shown previously, lack of knowledge about where to engage in an activity can be just as effective as not having the facilities at all in discouraging participation. Information sources can be categorized as off-site (such as websites or mapping apps) and on-site (boundary and informational signs). The data suggest that awareness of access programs could be improved—many recreationists who could have benefited from access programs proved to be unaware of them in surveys that were conducted.**

➢ **A final consideration in access is regulatory. Permit or tag quotas, for instance, affect access in that those who do not draw a tag are blocked from access. Complex regulations, too, can act to limit access if the regulations are so complicated that they discourage recreationists from participating in their favored activity. Regulations should always be developed with access in mind (although they should not trump wise wildlife and fisheries management, obviously).**

There are myriad constraints to participation in hunting, fishing, sport shooting, and archery. These include social factors—things like family and work obligations, personal health, and weather—that for the most part cannot be easily influenced by agencies and organizations. That said, there are factors over which agencies have some influence, the most important being access, behavior of other hunters, and game populations.[247] This chapter examines in detail the first of those factors: access, as well as associated facilities.

The chapter explores the various facets of access, the provision of access and facilities, and information sources related to access. The chapter ends with a discussion of regulations related to access.

5.1. FACTORS TO CONSIDER REGARDING ACCESS

Access problems can affect any sport, but they are of critical concern for hunters and anglers—whose sports generally require relatively large amounts of land. Sport shooting and archery also have access problems unique to their sports, as well.

COMPONENTS OF ACCESS

The factors that affect participation in hunting, fishing, sport shooting, and archery include physical factors and social/psychological factors. In, other words, access involves the physical opportunities and locations to do these activities as well as participants' (or potential participants') awareness, perceptions, and attitudes regarding access. The practical reality of whether fewer opportunities exist for these activities and the perception that access is becoming a greater problem represent two separate, albeit related, issues. The reality of less access is a physical constraint to participation, whereas the perception that access is becoming more difficult is a psychological constraint (whether there actually is less access or not).

Obviously, another important factor is the ownership of the lands for recreation, in particular whether the land in question is public land or private land. This dichotomy will be explored as it affects access and, ultimately, participation in hunting, fishing, sport shooting, and archery. The land ownership affects both physical access as well as psychological access, as well as each of the typologies described below.

It is also helpful when examining access to consider a typology of factors. Responsive Management conducted a study of access[248] that considered five components of access: availability, accessibility, accommodation, awareness, and assumptions. The interplay between these various factors makes addressing access issues complex and challenging. The first three (availability, accessibility, and accommodation) are physical components of access. The latter two (awareness and assumptions) are social/ psychological components of access. These components are defined and categorized as shown in Figure 5.1.1. It is helpful to further discuss each of these typologies of factors that affect access in detail.

Figure 5.1.1. Components of Access[249]

Physical Aspects of Access

- **Availability** pertains to the actual land available for recreation.
- **Accessibility** pertains to the ability to get to the land. For example, problems of accessibility may include public lands and waters blocked by intervening private lands, public lands that are distant from roads and difficult to access, or roads and trails that are gated or restricted.
- **Accommodation** pertains to the ease of mobility and the experience once recreationists are on the land. For example, crowding may be a concern for hunters and anglers who are seeking isolated areas for hunting and fishing and prefer not to encounter others. As another example, hunters may be able to access the land, but the conditions of roads and trails may make maneuverability difficult, or prohibitions on ATVs may make access to public lands inconvenient and may make removing harvested game challenging.

Social/Psychological Aspects of Access

- **Awareness** pertains to information and knowledge—to recreationists' awareness of the access options open to them. Lack of *knowledge* of a place to hunt, fish, or sport shoot can be just as effective a constraint as an actual lack of places to do those activities. Awareness also pertains to knowing where information can be found and how to use the information sources.
- **Assumptions** pertain to recreationists' perceptions about opportunities. These include prevalent ideas that opportunities are being threatened or other perceived barriers, regardless of whether they actually exist.

Availability

Availability is perhaps the most basic—none of the rest of the factors, such as knowing about that land, getting to that land, or moving about on that land, matters if there is no land in the first place. Unfortunately, availability of land is constricted by urbanization of formerly rural lands, as well as the closing of some lands, particularly private lands, to recreationists. For instance, past research indicated that between 1982 and 1997, there was a 34% increase in the amount of land devoted to urban uses in the United States, primarily due to the conversion (i.e., development) of croplands and forests into urban/suburban and industrial land uses.[250] This same study indicated that developed areas in the United States would go from 5.2% of the land base of the country to 9.2% of it by about 2030.

Accessibility

It may be that accessibility is becoming a greater problem than it once was as development blocks access to public lands or waters. Some research, in fact, suggests that it may be more of a problem than an actual lack of land. For instance, in one study, hunters who had experienced access problems were asked whether the access problem was a lack of land (i.e., availability) on which to hunt or a situation where land existed that the hunter could not get to (i.e., accessibility). The majority of those hunters with access

problems (60%) indicated that land existed but they could not get to it, while 29% indicated that there was a lack of land. In fact, among active hunters, 68% reported that land existed but they were unable to get to it.[251]

This problem is epitomized by a statement made in a hunter focus group[252] about access issues: "I've talked to Bureau of Land Management people, and we know there's a section of land there open to the public—but how do you get into it? There's houses on it by the road, so the only way to get through to that public land is to go through somebody's yard. And we're talking about a pretty good section of land. But there's no road."

As another example, in a study of Colorado hunters, those hunters who hunted on private lands and rated private land access as fair or poor said that their low rating was because of limited access rather than because too few hunting lands exist.[253] In other words, these Colorado hunters felt that private land existed for hunting but that they were blocked from using the land and/or it was becoming increasingly more difficult to obtain permission to hunt on these private lands. In this case, then, the land existed but was difficult to access. This same research found that hunters encountered instances where private landowners had *illegally* blocked access to public lands by posting no trespassing signs on public lands.

Facility Access

Jeff Rawlinson

Improving facility access for hunting and shooting sports training has been a leading effort for Nebraska over the past 5 years. In 2012, Nebraska unveiled a shooting range plan that surveyed the shooting range needs across the state. The plan outlined the need for more shooting range opportunities with a focus on facilities that are designed for our newest hunters and shooters. This made a lot of sense to us. We all have ranges we will use, and we usually find little fault as long as they allow us to safely shoot. However, imagine a millennial, new to shooting, and actually a bit intimidated. Where can this person, our newest recruit, go to learn about hunting and shooting sports on a consistent basis? The reality is that these types of facilities are very limited yet critical for recruitment.

Many of our partner gun clubs across the state work to support this effort. While they are the backbone of the shooting sports, they are not likely to be the location that draws youth, families, and new participants on a daily basis. Many offer special events for novices, and, while these are great at increasing awareness, they lack the consistent follow up and social structure novices need for continued engagement.

continued

Since the release of the plan, we have developed several shootings sports education centers that cater to novices. These new facilities were designed and operated to not only entice novice shooters to give our sports a try but to keep them coming back until they have the skills needed to venture out on their own. These education centers are located either within communities or state parks and focus on high traffic/visibility areas.

Once the facilities are developed, they are staffed with education personnel who know how to design and teach the most effective shooting sports programs possible. These programs focus on entry level to advanced and provide people with a complete pathway to recruitment and retention. Partnerships with family institutions have really ramped up participation in many introductory programs, which has led to growth in our mid-level programs. The key for us has been to support all stages of the recruitment pathway.

These new facilities provide a mix of general recreational shooting opportunities while being heavily weighted toward educational programming. Such programs are geared to not only teach valuable outdoor skills but also provide the social support necessary for continued engagement of these new participants. Most of these facilities have been developed from partnerships with other stakeholders, such as the Easton Foundation, the National Rifle Association, Scheels, Cabela's, the Archery Trade Association, and the National Wild Turkey Federation, to name a few.

Program development and public participation continues to rise at these facilities. Think of them as gun clubs for newbies because, for many, that is exactly what they need. Our pathway model is working. We now have students at every level, from entry level programs such as Explore Archery, Explore Bowhunting, and First Shots, to mid-level programs such as Junior Olympic Archery Development, to upper level programs such as tournaments, and leagues. We even have students focusing on the Junior Olympic Archery Team. We are excited about this new success and the many benefits these facilities are providing to support our model of conservation.

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Another cause of a lack of accessibility occurs when private lands or waters are leased to hunting or fishing clubs, which limits public access to that land. Clubs that arrange for their members to hunt or fish on private lands take those private lands out of the "public" realm. Furthermore, those clubs can drive up leasing costs of other hunting and fishing lands, the result of which is increases in club fees and fees for land leases. This presents a problematic financial aspect of access.

To summarize, accessibility issues include real and/or perceived "landlocked" hunting and fishing areas (e.g., public lands or waters surrounded by private lands or public lands or waters only accessible by remote access points), posted lands, closed lands, gated entries, illegally blocked access to public lands, and road closures. Accessibility issues differ on public versus private lands, as well. Fish and wildlife agencies often have more options available for managing public land under their jurisdiction, meaning that they can work to improve roads and reduce road closures into and on public lands. Conversely, working with private landowners to ensure hunting and fishing access is more complicated.

Accommodation

Access also pertains to the ease of mobility and the hunting or fishing experience once recreationists are on the land. Issues related to accommodation include, but are not limited to, road and trail conditions, prohibitions on vehicles, distance traveled afoot for hunting or fishing, and crowding. All of these factors limit opportunities in these sports in some way. In some instances, the distance—though open to foot access—is too far for feasible access. Further, restrictions on ATVs and other vehicles can result in difficulties when hunters try to remove game; areas that fail to provide hunters with an opportunity to feasibly remove game are commonly viewed as lacking access.

Crowding is also a concern for providing positive hunting and fishing experiences and is related to access. Although access, in this case, is not actually blocked, it is, nonetheless, limited by crowding. As urbanization continues to limit land access, it is possible that crowding issues may become more prominent in the future.

Awareness

To further complicate access issues, there is sometimes a disconnect between the amount of land or water actually available and a hunter's or angler's awareness of this land or water. In 2003, for example, Responsive Management initiated a detailed evaluation of hunting access in Colorado for the Congressional Sportsmen's Foundation.[254] Colorado was identified as a state that had a high but declining level of hunting participation and possessed a diversity of (and large amounts of) federal public lands. In this study, the Geographic Information System (GIS) component showed that most public lands in Colorado were generally accessible to the public, as no more than 12% of federal lands in Colorado were landlocked by private

land. Further, the study found that most public lands in Colorado were within one mile of a road. However, because large portions of public land were surrounded by private lands and were often accessible only by a secondary road, hunters reported frustration regarding "landlocked" public lands. In truth, few public lands in Colorado were landlocked by private lands.

The results in Colorado illustrate the complexity of psychological constraints to hunting and fishing access. Although there was clearly land available for hunting in Colorado, hunters' lack of awareness of remote access points and alternative routes to hunting lands as well as their perception that public lands were landlocked resulted in situations where hunters cited access issues. The Colorado study shows that despite the increased reporting of hunting access as a problem, the physical on-the-ground reality does not always correspond with these problems. In short, access issues are not always simply a lack of access points, roads, or trails, but a lack of good information as well.

Assumptions

Access pertains to hunters' and anglers' assumptions and perceptions about opportunities for these sports. These include prevalent ideas that opportunities are being threatened or the perception of other barriers, regardless of whether they actually exist. Changes in land use from agriculturally zoned to residentially zoned and development of land have made more prevalent the idea that hunting and fishing opportunities are being threatened and have increased hunters' and anglers' perception that access is becoming worse. As recreationists increasingly see the encroachment of development in their communities, they may assume that access is being threatened, even if they themselves have not experienced access problems. If a hunter or angler passes land that has been developed on the way to his favorite hunting or fishing spot, even though he may not have an access problem to the location of his choice, he may worry about the future encroachment or development of those lands. Other perceptions or fears may also contribute to access issues. For example, if a hunter or angler is hesitant to obtain permission from a landowner, access can be, for all practical purposes, blocked by this hesitancy.

Crowding as a Component of Access

Another component of access relates to whether the land is isolated or relatively well travelled. Although not a physical obstacle to access, crowding can affect access in that it can make an area undesirable or unsuitable for an activity, particularly hunting and fishing in which the participant may not want the wildlife and fish to be spooked. Crowding may not cause desertion from these sports—one study[255] found that only 1% of active hunters said that crowding had caused a decline in their participation or prevented them from participating, and the same study found that only 1% of inactive hunters named crowding as a reason for not hunting in recent years—but crowding can have a large effect on *where*

hunters and anglers choose to pursue these activities. In a 2010 survey,[256] when hunters were asked about the importance of 11 factors in their decisions regarding where to hunt their primary species, a single factor stood out markedly more important than the rest in the ranking by the percentage saying the factor is very important: that the land is not crowded with other sportsmen (82% said this was very important) (Figure 5.1.2).

Figure 5.1.2. Factors in Deciding Where To Hunt[257]
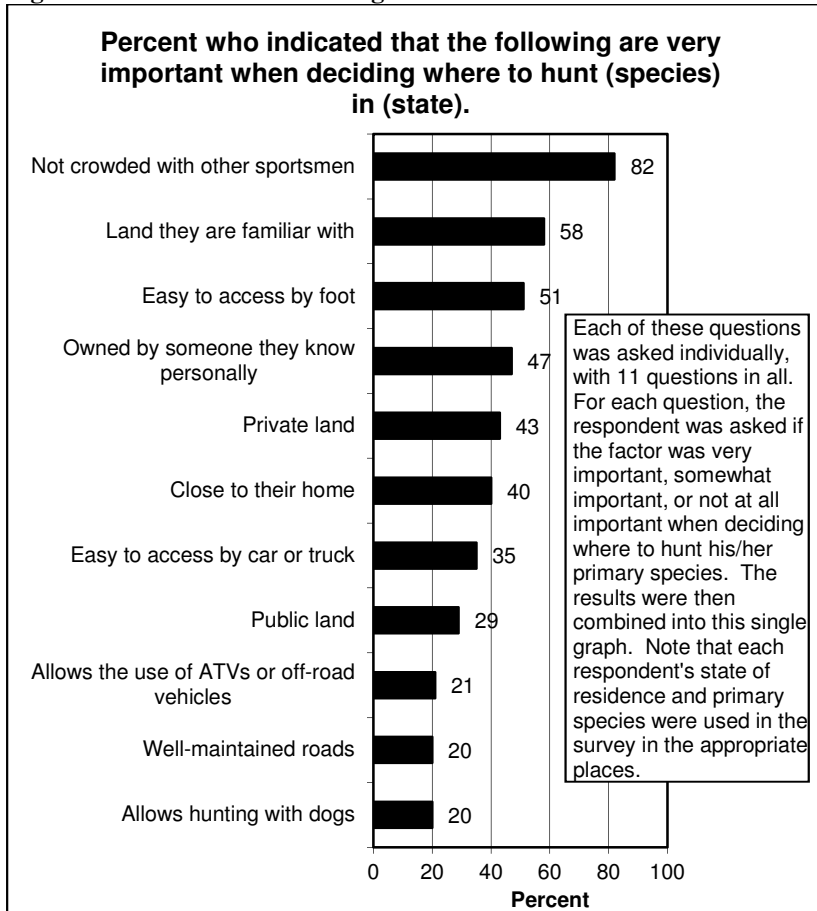
Not only has crowding been identified as an important consideration in choosing a place to hunt, but it is also an important determinant in a hunter's decision to leave certain hunting locations. When presented a list of potential problems with associated consequences of the problem, 55% of hunters cite leaving an area because of crowding from other hunters (the top problem identified as being major, moderate, or minor). In a finding tangentially related to crowding, hunters also identified two other social issues in this line of questioning as top-named problems: leaving an area because they felt unsafe because of other hunters (40%) and leaving an area because of the irresponsible behavior of other hunters (35%) (Figure 5.1.3).

Therefore, the top three problems pertain to other hunters' presence in an area in which the respondent wanted to hunt, and the fourth ranked problem is leaving an area because of crowding from other (i.e., non-hunting) recreationists.

Figure 5.1.3. Access Problems Encountered When Hunting[258]

Percent who indicated that the following have been a major, moderate, or minor problem in the past 5 years when hunting (species).

Question	Percent
Q159. Leaving an area because of crowding from other hunters	55
Q161. Leaving an area because they felt unsafe because of other hunters	40
Q162. Leaving an area because of the irresponsible behavior of other hunters	35
Q160. Leaving an area because of crowding from other recreationists	28
Q163. Not being sure whether they were on private or public land	25
Q155. Not going on a hunt or changing locations because of access problems	24
Q164. Not being sure whose land they were on	24
Q166. Not hunting somewhere because ATV use is allowed or not restricted	18
Q167. Being in an area where they were not sure which hunting regulations applied	17
Q156. Not going on a hunt or changing locations because they felt that a leasing fee was too expensive	15
Q168. Being confused by state agency map that was hard to follow, such as map showing WMAs in state	14
Q165. Not hunting somewhere because of ATV restrictions	12
Q169. Discontinuing a hunting club membership because they felt the fees were too expensive	10
Q170. Trying to join a hunting club that was already full	8
Q157. Not going on a hunt or changing locations because map information was wrong	6
Q158. Not going on hunt / changing locations bc access for those w/ disabilities was not available	6

Percent

Crowding affects fishing access, as well. A national study of anglers asked about 41 potential problems; for each problem, anglers rated it as being a major problem, a moderate problem, a minor problem, or not a problem.[259] Three of the top four potential problems were related to crowding, as shown in Table 5.1.1. (Note that the first item—the cost of gasoline—was given this rating during a year when gas prices were relatively high.) As with hunting, if crowding becomes a bad enough problem, anglers may consider

that their access to waters is poor, even though they actually have access, albeit crowded access.

Table 5.1.1. Major or Moderate Problems for Anglers[260]

Potential Problem and Percent Saying Problem Was Major or Moderate	Percent
The cost of gas	52
Crowding on the water	31
Crowding at fishing access areas	31
Crowding at boat ramps, launches, or put-in sites	30
Not enough places to access the water to fish	26
Fewer areas to fish due to development	23
Not enough places to fish	22
Not enough parking at access areas or boat launches	22
Access or user fees being expensive	22
Poorly marked boundaries of public and private land in fishing areas	22
Less fishing access or boat access areas due to development	21
Poorly marked public access areas	21
Not having enough information about where to access the water to fish	19
Not enough boat access areas	18
Poor maintenance of boat ramps, launches, or put-in sites	18
Not knowing if the land or shore where you want to get out of the water is public or private land	18
Not having access to docks or piers from which to fish	17
Poor maintenance of roads or trails to fishing access or boat access areas	17
Not having accurate information about where to access the water to fish	17
Unclear / complicated regulations about fishing public waters that run through private land	17
Not being able to find a place to launch a boat	16
Poor maintenance of docks or piers	16
Having to travel far to access the water to fish	16
Private landowners closing or denying permission to use access to the water from their land	16
Not knowing if the access area you want to use is on public or private land	16
New restrictions on fishing equipment, such as a ban on lead sinkers	16
Not knowing where to access the water to fish	15
Closed fishing access or boat access areas	15
Fewer areas to fish due to fishing areas being closed for pollution or litter	14
Finding previously open private fishing access and boat access areas posted or closed by the same landowner	14
Private land blocking a public fishing access or boat access area	14
Not knowing where to go to fish	13
Fewer areas to fish due to fishing areas being closed for protection or conservation	13
Having out-of-date state agency info. about fishing access or boat access	13
Not being able to contact the landowner to ask permission to access the water from their land	13
Finding previously open private fishing access and boat access areas posted or closed by a new landowner	13
Having maps that show fishing access and boat access areas but being unable to physically locate them	12
Closed or posted roads leading to fishing access or boat access areas	11
Having out-of-date federal agency info. about fishing access or boat access	11
Having to plan where to access the water for fishing	10
Private landowners not allowing you out of the water or off of your boat onto surrounding property	9

Urbanization as a Component of Access

Because urbanization presents its own set of problems for access, it is
further discussed in detail here as a final component of access.
Urbanization particularly affects availability, accessibility, and assumptions,
and remains a critical obstacle for access to outdoor recreation as a whole.
While the demand for outdoor recreation opportunities increases with
population growth, the ability to meet this demand is becoming more
challenging because the supply of open land is diminishing. This trend is
even more evident in wildlife-dependent recreation, such as hunting and
fishing, where increasing urbanization results in a loss of wildlife habitat
appropriate for providing these opportunities.[261] Other research examining
state-by-state data throughout the United States has shown that the percent
change in total hunters in a state is statistically correlated with housing units
per square mile in the state: the denser the development, the fewer the
number of hunters.[262] Urbanization reduces land available for hunting and
also reduces ingress to available lands. Finally, in addition to the actual
land being developed, there is also a buffer zone around developed areas in
which hunting and firearm shooting are often prohibited.

In addition to limiting the physical availability and accessibility of hunting
and fishing lands, urbanization and land development have profound effects
on the hunting, fishing, and sport shooting *culture* as well. Urbanization
and lack of access change the social environment in which these sports
flourish. Given the important relationship between rural residency and
participation in hunting and fishing, demographic trends toward
urbanization are an emerging challenge.

With less rural land and fewer places to hunt, fish, and sport shoot, there are
fewer people growing up in a hunter-, angler-, and sport shooter-friendly
environment, or for that matter an environment in which they even know
anybody who engages in these activities. Further, as a smaller proportion of
youth grow up in rural areas where participation in hunting, fishing, sport
shooting, and archery is a more typical occurrence, efforts to maintain the
participation rates in these activities will become more difficult. There are
also fewer people growing up in an environment that fosters being
comfortable around firearms, a prerequisite to participation in hunting and
sport shooting. Finally, urbanization and the concomitant mobility of
society contribute to a deterioration of a social groups for hunting, fishing,
sport shooting, and archery as people move from place to place.[263]

The above has included a discussion of the components of and factors
affecting access to recreation in general and a brief discussion of
urbanization in particular. The next three sections discuss access problems
specifically related to hunting, to fishing, and to sport shooting and archery.

HUNTING ACCESS

In considering hunting access, perhaps one of the most important factors is the ownership of the land. The 2011 *National Survey* indicates that private land predominates in hunting, with 84% of hunters using private lands (including 61% using them exclusively), compared to 36% using public lands (13% doing so exclusively) (Figure 5.1.4).

Figure 5.1.4. Proportion of Hunters Using Private Land and Public Land for Hunting, *National Survey* **Data**[264]
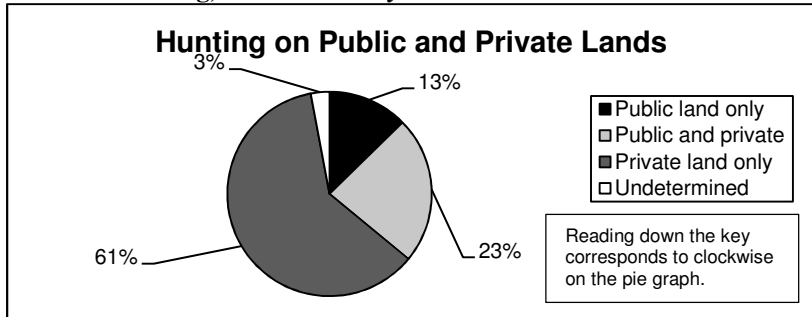
Responsive Management found similar results in a nationwide survey of hunters,[265] with 77% of hunters using private lands at least half the time (54% doing so "mostly"), and 46% of hunters using public land at least half the time (23% doing so "mostly") to hunt their primary species (Figure 5.1.5). Note that there are differences in the parameters of the data in the two pie graphs in Figures 5.1.4 and 5.1.5. The former was strictly defined as any hunting at all on public or private lands, while the latter pertained to hunting "mostly" on public or private lands; additionally, the former includes any hunting, while the latter pertains to each hunter's *primary* species.

Figure 5.1.5. Proportion of Hunters Using Private Land and Public Land for Hunting Their Primary Species[266]
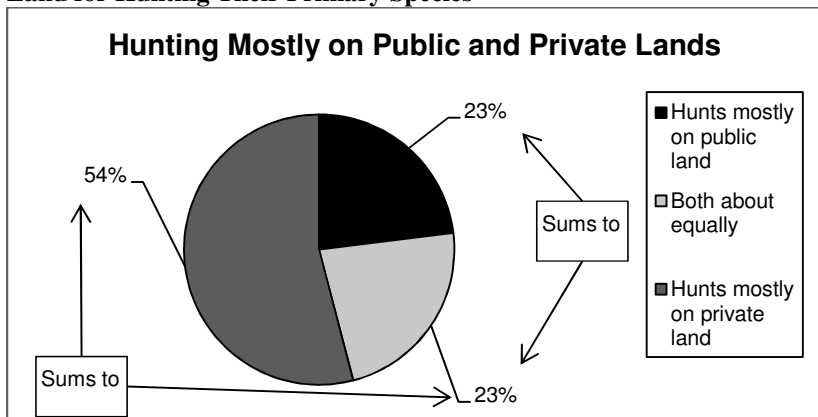
The survey asked about each hunter's primary species.

It is this importance of private lands that led researchers at Cornell University[267] to state that the "provision of additional public lands may not be as crucial to long-term [hunter recruitment and retention] success as facilitating access on private land."

The previous graphs consider hunters as a whole. Obviously, hunters and hunting lands are not homogenous throughout the United States, as shown by regional and state-by-state looks. Regionally, there are great differences, with Mountain Region and Pacific Region hunters being the most likely to use public lands for hunting (Figure 5.1.6).[268]

Figure 5.1.6. Hunters Using Public Land and Private Land for Hunting Their Primary Species, by Region[269]

For (SPECIES) hunting, would you say you hunt mostly on public land, mostly on private land, or on both about equally, in (STATE)?

Region respondent lives in:
- New England (n=122)
- Middle Atlantic (n=869)
- South Atlantic (n=1,106)
- East North Central (n=2,485)
- East South Central (n=948)
- West North Central (2,740)
- West South Central (n=1,008)
- Mountain (n=2,119)
- Pacific (n=2,910)

Hunts mostly on public land
- 17
- 19
- 16
- 14
- 12
- 18
- 13
- 68
- 56

Hunts on public and private land about equally
- 30
- 26
- 21
- 26
- 27
- 25
- 15
- 20
- 22

Hunts mostly on private land
- 53
- 55
- 64
- 61
- 61
- 58
- 71
- 12
- 23

Percent (0, 20, 40, 60, 80, 100)

The survey inserted each hunter's primary species and state of residence into the question wording in the appropriate places.

A state-by-state look also shows that public land use for hunting exceeds private land use in the West (and in Florida and Massachusetts), while private land use exceeds public land use in the Midwest and East (with the

two noted exceptions), from a 2010 nationwide survey of hunters conducted by Responsive Management (Figure 5.1.7).[270] Another map shows the percentage of hunters using public land for their primary species (Figure 5.1.8).

Figure 5.1.7. Use of Private Land and Public Land for Hunting Their Primary Species, by State[271]
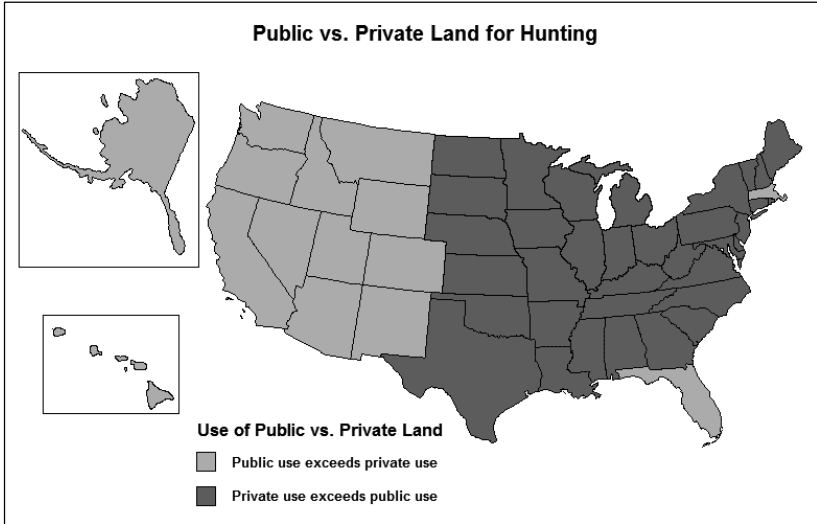
The survey asked about each hunter's primary species.

Figure 5.1.8. Percentage of Hunters Using Public Land for Hunting Their Primary Species, by State[272]
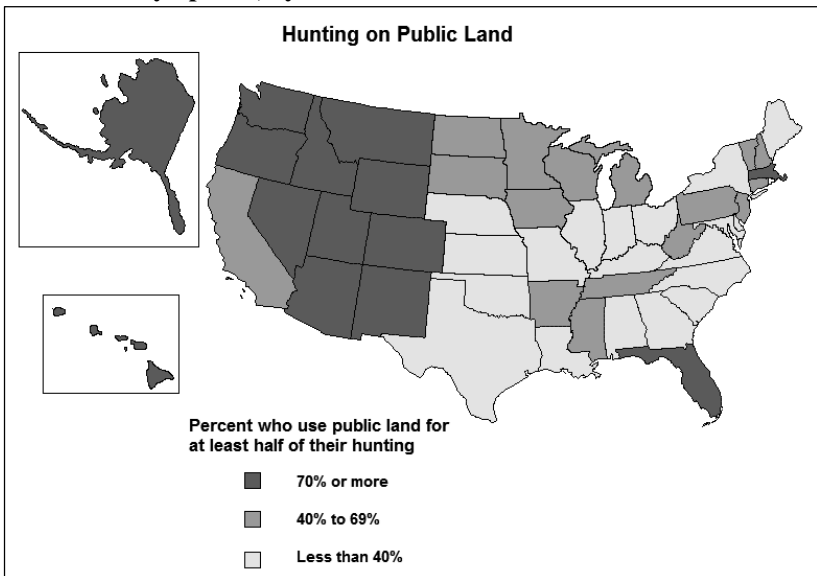
The survey asked about each hunter's primary species.

The aforementioned study also found significant differences in public/ private land use according to the primary species hunted, with deer hunters and elk hunters being the most likely to hunt mostly on public land (Figure 5.1.9).

Figure 5.1.9. Use of Private Land and Public Land for Hunting Various Species[273]
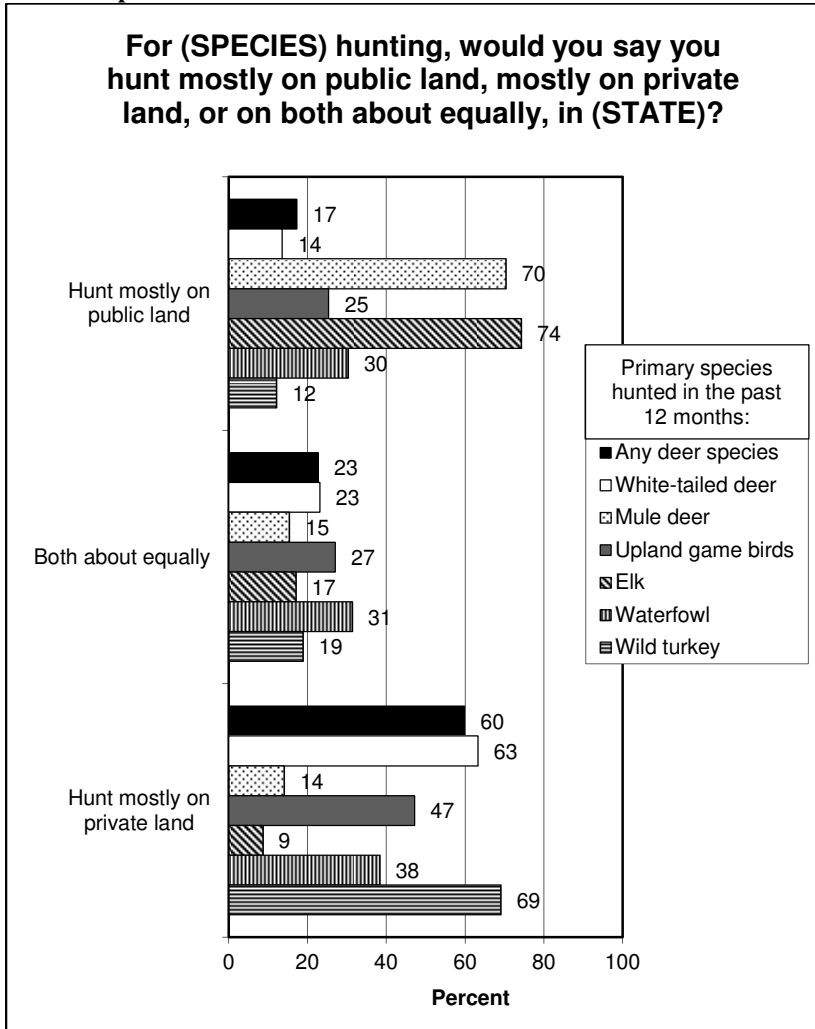
For (SPECIES) hunting, would you say you hunt mostly on public land, mostly on private land, or on both about equally, in (STATE)?

The survey inserted each hunter's primary species and state of residence into the question wording in the appropriate places.

Inextricably tied to access is travel distance, which is typically farther for those relying on public land to hunt. As shown in Figure 5.1.10, those hunting on public lands tend to travel farther than those hunting on private lands.

Figure 5.1.10. Travel Distance by Use of Private Land and Public Land for Hunting[274]

How far do you usually travel from home, one way, in miles, to hunt in (STATE)?

Travels 30 miles or less
- Hunts mostly on public land: 36
- Hunts on public and private land about equally: 48
- Hunts mostly on private land: 58

Travels 31-60 miles
- Hunts mostly on public land: 21
- Hunts on public and private land about equally: 17
- Hunts mostly on private land: 16

Travels 61 or more miles
- Hunts mostly on public land: 43
- Hunts on public and private land about equally: 34
- Hunts mostly on private land: 27

Percent

The survey asked about hunting the primary species in the hunter's state of residence. The survey inserted each hunter's state of residence into the question wording in the appropriate place.

Looking at travel distance in some more detail, the majority of hunters stay within 50 miles of home to hunt. Specifically, 62% of hunters typically travel no more than 50 miles from home to hunt their primary species, and 40% travel 20 miles or less to hunt. Nonetheless, about a fifth typically travel more than 100 miles (Figure 5.1.11). The median travel distance is 30 miles. Hunters in the western part of the country, particularly the southwestern part, tend to travel farther than those in the eastern part (Figure 5.1.12).

Figure 5.1.11. Travel Distance To Hunt in State of Residence[275]
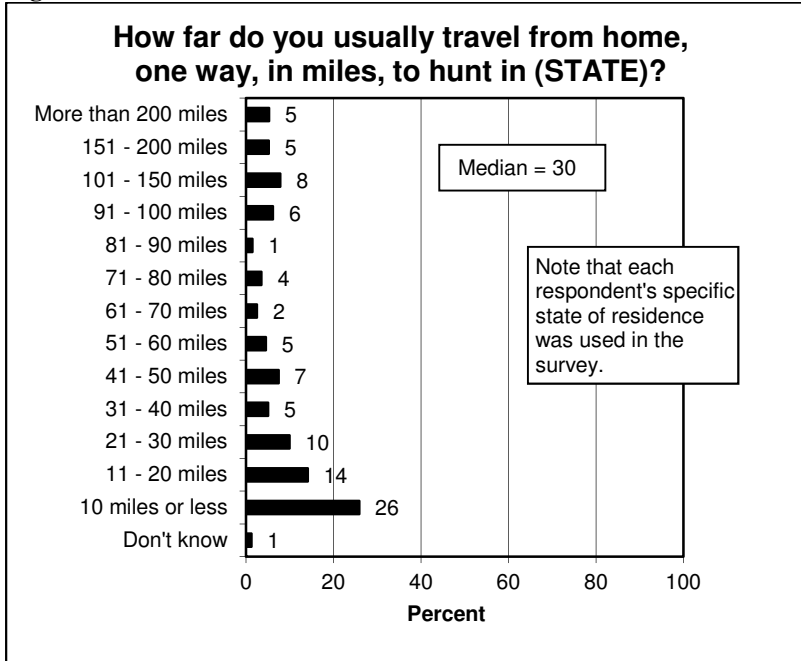
How far do you usually travel from home, one way, in miles, to hunt in (STATE)?

Category	Percent
More than 200 miles	5
151 - 200 miles	5
101 - 150 miles	8
91 - 100 miles	6
81 - 90 miles	1
71 - 80 miles	4
61 - 70 miles	2
51 - 60 miles	5
41 - 50 miles	7
31 - 40 miles	5
21 - 30 miles	10
11 - 20 miles	14
10 miles or less	26
Don't know	1

Median = 30

Note that each respondent's specific state of residence was used in the survey.

The survey asked about in-state hunting only, and the survey inserted each hunter's state of residence into the question wording in the appropriate place.

Figure 5.1.12. Percentage of Hunters Traveling 60 or More Miles[276]
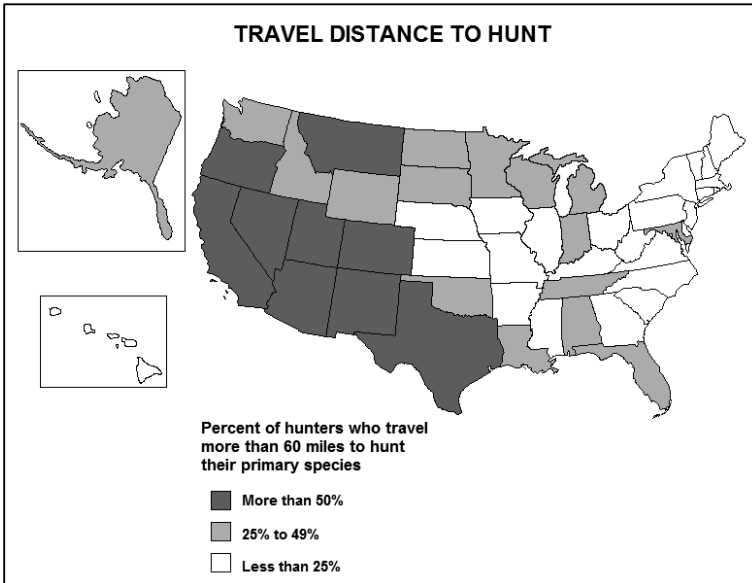
TRAVEL DISTANCE TO HUNT

Percent of hunters who travel more than 60 miles to hunt their primary species

- More than 50%
- 25% to 49%
- Less than 25%

The survey asked about in-state hunting only, and the survey inserted each hunter's state of residence into the question wording.

Another element of public versus private land for hunting pertains to whether the hunter uses the same lands year after year or different lands. The majority of hunters use the same lands each year (66% do so); meanwhile, 9% use different lands each year, and 25% use the same/different locations about equally. These data were then crosstabulated with the public-private land question, as shown in the matrix in Table 5.1.2. This suggests that, most commonly, hunters use the same private lands each year to go hunting (43% do so).

Table 5.1.2. Locations of Hunting Access[277]

HUNTS MOSTLY FROM / IN	Hunts mostly on public land (22.9%)	Hunts public and private land about equally (22.9%)	Hunts mostly on private land (54.2%)
Hunts mostly on same land each year (65.8%)	Public/Same 13.3%	Both/Same 9.9%	Private/Same 42.6%
Hunts both same and different lands about equally (25.3%)	Public/Both 6.5%	Both/Both 9.8%	Private/Both 8.9%
Hunts mostly on different lands each year (8.9%)	Public/Different 3.1%	Both/Different 3.1%	Private/Different 2.6%

For this analysis, those who answered "don't know" on either question were excluded.

The detailed look at public versus private land in this report is warranted because the ownership of the land is of major consequence to the *ratings* of hunting access. Research has found that access to private lands is a greater problem than access to public lands. When asked about access problems specifically, 20% of hunters[278] indicated that they had experienced an access problem while hunting or trying to hunt at some time. In a follow-up question asked of those hunters who had experienced access problems, 60% reported that they had encountered problems while trying to access private lands, while 38% reported that they had encountered problems attempting to access public lands.

Other research shows that, in general, access to public lands is perceived to be better than access to private lands. One national study found that the percentage of hunters giving ratings of excellent or good to access was 48% for access to public land and 40% for access to private land.[279] A couple of statewide studies[280] reiterate this finding that access to private land is more problematic than access to public land. A study conducted for the Virginia Department of Game and Inland Fisheries found that only 16% of Virginia hunters rated access to public lands as poor, while 35% of them rated access to private lands as poor. In a study conducted for the Minnesota Department of Natural Resources, Minnesota deer hunters were about three times more likely to say hunting access on private lands is poor for deer hunting compared to hunting access on public lands for deer hunting (23% rated private land access as poor; 7% rated public land access as poor). Other researchers have suggested that, as use of public lands is stretched to capacity, access to private lands becomes an increasingly important component for meeting public demand for outdoor recreation activities.[281]

The above discussion touched on public and private lands, as well as travel distance, and the implications thereof. The question remains: Is hunting access otherwise a problem? The evidence suggests that hunting access is, and will continue to be, a challenge for the hunting community in general, including both access to public land and private land.

A finding that directly demonstrates the problem that lack of access presents to hunters is that almost half of hunters (46%) in a nationwide study[282] agreed that lack of access had caused them not to hunt a particular species as much as they would have liked (Figure 5.1.13). Just under half of those who did not hunt a species as much as they would have liked did not hunt their *primary species* as much as they would have liked; about three-fourths of them did not hunt something *other than their primary species* as much as they would have liked (or not at all). Similarly, 42% of hunters in this same study rated access in their state as fair or poor (the lower half of the scale) (Figure 5.1.14).

Figure 5.1.13. The Impact of Lack of Access To Hunting Lands on Hunting Participation[283]
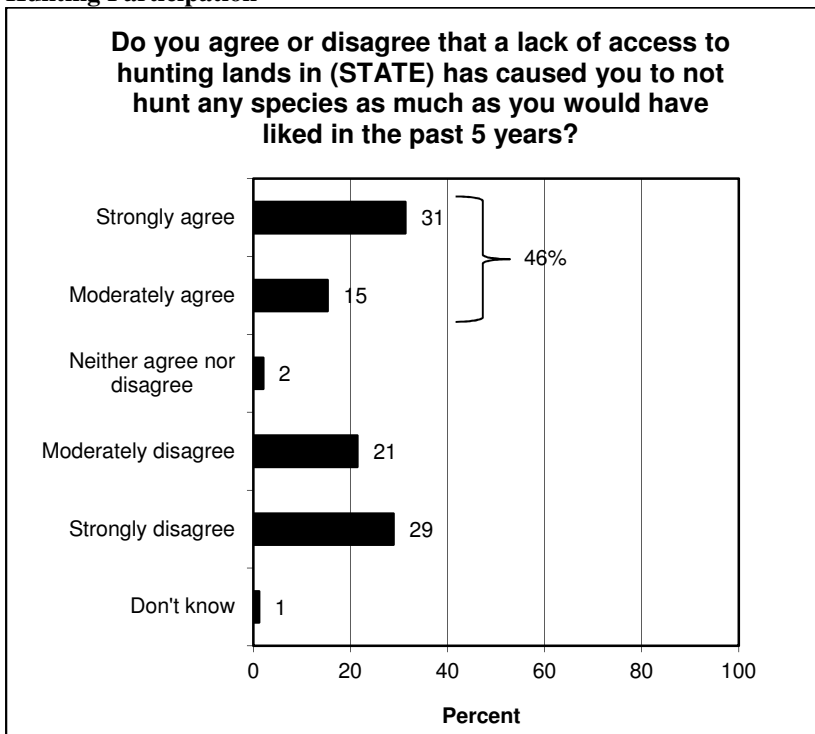
The survey inserted each hunter's state of residence into the question wording in the appropriate place.

Figure 5.1.14. Ratings of Access To Hunting Lands[284]
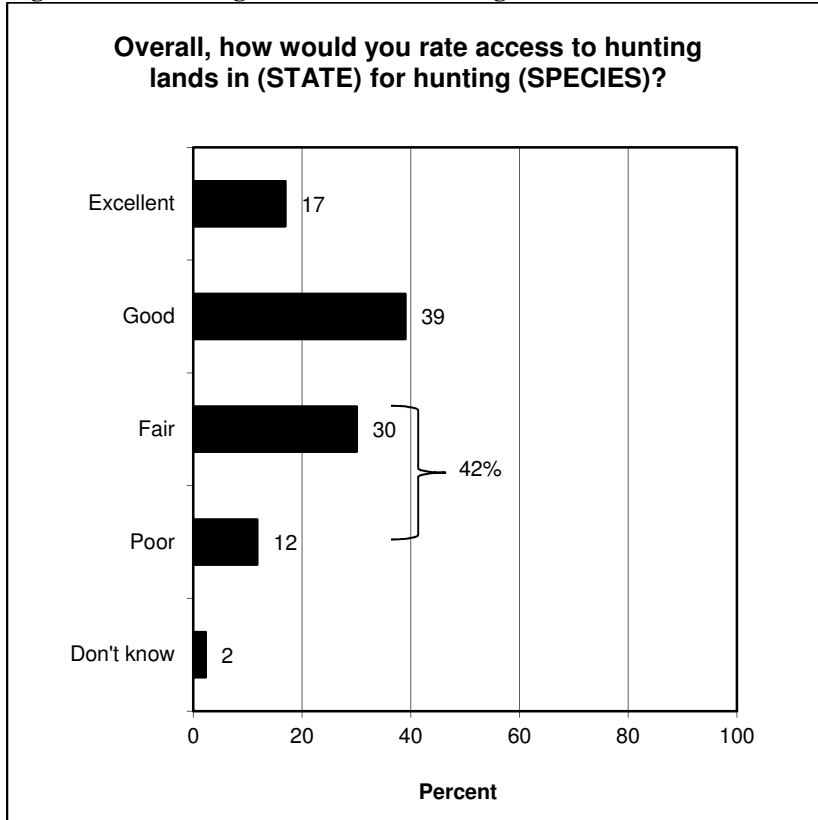
The survey inserted each hunter's state of residence and primary species hunted into the question wording in the appropriate places.

Other studies have found that access is a problem. Poor hunting access is a reason that hunters commonly report as causing dissatisfaction and affecting their hunting participation. Access problems negatively affect hunters by taking away from their enjoyment of hunting and/or causing them to hunt less often. Licensed hunters were asked in an open-ended question (meaning that no answer set was read to respondents, who were allowed to say anything that came to mind) to name the two most important issues facing hunting today: 22% of hunters reported access to public lands as one of those two issues, and 18% of hunters reported access to private lands as one of those issues.[285]

In another open-ended question, land access issues also ranked high in importance among hunters in a nationwide study of sportsmen in 2006. While hunters most commonly indicated that firearms rights/Second Amendment issues were among the most important issues that hunters face (cited by 16% of hunters), this was closely followed by lack of access to lands in general (15%), lack of access to public lands (10%), and lack of access to private lands (7%).[286] In 2008, research showed that access was a

leading reason for hunter dissatisfaction and that not enough available hunting access was an important factor that influences hunters' decisions to stop hunting.[287]

Access was also commonly cited by ex-hunters as a reason for desertion. The majority of ex-hunters in a Pennsylvania study (52%) cited a lack of access as a reason contributing to their decision to stop hunting.[288]

The reality of the physical limitations of access to hunting lands will always be contingent on both state-specific regulations as well as local conditions. Some states possess more public lands than other states and can more easily provide hunting access. Conversely, other states must depend more on private lands, which require different methods of providing hunting access. Although there are numerous state-specific factors that affect the availability of hunting lands, there are some general commonalities: for example, urbanization and development have a substantial impact on the availability of private hunting lands in all the states.

In short, access plays a key role in hunting participation for several target markets critical to hunter recruitment and retention efforts: active hunters who are hunting less frequently, active hunters who are at high risk of desertion, and inactive hunters who may be persuaded to start again.[289]

Before moving on to the section on fishing access, one more aspect of access to hunting lands needs to be considered. Fish and wildlife agencies depend on recreational hunting as an integral component in the effective management and regulation of wildlife populations; in effect, recreational hunting "serves as an artificial means of predation now that natural predators no longer keep wildlife populations in balance."[290] Thus, although the availability of hunting lands is certainly important to hunter recruitment, retention, and reactivation, research also suggests that access for hunting is an important component in effective game management on these lands; that is, lack of access for hunting not only contributes to hunter cessation, but it also impacts wildlife managers' capacity to manage wildlife.[291]

In fact, lack of access specifically to private lands may affect capacity to manage deer populations effectively for several reasons. According to some research, private land hunters are more likely than public land hunters to (1) have harvest success, (2) have a strong commitment to hunting, (3) demonstrate willingness to hunt antlerless deer, (4) spend more than the median amount of time hunting, and (5) continue hunting (i.e., private land hunters are less likely to desert the sport of hunting).[292] Accordingly, the researchers concluded that "decreasing access to private lands may exacerbate already-recognized deficiencies in hunter capacity to manage deer." As the aforementioned findings show, then, land availability and access issues are not only a concern for hunter recruitment, retention, and reactivation but for effective wildlife management as well.

FISHING ACCESS

Fishing access has to be examined with several criteria in mind: whether the angler is freshwater or saltwater fishing; whether the freshwater angler is fishing in slow moving rivers, mountain streams, large lakes, or smaller ponds; whether the saltwater angler is fishing in the ocean, in tidal bays or sounds, in tidal portions of rivers, or in the surf/from the shore; whether the waters and adjacent lands are public or private; and whether the angler is using a boat or not. For this reason, this report will first examine where and how anglers fish before looking specifically at access problems.

A comprehensive nationwide study of 4,131 active anglers (i.e., active because they had fished within the 5 years prior to the survey) asked them where they fished.[293] Freshwater fishing is far more popular than saltwater fishing: 93% of active anglers had been freshwater fishing in the previous 5 years, and 49% had been saltwater fishing in that time.

When considering just a single year instead of the 5-year timeframe used in the study cited above, both amounts are a little lower because anglers are less likely in a 1-year timeframe to have both freshwater and saltwater fished. The 2011 *National Survey* showed that 83% of anglers (those who had fished in the previous year) went freshwater fishing, while 27% went saltwater fishing. Note that freshwater fishing in a single year drops just a bit from a 5-year timeframe, while saltwater fishing drops relatively more; this is likely because saltwater anglers have greater churn than freshwater anglers.[294]

Going beyond the question of whether anglers had been freshwater or saltwater fishing (or both), Responsive Management's research showed that nearly half of freshwater anglers (47%) had *primarily* fished in reservoirs or lakes (other than the Great Lakes—which had 5% *primarily* fishing there) (Figure 5.1.15). A little more than a third (35%) had *primarily* fished in rivers and streams, and 11% had *primarily* fished in ponds. Note that anglers had to select only one location on this question to reflect where they most often, or primarily, fished.

This same study looked at saltwater bodies, as well (Figure 5.1.16). Nearly half *primarily* fished in the ocean (47%). A little over a quarter *primarily* fished in tidal bays and sounds (27%—with another 6% *primarily* fishing in tidal portions of rivers, making 33% in tidal bays, sounds, and rivers), while 18% *primarily* fished from the beach/shore in a coastal area. Again, for this question, anglers were limited to a single question to reflect where they most often saltwater fished.

Figure 5.1.15. Types of Freshwater Bodies Fished by Anglers[295]

When freshwater fishing, in what type of water
body do you primarily fish? (Asked of those who
have been freshwater fishing in the past 5
years.)

Category	Percent
Reservoirs and/or lakes other than the Great Lakes	47
Rivers and/or streams	35
Ponds and/or other freshwater bodies	11
The Great Lakes	5
Other	2

Percent: 0 — 20 — 40 — 60 — 80 — 100
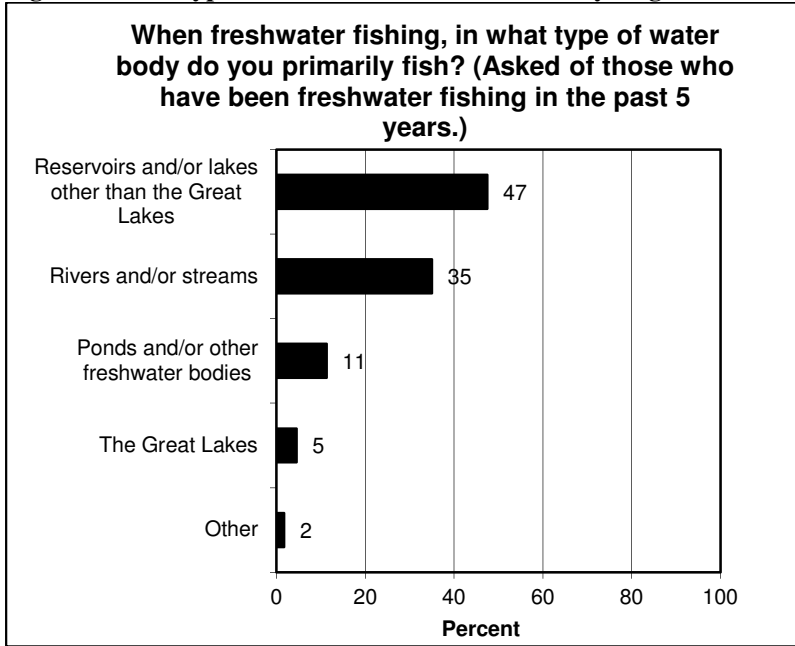
Figure 5.1.16. Types of Saltwater Bodies Fished by Anglers[296]

When saltwater fishing, in what type of water
body do you primarily fish? (Asked of those who
have been saltwater fishing in the past 5 years.)

Category	Percent
In the ocean	47
In tidal bays and sounds	27
From the beach, shore, or surf of a coastal area	18
In tidal portions of rivers	6
Do not primarily use only one body of saltwater	1
Everglades / marshes	1

Percent: 0 — 20 — 40 — 60 — 80 — 100
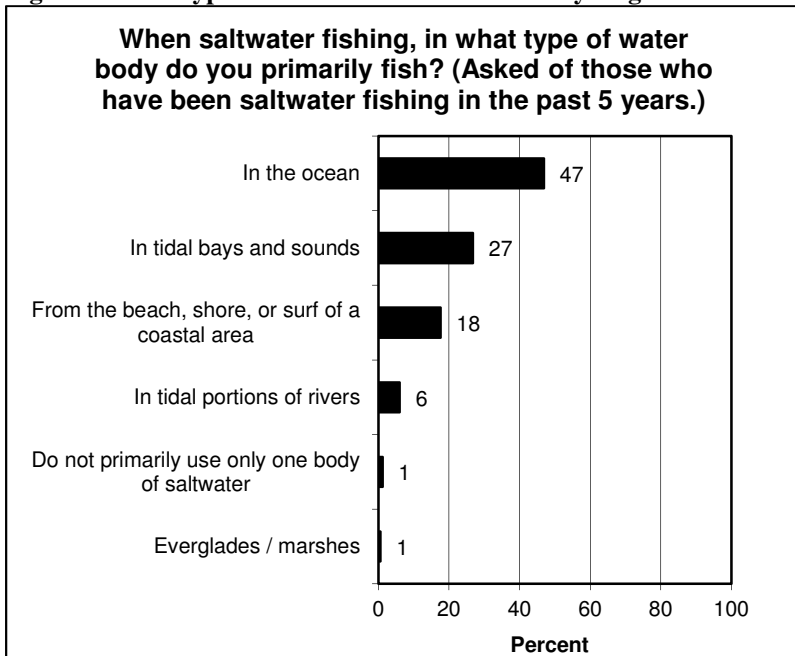
The 2011 *National Survey* includes data on freshwater fishing in lakes, reservoirs, or ponds; in rivers or streams; and in the Great Lakes. These data reflect a 1-year timeframe but do not limit the freshwater anglers to one selection—in other words, they indicated all types of waters in which they freshwater fished rather than the single type in which they fished the most. The data show that 83% of freshwater anglers fished in lakes, reservoirs, or ponds, 43% fished in rivers or streams, and 6% fished in the Great Lakes.

The aforementioned nationwide study[297] of 4,131 active anglers found that 64% of anglers access their primary water body mostly from public land, and another 19% do so on public and private land about equally (this sums to 83% using public land at least half the time to access their primary body of water) (Figure 5.1.17). Meanwhile, 16% do so mostly from private land (a sum of 35% using private land at least half the time).

Figure 5.1.17. Accessing Fishing Locations From Public or Private Land[298]
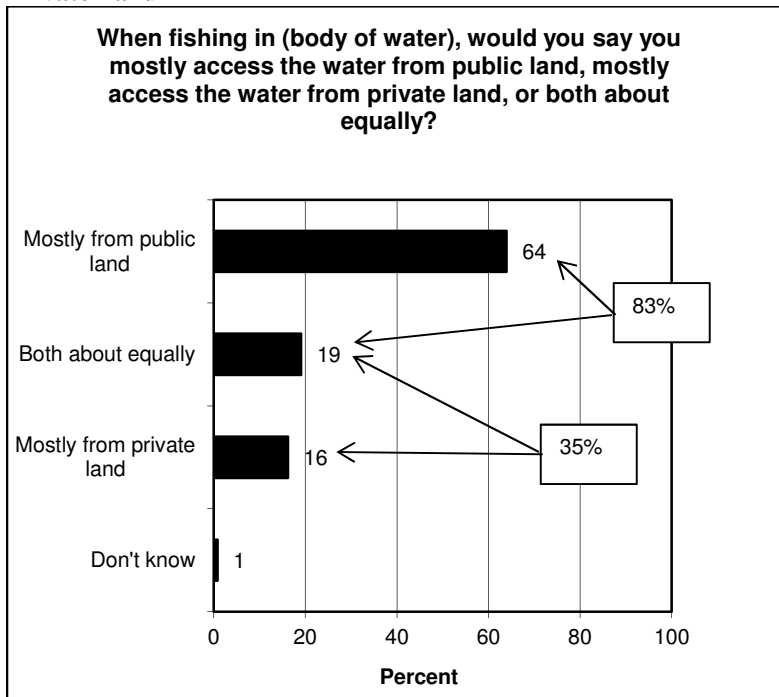
The survey asked each angler about his/her primary body of water that he/she fishes in, and then the survey focused on that particular body of water. The type of the body of water that the respondent had given was inserted into the question wording in the appropriate place (such as "the Great Lakes" or "rivers and/or streams" or "tidal bays and sounds," and so forth).

Taking the data analysis further, the public-private land question was crosstabulated by type of waters fished. Looking at freshwater fishing, several findings emerge (Figure 5.1.18). Great Lakes anglers tend to be more singular in their access—in other words, they are the most likely to

access the water for fishing mostly from public or mostly from private land rather than from a mix of lands. Additionally, freshwater anglers fishing in ponds/other freshwater bodies are the most likely to use private land to access those waters.

Figure 5.1.18. Public or Private Access by Type of Freshwater Body[299]
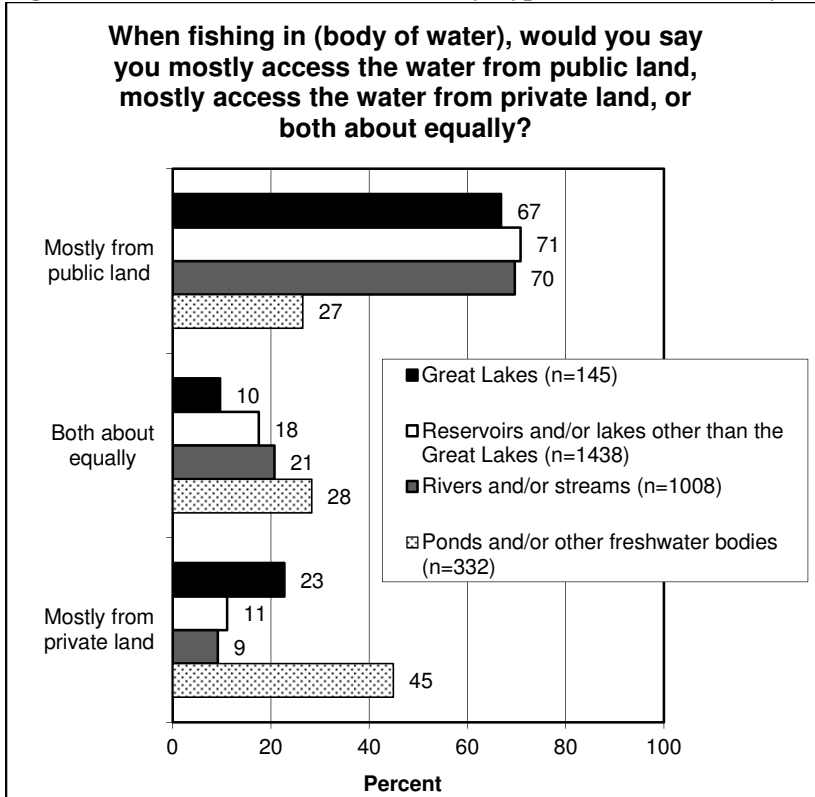
When fishing in (body of water), would you say you mostly access the water from public land, mostly access the water from private land, or both about equally?

The survey asked each angler about his/her primary body of water that he/she fishes in, and then the survey focused on that particular body of water. The type of the body of water that the respondent had given was inserted into the question wording in the appropriate place.

Figure 5.1.19 shows the same crosstabulation as above, but on saltwater bodies. An interesting finding is that there is not a large amount of difference in public-private land use in saltwater fishing when crosstabulated by type of saltwater body.

Figure 5.1.19. Public or Private Access by Type of Saltwater Body[300]
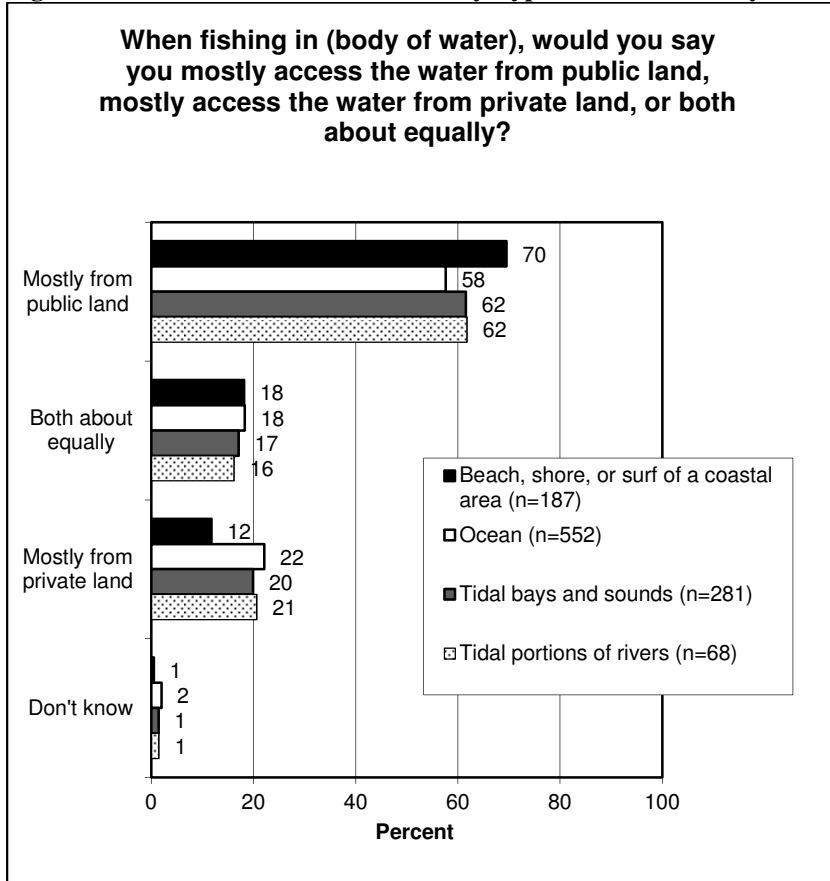
**When fishing in (body of water), would you say
you mostly access the water from public land,
mostly access the water from private land, or both
about equally?**

Mostly from public land
- 70 (Beach, shore, or surf)
- 58 (Ocean)
- 62 (Tidal bays and sounds)
- 62 (Tidal portions of rivers)

Both about equally
- 18
- 18
- 17
- 16

Mostly from private land
- 12
- 22
- 20
- 21

Don't know
- 1
- 2
- 1
- 1

Legend:
- ■ Beach, shore, or surf of a coastal area (n=187)
- □ Ocean (n=552)
- ■ Tidal bays and sounds (n=281)
- ▨ Tidal portions of rivers (n=68)

X-axis: Percent (0, 20, 40, 60, 80, 100)

The survey asked each angler about his/her primary body of water that he/she fishes in, and then the survey focused on that particular body of water. The type of the body of water that the respondent had given was inserted into the question wording in the appropriate place.

A nuance of public versus private land for fishing was explored in that study, as well. The survey asked anglers whether they fished in the same location each year or various locations (or about equally in a favored spot/various other spots), and then this was crosstabulated with the public-private land question, creating the matrix in Table 5.1.3. The data used in this matrix suggest that, most commonly, anglers use the same public lands each year to go fishing—more than a quarter do so (27%).

Table 5.1.3. Locations of Fishing Access[301]

FISHES MOSTLY FROM / IN	Accesses mostly from public land (64.5%)	Accesses both from public and private land about equally (19.3%)	Accesses mostly from private land (16.3%)
Mostly in same location each year (43.7%)	27.2%	6.4%	10.1%
Both in same and various locations about equally (29.6%)	19.3%	7.3%	3.1%
Mostly in various locations each year (26.7%	18.0%	5.5%	3.1%

The final aspect of access to be explored, before looking at ratings of
fishing access among anglers, is the use of a boat: 52% of freshwater
anglers (Figure 5.1.20) and 50% of saltwater anglers (Figure 5.1.21) use a
private boat when fishing in their primary water body (in total, 54% and
72%, respectively, use any boat, including charter boats).[302]

Figure 5.1.20. Freshwater Anglers' Use of Boats[303]
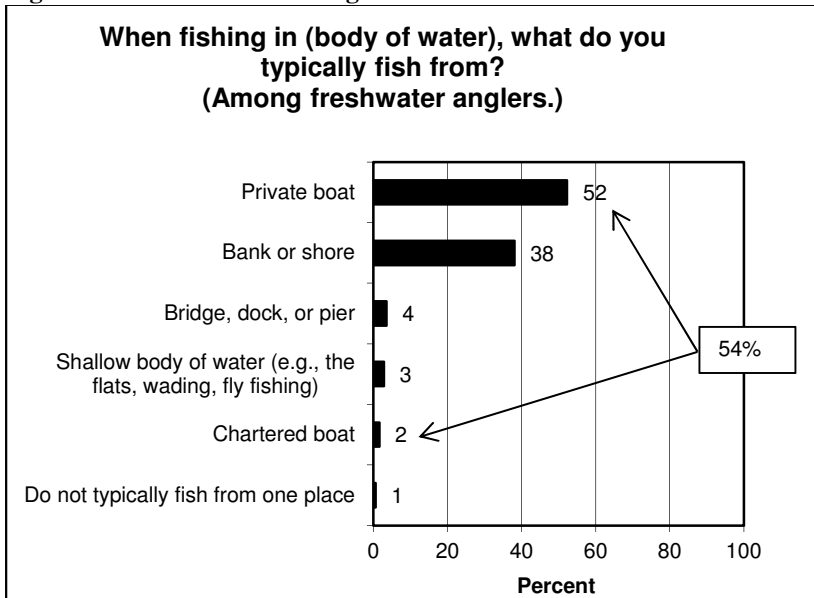
The survey asked each angler about his/her primary body of water that he/she fishes
in, and then the survey focused on that particular body of water. The type of the body
of water that the respondent had given was inserted into the question wording in the
appropriate place.

Figure 5.1.21. Saltwater Anglers' Use of Boats[304]
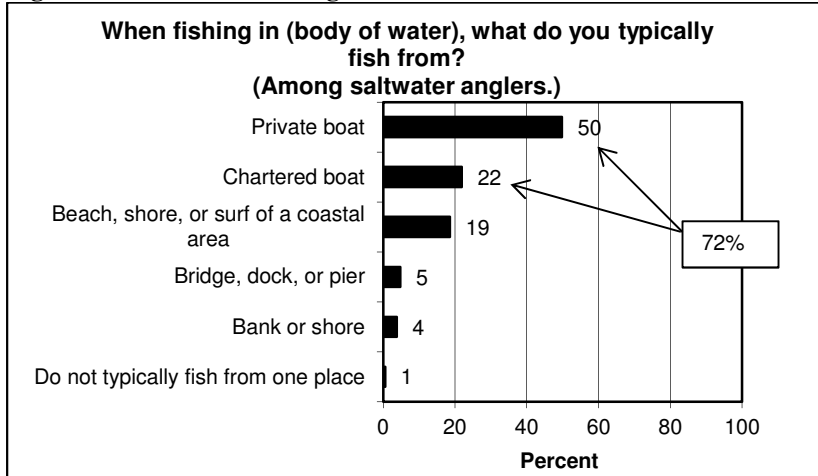
When fishing in (body of water), what do you typically fish from?
(Among saltwater anglers.)

Category	Percent
Private boat	50
Chartered boat	22
Beach, shore, or surf of a coastal area	19
Bridge, dock, or pier	5
Bank or shore	4
Do not typically fish from one place	1

72%

Percent

The survey asked each angler about his/her primary body of water that he/she fishes in, and then the survey focused on that particular body of water. The type of the body of water that the respondent had given was inserted into the question wording in the appropriate place.

The use of a boat often, but not always, entails use of a boat ramp to access the water. The same study cited immediately above examined how anglers who use boats access the water. Nearly three-quarters of anglers fishing from a boat use a public boat ramp (73%), and this is distantly followed by use of private boat ramps (17%), private docks (12%), and marinas (12%) (Figure 5.1.22).

Figure 5.1.22. Boat Access Used by Anglers[305]
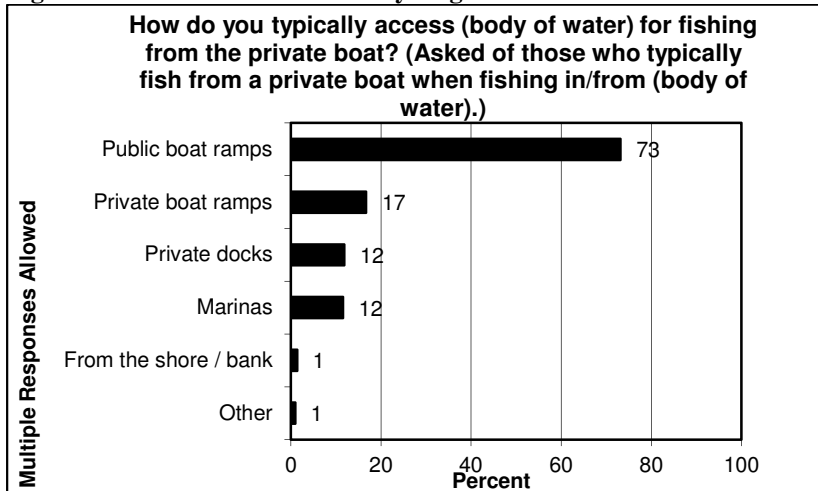
How do you typically access (body of water) for fishing from the private boat? (Asked of those who typically fish from a private boat when fishing in/from (body of water).)

Multiple Responses Allowed

Category	Percent
Public boat ramps	73
Private boat ramps	17
Private docks	12
Marinas	12
From the shore / bank	1
Other	1

Percent

The survey asked each angler about his/her primary body of water that he/she fishes in, and then the survey focused on that particular body of water. The type of the body of water that the respondent had given was inserted into the question wording in the appropriate place.

The above discussed the nuances of and the factors involved in fishing access. This report next turns to actual ratings of fishing access. The aforementioned national survey asked anglers to rate the access at their primary body of water in which they fish.[306] Although only 20% gave a rating of fair or poor, with only 5% giving the lowest rating of poor, a large majority (70%) gave a rating of less than excellent, meaning for most anglers, access could be better (Figure 5.1.23).

Figure 5.1.23. Ratings of Fishing Access on Primary Body of Water[307]
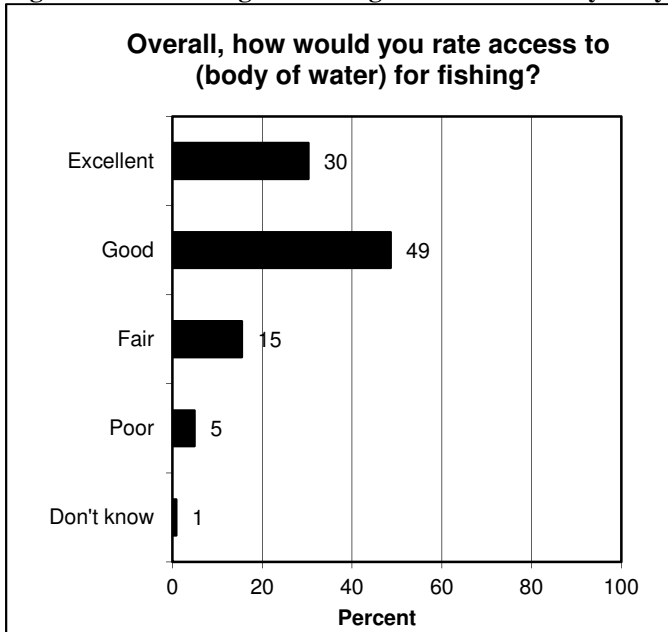
The survey asked each angler about his/her primary body of water that he/she fishes in, and then the survey focused on that particular body of water. The type of the body of water that the respondent had given was inserted into the question wording in the appropriate place. A further note about this rating: If anything, this rating would be better than a rating of fishing access overall because anglers were rating the body of water *that they primarily use*, meaning that the worst places for access—that they would not be able to use—were eliminated from consideration. In other words, each angler was rating a body of water for which he/she had good enough access for it to be his/her "primary" body of water.

These ratings of access to freshwater locations are not uniform by type of freshwater body: ratings are better for the Great Lakes than for any other type of freshwater body; ratings are the worst for rivers/streams or for ponds/other bodies (Figure 5.1.24). In saltwater, the worst ratings are for tidal portions of rivers (Figure 5.1.25).

Figure 5.1.24. Ratings of Fishing Access on Freshwater Bodies[308]
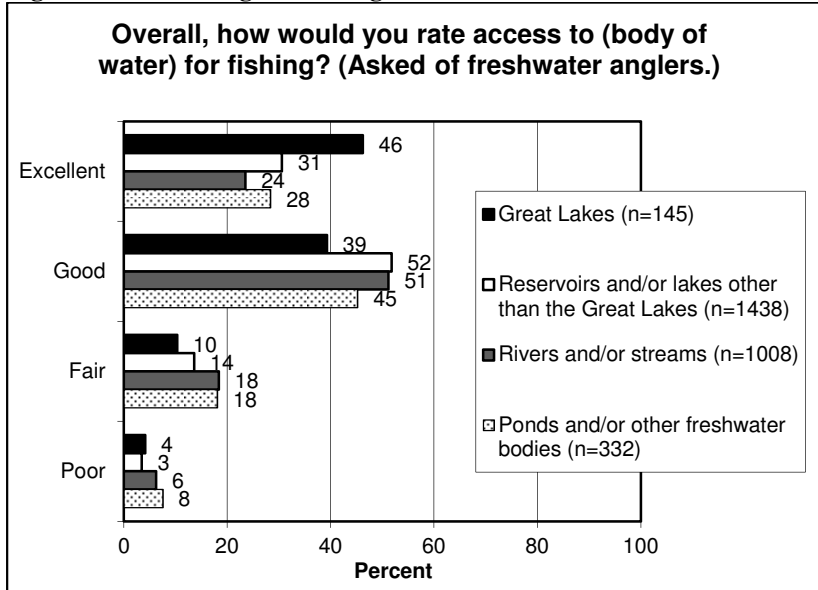
Overall, how would you rate access to (body of water) for fishing? (Asked of freshwater anglers.)

- Great Lakes (n=145)
- Reservoirs and/or lakes other than the Great Lakes (n=1438)
- Rivers and/or streams (n=1008)
- Ponds and/or other freshwater bodies (n=332)

Excellent: 46, 31, 24, 28
Good: 39, 52, 51, 45
Fair: 10, 14, 18, 18
Poor: 4, 3, 6, 8

Percent

The survey asked each angler about his/her primary body of water that he/she fishes in, and then the survey focused on that particular body of water. The type of the body of water that the respondent had given was inserted into the question wording in the appropriate place.

Figure 5.1.25. Ratings of Fishing Access on Saltwater Bodies[309]
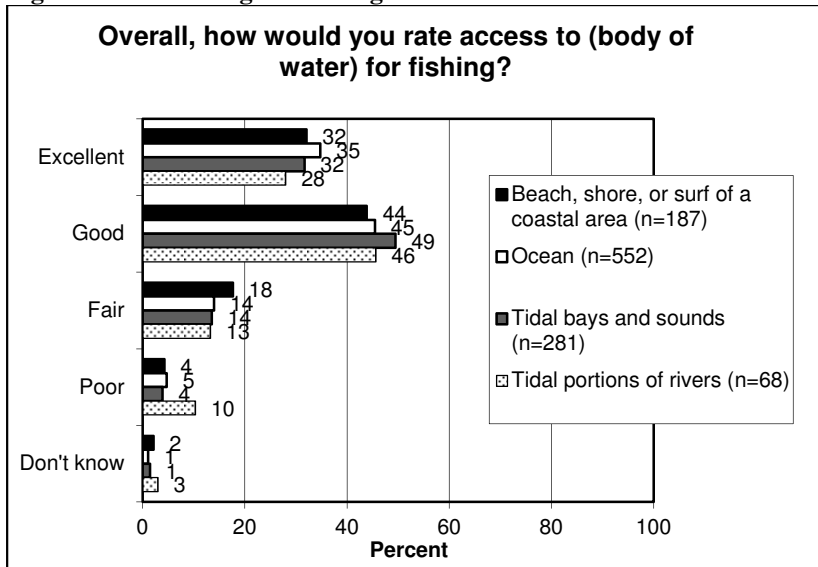
Overall, how would you rate access to (body of water) for fishing?

- Beach, shore, or surf of a coastal area (n=187)
- Ocean (n=552)
- Tidal bays and sounds (n=281)
- Tidal portions of rivers (n=68)

Excellent: 32, 35, 32, 28
Good: 44, 45, 49, 46
Fair: 18, 14, 14, 13
Poor: 4, 5, 4, 10
Don't know: 2, 1, 1, 3

Percent

The survey asked each angler about his/her primary body of water that he/she fishes in, and then the survey focused on that particular body of water. The type of the body of water that the respondent had given was inserted into the question wording in the appropriate place.

In addition to the crosstabulations above, anglers in that survey were asked
to rate access to public land for fishing in their primary body of water (if
they had previously indicated using public land at some times to access that
water body), and they were asked the same about private land (again, if they
had used private land to access it). Although private land access, compared
to public land access, has a slightly higher percentage giving a rating of
excellent, examination of the combination of *excellent* and *good* shows that
public land has a greater percentage giving either an excellent or good
rating (Figure 5.1.26). Private land access has a markedly higher
percentage giving a rating of poor, compared to public land access.

Figure 5.1.26. Ratings of Fishing Access on Public and Private Land[310]
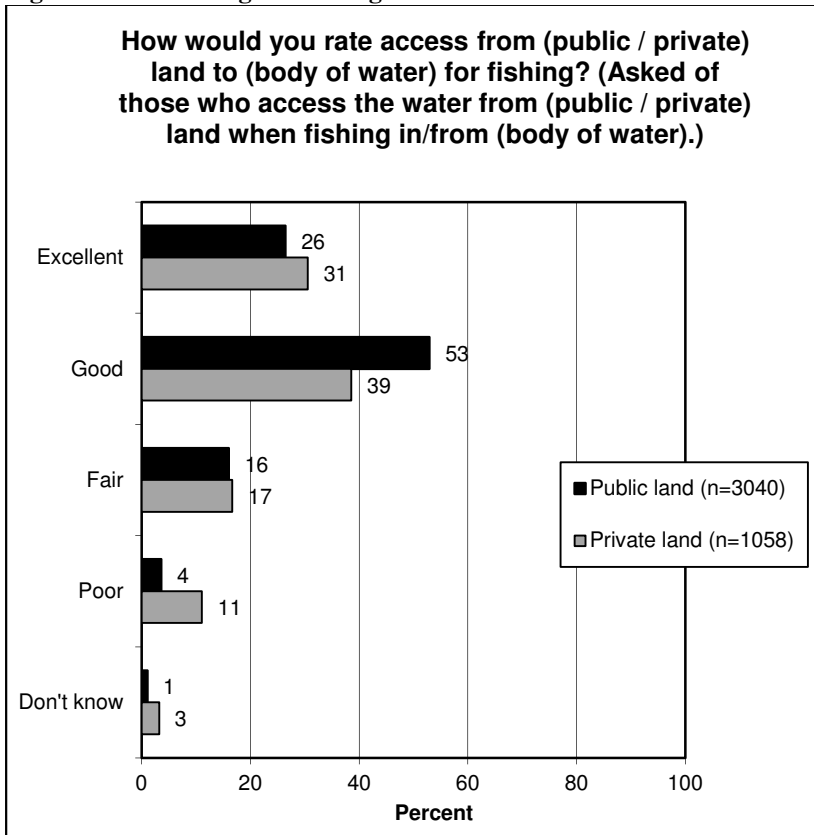
The survey asked each angler about his/her primary body of water that he/she fishes
in, and then the survey focused on that particular body of water. The type of the body
of water that the respondent had given was inserted into the question wording in the
appropriate place for both of the questions used to make this graph (one question
asked about public access, if it applied to the angler, and the second asked about
private access, if it applied to the angler).

The ratings of public access provided by survey respondents were analyzed
by the type of waters. As shown in Figure 5.1.27, Great Lakes anglers are
the most likely to rate public access to fishing as excellent. Anglers

accessing rivers and streams are the most likely to give a rating of fair or poor—the lower end of the scale. Figure 5.1.28 shows access ratings broken down by saltwater body, with no marked differences emerging on this graph. Taken as a whole, though, the results suggest that about three quarters of anglers—with the exception of Great Lakes anglers—feel that access could be better to public lands and waters for fishing.

Figure 5.1.27. Ratings of Fishing Access on Public Land, by Freshwater Type[311]
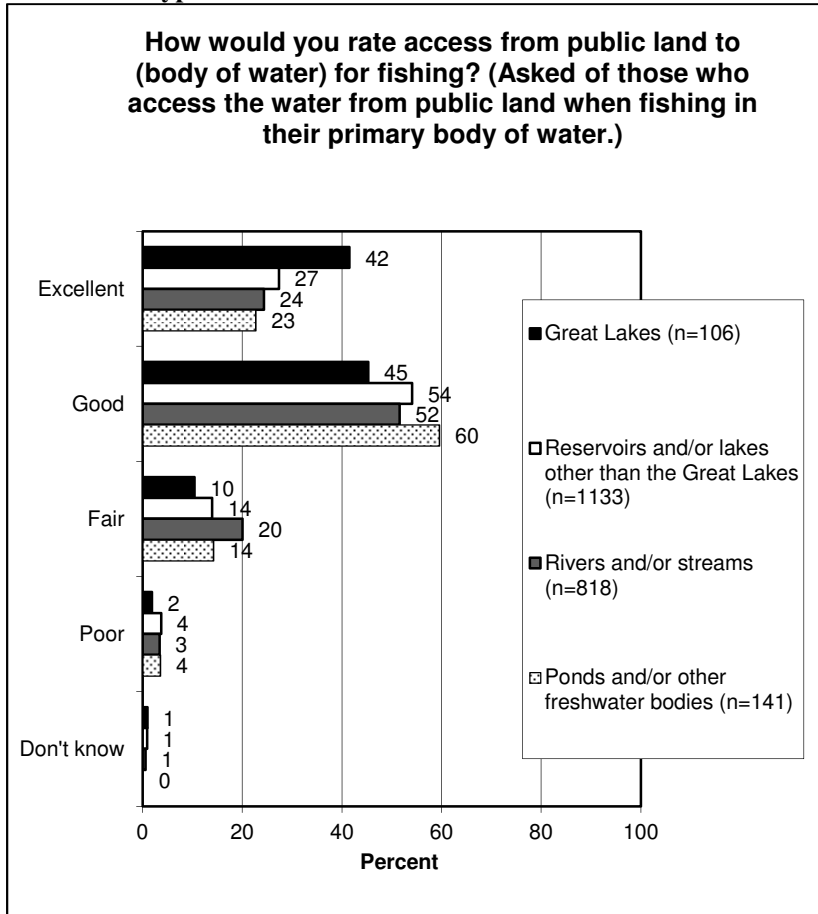
The survey asked each angler about his/her primary body of water that he/she fishes in, and then the survey focused on that particular body of water. The type of the body of water that the respondent had given was inserted into the question wording in the appropriate place.

Figure 5.1.28. Ratings of Fishing Access on Public Land, by Saltwater Type[312]
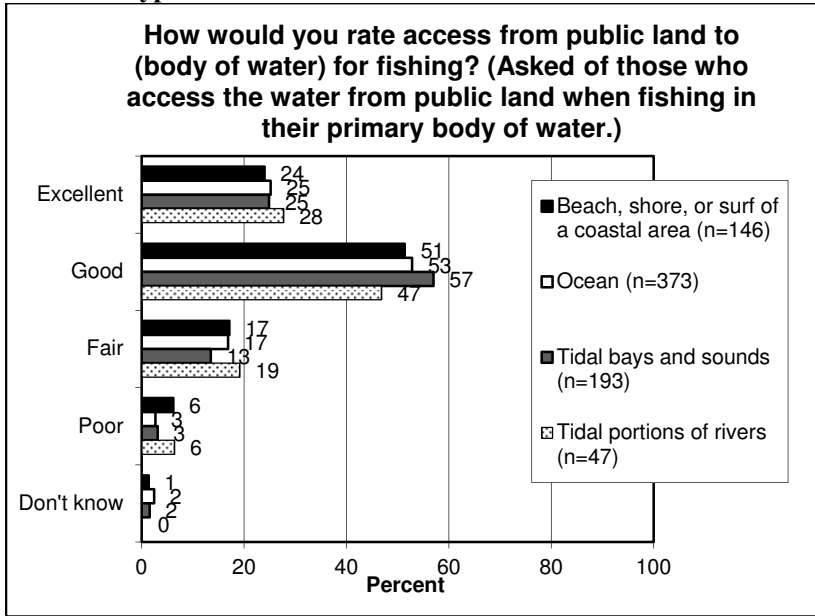
How would you rate access from public land to (body of water) for fishing? (Asked of those who access the water from public land when fishing in their primary body of water.)

Excellent
24
25
25
28

Good
51
53
57
47

Fair
17
17
13
19

Poor
6
3
3
6

Don't know
1
2
2
0

- Beach, shore, or surf of a coastal area (n=146)
- Ocean (n=373)
- Tidal bays and sounds (n=193)
- Tidal portions of rivers (n=47)

Percent: 0   20   40   60   80   100

The survey asked each angler about his/her primary body of water that he/she fishes in, and then the survey focused on that particular body of water. The type of the body of water that the respondent had given was inserted into the question wording in the appropriate place.

There are documented problems with boat access, as well. The aforementioned study[313] of anglers nationwide presented them with a series of potential problems. For each, the survey asked anglers to indicate if it was a major problem, a moderate problem, a minor problem, or not a problem at all. Four of the potential problems pertained specifically to boat access for fishing. In the first, 30% of anglers indicated that crowding at boat ramps, launches, or put-in sites was a major or moderate problem within the 5 years previous to the survey. Another question found that 18% of anglers indicated the same about there not being enough boat access areas, and 18% said poor maintenance of boat ramps, launches, and put-in sites was a major or moderate problem. Finally, the fourth question found that 16% of anglers indicated that not being able to find a place to launch a boat was a major or moderate problem. Clearly, a not insubstantial number of anglers are having troubles with boat access for fishing.

SPORT SHOOTING AND ARCHERY ACCESS
There are several aspects of sport shooting and archery access to consider. The most basic is simply the type of activity in which the sport shooter is engaged (in this context, the term *sport shooter* includes archery participants, and this will hold true throughout this discussion where appropriate). The type of shooting activity dictates many requirements of the site location and facility. Another consideration is whether the sport

shooting activity is inside or outside. Simple target shooting can be done in either location, while other sports like skeet are generally done outside.

Before examining the proportion of shooters engaging in various activities, including shooting at indoor and outdoor ranges, there are two additional factors to consider in sport shooting/archery access. The first of these two is the legality of shooting in certain residential areas. While rural dwellers commonly can shoot in their back yards, many suburban and most urban dwellers cannot legally shoot firearms (and in some cases archery) on their property. The second factor to consider is that, unlike hunting and fishing, sport shooting activities are not dependent on the location of a resource. Hunters and anglers are tied to certain locations—one cannot fish where there is no water or hunt where there is no wildlife—but sport shooting has no resource as such.

Because the parameters of access for sport shooting varies for different types of shooting, it is instructive to first simply look at the proportion of sport shooters engaging in each activity, as well as the percentage who use indoor and outdoor ranges. Figure 5.1.29 shows the percentage of sport shooters (defined as having participated at least once in 2014) who engage in the various shooting activities, with simple target shooting with a handgun and target shooting with a rifle being the most popular activities.[314] To put these data in context, the total participation rate in any sport shooting was 22% of the general population in 2014.

Michigan Improves State-Run Shooting Ranges

Dennis Fox

At the Michigan Department of Natural Resources (DNR), we have watched the changing demographic and user trends in the shooting sports, as captured through the research of Responsive Management and the NSSF, and we have made improvements at the shooting ranges that we operate and maintain. The increased sales of guns and ammunition has increased the Pittman/Robertson funding available to the States, and we have used that funding to add modern restrooms and handgun ranges and for renovations to meet—and in some cases exceed—the Americans with Disabilities Act requirements for accessibility.

We achieved these accomplishments through collaboration with various DNR divisions, the federal government, state agencies, and partners like The Hal and Jean Glassen Memorial Foundation and the National Rifle Association and its Public Range grant program. The biggest challenge to this effort was navigating the design and construction processes of state government while at the same time aligning funding sources to

complete the work. Obtaining the necessary approval and authorizations required starting to plan these projects up to five years before the shovels actually started moving dirt. These time lags often meant that funding for the projects would cover up to three state fiscal years and two or three federal grant cycles. Having expert and knowledgeable fiscal staff is critical to keeping track of the funds, meeting grant obligations, and ensuring that the funds are properly accounted for.

As we watched the research and changing customers at our ranges, we realized about ten years ago that we needed to have modern restrooms. More female and family groups of shooters were showing up at our ranges, and we heard numerous comments about people waiting to go to the bathroom until they left the range. I am proud of our staff, and they did the absolute best they could, but an outhouse is still an outhouse! Our ranges are open year-round, so to tell our visitors (and staff) that they have to use an outhouse in sub-zero January and February temperatures did not seem like the best customer service. Because the cost of a modern restroom is fairly high, the DNR had to be pretty strategic about where we constructed them and how many we built. As a result, we now have modern restrooms at all but one of the DNR-staffed shooting ranges. The remaining range is only open seasonally, so at this time, it doesn't make as much sense to construct a restroom building at that location.

We also have added handgun ranges at all of our staffed shooting ranges. This has been incredibly popular, and we typically see lines throughout most of the year at those shooting stations, even at times when the rest of the range is not as busy. To address this issue, we opened up some of the shooting lanes on the 25-yard range to handguns, but this is only a temporary fix because those lanes are needed in the fall when people are sighting in their guns for the upcoming hunting seasons.

Accessibility improvements have opened the ranges to a much broader shooting population. We were fortunate to have federal staff visit one of our ranges a few years back and make recommendations on how we could improve the ranges to be compliant with ADA and in some cases go beyond the requirement. We have been systematically implementing those recommendations, and all of the DNR-staffed ranges have seen the positive impact they are having for our shooting customers. While we have made a lot of improvements, we continue to work our way through a list of things we can do to increase accessibility.

As we track the research and our shooting public, we continue to see increases in the number of sport shooters visiting our ranges. In fact, over the last eight years, we have had a 37% increase in the number of shooters at the DNR-staffed ranges! I credit the improvements for this number, but also our staff members who continue to talk to our customers about what they want when they visit our ranges. These conversations result in great improvements, happy shooters, and happy staff.

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Figure 5.1.29. Percentage of Sport Shooting Participants Engaging in Various Shooting Activities[315]

I'd like to know about the types of shooting that you did in 2014. Did you do any of the following? Did you go...? (Among those who went target shooting in 2014.)

Multiple Responses Allowed

Activity	Percent
Target shooting with a handgun	67
Target shooting with a rifle	62
Target shooting with a modern sporting rifle	32
Sporting clays	25
Skeet shooting	25
Trap shooting	22
Long-range shooting	20
3-gun shooting	8

Using the data above, the activities can be grouped according to the location/facility needs. Figure 5.1.30 shows that 89% of all sport shooters did any target shooting or long-range shooting, including those who only did plinking in the back yard or in a field, but 65% of sport shooters used either an indoor or outdoor range (some used both). Finally, 39% did any clay target or 3-gun shooting, which entails use of a different facility than a

simple shooting lane (i.e., simply a shooting station and a "lane" at the end of which is a target).

Figure 5.1.30. Percentage of Sport Shooting Participants Engaging in Various Shooting Activities, Grouped by Type of Facility Required[316]
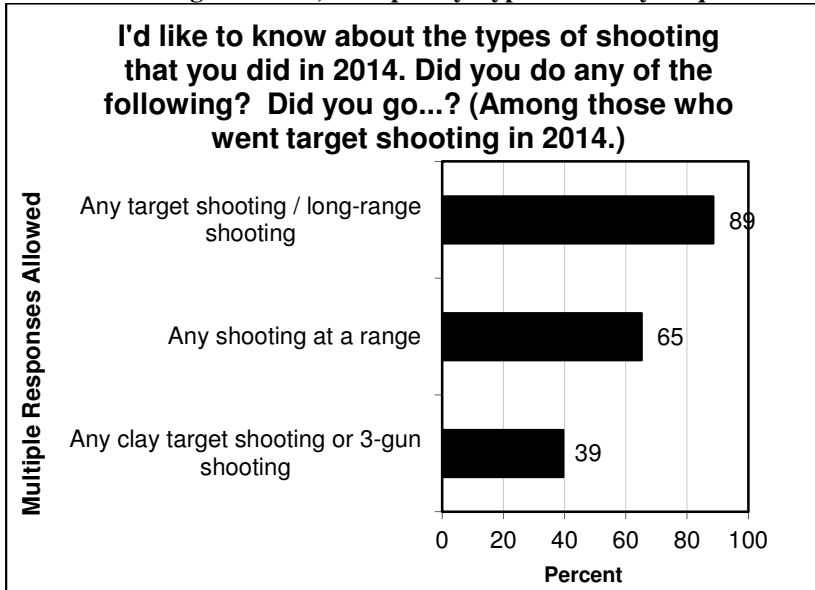
Of those who used a range—65% of all sport shooters in 2014 used a range as shown by the data above—outdoor range use is almost double indoor range use. Of all those who used a range, 84% used an outdoor range, and 42% used an indoor range (this is 55% of all shooters using an outdoor range at least some of the time, and 27% of all shooters using an indoor range at least some of the time). As is evident, some used both types.

This report has discussed factors of sport shooting access and the proportion of sport shooters engaging in various shooting activities and, therefore, using various types of sport shooting facilities. We now turn to whether access is an issue for the sport shooting and archery industries.

Access is an important factor in sport shooting participation, as evidenced by several lines of questioning in surveys of active sport shooters, lapsed sport shooters, and inactive or ex-sport shooters.[317] Among active sport shooters, when asked about things that had prevented them from shooting in recent years, 10% named lack of access—the top reason over which agencies have much sway (exceeded only by time obligations and age/poor health). Lapsed shooters were asked why their participation in sport shooting had decreased in recent years, and access was named by 11% (exceeded only by time obligations and age/poor health). Finally, inactive shooters were asked in an open-ended question why they had not shot in

recent years, and lack of access was given by 8% (exceeded only by time obligations, loss of interest, and age/poor health).

In this same study discussed immediately above, in response to a direct question (as opposed to open-ended questioning) about access to places to shoot, 19% of active sport shooters indicated that "not enough places to shoot" strongly took away from their satisfaction with sport or target shooting, and the same amount (19%) indicated that "not enough access" strongly took away from their satisfaction. In short, nearly a fifth of them had problems with access. Also, 14% of inactive sport shooters indicated that "not enough access" had strongly influenced them to *not* sport shoot in recent years, and 12% indicated the same about "not enough places to shoot."

Another survey[318] asked active shooters to rate public lands and private lands (separate questions) for target or sport shooting in their state, and to rate the availability of shooting ranges in their state. It demonstrates that substantial percentages of shooters or would-be shooters think target/sport shooting access could be better: 36% to 37% give a rating of fair or poor (Figure 5.1.31).

Figure 5.1.31. Ratings of Target/Sport Shooting Access[319]
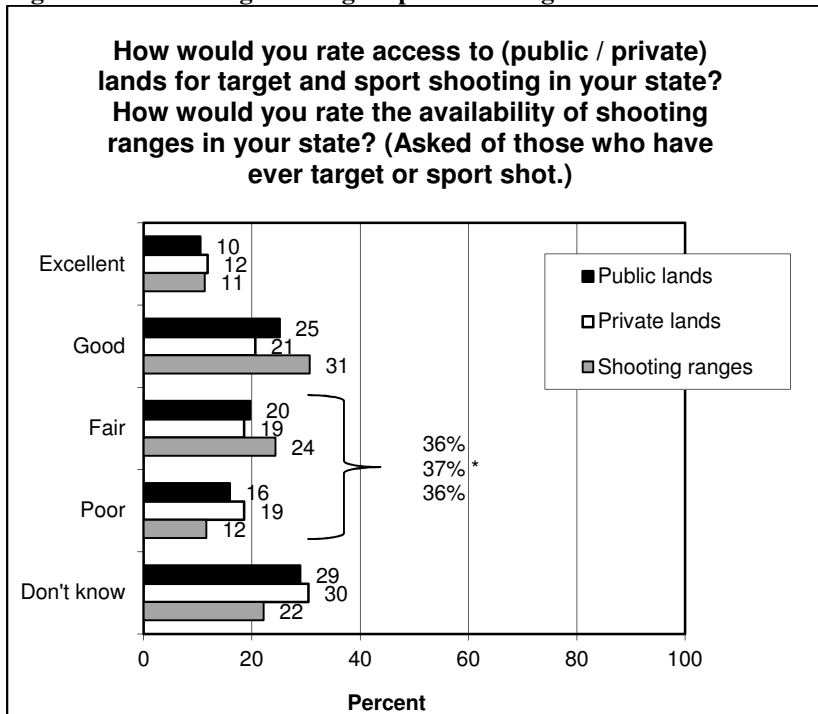
This graph represents three separate questions. The sum of *fair* and *poor* shown by the parenthesis on the graph was made on unrounded numbers; rounding on the graph causes the apparent discrepancy in the sum for private lands.

5.2. PROVIDING LANDS FOR RECREATION

Land itself is a hugely important resource for recreationists and one that is finite. In fact, the Outdoor Recreation Resources Review Commission in 1962 predicted a three-fold increase in outdoor recreation demands by the year 2000, but subsequent research suggested that these demands were reached by 1977.[320]

When examining the provision of recreation lands, there are several entities to consider. Recreation lands can be provided by the federal government, by state governments, and by local or municipal governments, by not-for-profit organizations, by businesses, and by landowners, as well as by multiple entities named above in partnership with each other.

The dichotomy of public versus private land is obviously important. However, note that the boundary between the two is somewhat fluid in that many private lands, through programs and efforts of the following entities, become in essence public lands. Additionally, many private lands are converted to true public lands through donations or other means.

FEDERAL ENTITIES

At the federal level, public recreation lands are provided by the following entities:

- The U.S. Fish and Wildlife Service through its National Wildlife Refuge system, including Waterfowl Production Areas. There are more than 560 National Refuges and at least 38 wetland management districts in the United States (including U.S. land in the Caribbean).[321] In total, these protected areas encompass approximately 150 million acres. Hunting is allowed on approximately 360 Refuges, and fishing is allowed on more than 300 of them.

- The U.S. Forest Service through the National Forests and National Grasslands. The Service manages 154 National Forests and 20 National Grasslands encompassing 193 million acres. This includes 7.2 million acres of wetlands, 36.6 million acres of wilderness, 400,000 acres of lakes, and 57,000 miles of streams.[322] Hunting and fishing are allowed in nearly all the Forest Service lands. The U.S. Forest Service also provides many shooting ranges.

- The National Park Service through the National Park System, which includes national parks, monuments, battlefields, military parks, historical parks, historic sites, lakeshores, seashores, recreation areas, and scenic rivers and trails. The National Park System includes 413 areas that encompass 84 million acres.[323] Specifically, the system includes 128 historical parks or sites, 84 national monuments, 59 national parks, 25 national battlefields or military parks, 19 preserves, 18 recreation areas, 10 seashores, 4 parkways,

4 lakeshores, and 2 reserves. While fishing is allowed in most of the National Park System, hunting and firearm shooting is prohibited in most areas (the exception being some preserves and seashores).

- The Bureau of Land Management (BLM). More than 245 million acres are managed by the BLM (surface acreage; the sub-surface mineral estate managed by the BLM is ignored in this discussion).[324] Hunting, fishing, sport shooting, and archery opportunities are extensively available on BLM lands. The BLM-managed acreage includes the National Landscape Conservation System, which has 27 million acres.

- The U.S. Army Corps of Engineers (USACE). The USACE manages 403 lake and river projects that provide access for water-based recreation.[325] In total, the USACE manages approximately 12 million acres of public lands and waters, which includes more than 55,000 miles of shorelines, more than 11,000 miles of trails, and nearly 3,700 boat ramps nationally.

STATE AND LOCAL GOVERNMENTAL ENTITIES

States, too, provide recreation lands, albeit not on the scale of the federal lands. State lands include but are not limited to state parks and state forests. Often, state agencies also manage Wildlife Management Areas (WMAs), which provide additional public land hunting opportunities. These lands may be owned and managed independently by the state or through agreements with other agencies or organizations.

Local/municipal governments also provide recreation lands. However, the scale of these areas is typically small and in areas in which hunting and sport shooting are prohibited; some local/municipal parks, though, allow fishing.

NOT-FOR-PROFIT ORGANIZATIONS

Not-for-profit organizations often purchase or lease lands for conservation that can be used for recreation. Hunting, fishing, and sport shooting are allowed in some of these areas, although what is allowed and disallowed in any area is dictated by the landowners.

The number of conservation organizations involved in various conservation projects is too numerous to catalogue here, but the acreage is substantial, based on just a few examples.[326] The Conservation Fund indicates that it has worked to "protect more than 7.8 million acres of land since 1985"; Ducks Unlimited indicates it has conserved, "since 1937, more than 13 million acres"; the Nature Conservancy did not indicate total acreage involved but, as an example, the organization indicates its involvement in projects that conserved 257 square miles in Montana in 2015 and the 151-square mile Baca Ranch in Colorado, and so forth; the Rocky Mountain Elk Foundation indicates that it and its partners have "conserved or enhanced

more than 6.8 million acres" in North America; and Pheasants Forever indicates that it has, since 1982, "created or enhanced wildlife habitat on more than 14 million acres across the United States and parts of Canada." This serves to show the substantial acreage affected by not-for-profit organizations. (Note that inclusion of any organizations in this non-scientific sampling is not meant to promote them over any organizations that are not included; this is merely a sampling to give an idea of the substantial acreage affected.)

PRIVATE LANDOWNERS
Private landowners, including corporate owners, make up the final, and a vital, component of the provision of access—vital because approximately 60% of land in the United States is privately owned.[327] Unfortunately, research suggests that fewer private landowners allow access than did several decades ago.[328] Commonly, private landowners work in partnership with the aforementioned government agencies and/or not-for-profit organizations to provide recreation lands, particularly hunting and fishing lands.

Primary Methods of Providing Access To Private Lands
In the past few decades, many states have invested in access programs/ resources to open more private lands. These programs/resources are designed to facilitate partnerships between agencies, sportsmen, and landowners and often provide incentives to landowners for opening their lands to hunters and anglers. In general, landowners are compensated for hunting access to their property through three primary methods: hunting leases, fee-based permits, and government-sponsored walk-in hunter access programs.[329]

Unlike private land leases in which individuals or hunting clubs are granted exclusive rights to hunt on the land, fee-based permit programs provide access to property that is not exclusive and must be shared with other permit holders. Studies have suggested that fee-based permit programs are often a mutually beneficial arrangement between hunters and landowners. Fee hunting improves access to private lands while also providing positive economic benefits, as well as legal and liability protection to the landowner in some instances; further, hunters are often willing to pay more for the opportunity to use private lands.[330] Walk-in hunter access programs are state-sponsored programs that provide several options for landowner compensation, including funding from the state, access fees charged by the landowner for the use of property, or voluntary donations.

Factors in Landowners' Decisions Regarding Access
This review of land access now looks into landowners' concerns and their opinions on the use of their lands. A national survey of landowners regarding fishing access suggests that privacy concerns, recreationists behaviors, and liability are the top factors in landowners' decisions on whether to allow fishing access (Figure 5.2.1).[331]

Figure 5.2.1. Factors in Landowners' Decisions in Allowing Access for Fishing[332]

Percent of landowners who indicated that each of the following was a very important reason for not allowing others to access water from their property.

Factor	Percent
Privacy or not wanting anyone on your land in general	64
Wanting to allow only personal or family use of access area	60
Pollution or litter	58
Liability concerns	55
Poor behavior of other recreationists	53
Poor behavior of fishermen, such as reckless boating / drinking alcohol (not incl. prop.…	51
Property damage caused by fishermen	46
That too many people want to use property for activities other than fishing or recreation	43
Wanting to limit use of water to personal or family use	41
The cost of maintenance associated with public use of access area	32
Your land being too crowded	30
Being too close to an urban area or having too many people wanting to use the access area	30
Not receiving enough compensation / incentives from state for opening access…	7
That you do not make enough money from fishermen	4

Percent

The two truncated labels above are:

Poor behavior of fishermen, such as reckless boating / drinking alcohol (not including property damage or litter)

Not receiving enough compensation / incentives from state for opening access areas to the public

Only landowners with water access were surveyed.

Another way to look at factors that landowners consider when granting access is offered in other research that was reviewed. This research[333] suggests that landowners can be categorized into five distinct groups, based on the level of access they permit on their land: prohibitive, exclusive, restrictive, fee, and open. Prohibitive landowners do not allow hunting access on their lands. Exclusive landowners use their land for their own

personal enjoyment and for their family. Restrictionists allow hunting on their land, but limit the use of their lands to individuals they know well, such as family, friends, coworkers, and employees. Fee landowners offer public access to their lands for a fee. Finally, open landowners allow public access to their lands, including acquaintances and strangers. These are good operational definitions in categorizing landowners.

According to the National Private Landowners Survey, 29% of landowners who own at least 10 acres or more close at least part or all of their lands to all outsiders (individuals residing outside their household), while approximately half of all landowners (48%) allow people outside their family to access their lands for recreation.[334] Of the 48% of landowners who open access to outsiders, 49% of them allow access to family members who do not live with them, 49% of them allow access to people outside of their family but whom they know personally, 12% allow access to outsiders whom they may or may not know personally, and 5% allow access to individuals or members of hunting clubs who lease their lands (results do not sum to 100% because options are not mutually exclusive).

In addition to categorizing landowners by the amount of access they allow, researchers[335] have also categorized common factors that influence landowners' decisions to allow or prohibit access to their lands. There are five types of factors: opinion of users, land-use objectives, economic incentives, concerns regarding liability, and attitudes toward certain uses.

Landowners' Opinions of Recreationists as an Influence To Allowing or Prohibiting Access

Landowners' opinions of recreationists are typically based on their encounters and experiences with them. Research suggests that landowners are more concerned about allowing hunting on their land than they are about other types of recreational activities.[336] One state study in Delaware found that substantial percentages of landowners (5% of landowners in the general population, 9% of hunters who own land, and 25% of farmers who own their land) said that they knew that somebody had hunted deer illegally on their land.[337] Nearly half of those who knew of illegal deer hunting on their land said that the deer hunters had caused problems in addition to simply hunting illegally. Typical problems included trespassing, unsafe behavior, damaging structures, littering, and being rude or discourteous. More than half of those who had experienced problems with illegal deer hunters described the problems as major.

Similarly, in another state study in Georgia, landowners who had allowed deer hunting on their land at one time but later closed their land cited poor behavior of hunters, trespassing, crowding, and legal liability as reasons that they stopped allowing deer hunting on the land—the first two inextricably linked to behavior of recreationists.[338]

In other examples, poor behavior of hunters and damage to property (other than to agriculture or livestock) were two of the top three reasons that Texas landowners gave for no longer allowing hunting on their property, findings that were reiterated in Michigan, where landowners cited property destruction, trespassing, and negative confrontations with hunters as problems they had experienced.[339] Similar results were found in a study of West Virginia landowners: 35% said they had experienced problems with the behavior of hunters on their property. Of those landowners who had experienced problems, the types of problems they typically experienced were trespassing (71%), hunters being rude or discourteous (29%), littering (19%), and hunters being unsafe (11%).[340]

Anglers can also cause problems to landowners. In a national study of landowners who had water access, 11% indicated that they had experienced problems with anglers on their property in the 5 years previous to the survey.[341] This same study asked the landowners a series of questions about problems that they might have had with anglers in the previous 5 years; landowners rated each one as being a major problem, a moderate problem, a minor problem, or not a problem at all. Figure 5.2.2 shows that trespassing, loss or privacy, and pollution/litter were the top problems (the figure shows the entire list that was presented to landowners).

Land Use Objectives as an Influence To Allowing or Prohibiting Access

Research suggests that there are many reasons landowners give for owning rural lands. Some of the top reasons include personal enjoyment of outdoor space, rural living, and estate planning for future heirs.[342] Because of these varied reasons for owning lands, landowners may have very different opinions regarding land management strategies and public access to their lands. For example, because landowners value their personal green space, they may be unwilling to share it with others. Further, if they appreciate rural living, quiet, and solitude, opening their land for access may result in crowding, noise, and unwanted disturbance.

Nonetheless, an important reason that landowners participate in access programs for outdoor recreation activities is to conserve wildlife and habitat. For example, in Pennsylvania, the most common reasons landowners gave for participating in the Commonwealth's public access program were to share land/make land available for hunting, for the free benefits (magazine, seed mix, etc.), and for conservation of habitat and wildlife.[343]

In Texas, the relative importance or unimportance of land use activities was asked of large landowners (landowners who own more than 640 acres) for the following land uses: ranching, farming, hunting, fishing, wildlife viewing, nature study, and providing habitat for fish and wildlife. Ranking highest in overall statewide importance to most large landowners for their

Figure 5.2.2. Problems Landowners Had Experienced With Anglers[344]

**Percent who rated each of the following as being
a major or moderate problem for the respondent
with fishermen on their property or accessing the
water from their property in the past 5 years.
(Landowners)**

Problem	Percent
Trespassing and/or use without permission	51
Loss of privacy	51
Pollution or litter	47
Poor stewardship or care for the land or water	40
Verbal disagreements with trespassers	34
Unsafe behavior	32
Vandalism	29
Rowdy or disruptive behavior	25
Irresponsible alcohol use	24
Too many people or crowding	24
Fishermen getting out of water / off boat onto your property without permission	22
Verbal disagreements with fishermen with permission	14
A trespasser being hurt while on the property or water	13
A fisherman with permission being hurt while on the property or water	7

Percent

Only landowners with water access were surveyed.

land was ranching, with 72% of large landowners stating that ranching was a very important activity for their property. However, second and third in the ranking, with a majority of landowners statewide rating them very important, were hunting (55%) and providing habitat for fish and wildlife (52%). Smaller percentages rated farming (30%), wildlife viewing and nature study (29%), and fishing (15%) as very important land uses on their land.[345]

Economic Incentives as an Influence To Allowing or Prohibiting Access

Landowners who open their lands for outdoor recreation activities can also collect fees for allowing access to their property. One study found that landowners who lease their lands to others most commonly report the following reasons for leasing their lands: to help pay property taxes (75%), to control trespassing and/or misuse of land (61%), to help maintain and conserve land (52%), and to provide additional income (39%).[346]

In Texas, one out of three landowners agreed that, if they received incentives, they would be very likely to open their land. Over a third (36%) of landowners agreed that cash benefits, such as tax breaks or cash payments, would increase the likelihood that they would open their lands for more outdoor recreation opportunities. Still, 44% disagreed, indicating that tax breaks and cash were not incentives that would make them more likely to open their land for outdoor recreation opportunities for others.[347]

In Delaware, 28% of landowners agreed with the following statement: If I could receive financial benefits such as tax breaks or cash payments, I would be very likely to allow [more deer hunting/deer hunting] opportunities on my land.[348] For these reasons, fish and wildlife agencies often encourage landowners to increase access to their lands by providing incentives to landowners who open their lands to hunting. Often these incentives are financial, but incentives may include other services, such as posting of areas around lands, increased law enforcement, assistance with conservation and habitat management, and free seedlings.

In Michigan, landowners who were participating in the state's Hunting Access Program (HAP) and past participants were surveyed about programmatic elements of HAP.[349] One of the two most common reasons that private landowners had joined the program was for the financial benefits (the other reason being for having a better system of granting hunters access).

Damage control is an economic incentive of sorts (but one that prevents an economic loss rather than providing an actual monetary gain). If number of participating landowners (primarily farmers and timber companies) is a gauge of damage control as an incentive, Wisconsin's Cooperative Deer Damage Abatement and Claims Program[350] offers evidence. The state's program has 284 landowners who have signed on to allow hunting of deer (this is just for deer; other species have lists of landowners wanting damage control, as well). These 284 landowners offer more than 27,000 acres of hunting land. The study indicated that at least 11% of Wisconsin's hunters have used this program.

Liability Issues as an Influence To Allowing or Prohibiting Access

Landowner liability appears to be one of the major considerations in landowners' decisions whether to allow access to their land. Despite the fact that many states have limited liability laws for landowners who do not receive fees or considerations for allowing access to their lands, liability remains a major deterrent in allowing access to lands.[351] Additionally, liability protection may not necessarily protect against frivolous lawsuits that the landowner must pay to fight, a concern expressed in focus groups of landowners.[352]

A large percentage of landowners with water access, in a national survey, expressed liability concerns when considering whether to allow access to the water for fishing from their property. As shown in Figure 5.2.3, 65% of landowners said that legal liability was a major or moderate concern.[353]

Figure 5.2.3. Legal Liability as a Concern To Landowners in Allowing Access To Water for Fishing[354]
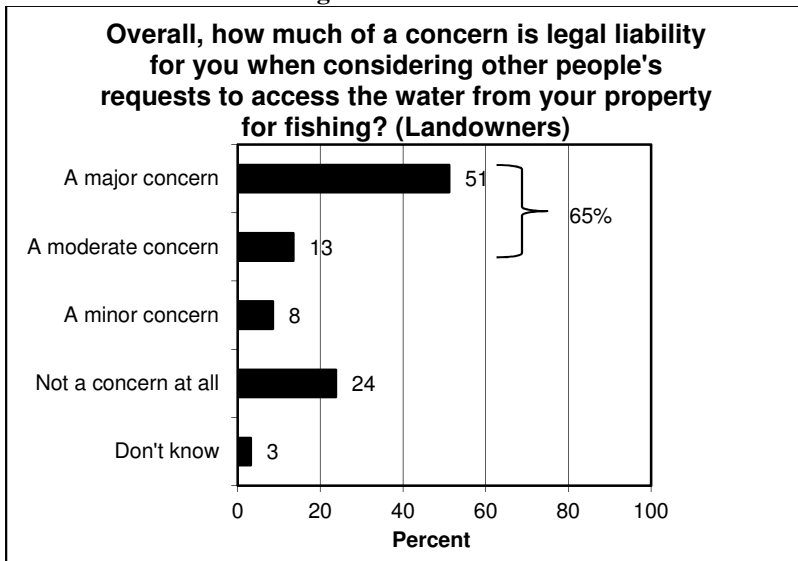
The apparent discrepancy in the sum is caused by rounding to the integer on the graph; the sum was calculated on unrounded numbers.

Other research highlights liability concerns. When asked about the importance of eight specific factors in the decision whether to allow access onto their property, 50% of all Washington landowners said liability was an extremely important factor.[355] In Delaware, 50% of farmers agree that they would allow hunting access if they did not have to worry about legal liability.[356] In Georgia, a majority (53%) of owners of tracts of at least 20 acres said that legal liability is a major concern when considering whether to allow hunting access, and an additional 25% said it is a minor concern (78% in total said legal liability is a concern).[357]

Landowners' Attitudes Toward Certain Uses as an Influence To Allowing or Prohibiting Access

Finally, landowners' attitudes toward certain activities, or uses of the land, may influence their land access decisions. For instance, landowners' opinions on the appropriateness or morality of hunting influence their decision on whether to open their lands to hunters. Landowners who fundamentally oppose hunting will likely close their lands to hunters.[358] Fortunately, the majority of landowners have positive views regarding hunting and fishing. Many state-level surveys[359] found high approval of or support for hunting, such as in Virginia, where 86% to 95% of landowners in the various regions of the state approved of hunting, and in Maryland, where 94% of landowners (who own at least 20 acres) agreed that "deer should be hunted to maintain a healthy deer population." A national study of landowners who have water access and, therefore, could possibly grant access to anglers finds them overwhelmingly positive about fishing: 92% approve of legal, recreational fishing.[360]

RECREATIONISTS' NEEDS AND DESIRES REGARDING ACCESS

This section of the report has discussed the entities that provide recreational lands, including private landowners. It has also discussed factors that private landowners consider in their decisions regarding allowing access. Before examining programs and efforts regarding access that have been undertaken, this section will now consider the factors that go into recreationists' decisions on where to engage in their activity.

Research suggests that hunters' top considerations in choosing where to hunt are the amount of crowding, familiarity with the land, and ease of access by foot. A graph previously shown in this chapter (Figure 5.1.2) examined 11 factors that hunters consider in choosing a place to hunt. Recall that the top item was that the area not be crowded with other sportsmen (82% said this was very important when deciding where to hunt). But other factors that were considered very important by majorities of hunters are familiarity with the land (58% said that being on land they are familiar with is very important) and that it be easy to access by foot (51% said this was very important).[361]

This same study looked at items/efforts that hunters would consider effective in making access easier. The top ones, ranked by the percentage saying the item/effort would be very effective at making access easier are having proper signage on-site (71% of hunters said this would be very effective), help with contacting landowners to ask permission (62%), and having up-to-date information on a website showing hunting lands (58%).

A national survey of anglers regarding fishing access, also conducted in 2010 by Responsive Management, looked at 14 factors in anglers' decisions regarding where to fish.[362] For each factor, anglers were asked if it is very important, somewhat important, or not at all important. The top factors are

having good parking, well-maintained roads leading to the access point, familiarity with the access, being uncrowded, and having a well-maintained boat ramp—all with at least 75% of anglers saying the item is very or somewhat important to them when they are deciding where to fish (Figure 5.2.4).

Figure 5.2.4. Factors in Deciding Where To Access Fishing Waters[363]

Percent who indicated that the following factors are very or somewhat important to them when deciding where to access (body of water) to fish.

Factor	Percent
The access area has well-maintained parking area	83
The access area has well-maintained roads	81
The access area is one you are familiar with	79
The access area is not crowded with other anglers	79
The access area is not crowded with recreationists other than anglers	77
The access area has well-maintained boat ramps	75
The access area is located on public land	74
The access area has well-maintained docks or piers	73
The access area has boat access	72
The access area is close to your home	69
The access area is not on/near priv. land where you may have encounter w/ landowner while accessing water	45
The access area is not on/near priv. land where you may have encounter w/ landowner while in water/leaving the water	43
The access area is owned by someone you know personally	37
The access area is located on private land	36

Percent

The survey inserted each angler's primary body of water fished into the question wording in the appropriate place.

The above has looked at factors that hunters and anglers consider in deciding where to hunt and fish. The factors that sport shooters consider are detailed in Section 5.3 of this report ("Providing Facilities for Recreation") rather than here because, for the most part, sport shooters and archers require *facilities* rather than simply open lands.

ACCESS PROGRAMS AND EFFORTS THAT HAVE BEEN IMPLEMENTED

In assessing access for hunting, fishing, sport shooting, and archery, it is instructive to look at programs and efforts that have been undertaken, as well as the efficacy of each of those programs and efforts, when it can be determined. This look starts with publicly owned lands, both at the federal and state levels, and then looks at private lands. Private lands programs themselves are then categorized as national programs, state programs, and/or not-for-profit programs.

Federal Public Lands

No discussion of access programs and efforts in the United States can ignore the country's extensive public lands, which provide much recreation land. However, because these lands are relatively static, compared to the programs and efforts discussed in the rest of this section, they are not otherwise discussed here. They have been more extensively discussed elsewhere in this chapter.

State Public Lands

All states have land that is wholly owned by the state and set aside for wildlife habitat and recreation, including hunting and fishing. They are typically referred to as Conservation Areas or Wildlife Management Areas (WMAs). In some states, there are legislated (or constitutionally mandated[364]) funding mechanisms, and all states receive federal excise tax funds and other funding that can be used to acquire or maintain WMAs. Donations of land can be made toward WMAs, which some not-for-profit groups have done.

The discussion on access programs and efforts has thus far looked at federal and state public lands; however, the next component—private land—is the focus of many programs and efforts, and they are discussed below.

Conservation Reserve Program (CRP) and Other Agricultural Conservation Programs

The Conservation Reserve Program (CRP) provides habitat for wildlife, and often that land is available for hunting, but there is no requirement of the CRP that hunting access must be provided. Briefly, the CRP is a program administered by the Farm Service Agency (a part of the U.S. Department of Agriculture). Farmers receive payment to remove environmentally sensitive lands from agricultural production and plant species that improve environmental quality of lands and waters and provide wildlife habitat. By

2016, producers enrolled in the CRP had restored 2.7 million acres of wetlands and had protected 170,000 stream miles.[365]

An offshoot of the CRP is the Conservation Reserve Enhancement Program, and there are two other Farm Service Agency programs that relate to providing habitat (Farmable Wetlands Program and Grassland Reserve Program, although the latter allows agricultural use of the land by livestock whereas the other programs cited require that the land be taken out of agricultural production), but they do not explicitly provide hunting lands. These programs, however, directly affect game species by providing habitat. Additionally, some farmers allow hunting on their lands, either on their own or through any number of other programs.

The success of the CRP is widely acknowledged. For instance, Ducks Unlimited[366] says on its website that "no program in history has done more for landscape-level conservation of soil, water and wildlife habitat on farmland, while offering producers a significant and stable source of income."

Voluntary Public Access and Habitat Incentive Program

The *Voluntary Public Access and Habitat Incentive Program* (VPA-HIP), popularly known as the *Open Fields Program*, is administered by the Natural Resources Conservation Service within the U.S. Department of Agriculture.[367] The legislation implementing this program was developed in part by the Theodore Roosevelt Conservation Partnership and its partner organizations and was included in the 2008 Farm Bill; the program temporarily ended, but its funding was re-authorized in the 2014 Farm Bill. It is a "competitive grants program that helps state and tribal governments increase public access to private lands for wildlife-dependent recreation" including hunting and fishing. In 2015, this program made $20 million available to advance recreational opportunities through wildlife habitat and public access improvements.

This program was assessed in a 2012 report.[368] This report estimated that VPA-HIP acreage was used by 24,180 recreationists in 2011. It also estimated that $18.1 million could be attributed to spending by recreationists over what they would have spent on recreation without the VPA-HIP lands in that same year. Surveys of landowners and users in some states found that more than 80% of landowners were very satisfied or satisfied with the program, and 77% of users were very satisfied or satisfied with the lands in the program. Finally, 58% of the users indicated that they chose those lands enrolled in the VPA-HIP because they do not have access to private lands on which to hunt or fish. All of these measures suggest that the program is a success.

State Private Lands Access Programs

These programs have various names and various procedures in different states but, for the most part, rely on cooperating landowners to lease lands

to the state for public hunting. In some instances, non-financial incentives are provided in lieu of lease payments; non-financial incentives include habitat management assistance or assistance with law enforcement or, as in Arizona's "Adopt a Ranch" program,[369] assistance with maintenance on the enrolled land.

These programs are important in the provision of access in many states. A demonstration of the value of private lands access programs is that over a quarter (28%) of hunters nationally use them at least once in a while, and just under a fifth (17%) use them *sometimes* or *often* (Figure 5.2.5).[370]

Figure 5.2.5. Hunting on Private Lands in State Access Programs[371]
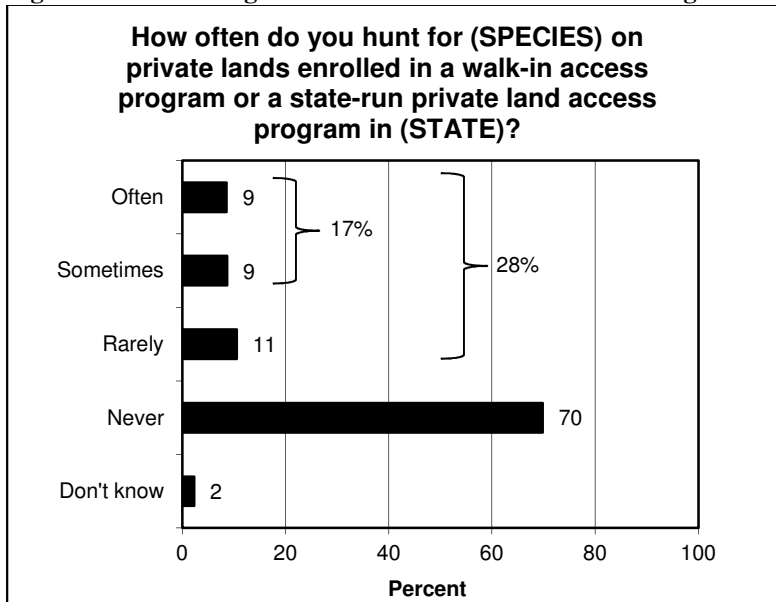
The survey inserted each hunter's primary species and state of residence into the question wording in the appropriate places. The apparent discrepancy in each sum is caused by rounding to the integer on the graph; the sums were calculated on unrounded numbers.

Other studies reiterate the importance of private lands access programs. A 2016 study at the state level asked hunters who knew at least a little about Pennsylvania's Hunter Access Program to rate its importance in providing hunting opportunities in Pennsylvania, using a rating scale of 0 to 10, with 0 being not at all important and 10 being extremely important (Figure 5.2.6). Nearly a third of these hunters gave it the highest rating (30% rated it as a 10), and a large majority (71%) gave it a rating higher than the midpoint of 5.[372] Additionally, the mean rating, 7.35, is well above the midpoint.

Figure 5.2.6. Ratings of the Importance of Pennsylvania's Hunter Access Program[373]

In your opinion, how important is private land enrolled in the Hunter Access Program to hunting opportunities in Pennsylvania in general, on a scale of 0 to 10, where 0 is not at all important and 10 is extremely important? (Asked of those

Mean = 7.35
Median = 8
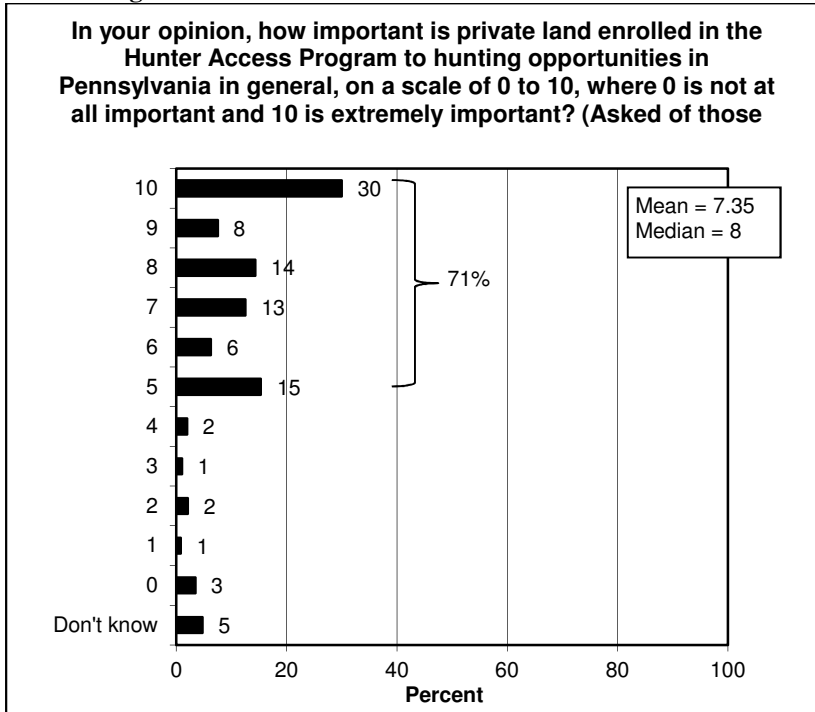
Without such programs, it is likely that many landowners would not provide access to the public for hunting. To illustrate, in a Michigan study of landowners in the state's Hunting Access Program,[374] over half of then-current participants in the program indicated that they would *not* provide public access if the program were ended, saying that, instead, they would lease access to private clubs or individuals (33% would do so) or would reserve their lands for hunting by family and friends (19%). Additionally, a majority of landowners who had left the program were not providing public access (44% were reserving their land for family and friends, and 25% were leasing their land to private entities). In both instances, a majority of landowners, past and then-current participants in the program, ceased or would cease allowing public hunting.

As discussed above, an important incentive for landowners to participate in these programs is financial. The study cited immediately above regarding Michigan's Hunting Access Program lists financial incentives as the top incentive. Additionally, the section above titled, "Economic Incentives as an Influence to Allowing or Prohibiting Access," cites many studies showing the importance of financial incentives.

Regarding financial incentives, a challenge for private lands access programs is that they run into competition on the open market. Some

landowners who criticized Michigan's Hunting Access Program indicated that, on the open market, "hunters will pay more to lease land than the DNR will pay."[375] For some landowners enrolled in any private lands access program, their altruism is necessary for them to continue in the program, particularly when the open market offers them more money to lease their lands.

Another incentive that research has suggested is efficacious is a means to reduce liability. Indeed, a study of Ohio agricultural landowners and operators asked them to rate various concerns about allowing access for hunting, and the two top-rated concerns were liability and personal injury.[376] These concerns far outweighed all the others that were presented to survey respondents (Figure 5.2.7). Other studies have previously been discussed in the section, "Liability Issues as an Influence to Allowing or Prohibiting Access," that pertain to liability and the prominence it has as a concern of landowners who are considering participating in a private lands access program.

Figure 5.2.7. Ratings of Concerns With Allowing Hunting Access[377]

Landowners' and operators' mean ratings of their concerns associated with allowing hunter access to their land.

Concern	Rating
Liability	3.85
Personal injury	3.66
Feeling of "lost control"	3.21
Alchohol consumption by hunters	3.01
Crop damage	2.86
Property damage	2.80
Litter	2.77
Theft	2.69
Disruption of livestock	2.69
Injury or death of livestock	2.65
ATV use	2.59
Gates left open	2.49
Physical confrontation by hunters	2.41
Unretrieved game	2.29
Trespassing	2.27

1=no concern, 2=low concern, 3=moderate concern, 4=high concern,

Another incentive to consider in this discussion is assistance with wildlife management, including helping with reducing damage caused by wildlife. One study found that "wildlife population management" was the only one of eight potential benefits rated above the midpoint (on a scale from 1=no benefit to 5=very high benefit).[378] Additionally, another potential benefit, "Controlling wildlife damage," had a rating just below the midpoint in this survey, but ranked fourth of the eight items.

Apart from providing incentives to landowners, there are other efforts related to private lands access programs that are important to mention here. A survey of landowners participating in a private lands access program in Pennsylvania found that an improvement was needed in communications from the state agency and the participating landowners.[379] Related to this— because it dictates what is actually being communicated—is that the agency needed to be aware that some landowners in the program were more knowledgeable about the program than were other landowners. The communications, then, needed to be varied according to the knowledge level. The same study of Pennsylvania landowners in the state's[380] public access program also found that landowners expressed the need for help with law enforcement. These two non-financial components are important aspects of administering private lands access programs.

There have been some problems reported with private lands access programs. For instance, a survey question asked of hunters who hunted on land enrolled in Pennsylvania's Hunter Access Program and who were not *very* satisfied with their hunting experiences on the enrolled land (i.e., they could have been more satisfied) were asked to state their reasons for not being more satisfied. The top reasons were lack of game, limited locations, and difficulty finding the land.[381] This points out the problem in that agency personnel enroll the lands that they can get; they may not always be able to enroll the choicest lands vis-à-vis having lots of game. It also points out the problem that the lands may not be as easy to find as some public lands, private lands enrolled in such programs being sometimes fragmented rather than consolidated in an easy-to-find tract.

Hunting Heritage Partnership Grants Pertaining To Access

The Hunting Heritage Partnership (HHP) grants program was coordinated through the NSSF and lasted from 2003 to 2012. One component of the overall HHP effort was providing access to hunters. Although the HHP grants program is no longer ongoing, it may offer some insight into access programs that have been implemented. For this reason, Responsive Management conducted a review of the final reports prepared for each grant that was awarded; those that pertain to access were analyzed for this chapter. Three of the reports are used extensively in this chapter because, in part, their goals coincide with the goal of this chapter: to help assess and describe various access programs that have been implemented. These three HHP projects are summarized in Table 5.2.1. A fourth assessed the HHP

grant projects themselves and provided valuable data for this chapter, as well.

Table 5.2.1. Three Select Hunting Heritage Partnership (HHP) Grants Pertaining To Access

Report Reviewed	Findings
Arvai J.; R. Gates; K. Wiltz; and D. Scott. 2004. Final Report, 2003 Hunting Heritage Partnership Program Grant #39, Impediments to Access for Hunting in Ohio: A Survey of Agricultural Landowners.	The grant funded focus groups and a survey, conducted in a partnership between the Division of Wildlife within the Ohio Department of Natural Resources and the School of Natural Resources at Ohio State University. Among the findings of agricultural landowners surveyed, the top concerns with respect to granting access were personal injury/liability concerns. In this study, payment/lease plans received relatively low ratings compared to legal defense and legal reform. Indeed, the report indicated that Ohio should "not invest in costly payment/lease plans; our research has shown that landowners and operators in Ohio do not favor potentially costly state-sponsored payment or lease plans." This study also included the recommendation that leases first be pursued for non-consumptive activities, because a finding of the survey was that, "of those landowners and operators who currently do not allow...outdoor recreation but might consider it in the future, the majority gave the greatest consideration to allowing non-consumptive forms [of] recreation." It was conjectured that this would build trust and that later the landowner might consider allowing consumptive recreation. The report indicated that landowner education efforts should focus on tangible benefits as well as concerns (previously, the focus being too much on concerns, apparently). A final recommendation from this report was for the state to explore ways to address liability, such as through a legal defense fund for landowners.
Oliver, T., with the Michigan Department of Natural Resources. 2005. Program History and Evaluation of Landowner Incentives for Michigan's Hunting Access Program.	This analysis of landowner incentives was produced using HHP funding and is cited extensively throughout this chapter. Some of its main findings include that the most important disincentive for landowners who are providing or thinking about providing access is the poor behavior of hunters (or negative confrontations with hunters). Meanwhile, the most important incentives were financial, reduced liability, and being able to know who is hunting and when on their property.
Responsive Management for the Pennsylvania Game Commission. 2007. Survey of Participants in Pennsylvania's Public Access Program: Landowner Survey.	This survey was conducted using HHP funding and is cited extensively throughout this chapter. Some of its main findings include that there was low awareness of the program among hunters, thereby hampering participation; that there was a lack of understanding among landowners regarding the benefits of participating in the program; that there was a need for more law enforcement help on the properties, especially as they relate to ATV trespassing; and that there was a need for the Game Commission to improve its communications with landowners in the program.

The remaining HHP grant projects that pertain to access that were reviewed are shown in Table 5.2.2 (Parts 1 through 6, arranged by the year of the final report issued for the grant, not the grant year—note that no HHP reports in 2012 pertained to access). Assessments of the projects are discussed, when an assessment was conducted for the project. Otherwise, the efficacy of these projects is somewhat hard to judge, as there was often no assessment, such as the number of hunters who were helped or who were encouraged to hunt. In many instances, verification of the completion of the task (for instance, the printing of maps) served as the assessment. These projects pertained to eight aspects of access; note that some projects pertained to more than one of the eight aspects. In all, there are 25 of these projects in the table:

- 9 of the projects entailed the acquisition of hunting lands by the purchase of leases or easements (2013 WY, 2011 WY, 2010 ID, 2009 ID, 2009 MS, 2008 WY, 2006 ID, 2005 WI, 2004 WY).

- 6 of the projects were involved in developing, setting up, and administering access programs (2009 ID, 2009 NH, 2007 CA, 2005 MI, 2005 HI, 2004 TN).

- 5 pertained to public relations, promotion, and outreach (2013 FL, 2013 WY, 2007 WY, 2006 WY, 2004 WY).

- 5 pertained to mapping including online mapping applications (2011 OK, 2010 MI, 2010 OR, 2005 WY, 2005 WA).

- 4 entailed surveys of access program stakeholders or other assessments of access programs (2011 WY, 2006 ID, 2005 WY, 2005 MI).

- 2 entailed boundary surveys and delineations (2013 HI, 2007 SD).

- 1 involved signage in the field (2007 SD).

- 1 involved providing facilitated access for disabled hunters (2004 IA).

Table 5.2.2. Remaining Hunting Heritage Partnership (HHP) Grants Pertaining To Access (Part 1: 2013 Reports)

Year of Final Report	Report Author/ Agency	Report Title Reviewed	Findings
2013	Florida Fish and Wildlife Conservation Commission	Using Videos To Teach Youth About Where and How To Hunt in Florida and Social Media to Encourage Them To Continue Hunting and Influence Their Peers To Become Hunters	This project developed videos highlighting places to hunt in Florida, and it maintained a social media presence to promote hunting and hunting safety classes. The success was said to evidenced by "171,768 people reaching the website and 788 people talking [on social media] about the site." Furthermore, there was a "4% increase in the number of hunter safety students." It is unknown how many people would have visited the site or enrolled in hunter safety without the program (i.e., no "control" group was compared to the affected group).
2013	Hawaii Dept. of Land and Natural Resources, Division of Forestry and Wildlife	Increasing Public Hunting Opportunities in Hawai'i Through New Access to the Ka'u Forest Reserve	For this project, boundary surveys were conducted to demarcate public land available for hunting in the forest reserve and to distinguish the public land from private land, thereby reducing conflict between hunters and private landowners. A survey of roads was also completed to identify ownership of infrastructure to be used in further access efforts. The effort can be considered a success as far as its very specific objectives are concerned. There was no assessment of increased hunting participation in the forest reserve, as the project is only one component of the overall plan.
2013	Wyoming Game and Fish Department	Private Lands Public Wildlife Access Program: National Shooting Sports Foundation Final Progress Report	In the first phase of this project, easements for hunting were purchased within the state's existing Private Lands Public Wildlife (PLPW) Access Program, which is designed to provide free public access onto private lands and "land-locked" public lands. A second phase of this project entailed producing and airing Public Service Announcements (PSAs) promoting the program and thanking the cooperating landowners. There was no assessment of the first phase of the project; it simply increased acreage available in an existing program. There was no assessment of the second phase of the project, although the final report mentioned that it was hoped that the PSAs would help increase donations to the "Access Yes" program (the funding umbrella for at least part of the PLPW Program).

Table 5.2.2. Remaining Hunting Heritage Partnership (HHP) Grants Pertaining To Access (Part 2: 2010 and 2011 Reports)

Year of Final Report	Report Author/ Agency	Report Title Reviewed	Findings
undated, but assumed to be 2011	Oklahoma Department of Wildlife Conservation	Oklahoma Hunter Access for Apprentice-Designated License Holders	The grant was used to develop and produce Wildlife Management Area Atlases. These were distributed to purchasers of apprentice-designated licenses. A survey was conducted regarding the apprentice-designees' likelihood to go hunting, but no other assessment was carried out (none with a "control" group to help assess the effectiveness of the effort).
2011	Wyoming Game and Fish Department	Private Lands Public Wildlife Access Program: National Shooting Sports Foundation Final Report	In the first phase of this project, easements for hunting were purchased within the existing PLPW Access Program, which is designed to provide free public access onto private lands and "land-locked" public lands. A second phase of this project entailed conducting surveys of hunters, anglers, Department personnel, and participating landowners. Among the important findings, more than a third of landowners in the program felt the state's access program strengthened their relationships with hunters, and about half of those landowners felt the program strengthened their relationship with the agency. A large majority of hunters (81%) and anglers (79%) who used the Walk-In Hunting/Fishing Areas programs agreed that the programs allowed them to hunt/fish more than they otherwise would have. Likewise, 76% of hunters who used the Hunter Management Areas agreed that the availability of the areas allowed them to hunt more than they otherwise would have.
2010	Idaho Department of Fish and Game	Securing Long-Term Hunting Access for Idaho Sportsmen	The grant funded three separate efforts for obtaining access by leasing land through the state's existing Access Yes! program. The first provided access to the Snake River; the second provided some land for hunting but also access to additional land for hunting that had been available but not well accessible; and the third provided ranch lands for hunting, including a good waterfowl area. The only "assessment" was that there was an increase in lands available for hunting.
2010	Michigan Department of Natural Resources and Environment	Public Hunting Interactive Web Application, Mi-HUNT: Final Report	The project developed and released the Mi-HUNT website. There was no assessment; the release of the web application itself was considered the success of the project.

Table 5.2.2. Remaining Hunting Heritage Partnership (HHP) Grants Pertaining To Access (Part 3: 2008, 2009, and 2010 Reports)

Year of Final Report	Report Author/ Agency	Report Title Reviewed	Findings
2010	Oregon Department of Fish and Wildlife	Final Report: Database and Online Map Resource for Hunting Oregon	This project had three components. The first developed a map application that helps hunters find a place to hunt. The second component developed a database to support the map application. The third component implemented a non-technical content management system that allow agency staff to maintain and update the map and database. The application itself was considered the success of the project.
2009	Idaho Department of Fish and Game	2008 Hunting Heritage Partnership Grant Final Report: Increasing Idaho's Hunter Access	Two components made up this project. The first was to develop a Hunter Management System (an online registration system). A test version was released. The second component of the project was to obtain leases to landowners to secure access to lands within the state's existing Access Yes! program. There was no assessment; a beta version of the system was released, and lands were leased.
2009	Mississippi Department of Wildlife, Fisheries, and Parks	Final Report: Mississippi Private Lands Dove Field Program	The project provided funding to lease five properties. Of the 300 total available permits to hunt these areas (distributed on a first come-first served basis), 275 were sold. This is a 92% rate of use of the permits. A mail survey was conducted post project. The survey indicated that 155 hunters purchased Individual Dove Field permits, and 23 hunters purchased a Dove Club permit; slightly more than 1 youth hunter per permit holder was taken hunting. A little less than half of the permit holders would not otherwise have gone dove hunting in Mississippi without the program.
2009	New Hampshire Fish and Game Department	Final Report: 2008 Hunting Heritage Partnership Program: Operation Land Share	The overall goal, of which this project was a part, was to develop a program to maintain and increase hunter access to private lands to provide hunting opportunities: Operation Land Share. The component of this overall goal funded in this project was the structure of the program itself (e.g., develop the program administration policies and procedures), as the report notes that "landowner recruitment is scheduled to begin on May 1."
2008	Wyoming Game and Fish Department	Private Lands Public Wildlife Access Program: National Shooting Sports Foundation Final Report	This entire grant was used to obtain easements for the state's PLPW and Access Yes! programs (described above).

Table 5.2.2. Remaining Hunting Heritage Partnership (HHP) Grants Pertaining To Access (Part 4: 2006 and 2007 Reports)

Year of Final Report	Report Author/ Agency	Report Title Reviewed	Findings
2007	Wyoming Game and Fish Department	Private Lands Public Wildlife Access Program: National Shooting Sports Foundation Final Report	As a final report for the HHP project, the PLPW Access Program annual report was submitted. The HHP portion funded a public relations campaign in this particular year.
2007	Mid Dakota Vegetation Management, for South Dakota Game, Fish and Parks	State Lands Signing Project Briefing 2007	The project identified and delineated state-owned lands through the placement of signs on the borders. The placement of the signage was considered as project success; no other assessment was conducted.
2007	California Department of Fish and Game, in cooperation with the California Waterfowl Association and the California Outdoor Heritage Alliance	2004 Hunting Heritage Partnership Grant: Shared Habitat Alliance for Recreational Enhancement "SHARE" Program: Final Report	The HHP portion of this project helped fund the pilot program and helped obtain easements. There was no assessment, as the HHP portion was part of a larger effort that would see dividends (or not) several years hence (i.e., the effectiveness of the overall program could not be assessed, as it was just underway). Note that the "reporting date" is in 2007 for this assessment of efforts that started in 2004.
2006	Wyoming Game and Fish Department	Private Lands Public Wildlife Access Program: National Shooting Sports Foundation Final Report	As a final report for the HHP project, the PLPW Access Program annual report was submitted. The HHP portion funded a public relations campaign in this particular year.
2006	Idaho Department of Fish and Game	2006 Hunting Heritage Partnership Grant: Idaho Final Report	The HHP grant supported a portion of the overall program. The overall program included surveys of landowners and hunters regarding the Access Yes! program, as well as the purchase of easements to secure hunting lands. The report indicates that HHP funds were used in the purchase of easements.

Table 5.2.2. Remaining Hunting Heritage Partnership (HHP) Grants Pertaining To Access (Part 5: 2005 Reports)

Year of Final Report	Report Author/ Agency	Report Title Reviewed	Findings
2005	Wyoming Game and Fish Department	Private Lands Public Wildlife Access Program: National Shooting Sports Foundation Final Report	This project is within the PLPW Access Program; the HHP funds in this year were used for printing maps and for opinion surveys.
2005	Michigan Department of Natural Resources	Final Report Grant #12: Michigan Hunting Heritage and Hunting Access Program	The portions of this project pertaining to access include the efforts discussed below. One effort was to compile information regarding private land access programs in other states. Another effort was the evaluation of Michigan's Hunting Access Program, referred to as HAP; however, it was noted that "many records of past participants and sign-in lists of HAP users had been purged." The evaluation was to be released as a separate document.
2005	Wisconsin Department of Natural Resources	Final Progress Report for Hunting Heritage Partnership Grant: Wisconsin Leased Public Hunting Ground Program, Grant No. 29	The grant was used to lease lands within the existing Wisconsin Leased Public Hunting Ground Program. The only assessment was that acres were leased.
2005	Hawaii Department of Land and Natural Resources, Division of Forestry and Wildlife	2004 Hunting Heritage Partnership Grant Final Report, Grant No. 7, Increasing Hunting Opportunities in the State of Hawaii: Finding and Leasing Agricultural Lands for New Public Hunting Areas	The grant was to be used to lease hunting lands, specifically from agricultural producers; this effort included finding new areas and new landowners who might lease their lands. The report discusses the reason that one large landowner did not lease lands to the state: the landowner had arranged a "private hunting concession" but the report did not state the incentives that were involved, if any. Therefore, it is unknown if the state was outbid by a private entity seeking hunting lands. A third component of the project entailed re-examining existing public lands that had become inaccessible.
2005	Washington Department of Fish and Wildlife	2003 Hunting Heritage Partnership Program Final Report: Recruiting and Retaining Hunters in Washington Through Improved Private Lands Hunting Opportunities	The grant funded the development of the GoHunt GIS web application that provided mapping to allow hunters to find hunting lands. The assessment was that 12 positive comments about the application had been received. Otherwise, the implementation of the application is cited to show the project's success.

Table 5.2.2. Remaining Hunting Heritage Partnership (HHP) Grants Pertaining To Access (Part 6: 2004 Reports)

Year of Final Report	Report Author/ Agency	Report Title Reviewed	Findings
2004	Wyoming Game and Fish Department	Private Lands Public Wildlife Access Program: National Shooting Sports Foundation Final Report	This project is within the PLPW Access Program; the HHP funds in this year were used for leases and publications/advertising. The publications included atlases and maps. There was no assessment other than that acres were leased and atlases/maps distributed.
2004	Iowa Department of Natural Resources, Law Enforcement Bureau	Final Report, Grant Number 14: The Hunt Master Project	This grant was used to build a "Hunt Master," which facilitates hunting for disabled hunters. In short, it provides access for disabled hunters. There was no assessment other than that the Hunt Master was built (but not in time for the 2003 hunting season); however, a first Hunt Master (the grant funded the second Hunt Master) was said to have gotten extensive use in previous years. The report indicates that a log is kept of the use of the Hunt Master, but the report did not provide any statistics from the log from the first Hunt Master, so it is unknown how many hunters used it. Nonetheless, one factor in judging the success in this case would be the provision of the opportunity itself, which this certainly provided.
2004	Colwick, J.; and Butler, M. (with the NRCS and the Tennessee Wildlife Resources Agency)	Progress Report: Walk-In Hunting Access Program (WHAP) in Tennessee – A Pilot Project	The grant was used for planning and coordination of the pilot program, for developing and printing a brochure explaining the program, for meetings at agency offices to explain the program and to encourage agency personnel to promote the program, to develop the rules and guidelines for WHAP users, to develop letters for interested landowners, and to develop a PowerPoint presentation. There was no assessment; the completion of the tasks was cited as the success of the project.

5.3. PROVIDING FACILITIES FOR RECREATION

For the purposes of this discussion, two types of facilities related to hunting, fishing, sport shooting, and archery are considered: boat ramps/put-in sites, and shooting ranges. Other facilities associated with these sports, such as parking areas at or roads into lands used for recreation, have already been considered in this chapter, even if not referred to directly.

BOAT ACCESS FACILITIES

Before discussing the provision of boat ramps, it is worth reviewing some information that has been presented in this report about boat ramps. They are obviously important to fishing. As detailed previously, one study[382] found that 52% of freshwater anglers and 50% of saltwater anglers use a private boat when fishing in their primary water body, and among those who use a boat for fishing, 73% use a public boat ramp. Additionally, three quarters (75%) of anglers overall said that having a well-maintained boat ramp was very or somewhat important in their decision regarding where to fish, and this is particularly true of Great Lakes anglers—90% of whom said this is very or somewhat important—and tidal bay/sound saltwater anglers—87% of whom said this. Hunters also make use of boat ramps, but not to the degree that anglers use boat ramps.[383]

Fortunately, it appears that existing boat access is fairly good for most people. A national survey of boaters (note that this is not anglers strictly, but includes boaters who may not fish) found positive ratings of boat access (Figure 5.3.1). On a scale of 0 to 10, where 0 is poor and 10 is excellent, boaters' mean rating of boat access facilities and areas where they typically boat is 8.08, which is well above the midpoint, and 68% of boaters give a rating of 8 or higher.[384] An open-ended question of those who gave a rating of 7 or lower asked why they did not give a higher rating, and the most common responses related to not enough boat access areas, poor maintenance of existing areas, and crowding at launch sites or ramps.

Figure 5.3.1. Rating of Boat Access Nationally[385]

In general, how would you rate boat access
facilities and areas where you typically boat on a
scale of 0 to 10, where 0 is poor and 10 is
excellent? (Asked of boaters.)

Mean: 8.08
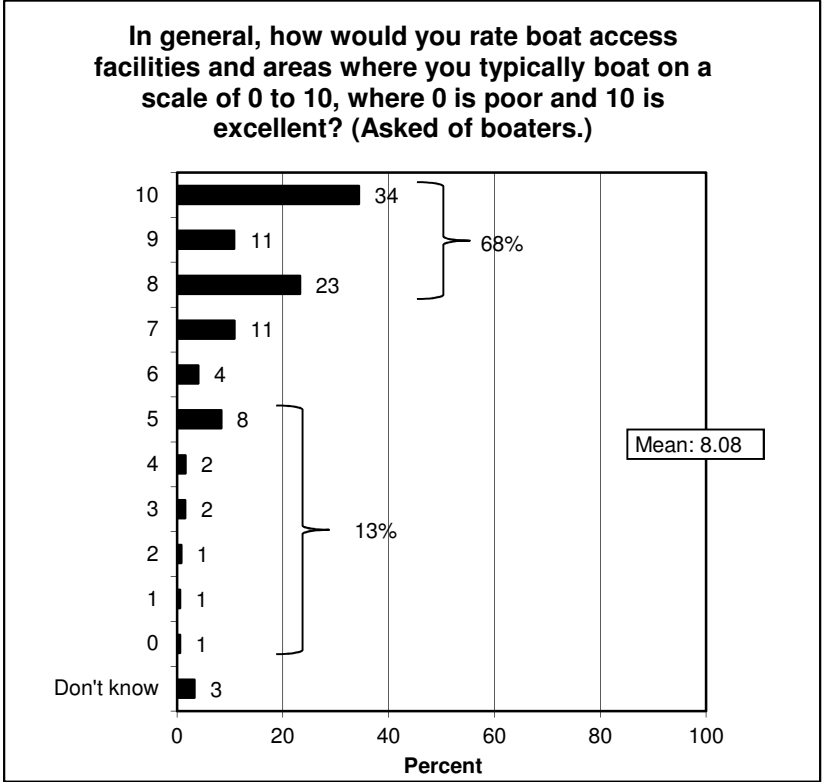
This is not to say that boat access is free of problems. This section will
examine the problems anglers and boaters have encountered at put-in sites,
the amenities and features that they look for when selecting a put-in site,
and the efforts directed toward maintaining and improving water access.

Problems Experienced at Boat Ramps and Put-In Sites

The examination starts with problems that have been encountered. As
mentioned previously in this report, 30% of anglers said that crowding at
boat ramps, launches, or put-in sites is a major or moderate problem, 18%
said that not enough boat access areas is a major or moderate problem, and
18% said poor maintenance of boat ramps, launces, and put-in sites is a
major or moderate problem.[386]

A nationwide study of boaters[387] (again, remember this includes non-fishing
boaters) presented 23 possible problems regarding boat access facilities
(Figure 5.3.2). The main problems are crowding issues (including "lack of
knowledge among other boaters and anglers," which is a problem that
exacerbates crowding and is itself exacerbated by crowding),
environmental/litter issues, and lack of amenities such as rest rooms,
pumpout stations, and parking—all of these things have at least a third of
boaters saying it is a major or minor problem where they boat.

Figure 5.3.2. Boat Access Problems[388]

Percent who indicated the following are a major or minor problem for boat access facilities and areas where they typically boat or would like to boat.

Category	Major Problem	Minor Problem	Total
Lack of knowledge among other boaters and anglers	18	38	56
Crowding at launch sites or ramps	14	30	43
Environ. concerns, e.g., invasive species or fuel / oil residue	15	23	38
Not enough facilities / amenities at boat acc. areas, e.g., restrooms, pumpouts	16	21	37
Pollution or litter at boat access areas	9	27	36
Difficulties getting boat in/out of water at access areas because they are crowded	9	24	33
Not enough parking at boat access areas	14	19	33
Not enough security at boat access areas	9	22	31
Poor maintenance of boat access areas	10	21	31
Not enough boat access areas	9	21	30
Not enough boat slips or moorings	11	19	30
Poor quality of fishing waters at boat access areas	10	18	27
Difficulties getting boat in/out of water at acc. areas bc they are poorly designed	8	18	27
Not enough information about where boat access areas are located	6	17	23
Conflicts between boaters and anglers	4	19	23
Not enough places or waters to fish in	9	13	22
Closures of preferred or more conveniently located boat access facilities and areas	6	14	20
No one to help or assist at boat access sites	6	14	20
Having to travel or transport boat too far	7	12	19
Poor upkeep or maintenance of sewage pump-outs or portable dump stations	7	10	17
Conflicts between motorized and non-motorized boaters	4	13	17
Not enough information about how to use boat access areas	5	12	16
Conflicts with waterfront properties / private landowners near access areas typically used	3	12	15

Focus group research pointed[389] out a problem in design and maintenance of boat ramps that sometimes occurs on lakes that have variable water levels. One boater complained that boat access at a particular ramp he uses was good for most of the year except when the lake level dropped. When the drop would occur, the boat ramp no longer had deep enough water at the ramp's end, and this problem, he felt, went unnoticed by the agency because most of the time the ramp was adequate. Furthermore, another boater complained that the lake level might change enough in just a single day to make the ramp difficult to use—he described being able to put in easily but not take out easily. He felt the design should consider a wider variation in the water level—a problem he felt was common. No quantitative data could be found on the number of ramps potentially affected by this in the United States or on the frequency of this problem at those affected ramps.

Features and Amenities Sought at Boat Ramps and Put-In Sites

The aforementioned survey[390] asked boaters to rate the importance of 25 access site features or amenities in their decision on which sites to use. Four tiers emerge in a ranking by the mean ratings (the ratings were on a 0 to 10 scale, with 10 being the most important) (Figure 5.3.3). The first tier (all with mean ratings of importance above 6.5) consists of very general features/amenities: access for motorized boats (mean of 7.3), launch ramps (7.1), parking for vehicles with boat trailers (7.0), trash dumpsters (6.7), and restrooms (6.6).

A second tier, from 5.5 to 6.5, consists of more specialized items (e.g., parking for those with disabilities) or items more associated with non-motorized craft rather than motorized boats (e.g., parking for single vehicles, carry-down walkways to the water). Below that second tier, the items are typically very specific (e.g., sewage pump-outs, oil disposal, fish cleaning stations, dry stack storage).

In addition to the mean rating, a graph shows the percent who rate the feature/amenity as a 9 or 10 in importance (Figure 5.3.4). This gives an idea of the portion of the boating population with a strong desire to have the items. The ranking is similar, but not exactly the same, as the ranking by mean rating. Comparing the two shows that sewage pump-outs may be more important than the mean suggests: it is ranked 18th by the mean, but it is ranked 12th by the percent giving it a high rating. This suggests that sewage pump-outs, while not important to many boaters (therefore pulling its mean down), are highly important to a substantial portion of boaters (thus its higher rank in the percent giving a rating of 9 or 10).

Figure 5.3.3. Boat Amenities Wanted, Mean Rating[391]

The mean rating of importance of the following features and amenities when selecting or using boat access facilities or areas. (On a scale of 0 - 10 where 0 is not at all important and 10 is extremely important.)

Amenity	Mean
Access for motorized boats	7.3
Launch ramps	7.1
Parking for vehicles with boat trailers	7.0
Trash dumpsters	6.7
Restrooms	6.6
Launch lanes	6.0
Security	6.0
Parking for those with disabilities	5.9
Parking for single vehicles	5.8
Short-term slips or tie-up facilities	5.7
Access for disabled individuals	5.7
Boarding floats or courtesy docks	5.7
Carry-down walkways to the water	5.6
Fueling areas	4.9
Permanent slips or tie-ups	4.8
Short-term moorings	4.6
Access for non-motorized boats	4.6
Sewage pump-outs / portable dump stns.	4.6
Drinking water availability	4.5
Permanent moorings	3.8
Oil disposal	3.8
Electricity	3.6
Fish cleaning stations	3.5
Dry stack storage	2.7
Mooring fields	2.7

Means

Figure 5.3.4. Boat Amenities Wanted, Rating of 9 or 10[392]

The percent who rated the importance of the following features and amenities when selecting or using boat access facilities or areas as a 9 or 10. (On a scale of 0 - 10 where 0 is not at all important and 10 is extremely important.)

Feature	Percent
Access for motorized boats	54
Launch ramps	50
Parking for vehicles with boat trailers	48
Restrooms	41
Trash dumpsters	41
Parking for those with disabilities	39
Access for disabled individuals	37
Launch lanes	36
Security	35
Parking for single vehicles	34
Short-term slips or tie-up facilities	33
Sewage pump-outs / portable dump stns.	31
Carry-down walkways to the water	31
Boarding floats or courtesy docks	30
Fueling areas	29
Permanent slips or tie-ups	27
Access for non-motorized boats	27
Oil disposal	23
Short-term moorings	23
Drinking water availability	22
Permanent moorings	19
Electricity	17
Fish cleaning stations	15
Dry stack storage	13
Mooring fields	10

Percent

The same survey[393] asked boaters to *rate the quality* of those previously discussed features and amenities in their state. Figure 5.3.5 showing the means is ranked from worst to best so that the top of the graph shows the features/amenities that are perceived to be in the *most need of improvement.* Parking emerges as an issue: the top two spots are parking for single vehicles (mean of 4.8) and parking for vehicles with boat trailers (5.1), and the third spot, access for disabled individuals (5.1), also has a parking component.

Also included near the top of the graph (with the worst features at the top) are some general features: electricity (5.3), drinking water (5.4), and security (5.6). Some of the other features rated relatively low are more

specific: oil disposal (5.4), fish cleaning stations (5.5), sewage pump-outs/portable dump stations (5.6), and dry stack storage (5.7). Features and amenities that do *not* appear to be problematic, as far as their quality goes, include mooring facilities, launch ramps, and launch lanes. These have the highest ratings of quality.

Figure 5.3.5. Boat Amenities Most in Need of Improvement[394]

The mean quality rating of the following features and amenities at boat access facilities and areas. (On a scale of 0 to 10, where 0 is poor and 10 is excellent; shown from worst to best.)

Amenity	Mean
Parking for single vehicles	4.8
Parking for vehicles with boat trailers	5.1
Access for disabled individuals	5.1
Electricity	5.3
Drinking water availability	5.4
Oil disposal	5.4
Fish cleaning stations	5.5
Security	5.6
Sewage pump-outs / portable dump stns.	5.6
Dry stack storage	5.7
Restrooms	6.1
Boarding floats or courtesy docks	6.1
Fueling areas	6.3
Trash dumpsters	6.4
Short-term slips or tie-up facilities	6.5
Parking for those with disabilities	6.6
Carry-down walkways to the water	6.6
Permanent slips or tie-ups	6.6
Access for non-motorized boats	6.8
Launch lanes	6.9
Short-term moorings	7.2
Launch ramps	7.2
Permanent moorings	7.4
Access for motorized boats	7.4
Mooring fields	8.8

Means

Efforts To Improve Boat Access Facilities

By far, the most important program to improve boating access was established through the 1984 Wallop-Breaux Amendment to the Federal Aid in Sport Fish Restoration Act. The Wallop-Breaux Amendment created the Aquatic Resources Trust Fund, now renamed the Sport Fish Restoration

and Boating Trust Fund. The funding is derived from a motorboat fuel tax (using a formula to estimate the portion attributable to motorboats); a small engine fuel tax (using a formula to estimate the portion attributable to small engines); a 10% tax on fishing equipment; import duties on tackle, pleasure boats, and yachts; a 3% tax on electric motors; and interest earned on the Trust Fund.[395]

The funding for boating access is 15% of the state's regular apportionment from the Trust Fund. An additional portion of the Fund is used in the Boating Infrastructure Grant program, funding that is competitively awarded to states. Note that a state is guaranteed to receive funds every year for boating access as a set percentage of the Trust Fund, whereas no such guarantee exists for the funding from the Boating Infrastructure Grant program. Specifically, 57% of the Trust Fund (after some initial administrative and other special deductions) is distributed to the states through the Sport Fish Restoration (SFR) program; it is 15% of that 57% that is mandated for boating access (which is about 8.5% of the Trust Fund). Another 2% of the Trust Fund is distributed to the Boating Infrastructure Grant program.

As was noted in 2010,[396] the then-current funding levels annually provided approximately $60 million in state apportionments of Trust Fund for development and/or enhancement of boating access for powerboats (exclusive of the Boating Infrastructure Grant program). With the minimum non-federal match of 25% (some state projects have a higher proportion of non-federal match), this comes to at least $80 million being invested in boating access each year.

An assessment[397] of the boating access provisions of the SFR program found positive results. It concluded that "the SFR boating access program is meeting its legislative intent, [and] that the program implementation and administration are performing well." This assessment in 2010, however, noted that there was not a comprehensive listing of program accomplishments at that time. Interestingly, at the time of this writing (2016), the website link for program accomplishments was disabled with a note that the SFR program was transitioning to a new tracking system (specifically, transitioning from the Federal Aid Information System, known as FAIMS, to the Wildlife Tracking and Reporting on Actions for the Conservation of Species system, known as Wildlife TRACS).

Although the official website's listing of accomplishments was unavailable at the time of this writing, a compilation of accomplishments from 2004 to 2012 (published by the Angling and Boating Alliance) serves as an example of the program's work. In that time period, the SFR program is said to have developed more than 3,800 boating access sites, renovated or improved another approximately 7,400 boating access sites, and constructed 1,171 tie-up facilities for transient boats (which are considered boats of length more than 26 feet).[398]

SHOOTING RANGES

To briefly review some participation information[399] that was presented earlier in this chapter, based on shooting activities that sport shooters had done, it appears that 89% of sport shooters do any type of target shooting—at a range or not, while 65% of sport shooters use a range for their shooting activities (55% use an outdoor range at least some of the time, and 27% use an indoor range at least some of the time—some use both). Finally, 39% of sport shooters do some sort of clay target shooting or 3-gun shooting, which entails use of a different type of range facility than a simple shooting lane.

An examination of the use of shooting ranges starts with sports shooters' frequency of use. While many range users are quite avid, some data[400] suggest that most range users, at least in 2014, did so for no more than 5 times that year: 61% of those who shot at a range at least once did so within the range of 1-5 times (Figure 5.3.6). Nonetheless, nearly a fifth of sport shooters who use a range do so for more than 10 times, based on that survey in 2014. This means that most *visits* to shooting ranges are by the avid sport shooters—avid being defined here as those who visit ranges more than 10 times a year.

Figure 5.3.6. Number of Visits To Shooting Ranges[401]
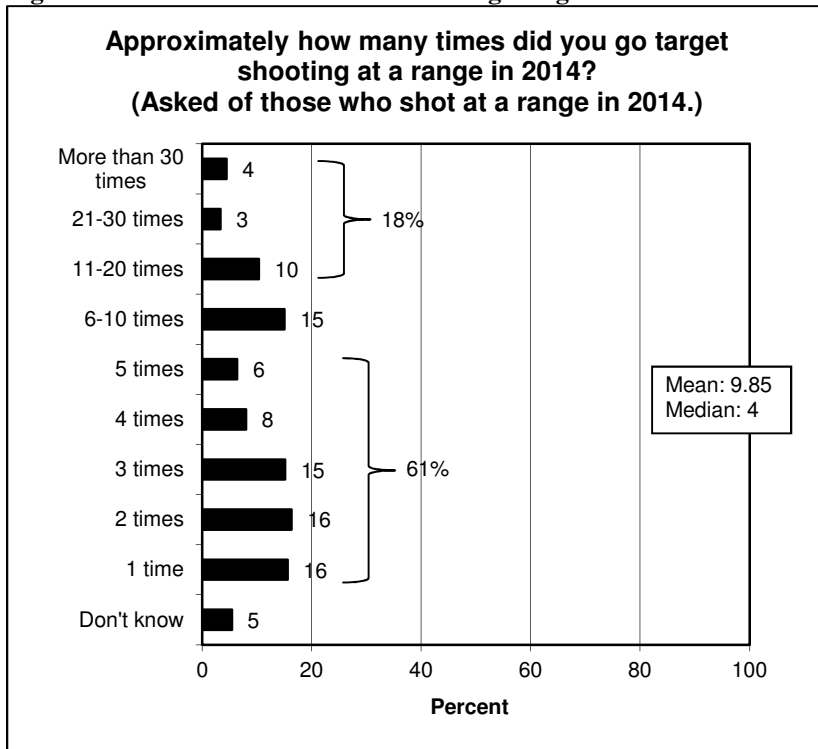
The apparent discrepancy in the sum is caused by rounding to the integer on the graph; the sum was calculated on unrounded numbers.

Travel Distance To Ranges

Several studies suggest that an important, and perhaps the most important, consideration in any discussion of the provision of shooting ranges is shooters' proximity to a range. After more than about a half-hour travel distance, demand quickly falls. In a national study, the majority of active sport shooters (59%) gave an answer of no more than 30 miles as the distance they would be willing to travel, one way, to shoot at a reasonably priced range. Also, a 2011 study[402] compared the connection between sport shooters' avidity in the sport and the distance to their typical shooting location. While this was not specifically to a range, it nonetheless showed that active sport shooters had the shortest mean travel time, compared to intermittent shooters and ex-shooters, with the latter having the longest mean travel time—well more than a half-hour (Figure 5.3.7).

Figure 5.3.7. Mean Travel Time To Go Shooting[403]
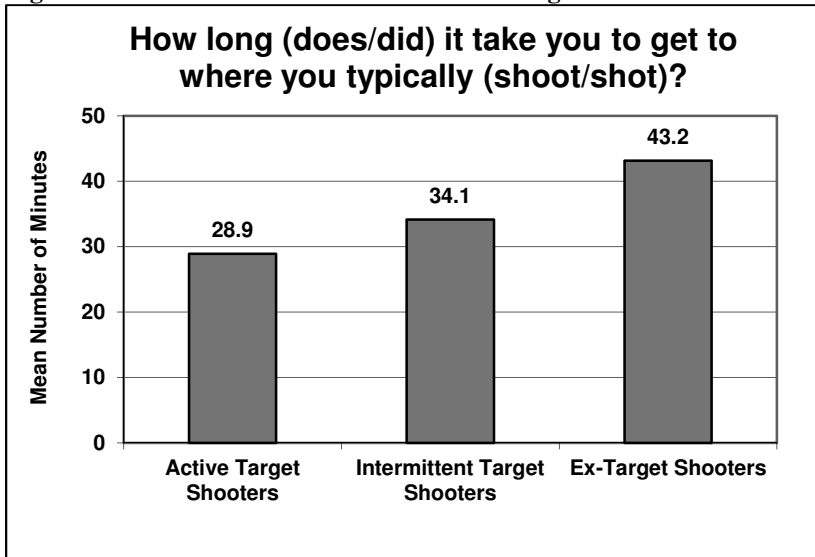
In a study at the state level,[404] Minnesota hunters were asked about their likelihood to travel to shooting ranges in the Twin Cities area, and the results were mapped (Figure 5.3.8). A look at the results shows that only those residents living fairly close to a range show any likelihood to use that range. The questions implied that only one location would be chosen for a range, so the alternative in each question was to use that range or not use the range being developed by the state. As can be seen, respondents indicated that they would forgo shooting at the state's range rather than travel across the city. Figure 5.3.9 shows the results to the question asking about a range located more toward the center of the city than the first three examples in Figure 5.3.7: it shows positive results for those near the center of the city, but all the suburban locations show negative results.

Figure 5.3.8. Maps of Likely Use of Shooting Ranges[405]

In the survey, hunters indicated the likelihood that they would use a reasonably priced range at various locations. Each location was asked about individually in its own question, and the order of questions was randomized.

Potential range locations and the locations of hunters' residences were mapped with gray or black used to show the results of the survey.

KEY
The large black dot is the potential location that was asked about.

A black square indicates a Zip Code in which most hunters residing there would be likely to use the range.

A gray square indicates a Zip Code in which most hunters residing there would *not* be likely to use the range.

A square with both gray and black indicates a Zip Code in which the results are evenly split.

Larger squares correspond to Zip Codes with more than 8 hunters in the survey.

(The map is of the Minneapolis/St. Paul area. Black roads are Interstates; gray roads are local.)

Figure 5.3.9. Likely Use of Shooting Range Near Center of City[406]
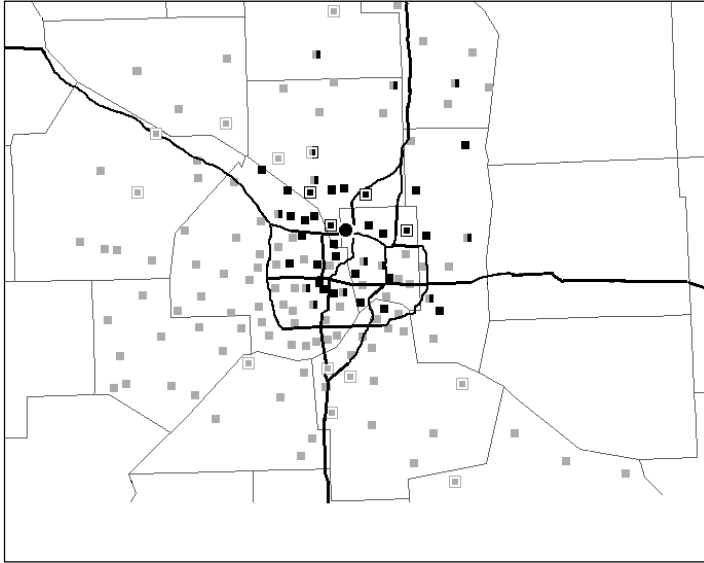
The map key is on the previous page.

This same Minnesota shooting range study[407] asked those hunters who used existing shooting ranges for some of their shooting activities to indicate how long it took them to drive, one-way, to get to the range. The majority (69%) indicated a time that was no more than 30 minutes (Figure 5.3.10). (Each hunter gave a specific number of minutes; the data analyst grouped the minutes into sensible time intervals.)

Figure 5.3.10. Travel Times To Go To an Outdoor Range Among Minnesota Hunters[408]

When you went to an established outdoor shooting range, about how long did it take you to drive, one-way, to get there? (Asked of those hunters who used an established range for some of their shooting-related activities.)

	Percent
More than 2 hours	1
91-120 minutes	2
61-90 minutes	2
46-60 minutes	7
31-45 minutes	17
16-30 minutes	41
15 minutes or less	28
Don't know	1

69% (16-30 minutes and 15 minutes or less)

Amenities Wanted at Shooting Ranges

This examination now turns to amenities other than the "amenity" of proximity. One national study[409] did not look at amenities specifically but asked about things that would encourage target shooting participation among sport shooters, and the results shed some light on what shooters might want in a range. Cost is an important factor (two of the top five items relate to cost, including the top item). Another important factor is a clean, welcoming environment (two more of the top five items), and a final item within that top five factors is the opportunity to take youth sport shooting (Table 5.3.1).

Table 5.3.1. Things To Encourage Target Shooting Among All Sport Shooters[410]

Item that would strongly, moderately, or not encourage participation or more participation	Strongly	Moderately	Strongly or Moderately	Not
There was no cost to use a range	54	18	*72*	27
A shooting range was clean, neat, and well run	42	26	*68*	32
There were opportunities to take a youth shooting	36	25	*61*	39
The fee they paid to use a range allowed them to get a discount for ammunition or other shooting supplies	33	32	*65*	34
A shooting range encouraged them to attend and made them feel welcome to be there	32	31	*63*	36
Nearby shooting areas were less crowded or had more shooting lanes	32	24	*55*	43
Loaner firearms were available at a range for them to try, including types they haven't shot before	31	26	*56*	43
Their local parks and recreation department offered a target shooting group class	29	28	*58*	41
Some type of family day at a range	29	27	*56*	44
There were opportunities to shoot clay targets in a non-competitive environment at their leisure	29	32	*61*	39
Shooting opportunities were offered through their church, workplace, club	28	27	*56*	43
A nearby range offered additional types of target shooting activities	28	35	*63*	37
They got coupons for equipment discounts with the purchase of a pass at a range	25	33	*58*	41
More shooting instruction or self-defense courses were available at a convenient range	25	24	*49*	50
They could reserve a private time or place at the range for their family or friends	25	25	*50*	49
There was a competitive shooting league offered nearby	17	24	*41*	59

At a state level, Minnesota hunters[411] were asked about the importance of various possible amenities at outdoor shooting ranges; while state results could vary quite markedly from other state results, the look at Minnesota

hunters is instructive nonetheless. Figure 5.3.11 shows the results of 15 questions; for each possible amenity, hunters were asked to rate its importance in decisions about choosing an outdoor range. Having facilities for clay target sports, allowing high-powered ammunition, and being able to shoot a centerfire rifle top the list. Another series of questions asked about possible programs at a shooting range, and the most wanted programs are gun safety courses and junior/youth programs (Figure 5.3.12).

Figure 5.3.11. Amenities and Activities Considered To Be Very Important at an Outdoor Range Among Minnesota Hunters[412]

Percent of hunters who think the following amenities are very important in choosing an outdoor range.

Amenity	Percent
Trap shoot, shoot skeet, sporting clays, or five stand	53
Shoot a high-powered rifle or high-powered ammunition	50
Shoot a centerfire rifle	47
Test the accuracy of cartridge or shell loads	41
Being able to try several diff. types of firearms during same session	37
Being able to take a class or seminar at the range	36
Sight a shotgun for slugs	36
Pattern a shotgun	35
Shoot a handgun	33
Shoot a rimfire rifle	32
Being able to shoot for less than an hour, such as a 15-minute session	27
Having a pro shop that sells items such as firearms, ammo, accessories	25
Shoot a bow	22
Having snacks and beverages available for purchase	18
Having rental handguns and rifles to use at the range	13

**Figure 5.3.12. Programs Considered To Be Very Important at an
Outdoor Range Among Minnesota Hunters**[413]

Percent of Minnesota hunters who think the following programs are very important.

Program	Percent
Gun safety courses	85
Junior or youth programs	83
Bring your spouse or kids programs	57
Species specific seminars or classes	47
A women's only program	40
Shooting competitions similar to bowling leagues	33
Game days	18
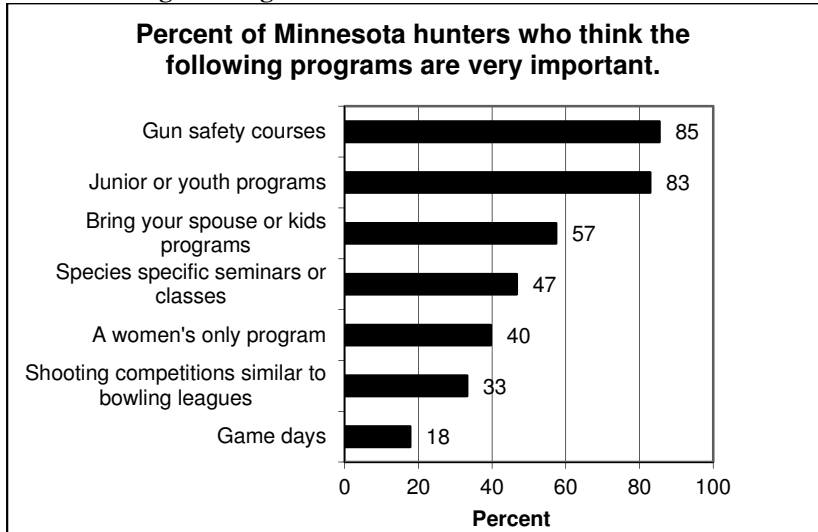
Another aspect of desired amenities at shooting ranges is the range distance.
The aforementioned Minnesota survey asked hunters to name the shortest
range distance that they would consider adequate for their needs (keep in
mind this is for an outdoor range), and they named a specific number of
yards; the analyst categorized the responses into intervals (Figure 5.3.13).
At 100 yards, 73% of hunters would be satisfied; a 50-yard range would
satisfy about a third of hunters (32%).[414]

Figure 5.3.13. Desired Shooting Range Lane Distance[415]
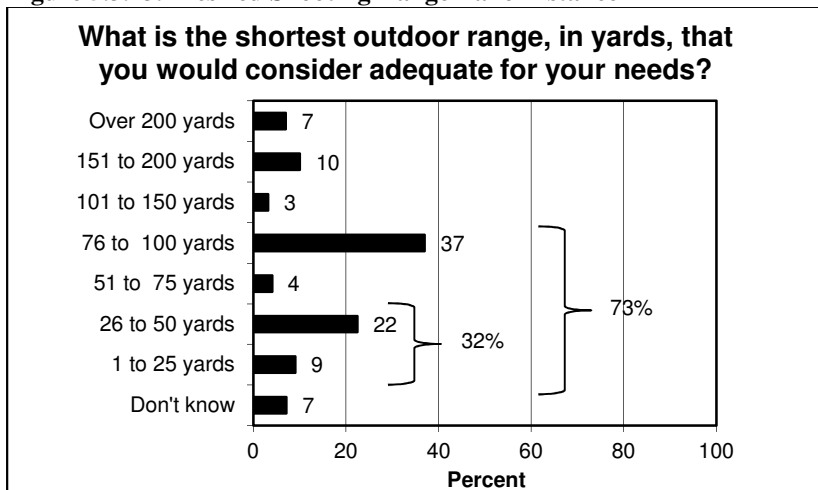
What is the shortest outdoor range, in yards, that you would consider adequate for your needs?

Range	Percent
Over 200 yards	7
151 to 200 yards	10
101 to 150 yards	3
76 to 100 yards	37
51 to 75 yards	4
26 to 50 yards	22
1 to 25 yards	9
Don't know	7

32%
73%

The apparent discrepancy in the sum is caused by rounding to the integer on the
graph; the sum was calculated on unrounded numbers.

5.4. INFORMATION ON ACCESS
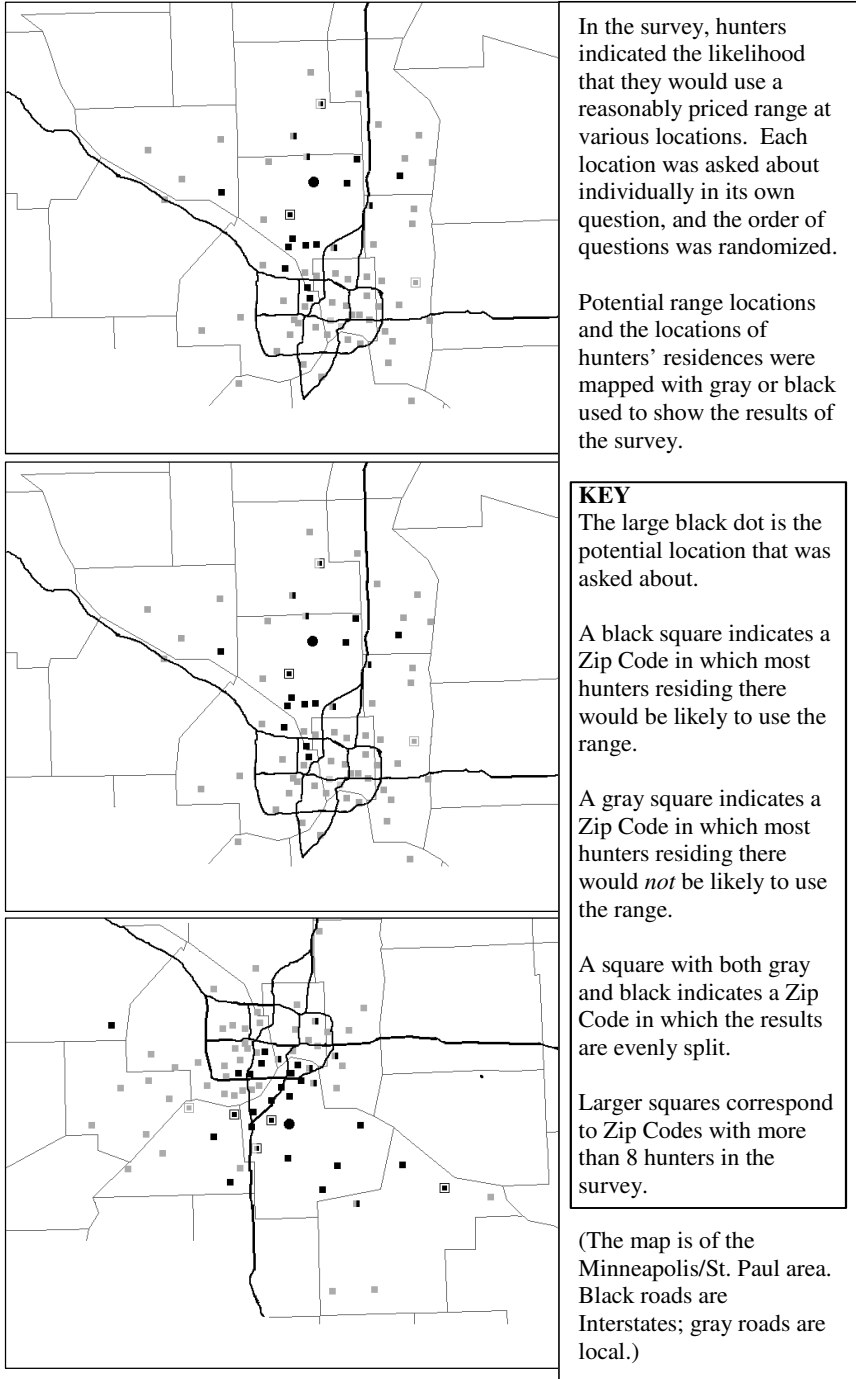
The next section on access in this chapter pertains to information about access—as stated earlier, a lack of knowledge about a place to go hunting, fishing, or sport shooting can be as much of a barrier as not having the places there at all. In other words, the person who does not know that there are places to do these activities will not be able to go to those places (until informed of those places).

RECREATIONISTS' AWARENESS OF PROGRAMS

Research suggests that awareness of access programs could be greatly improved in most states. At the national level, hunters were asked about six nationwide programs or resources: the Open Fields program, the Conservation Reserve Program, the U.S. Fish and Wildlife Service's Waterfowl Production Areas, the wheretohunt.org website, the huntinfo.org website, and the huntandshoot.org website (the latter site no longer being maintained as a hunting and shooting information website).[416] (Warning: if trying to access these sites, realize that there are commercial websites with names nearly identical to these: wheretohunt.com is a commercial site facilitating hunting opportunities by connecting hunters and landowners; huntinfo.com is a commercial site that acts as an information source for guided hunts, and huntandshoot.com is the website for High Prairie Farms, which offers guided hunts in Iowa.)

Hunters were asked about their awareness of the programs or resources listed above, and two of the six had awareness levels near the halfway mark: the Conservation Reserve Program (45% of hunters were very or somewhat aware of it) and the U.S. Fish and Wildlife Service's Waterfowl Production Areas or WPAs (45%). The other programs/resources had awareness levels of 10% or lower. Table 5.3.2 shows the awareness levels for each program or resource. In follow-up, the survey asked about participation in or use of the programs or resources. Those programs/resources with the highest rates of participation/use at that time were the Conservation Reserve Program (18% of hunters said they had participated in or used this program) and the U.S. Fish and Wildlife Service's WPAs (13% of hunters say they have used or participated in this program).

Table 5.3.2. Hunters' Awareness of National Hunting-Related Programs and Resources[417]

NATIONAL PROGRAMS/ RESOURCES	Percentage Very Aware of It	Percentage Very or Somewhat Aware of It	Percentage Who Have Used It
The Conservation Reserve Program	20	45	18
The U.S. Fish and Wildlife Service's Waterfowl Production Areas (WPAs)	16	45	13
The wheretohunt website	3	10	4
The Open Fields Program	2	9	2
The huntinfo website	2	7	3
The huntandshoot website	1	4	2

State-level data[418] are similar in that hunters are largely unaware of state access programs. When resident hunters were asked about Pennsylvania's Hunter Access Program (in which private landowners allow public hunting on their property through a partnership between the Commission and private landowners), only 5% said that they knew *a great deal*, and 16% said that they knew *a moderate amount* (a sum of 21%), as shown in Figure 5.3.14. Meanwhile, well more than a third (38%) said that they knew *a little*, and a plurality of 40% said that they knew *nothing at all*.

Figure 5.3.14. Knowledge of Pennsylvania's Hunter Access Program[419]

Overall, how much would you say you know about the Pennsylvania Game Commission's Hunter Access Program?

	Percent
A great deal	5
A moderate amount	16
A little	38
Nothing at all	40
Don't know	1
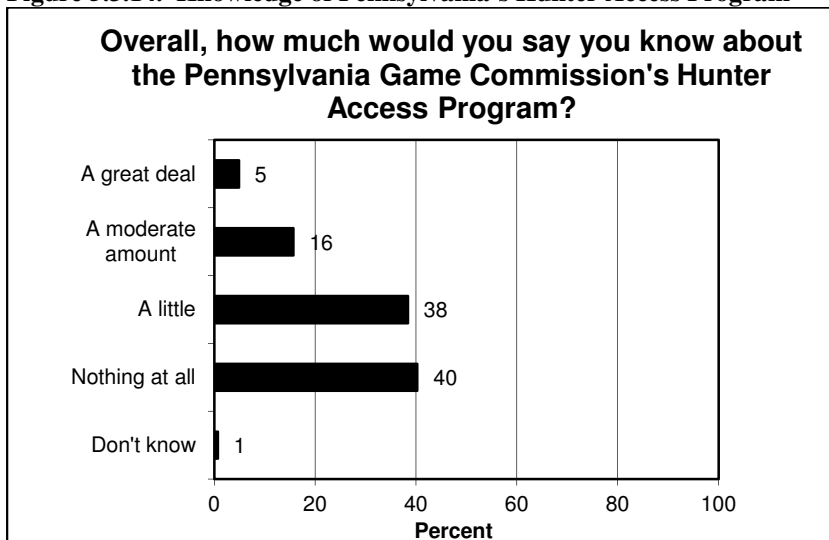
Anglers' awareness of access programs appears to be in need of improvement, as well. A nationwide survey[420] of anglers asked them if they were aware of any programs or resources designed to assist anglers with accessing water for fishing, but only 9% said that they were aware of a program or resource. While it may be that some of those not aware are in no need of assistance with access, certainly some of them may benefit from access programs and/or resources. In other instances, they may benefit from an access program or resource without realizing it; in such cases, it may be worthwhile for professionals to publicize how the angler is actually benefiting from the program/resource.

The same nationwide angler survey found that 19% of anglers rated as a major or minor problem that there was not enough information about where to access the water to fish. Furthermore, 17% said not having accurate information about where to access the water to fish was a major or moderate problem. Similarly, also being rated as a major or minor problem by 17% of anglers is that there is not enough information available on regulations for fishing in and accessing public waters that are adjacent to or run through private land. Although these are not large percentages, they represent, nonetheless, not insubstantial numbers of anglers who could use more information.

Although this section is about recreationists' awareness of access programs, it is worth noting the landowner survey component of the aforementioned national angler access study. Among landowners who specifically had water access on or adjacent to their property, only 3% indicated being aware of any programs or resources in their state to assist landowners who allow water access to anglers.

Some evidence suggests that information about under-utilized fishing areas may help alleviate crowding on the water, which is a common complaint of anglers. Dispersing access to limit crowding may also help with fishing pressure in some areas. There is a word of caution, however, from focus groups[421] conducted with fishing agency professionals: *more* access is not always *better* access because some areas and fisheries cannot support more access.

There are two components of information that are discussed below. The first is mapping and other off-site information, including websites. (While it is true that websites and phone apps can be used on-site by anglers, if their phones get reception, the information is still for the purposes of this discussion considered off-site.) The second is on-site information—boundary and informational signs.

MAPPING AND OTHER OFF-SITE INFORMATION

The national study[422] of hunting access previously referenced in this section has findings that are important in this section. This study looked at items/efforts that hunters would consider effective in making access easier. "Having up-to-date information on a website showing hunting lands" was thought to be very effective in making access easier by 58% of hunters. Additionally, this same study looked at access programs and resources that states had already implemented, and the state-sponsored mapping and atlas programs/resources were rated among the most effective for making hunting access easier. Finally, this hunting access study made this observation: "this study shows that many hunting access problems are due to a lack of information or misconceptions regarding hunting opportunities. While agencies find ways to manage the physical aspects of hunting access, such as increasing landowner/hunter partnerships, it appears that increasing information dissemination and outreach may be just as valuable in addressing hunting access issues."

Nationally, anglers were asked about potential efforts and resources to improve access.[423] Of 16 efforts asked about, the top 4 pertain to information, and 3 of those 4 pertain to off-site information. These efforts with a high percentage of anglers saying they would be very effective are "having up-to-date information on a website showing public access areas and access from private lands open to the public" (60% rating it very effective), "having maps of fishing access and boat access areas on a website" (also with 60% rating it very effective), and "having up-to-date information on recreational fishing/access areas that have been closed (57% saying this would be very effective). The top-ranked effort, which pertains to signs, is discussed in the next section of the report. Interestingly, these efforts all have a higher percentage giving it a rating of very effective *than actual land for access itself*: having the state agency buy land for fishing and boat access has only 52% rating this effort as very effective.

ON-SITE SIGNAGE AND INFORMATION

The other important component of the provision of information on access is on-site signage, including both boundary marking signs and informational signs. The aforementioned hunting access study[424] found that nearly three quarters of hunters (71%) indicated that "having signs that clearly mark boundaries of huntable land and non-huntable land" would be very effective at making access easier for them—the top ranked item when ranked by the percentage saying very effective.

Another look at this from the other side—things that were problems rather than things that would be effective—from the same national hunter access study referenced immediately above shows the importance of on-site signage. A substantial percentage of hunters (42%) said that lack of or unclear signs marking public hunting lands was a major, moderate, or minor problem in accessing hunting land in their state. Additionally, 37% of

hunters said that not being sure of the boundaries of huntable land was a problem in the past 5 years when hunting their primary species.

Some anglers, too, have expressed the need for on-site signage. When anglers were asked 16 questions about the effectiveness of potential efforts that could be undertaken to improve access, "having signs that clearly mark access to fishing areas from public and private lands" had 55% of anglers saying this would be very effective at making access easier.[425]

Questions about anglers' problems with fishing access, from the study discussed immediately above, also point to the need for signs. Nearly 1 in 5 anglers (18%) said that "lack of or unclear signs marking public and private fishing access and boat access areas" was a major or moderate problem in the previous 5 years.

One aspect of signage at fishing access locations pertains specifically to boat ramps for those anglers who use a boat for fishing. A study[426] of recreational boater access (although including boaters who do *not* fish) found that many boaters and boating industry professionals in focus groups talked extensively of the need for signs at boat ramps that educate boaters on proper procedures. In short, limitations in the capacity of access sites are apparently compounded by the presence of newer and less experienced boaters attempting to launch and recover their boats—others are forced to wait or maneuver around them. One suggestion was to put signs at access areas displaying key information for preparing and launching a boat in a timely manner.

5.5. ACCESS AND REGULATIONS

The final section in this chapter on access and facilities relates to the way that regulations affect access. Regarding hunting and fishing, this section discusses how tag (or permit, etc.) quotas may be an "access" issue in that the inability to draw a tag, in effect, limits access. Additionally, complicated regulations regarding where recreationists may hunt or fish also limit "access" if those regulations discourage recreationists to engage in their activity. For shooters, noise ordinances can obviously affect access and facilities.

Among hunters nationwide, 24% cited complex regulations as something that took away from their enjoyment of hunting or caused them to hunt less than they would otherwise have done.[427] It is undetermined how much of the complexity comes from where a hunter can hunt rather than some other aspect. This would certainly vary from state to state, because regulations are set by each state as it sees fit.

Anglers, nationally,[428] had 17% rating as a *major* or *moderate* problem, "Unclear or complicated regulations about fishing in public waters that run through private land, such as high water marks or how far you are permitted

to step on shore." This problem was one of 41 potential problems that anglers rated. Interestingly, in a survey of fishing agency and organization professionals, 39% thought that "Unclear or complicated regulations about fishing in public waters that run through private land" was a major or moderate problem for anglers. Their higher rate than that of anglers may be due to the professionals having heard from a small but frustrated constituency. This survey of professionals was part of the same project that surveyed anglers nationally.

A nationwide study of sport and target shooters asked them in an open-ended question (meaning no response set was presented, so they could say anything that came to mind) to name anything that took away from their enjoyment of sport or target shooting: 3% gave a response related to the complexity of the regulations.[429]

CHAPTER 5 ACTION ITEMS[430]

➢ **Access is the most important issue agencies and organizations can address and is the key to "opportunity," which is the most important factor related to participation.**

➢ **Access is critically linked to participation and is an important dissatisfaction among active hunters, anglers, and shooters. A way to ensure that hunting, fishing, and sport shooting opportunities exist is by ensuring that there are places to do those activities and ways to get to those places, and that potential participants are fully aware of those places.**

➢ **Consider both the physical and psychological factors of access.**

   Access involves the physical opportunities and locations to do these activities as well as participants' (or potential participants') awareness, perceptions, and attitudes regarding access. Be cognizant that psychological "constraints" can be as effective as actual constraints in preventing participation. It is not enough to simply provide physical access if a psychological "constraint" still exists—indeed, the effort to provide physical access in such a situation will be wasted.

➢ **It may be helpful to consider a typology of access, consisting of physical aspects of access (availability, accessibility, and accommodation) and social/psychological aspects of access (awareness and assumptions). Availability is the actual existence of lands and waters. Accessibility is the ease of getting to those lands and waters. Accommodation is the ease of getting around once the recreationists is on the lands/waters. Awareness refers to knowing about that access. Finally, assumptions refers to perceptions (and misperceptions) about access.**

➢ **Consider the amounts of public and private land available to recreationists in a state or local area; programs must consider the very different ways that access is secured in these types of land.**

➢ **Private lands are, in many places, integral to hunting and fishing access (more so regarding hunting), and private landowners need to be engaged in providing access.**

Additional ways for hunters and shooters to access private lands is necessary, particularly private land owned by individuals rather than corporations, as hunters were more likely to have a problem accessing private land owned by an individual than private land owned by a corporation. Lack of access to private lands is an important problem, and landowner programs can bridge this gap.

➢ **Accommodation should be considered in efforts to improve access. Access effort must consider whether the land in question can be feasibly used.**

➢ **Awareness should be considered an important aspect of access. Lack of awareness is the same as lack of access to the person who is unaware. Outreach is often as important as actually increasing accessible acreage.**

➢ **Crowding affects access in that it can detract from the experience and can, eventually, cause a hunter or angler to discontinue going to that place. Addressing crowding can include making more access spots to the same land or better advertising or incentives to encourage underutilized places to be used.**

➢ **Note that most hunters and anglers hunt and fish on the same lands year after year. For this reason, seemingly sudden road closures or other access problems can have long-term effects because it can cause hunters and anglers to drop out of the sports. Some hunters and anglers will quit (either intentionally or unintentionally through inaction) rather than try to find a new spot to hunt or fish.**

➢ **When considering fishing access, it is important to note that about half of anglers use a boat for fishing (overwhelmingly using private boats), and about three-quarters of those boat anglers use a public boat ramp or access site. These sites, then, constitute a hugely important part of fishing participation and should be considered in fishing access programs.**

Problems at boat access facilities that are the most commonly cited pertain to crowding and parking issues at the sites rather than to the lack of certain other amenities such as fish cleaning stations and so forth.

> **Also regarding fishing access, public lands are highly important to anglers.**

Whereas hunting access is highly dependent on private land, access for fishing is highly dependent on public land. Anglers in general use public land more than private land. While private land access is important, prioritization of strategies must account for the fact that most anglers use public land more than they do private land for gaining access to the water.

> **Communication with landowners and anglers regarding access programs needs to be more effective.**

Awareness of fishing access programs and resources is low: only 9% of anglers in a nationwide survey indicated being aware of any fishing access programs or resources. While some anglers who are not aware may not need assistance with access, some might benefit from access programs and/or resources. Landowners are even less aware of any programs that assist landowners in providing access, including any programs that may assist them with problems pertaining to fishing access. Only 3% of landowners indicated being aware of any such programs.

> **Range use is highly important to the sport shooting community (and becoming increasingly so because new shooters tend to be interested in shooting at indoor ranges). This is in part because many sport shooters do not have sufficient space at their residence to safely shoot. Range access will continue to be an important issue for the sport shooting community.**

The top consideration regarding providing shooting ranges is simply proximity to the range. Research suggests that demand for a range falls sharply for sport shooters more than a half-hour away from the range. The research suggests that multiple smaller ranges with fewer amenities but fairly evenly distributed throughout an area would be better than a centrally located facility that has more amenities but is a farther drive for most sport shooters.

> **Information about hunting, fishing, shooting, and archery opportunities is critically important.**

Provide additional information on land and water availability for these activities and ranges available, and ensure that there are high levels of awareness on how to access this information, as lack of information can be as detrimental to participation as actual lack of land, waters, or ranges. Available lands, waters, and ranges that are unknown are useless in providing opportunities for hunting, fishing, shooting, and archery.

Also be aware that agencies and organizations have a huge influence on this aspect. It is critically important that information is easily available.

Many excellent resources and databases exist on opportunities and access for these activities. Communications regarding the *availability* of this information is necessary and must be disseminated to increase awareness and subsequent use of these resources and databases.

Ensure that enough information is available within private lands access programs, particularly information about how to contact landowners. If the recreationists cannot contact the landowners or do not know what private lands are in specific programs, the access is not true access.

➢ **In looking at access from the landowners' perspectives, R3 programs must address landowners' reticence to allow access, in part because of safety fears.**

Many landowners report closing their lands because of poor behavior of recreationists. Programs that emphasize good behavior in the field and ways to graciously gain access to private lands will address the private lands access constraint. Provide constant reminders to hunters and anglers who access private lands of the importance of proper and ethical behavior while hunting and fishing. Remind hunters and anglers that hunting and fishing on private lands is a *privilege*, not a *right*.

➢ **There is evidence that user conflicts, including use of ATVs, are negatively affecting some participants, particularly in hunting.**

Ensure that user conflicts are considered and addressed. Simply providing opportunities for hunting and shooting will be ineffectual without considering potential conflicts and the damping effect such conflicts would have on those opportunities.

➢ **When developing efforts to encourage landowner participation in R3 programs, landowners' decisions regarding access have several components that need to be considered: the landowners' opinion of and past experiences with recreationists, the objectives the landowners have for their land, economic incentives for allowing access, liability issues, and landowners' attitudes toward certain activities.**

➢ **Landowner liability laws need to account for private lands access for hunting (and fishing to a lesser extent). If the laws do not already address landowner liability, they should be amended to shield private landowners from liability, thereby removing a concern that affects landowners' willingness to open their lands to hunting (and fishing).**

CHAPTER 6: IMPROVING PLANNING AND COOPERATION AMONG R3 PARTNERS

CHAPTER OVERVIEW

➢ **Planning, cooperation, and collaboration are considered highly important by the sportsman and conservation community. However, the *importance* of cooperation is generally rated by R3 professionals higher than actual *performance* of cooperation.**

➢ **The biggest obstacles to more planning and cooperation are budgetary and personnel constraints.**

➢ **Another major obstacle of note (outside of the most obvious mentioned above) is a lack of scientific assessment of what works. Many programs were implemented but did not have sufficient assessment to determine if the programs were successful in terms of recruiting, retaining, and reactivating participants.**

➢ **Not enough communications (although fortunately that is changing) is an obstacle commonly mentioned by R3 professionals. The exchange of ideas and information (including information on things that went wrong as well as things that went right) is critical so that other agencies/organizations/industry groups choose programs that work and do not go down the wrong road in R3 efforts.**

➢ **Debate is ongoing regarding whom to target. While youth are an obvious "low-hanging fruit" in recruitment, young adults are seen by some as being a large relatively untapped market as well. Regardless, programs are most effective when the target market is clearly identified and fully understood during the development and**

> **implementation of the program. The general consensus is that one-size-fits-all programs are not particularly effective with hunters, anglers, sports shooters, and archers.**

➢ **As a corollary to the above item regarding target markets, R3 professionals express the need that programs be tailored to a local level. Programs need flexibility to be adapted to particular needs or conditions of a state. States like Florida and Maine, for example, have quite different hunting milieus.**

➢ **Although a lack of assessment of some programs was considered an obstacle, caution must be given that programs need enough time to work before a full assessment can be made. Sometimes only a single year is not sufficient time to judge the efficacy of a program. With this in mind, commitment of sufficient time must be given to programs (albeit a challenge sometimes with changes to agencies' priorities that elections bring about).**

➢ **On the positive side, there were many stakeholders who expressed optimism regarding communications about R3 successes and failures—communications necessary for others to learn from these experiences.**

➢ **There was some optimism that agencies are seeing that R3 efforts are important. Some stakeholders talked of having additional effort devoted to R3 programs within their agency.**

➢ **The consensus was that R3 efforts are starting to be scientifically assessed to determine their effectiveness. This is a critical component of learning from prior experience—seeing what works and what does not.**

Evidence suggests that the amount of cooperation among partners is not commensurate with the importance placed on it. For this handbook, a survey of R3 stakeholders was administered.[431] One question asked them to rate the importance of planning and cooperation among partners and *agencies* on a 0 to 10 scale, where 0 is not at all important and 10 is extremely important. Then a second question asked them to rate how well planning and cooperation were actually carried out on a 0 to 10 scale, with 0 being poor and 10 being excellent. The importance had a mean rating of 8.7, while the performance had a mean rating of 4.6. The actual carrying out of planning and cooperation among partners and agencies is felt to be far lower than the importance placed on planning and cooperation.

Similarly, the same survey[432] cited above also asked questions about planning and cooperation among partners and *not-for-profit organizations/industry groups*. Again, the rating of importance (a mean

of 8.5) far exceeded the rating of performance (a mean of 4.4). Both of these comparisons suggest that this chapter is of utmost importance.

This handbook is not alone in pointing out the importance of partnerships. A 2007 NSSF best practices handbook[433] for hunting recruitment and retention states that "effective programs involve stakeholders and partnerships at all levels of their development" and goes on to say that "successful programs bring a coalition of stakeholders and partners together to design, implement, and evaluate a program that meets their mutual needs."

A survey conducted in early 2015 of wildlife professionals[434] from across the spectrum (for a presentation to the plenary session of the 100th year of the North American Wildlife Management Conference) asked an open-ended question: what would you say are the most successful initiatives, programs, and/or efforts of fish and wildlife management over the past 100 years at the regional or state level? One of the top response categories was partnerships and collaboration between agencies and organizations, with 14% of the wildlife professionals giving a response related to partnerships and collaboration. Only species restoration (36%) and habitat management (19%) were ranked higher. Note that respondents were allowed to give multiple responses.

Finally, one last example of the importance of collaboration, which applies to land management but could also apply to R3 efforts, comes from a report[435] issued by the American Wildlife Conservation Partners, *Wildlife for the 21st Century: Volume V*, which includes the following recommendation:

> **Promote Collaboration Over Conflict**. The process of "collaboration" involves citizens working directly with each other on public land management plans and projects. The idea is taking hold in forest management and needs to be extended to projects involving recreation access and development. The 2009 Collaborative Forest Landscape Restoration Program and the 2014 Farm Bill both moved collaboration to a more influential role in land management. In 2015, the House passed the Resilient Federal Forests Act, and the Senate has introduced a variety of forest health bills which endorse a stronger role for collaboration. These concepts are applicable to all public land management.

6.1. OBSTACLES TO COOPERATION AMONG PARTNERS

Some obstacles are obvious, with lack of funding or lack of enough personnel being primary (and, of course, related to one another). The reality, though, is that there will always be budgetary and personnel constraints to any efforts put forth by agencies and organizations. There will never be a utopia of enough funding and time and people, all the more reason that partnerships are important. With this in mind, R3 stakeholders were asked about obstacles that they had faced (as well as about things that facilitated R3 efforts or helped them overcome the obstacles—discussed later).

FUNDING AND PERSONNEL

Although the questioning attempted to bring forth obstacles other than the obvious ones of lack of funding and personnel, these problems are so pervasive that they were still cited extensively in the survey. This is illustrated well by the comment, "Everyone talks about how important R3 is, but they want the same people (one in most cases) to add more and more programs to their job duties." Another said, "We have far fewer people than we used to and more work than ever." The reality is that agencies and organizations will likely continue to be stretched thin when attempting to complete all of the efforts that they want to undertake.

That being said, many stakeholders reiterated the need for a full-time coordinator for state R3 efforts. One agency stakeholder indicated that plans were being made to "hire an R3 Coordinator in the future, but the current status of the State's budget has all agencies in a current hiring freeze." Also in this theme is the comment below:

> The largest obstacle for my state is not having a single person (or more than one) dedicated to working on R3 at the state agency. The other parts could easily be overcome.

One way to increase the efficacy of funding and the personnel available for R3 efforts, short of acquiring more funding that would allow hiring more staff, is to change agency and organization priorities, where possible. A stakeholder decried the "apathy and lack of precise goals within all partner groups" and saw a problem in that "few [agencies] designate R3 within their mission, and, as such, it is prioritized accordingly [i.e. low] and often left to others." As one stakeholder said, for a change in priorities to take place, there would need to be "buy-in at all levels in agencies."

ASSESSMENT OF PROGRAMS

Outside of funding and personnel constraints, an overriding issue that was commonly mentioned by stakeholders was the lack of assessment of R3 efforts in general (although that is changing). There was said to be a need

for better "use of analysis techniques to assess 'lift' from R3 efforts, as opposed to just participation in clinics or other R3 efforts." Another said:

> There is currently no assessment to see if the programs are working as intended. Agencies and NGOs are simply working to solve the vague problem, and most don't care if [the programs] are effective, as long as they are doing something.

Certainly the lack of assessment affected this very handbook. In a review of, for instance, R3 and access programs, many of the assessments focused on participant feelings and interests but did not (nor could not, in some cases) measure how much change in demand was actually created—the assessments did not tell how many new participants were created, particularly long-term participants. For instance, it has been noted that some R3 programs were simply catering to those who would become participants anyway, not creating new participants.

A way that assessments could be made more rigorous is through "being able to track a participant from trial through license buying." Another stakeholder commented that "tracking constituents in our state requires that [we] improve our IT infrastructure and policy" (IT referring to Information Technology). Another suggestion is to make a more standardized structure for assessing programs, such as "common indices that are consistently measured over time to better understand the lessons learned across the states." One stakeholder suggested that there be a "Data Collection System Template." Other stakeholders reiterated this by suggesting that there be a centralized source of information and ability to share best practices and strategies.

There is a note of caution in assessing the effectiveness of programs: they should not be assessed too early. Any program needs enough time to work (as discussed in more detail further on in this chapter). Some stakeholders expressed this thought, saying that there was a need for "commitment to existing programs." In this instance, expecting returns too early might, unfortunately, lead to the dropping of the program before it has time to work. Another stakeholder felt that there were good programs but that "some of those are in mothballs" with no clear reason given regarding why they were not still being implemented.

COMMUNICATIONS AND NETWORKING

Networking and the extensive discussions that networking engenders among R3 stakeholders were highly prized. The exchange of ideas is seen as critical in learning through others' experiences, a way get a "better sense of best practices and lessons learned." This is particularly important with so many diverse partners:

> Diversity of missions among the groups [is an obstacle].
> Each [partner] ultimately has [its] own goals to answer to.
> Taking the time to communicate and coordinate tends to
> be secondary to [its] first priority. Essentially,
> [coordination] needs to be part of a company's business
> plan and [part of] the key people's job descriptions, for
> this to be as big of a priority as the core "business" goal
> or mission. It is easy to get busy, and coordination can be
> difficult.

Some stakeholders felt that states "are still operating more alone than together" on R3 efforts. Again, a budgetary constraint reared its ugly head as an obstacle to networking, as many stakeholders mentioned a lessening of opportunities to network face-to-face at conferences. Some indicated that they hoped that technologies—such as web conferences—could help alleviate the problem. But the bottom line is that open communications and the sharing of experiences are essential.

A nuance of a problem regarding communications that was noted was called the silo effect, where people working in their particular field do not communicate with those outside that field (those in the hunting part of the agency not working with those in the fishing part, for example—and not to pick on hunting, as it could go the other way, as well).

> Anything to reduce the silo perspective between hunting,
> fishing, [and] other forms of outdoor recreation [is
> needed]. There is transferable knowledge that is often not
> applied outside of that particular recreation field.

A reduction of this silo effect was felt to better allow for crossover benefits from one type of recreation to another. For instance, anglers who become hunters and vice-versa. Perhaps it is best to think of hunting, fishing, sport shooting, and archery, and their related R3 efforts, in the same way that environmental ethics and ecology are now considered. Aldo Leopold[436] wrote that "all ethics rest upon a single premise: that the individual is a member of a community of interdependent parts." Coordination and cooperation allow this interdependence to be used as an advantage. This is summed up in the comment regarding the most important things needed to improve planning and cooperation:

> Networking opportunities focused on how to efficiently
> and effectively implement R3 programs. We all have way
> too much on our plate so we need to learn from each other
> how to stand up and run effective programs with minimal
> effort.

KNOWING THE TARGET AUDIENCE FOR OUTREACH

Some R3 professionals indicated a vagueness when it comes to determining whom to target for recruitment. Some stakeholders say that there is too much focus on youth, while others counter that youth are the best pool from which to recruit. This disagreement regarding whether youth should be the primary target was played out in the survey of R3 professionals, with some wanting to continue to target youth, but others having opinions as demonstrated below:

> A better sense of best practices [is needed], one of which is [that] R3 is not just for youth! As a matter of fact the majority of resources should be focused upon young adults.

> Formal sharing of best practices for working with adult audiences would be helpful. I went to a conference on what I thought was going to offer sessions on that topic, but it was still very youth-focused, and our shift has been away from youth program development.

> [What is needed is] an end to feel-good one-time events that cater to hunters' children or masses of children who have no reasonable possibility of becoming hunters, anglers, archers, etc.

This lack of agreement on what audience should be targeted is summed up by the comment that, "most of the time, we don't know what our audience is so we don't know how to best reach them for long-term goals." Put another way, "It would be great to be able to identify who needs help in the progression and how to best provide the help."

There is also a debate regarding whether selling licenses should be the primary goal or recruiting participants who would be expected to purchase lots of equipment. One stakeholder felt that "staff and upper management [have a] bias (toward 'high end' anglers, hunters, etc.—they are the most familiar and vocal) and [have a] belief that we 'know' our customers."

TAILORING EFFORTS TO A LOCAL LEVEL

Another common theme in the stakeholder survey was a lack of localization of messages and efforts; it was said that a "cookie cutter" approach did not always work at a local level. One agency staff member indicated that "our hunters/anglers are very savvy and recognize when they're getting a 'canned' message vs. one that resonates with their values/experiences." Yet another stakeholder felt that there was a "lack of tailoring of successful R3 strategies by states to meet their individual needs."

It may be that some programs put forth at a national level need to build in flexibility. One R3 professional felt that agencies and organizations

"desperately need a template for creating state-specific R3 step-down plans from national plans." There is also a perceived lack of flexibility within agencies, as demonstrated by the comment from one stakeholder that there are:

> Bureaucratic hurdles with contracting, purchasing, and establishing agreements and partnerships with organizations and industry. In the effort to be 'fair' to everyone, we are unable to quickly capitalize on opportunities.

This tailoring of programs to the local level also should consider tailoring programs to dovetail with existing programs, where this is possible. One stakeholder wanted "advice on how to adapt and integrate [R3 programs] into existing programs without hitting the reset button."

A parallel suggestion to tailoring programs to the local level is tailoring them to suit the personnel available. One stakeholder decried "trying to turn biologists into marketers" who were not trained for that type of effort.

ENSURING THAT EFFORTS ARE MADE CONSIDERING THE LONG TERM

A common theme in the R3 professional survey was that efforts need to carry the participant through recruitment to retention and life-long avidity. There was a complaint expressed by a stakeholder that "many traditional partners . . . still subscribe to the one 'n done methodology of outreach and education." This idea was also put forth in a best-practices manual[437] for hunting, which indicated that "the most successful approaches won't happen overnight. Successful programs have long-term, sustained delivery. It is important to communicate this to leaders who aren't looking past one-shot efforts and approaches that didn't post immediate results."

Outdoor Mentoring

Mike Christensen

The Pass It On - Outdoor Mentors program has its roots in a partnership between the Kansas Department of Wildlife and Parks and Kansas Big Brothers Big Sisters. Then-Secretary Steve Williams felt that mentoring was key to getting more children involved in hunting and fishing and that, by partnering with a youth mentoring organization, the agency could pursue mentoring initiatives that would benefit both organizations. Our experience over the past 15 years has proven the concept.

continued

Types of Mentoring

When discussing mentoring programs, we focus our efforts on one-on-one, long-term mentoring relationships rather than group or short-term mentoring. Studies by youth mentoring organizations have shown that mentoring relationships lasting less than one year can actually have detrimental effects on the youth being mentored whereas long-term mentoring relationships can have very positive effects on both the mentor and mentee. Our mentors oftentimes tell us that they feel they get more out of the mentoring relationship than the youth being mentored.

Partnering With Youth Mentoring Organizations

Pass It On - Outdoor Mentors partners with youth mentoring organizations like Big Brothers Big Sisters that provide the mentoring expertise needed to ensure that the relationship is safe for both the child and the mentor. We rely on the youth mentoring organization to conduct background checks on the potential mentors and to use their expertise to successfully match a youth and mentor and to monitor the match through the term of the relationship. These youth mentoring organizations also provide training for the mentors, coaching them on how to best work with their mentee. Once a mentor is matched to a youth, we expect them to spend time every month outdoors. This partnership lets Pass It On - Outdoor Mentors focus on recruiting mentors and providing outdoor experiences for the matches where possible.

Youth mentoring organizations typically have a list of children waiting to be matched to a mentor, and on average across the country, 75% of these children on the waiting list are boys. Given the demographics of the children being served by these organizations, we have found that many fit the definition of being "at-risk," coming from an ethnically diverse, lower socio-economic, one-parent home. These children have little or no connection to the outdoors and little prospect for making that connection without a mentor stepping in to make that happen. By partnering with youth mentoring organizations, we are able to reach an audience that is not connected to the outdoors, exactly the target for growing participation in the outdoors.

Offering outdoor experiences to youth mentoring organizations has the added benefit of attracting mentors who are not active outdoor participants. Offering activities to mentor-mentee matches in the youth mentoring organization, we can provide new outdoor opportunities for both the mentor and mentee. In these instances, we get a two-for-one, involving both a mentor and mentee in the outdoors who wouldn't have the opportunity without the partnership between our organization and the youth mentoring group.

continued

Partnering With NGOs

Pass It On - Outdoor Mentors works to partner with local chapters of NGOs like the National Wild Turkey Federation and Pheasants Forever, reaching out to their members and asking them to become Outdoor Mentors. In many cases, these chapters also step up financially to help create outdoor opportunities for the youth being mentored. We have found that mentoring a youth gives the mentor a reason to spend more time outdoors, hunting and fishing.

Partnering with NGOs also helps to involve the youth and the mentor in the social support structure needed to foster their continued participation in outdoor activities. Outdoor Mentoring is another way for NGOs to involve their members with their organization and to gain new members for the future. Encouraging mentors to bring their mentees to banquets and the other events sponsored by the NGO increases their exposure to the community.

Partnering With State Agencies

Pass It On - Outdoor Mentors has partnered with state fish and wildlife agencies to provide access to hunting and fishing properties, utilize the expertise of agency staff, and provide the mentors and mentees with information that they usually don't know where to find. In Kansas, KDWPT has provided special mentor hunting opportunities on state-managed properties that offer special experiences for both the mentor and mentee. KDWPT has shooting trailers with instructors who are utilized for special mentoring events. State agency staff also have assisted with introductory clinics, giving both mentors and mentees opportunities to become more proficient with their outdoor craft.

Outdoor Mentoring provides a path to reach those youths who are not connected to the outdoors. It is imperative that the outdoor community reach out to those who have little or no connection to hunting and fishing if we wish to see our outdoor heritage thrive in future generations.

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BEING ABLE TO WORK WITH PARTNERS

A final aspect in this section that needs to be mentioned is simply the ability to work with partners. There has been much discussion of making partnerships, but just as in R3 efforts, there is a retention component: the partnership has to work, and once the lack of communications is addressed to get partners together, there is no guarantee that partners can work together. One stakeholder noted that, "No one entity is willing to accept direction from another." In some instances, there are decision-makers at various entities that do not get along (one stakeholder mentioned two conservation organizations with similar goals yet organization heads that disliked one another). "Turf wars" were mentioned as a problem, or, as one stakeholder said, "There are often entrenched interests (inside and outside the agency) that are resistant to change." This problem is epitomized by the following comment:

> Even when groups work together we still have our individual needs in mind. I see tremendous benefit if all groups would report and evaluate using the same methods. It would provide a common language and more empirical data.

6.2. FACILITATORS OF PLANNING AND COOPERATION AMONG PARTNERS

Again, much of the information in this section comes from the aforementioned survey of R3 professionals[438] that was administered as part of this overall project. One aspect to be mentioned is not a concrete item such as a website; rather, a primary facilitator of R3 efforts is the "leadership shown by NSSF and RBFF. These [organizations] continue to support research and advocate for coordinated and evidence-based R3 efforts in state agencies, and to a lesser degree NGOs." Beyond simple leadership, there are more concrete facilitators.

COMMUNICATION PLATFORMS

Of primary importance in facilitating planning and cooperation are the communication platforms that have been developed to share best practices, including the R3 website. These communication pathways are important, as stated by a stakeholder, because "we're all working towards the same goal," even if, as the same stakeholder said, "how we get there can be different. We need to recognize and value that everyone will get to the same place (goal), just maybe not by the same road."

To facilitate communication, a stakeholder wrote that "I've found workshops at the WAFWA meetings useful," as well as "webinars, newsletters, and networking." Others pointed out the importance of workshops, where many R3 stakeholders can interact and learn from one another, often in unexpected ways.

Some online platforms in particular were mentioned, in addition to the primary R3 website (http://www.nationalr3plan.com/). Powderhook was mentioned as being able to open up "avenues of communication and information sharing" (https://www.powderhook.com/). The RBFF website was also mentioned as a place to exchange information. Another site commonly mentioned was the CAHSS site, which has the National Hunting and Shooting Sports Action Plan (http://www.cahss.org/).

Overall, though, the consensus in the stakeholder survey was that communications among agencies and organizations had improved in recent years. As one respondent put it, there is "greater collaboration and communication amongst R3 Coordinators today." Yet much remains to be done. As one stakeholder put it, there was always room for "more. Always more."

There is a word of caution about communication platforms. One R3 professional felt that, in some ways, the R3 website "seems like just another 'Facebook' to keep up with."

AGENCY PRIORITIES

It was felt by many stakeholders that R3 efforts are receiving more attention today than in the recent past. A common refrain was that "more state resources [are] being devoted to this issue today." It was felt by many that there is now "buy-in from industry, agency and organizations."

Part of this change of priorities is embodied in calls for each agency to have a full-time R3 coordinator. One stakeholder indicated the need for "having a coordinator, ideally one not tied to a critter group or state agency, working to coordinate activities/events among stakeholders and reaching out aggressively to those not connected to the outdoors."

SCIENCE-BASED ASSESSMENTS

Stakeholders noted that, in the past few years, there has been an increase in scientific program assessments. As one stakeholder put it, "Organizations are coming around to science." This thought was reinforced by findings of a survey[439] of wildlife professionals, as one of them noted that "research provides the basis for science-based [management]." True assessments are critical in determining what works and what can be used, as opposed to those programs that should be discarded if they are not effective.

ORGANIZATIONS AND WORKSHOPS OF NOTE

The final word in this section simply relates to the organizations that were commonly mentioned as providing invaluable support for R3 efforts. These include, in addition to the NSSF, the American Sportfishing Association (ASA), the Recreational Boating and Fishing Foundation (RBFF) and its State Marketing Workshop, the Association of Fish and Wildlife Agencies (AFWA), and the Council to Advance Hunting and the Shooting Sports (CAHSS). Industry/retail representatives also have R3 goals (even if less

altruistic and more business-related), although it was noted by one stakeholder that:

> While I find it helpful to include industry and retailers, they really do not understand (nor can they relate to) the challenges facing agencies. Too often their response is that government should be run like a business. It isn't a business, and, as much as we might want to operate that way, we can't given state and federal rules and statutes.

A report[440] prepared by the NSSF includes a list of potential partners (Table 6.2.1). Those involved in any effort would be well-advised to consider this list. Note that the list is not all-encompassing but is, instead, to be considered a starting point when attempting to identify partners.

Table 6.2.1. Potential Stakeholders and Partners Listed in NSSF Report[441]

Local gun shops or sporting goods retailers
Local law enforcement authorities and parks and recreation centers
Local government agencies
Local shooting ranges and gun clubs
Local fish and game/conservation clubs
Representatives from target audiences
Schools and church groups
YMCA and local community centers
Wildlife conservation organizations (Ducks Unlimited, National Wild Turkey Federation, Pheasants Forever, Quail Unlimited, Rocky Mountain Elk Foundation, Foundation for North American Wild Sheep, etc.)
Youth organizations (Scouts,4-H, Campfire, Big Brothers Big Sisters, etc.)
Local politicians, influential and famous people (athletes, TV personalities, etc.)

Perhaps the final word in this chapter should come from a wildlife professional who was surveyed as part of a presentation to the plenary session of the 100th year of the North American Wildlife Management Conference.[442] In response to what had facilitated the effort that he/she had previously cited as an example of a successful initiative, program, or effort of fish and wildlife management over the past 100 years, the respondent said:

> The initiatives have been successful because there was a common purpose amongst all the collaborators, and there was a recognition that the resources would be lost without a united effort by not only State and Federal government but private interests.

CHAPTER 6 ACTION ITEMS[443]

➢ **A great many R3 programs exist, calling for better coordination between agencies and organizations.**

Facilitate coordination of available and planned programs, including agency programs, programs administered by nonprofit organizations, and less traditional programs such as informal recruitment taking place at local shooting ranges, all of which dovetail with overall R3 goals. The large number of programs available today calls for better coordination between agencies and organizations to eliminate needless duplication of effort. Indeed, every agency or organization should have at least one R3 coordinator to manage efforts and programs. A coordinator ensures that programs do not overlap unnecessarily and that resources are efficiently used.

➢ **Within agencies and organizations, develop an inventory of R3 programs to identify program overlaps and program gaps.**

➢ **Wherever possible, reinforce the efforts and activities of local shooting facilities and ranges, as these locations typically have a high correlation to increased subsequent participation among attendees.**

Individual facilities and retailers also help to ensure targeting on the local level, especially since industry outlets and resources may be able to assist with the coordination of opportunities for local programs and events.

➢ **Continue to promote and advertise industry-related websites, which often list and categorize programs and opportunities by location.**

➢ **Continue to facilitate information exchanges regarding programs. Existing forums, such as the R3 community website, allow program managers to easily see what other programs are doing, which helps in coordination and facilitates programmatic success.**

Better coordination does not mean limiting the variety of programs that should be offered, as more variety allows for more participants. However, program managers should be aware of what other programs are doing, and information forums about programs to allow this exchange of information are efficacious. Programs should not needlessly duplicate efforts, nor should they infringe on other programs' participation and interests. Information forums, shared websites, and web conferences allow for R3 program managers in disparate locations to exchange ideas, lessons learned, and other critical feedback.

> ➤ **Funding is an ever-present constraint to developing and administering R3 programs.**

Strive to make programs pay for themselves, at least in part, which helps to ensure their continuation. Whenever possible, develop a business plan or business model for potential programs, which will allow for long-term viability.

> ➤ **Develop R3 programs through partnerships and through both public and private funding.**

The private, *for-profit* sector is an important component of R3 program support, as is public funding through agencies themselves. Additionally, *not*-for profit funding should be sought—use partnerships whenever possible, which allow agencies and organizations to leverage funding and effort. When forming partnerships, note the importance of recognizing both individual and collective goals and needs (a retail partner's individual need may be to sell equipment, while an agency's primary need may be to sell a license; both partners, however, are enjoined by the common need to create a new participant).

Continue to make use of volunteers in R3 programs, as numerous agencies have had success with volunteer workforces as a cost-effective way of providing program instruction and assistance. Volunteering is also a form of retention among the volunteers themselves, especially among aging participants who are at risk of dropping out of hunting, fishing, sport shooting, and archery completely.

> ➤ **For hunting and shooting, and for fishing where it applies, continue to promote and adhere to the National Action Plan, which brings into focus exactly what needs to be done to recruit, retain, and reactive participants.**

> ➤ **For hunting and shooting, and again for fishing where it applies, continue to encourage states to develop their own strategic plans that fall under the National Action Plan. If new or additional funding becomes available, a strategic plan based on the national goals and national strategic plan could be a prerequisite to receive funding.**

Some states have already developed their own R3 action plans, many of which mirror the goals of the National Action Plan. Wherever possible, state plans should be developed to ensure consistency and cohesion with the objectives of the National Action Plan.

➤ **A national "umbrella" program that serves hunting, fishing, sport shooting, and archery may have utility, as coordination of programs minimizes wasteful duplication of efforts and also ensures that gaps are not left unaddressed.**

A national umbrella program could greatly facilitate cooperation among all stakeholder groups in reaching common goals, allowing agencies, organizations, and industry groups to work in tandem to increase participation in the four activities. A national program would also encourage major symbiotic relationships: agencies have credibility and access to important information; industry has marketing and promotional expertise, access to potential participants, and a customer service motive; and organizations have access to existing participants.

➤ **There are two components to the work of R3 providers: product and service.**

As emphasized by agencies that are beginning to place increasing importance on the "customer journey," such as the Oregon Department of Fish and Wildlife, R3 providers need to become as focused on service as on product. This is especially important because of potential changing motivations and constraints to participation in the four activities. In the future, it will not be enough to simply "provide game." Agencies must become as adept at the service side of the management of hunting, fishing, sport shooting, and archery as they are at the biological side of hunting.

➤ **Well-educated professionals regarding R3 are essential.**

Work with universities that offer degree programs in wildlife management, marketing, or other related degree programs to ensure that the latest human dimensions research is included, particularly research regarding the best practices and successes of R3 programs. Consider developing a model class to teach students the best R3 strategies.

➤ **Fully evaluate the strengths and weaknesses of R3 programs on an ongoing basis so that successful elements can be replicated in analogous programs, while efforts that do not work can be avoided.**

While evaluation is critical, program coordinators should be careful not to draw definitive conclusions (especially those affecting the continuation of a program) based on initial or early evaluations.

➢ **Ensure that programs are given time to work.**

Ensure that adequate time is allowed for R3 programs to work. An agency or organization may give up on a program too soon if it does not get immediate results, but R3 efforts are necessarily long-term endeavors.

➢ **Hire a full-time R3 coordinator and ensure that the position does not assume responsibility for duties and assignments that do not pertain to R3.**

➢ **Ensure that R3 remains a high priority within the overall agency or organization mission, which will in turn affect the amount of funding allocated for R3 efforts.**

➢ **Work to create agency- or organization-wide buy-in to R3 efforts.**

Essential coordination and cooperation between divisions depends on a basic understanding of the importance of R3 efforts to the agency/organization as a whole. Part of this understanding is agreement on overall goals and objectives, such as selling licenses, providing initial opportunities for participation, generating basic awareness or approval, or furthering cultural acceptance of an activity.

➢ **Recognize the importance of a sufficient IT infrastructure to tracking participants through license purchases—a critical metric of R3 effectiveness.**

CHAPTER 7: ENGAGING CURRENT PARTICIPANTS

CHAPTER OVERVIEW

➢ **Satisfactions with and motivations for hunting and fishing are mostly aesthetic and/or social, with obtaining meat/fish being of secondary (but rising) importance. Gaining a trophy is low in importance.**

➢ **For sport shooting, satisfactions with and motivations for the activity are divided between fun/enjoyment and utilitarian reasons (the latter including improving shooting and hunting skills and self-defense practice).**

➢ **Archers' satisfactions with and motivations for participating are often centered on family.**

➢ **Dissatisfactions with hunting center around six themes, the first of which is, by far, the most important: access and crowding, poor behavior of others (including littering), lack of game, complexity of regulations, costs of licenses and equipment, and regulatory issues such as bag limits and season length/timing.**

➢ **Regarding fishing, four categories of dissatisfactions are commonly named, these being access/crowding issues, not catching fish, water quality issues, and costs. Access/crowding is one of the most pressing of those problems.**

➢ **For sport shooting, five categories of dissatisfactions and constraints emerge from all of the data reviewed: access/crowding, costs, poor behavior of other recreationists, lack of a companion to**

>> go with, and not having equipment. Again, access is perhaps the most important of those dissatisfactions or constraints.

➢ It is important to consider the avidity of the participant in R3 efforts. Avid and non-avid participants are quite different and need to be approached in different ways. There is evidence that non-avid participants do not initiate trips to participate but will go if asked by others.

➢ Avid hunters, relative to non-avid hunters, are more likely to have a social support system such as family members who hunt, to have been initiated into the sport by a father, to be younger, and to be rural.

➢ Avid sport shooters, relative to non-avid sport shooters, are more likely to have a social support system such as family members who shoot and to have been initiated into the sport when young. The rural-urban characteristic does not appear to greatly affect avidity among sport shooters.

➢ Activities that compete with hunting and fishing are fishing and hunting, as well as other outdoor and wildlife-related activities such as camping and hiking. Golf is also an activity that competes with these activities.

This handbook now turns its attention to factors that affect current participants and their level of participation—their avidity—in hunting, fishing, sport shooting, and archery. This chapter looks first at satisfactions and motivations for engaging in these activities before examining dissatisfactions and constraints among participants that might be reducing their participation. The chapter then looks at some demographic and social differences between avid and non-avid participants, and it ends with a discussion of activities that compete with hunting, fishing, sport shooting, and archery.

7.1. SATISFACTIONS AND MOTIVATIONS FOR PARTICIPATING

There are three primary lines of questioning to assess satisfactions and motivations: the first is to ask an open-ended question to which any response can be given; the second is to present a list to respondents, to which they can choose all that apply; and the third is to present a series of questions and ask respondents to give a rating to each individually and then to compile the results on one graph.

SATISFACTIONS WITH AND MOTIVATIONS FOR HUNTING

In general, satisfactions with hunting come mostly from aesthetic/natural and social aspects of the activity. Nonetheless, meat is an important reason for a sizeable segment of the hunting community.

Before looking at some more recent open-ended question results, a review of past research is useful. Satisfaction with hunting comes from more than just harvesting game, demonstrated by many studies. For instance, a University of Florida study by Harris[444] that found the highest rated factor in hunting satisfaction was the closeness to nature and aesthetics. This factor was followed in the ranking by companionship in second place and the expression of skill in third place. Showing off the trophy and bagging game—both of which are harvest-related—were in the fourth and fifth place, respectively.

There are many additional findings that demonstrate that hunting satisfaction comes from more than just bagging game. Smith and Roberts[445] found that 70% of waterfowl hunters, when presented a choice in a survey, would rather work all day to bag their limit rather than obtain it quickly, which indicates that other factors are affecting their enjoyment of the hunting experience (other than just getting their limit).

Providing Opportunities for New *Adult* Hunting and Fishing Participants

Brian Clark

Fish and wildlife agencies and partnering organizations have done a tremendous job of crafting, implementing, and in some cases evaluating recruitment and retention programs for youths. These programs have undoubtedly helped to contribute to the self-identification by countless youths as anglers, hunters, and shooters. It is also very likely that these programs, as a whole, have increased the participation rates and avidity of participants over both the near-term and long run. However, many of us have found through evaluating our programs that most participants in these youth programs are already being reached, primarily through their family members—the main influence for hunting and fishing acculturation historically. Although our R3 programs will no doubt have a youth focus for years to come because of their popularity and successes, many agencies and partners are rightly looking to expand their vision for outreach to encompass other promising market segments.

Several societal trends bode well for a broadened approach to our fishing and hunting R3 efforts:

- The explosion of social media provides ready means for people to quickly share their experiences and accompanying emotional responses, as well as more objective "how-to" information related to such things as acquired skills or knowledge, with peers in their own vernacular.

continued

- Traditional media have experienced a proliferation of fishing, hunting and firearms programming—especially on numerous cable TV channels—reaching a wide audience extending far beyond traditional participants, indicating substantial latent interest in these outdoor pursuits.
- There has been a resurgence of public interest in outdoor activities, in living more "green" and sustainably, and in the many benefits of an active lifestyle.
- There is a burgeoning demand for local, sustainable, and/or do-it-yourself foods.
- The increasing ethnic, age, and gender diversity of recently initiated fishing, hunting and shooting participants in some geographic areas of the U.S. suggests that this and other factors are already contributing to the increased demand for fishing and hunting opportunities among nontraditional demographic groups.

Yet without directing some of our limited R3 resources in a timely way to specifically reach these new demographic groups, we could well miss a vital opportunity to sustain or increase the ranks of anglers and hunters now and substantially diversify and therefore better stabilize our participant (and funding) base into the future.

The recent experience of R3 practitioners in Kentucky and a growing number of other states suggests that opportunities to recruit adults from nontraditional backgrounds are substantial, extending far beyond small, niche markets in upscale urban centers. Our agency began developing programming several years ago aimed at metro areas, in part because of the increasing volume of adults seeking instruction on hunting and fishing, and because we observed a growing community of people in metro areas interested in buying local food or in growing their own food. Since our first "Field to Fork" course in 2011, word about this new programming has spread widely. We receive inquiries statewide about these programs from people with little or no hunting or fishing background, with a wide array of motivations, and with a willingness to travel substantial distances for the courses. We now typically have many more sign-ups than course slots each time we offer such a course, and a substantial proportion enroll based on referrals from past participants. Most importantly, our surveys indicate high adoption rates and equipment purchases by these new participants—a sound return on investment. I encourage those interested to visit the Locavore.Guide website to learn more about recruiting and retaining new participants from the expanding local/sustainable foods communities all around us.

There are many inherent benefits of reaching out to prospective new adult participants from nontraditional backgrounds and representing new markets. The following are just a few. First, and most importantly, broadening our stakeholder base will strengthen the fish and wildlife recreation and conservation community's long-term viability, both in terms of funding and public support. Second, new adult participants typically have the freedom and means at their disposal to participate at will: to buy licenses and equipment,

travel as necessary, and take time off work if needed. This is very different from youths, who are dependent on others to take them in most instances. Third, by reaching new adult participants, we have opportunity to influence their youths and others in their spheres of influence, many of which are other adults. These new recruits can in turn serve as mentors in their various networks and communities, multiplying our impact. Probably the biggest challenge we face is providing true mentoring opportunities for new adult participants who aren't plugged in to an existing participant network. Working together, we can surmount this challenge.

The concerted effort stemming from the National R3 Plan that is now underway is very encouraging. Agencies and partners are collaborating, planning, and seeking to optimize opportunities and really move the needle. A vital part of this effort should be reaching adults from nontraditional backgrounds.

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Hendee[446] maintained that overall satisfaction should be considered within a "multiple satisfactions approach" in which many separate satisfaction components make up overall satisfaction. His research suggested that wildlife managers had to manage other aspects of hunting as well as the harvesting of game; they had to consider that hunting satisfaction is dependent upon the extent to which hunters find the desired mix of satisfactions that they are seeking from the sport.

Recognizing that there are multiple satisfactions derived from hunting, Wright et al.[447] categorized hunters according to attitudes and opinions, including their ratings of various factors affecting satisfaction. They identified at least six types of hunters:

- Quail hunters.
- Rabbit-squirrel hunters: Rated post-hunt social activities as unimportant.
- Waterfowl hunters.
- Furbearer hunters: Rate importance of companionship relatively high.
- Avid generalist hunters: Rate importance of companionship relatively high.
- Casual generalist hunters: Rate importance of companionship relatively high.

Turning the focus on to more recent research reinforces the importance of aesthetic and other non-consumptive reasons for hunting (although meat is becoming more important again). In an open-ended format, a basic question asked respondents to name the most important reasons that they go hunting.[448] Figure 7.1.1 shows that enjoyment (37%) and aesthetic (28%) reasons are at the top; nonetheless, the utilitarian reason of "for the meat" was important enough for 24% to name it as a reason for hunting. Getting a trophy was low on the ranking.

Figure 7.1.1. Reasons for Participating in Hunting, Open-Ended Question[449]
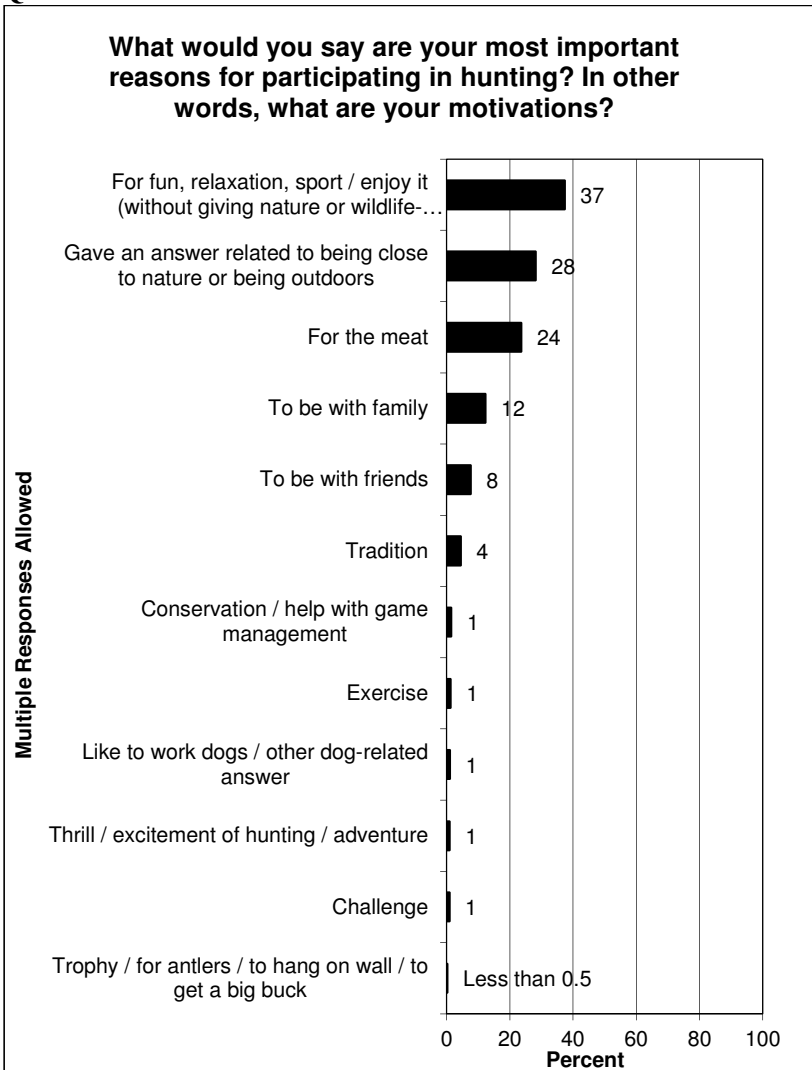
This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

The above question was open-ended, meaning that hunters could respond with anything that came to mind, and they could give multiple responses. The next few study results show closed questions in which a list of possible reasons is presented to hunters from which they choose. A common answer set used in several of these studies gong back as far as 1980 is shown in Figure 7.1.2.[450] The results suggest that sport/recreation has always been one of the most important reasons, and it still remains an important reason. Hunting for the meat was once the most important reason (in 1980) but fell for a while (1995 through 2006 in Figure 7.1.2), and then rose again in importance recently in 2013 and 2017.

Figure 7.1.2. Most Important Reason for Hunting, Chosen From a List[451]

*included in answer set only in 2013 and 2017 surveys.
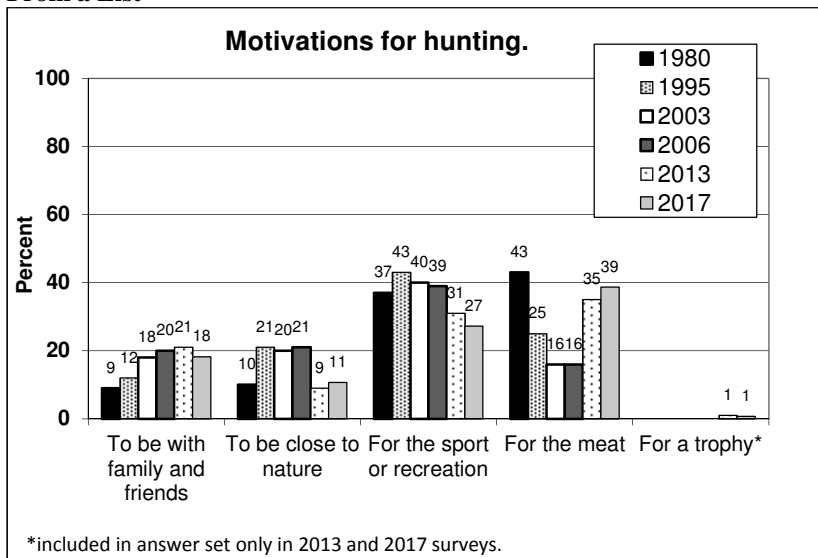
The response set was presented to respondents, who could choose only one.

It is important to note, however, that although most hunters do not *primarily* hunt for the meat, nearly all (97% of active hunters and 95% of all hunters) eat, or their family eats, the animals they kill, according to the results of one national study.[452] "Active" is defined as having participated in the previous 2 years.

There are other studies that presented lists of possible reasons for hunting to respondents and asked them to choose those that applied or to rate the importance of each reason. As shown in Figure 7.1.3, a 2015 survey[453] asked hunters about 15 possible reasons for hunting, and hunters chose all that applied: at the top was being outdoors (74% say this is one of the reasons that they hunt), followed by adventure/excitement (58%), for food (47%), and to spend time with family (46%).

Figure 7.1.3. Reasons for Participating in Hunting, Chosen From a List[454]

Which of the following are reasons why you hunt?

Reason	Percent
I enjoy spending time outdoors	74
It offers adventure and excitement	58
I like to harvest my own food	47
It allows me to spend time with my family	46
To continue the tradition passed down by family members	43
It gives me an opportunity to unplug	38
I enjoy the solitude	38
I participated as a child	36
A friend or relative invited me to join them	29
It is a good way to promote conservation	26
I wanted to take my children	25
My children asked me to take them	17
I wanted to try a new sport	14
I went as a part of a vacation or group outing	13
I recently moved to the state and wanted to try shooting/hunting here	6

Multiple Responses Allowed

The response set was presented to respondents, who could choose all that applied.

One study presented 20 possible influences and asked hunters to rate each one as being a major influence, a minor influence, or not an influence in their decision to go hunting.[455] As shown in Figure 7.1.4, the top influence (when ranked by the percentage saying the item was a major or minor influence) was interest in hunting as a natural or "green" food source—with 68% saying it was a major or minor influence. This was followed by a perception of increased game populations (62%), availability of private lands (58%), the weather (56%), and availability of public lands (54%). Obviously, the weather is beyond the influence of the hunting industry and hunting agencies; however, the other items could be either directly (e.g., regulatory changes) or indirectly (e.g., advertising) influenced by the hunting industry and agencies. Figure 7.1.4 shows the percent who said the

factor was a major or minor influence; Figure 7.1.5 includes only the percent who said it was a major influence.

Figure 7.1.4. Factors That Were a Major or Minor Influence in Decisions To Go Hunting[456]

Percent of respondents who indicated that each of the following was a major or a minor influence on their decision to go hunting, in the years that they went hunting:

Factor	Percent
Interest in hunting as a local, natural, or green food source	68
Increased game populations	62
Availability of private lands	58
The weather	56
Availability of public lands	54
Less crowding in the field	49
Better access	48
To save money in a bad or declining state economy	48
Improvements in personal finances that have allowed you to hunt more often	46
Youth hunting programs	43
Regulation or policy modifications	37
Retirement or a change in your employment	32
Changes to a lottery structure	32
Adult hunting programs	32
Special events other than hunting programs	31
Changes to the license purchasing process	29
Changes to license costs	27
Changes to license structure in [state]	26
Marketing or advertising you saw	22
A recent move or relocation to the state	11

Percent

The list of 20 possible factors was presented to respondents; for each factor, hunters were asked to indicate if it was a major influence, a minor influence, or not an influence in their decision to go hunting. The results were then compiled on one graph.

Figure 7.1.5. Factors That Were a Major Influence in Decisions To Go Hunting[457]

Percent of respondents who indicated that each of the following was a major influence on their decision to go hunting, in the years that they went hunting:

Factor	Percent
Increased game populations	45
Interest in hunting as a local, natural, or green food source	42
Availability of private lands	41
Availability of public lands	34
Better access	28
Less crowding in the field	28
To save money in a bad or declining state economy	27
The weather	26
Youth hunting programs	26
Improvements in personal finances that have allowed you to hunt more often	24
Retirement or a change in your employment	18
Regulation or policy modifications	16
Adult hunting programs	15
Changes to a lottery structure	14
Special events other than hunting programs	13
Changes to the license purchasing process	13
Changes to license costs	9
Changes to license structure in [state]	8
Marketing or advertising you saw	5
A recent move or relocation to the state	5

The list of 20 possible factors was presented to respondents; for each factor, hunters were asked to indicate if it was a major influence, a minor influence, or not an influence in their decision to go hunting. The results were then compiled on one graph.

Another question that pertained to motivations asked hunters whose participation had recently increased to indicate, in an open-ended question, why their participation had increased.[458] Figure 7.1.6 shows that two answers predominated in the survey: that respondents simply had more

time/more opportunities (42% of hunters whose hunting participation increased) and that they had family who wanted to go hunting (19%).

Figure 7.1.6. Reasons for Increase in Hunting Activity[459]
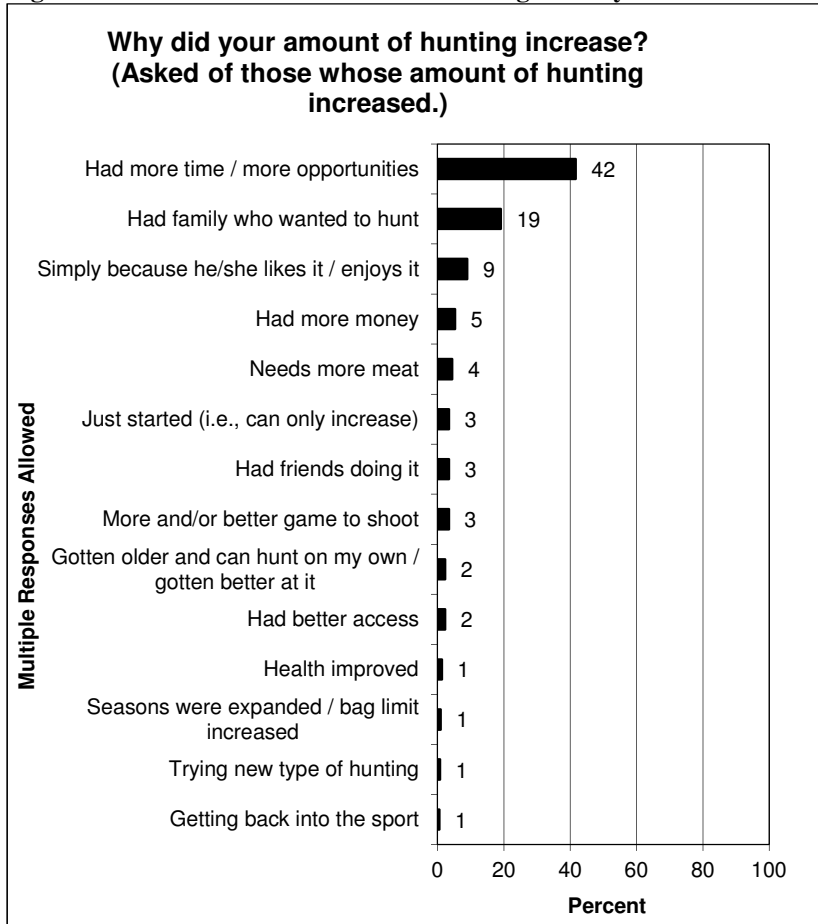
Why did your amount of hunting increase?
(Asked of those whose amount of hunting increased.)

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

A final study pertaining to motivations for hunting examined here is shown in Figure 7.1.7, but it applies to bowhunters specifically.[460] Those who went bowhunting since 2011 were asked to rate the importance of a series of reasons for bowhunting, on a scale of 0 to 10, where 0 is not at all important and 10 is extremely important. The top response was "to get out or just enjoy the outdoors" (mean rating of 8.6), followed by "for fun and recreation" (8.1) and "to spend time with friends or family" (8.0).

Figure 7.1.7. Importance of Reasons To Bowhunt[461]

How important are each of the following to you as a reason to bowhunt, on a scale of 0 to 10, where 0 is not at all important and 10 is extremely important?

Reason	Mean Rating
To get out or just enjoy the outdoors	8.6
For fun and recreation	8.1
To spend time with friends or family	8.0
To obtain meat primarily because you like the taste or the accomplishment	7.8
For the challenge that archery skills or equipment offer	7.5
For the adventure, exercise, or fitness	7.3
To obtain meat primarily because you prefer local, natural, or non-commercial sources of food	7.1

The list of seven possible reasons was presented to bowhunters; for each, hunters were asked to rate its importance as a reason for bowhunting. The results were then compiled on one graph.

PA Fish and Boat Commission's Family Fishing Program

Carl Richardson

With a long history of fishing programs and events focused on youth, the Pennsylvania Fish and Boat Commission (PFBC) made a significant departure with its Family Fishing Program (FFP). The program officially went statewide in 2005 and targets lapsed adult anglers and non-fishing adults with youth in their family or social group. The FFP provides a family-based approach to angler education, and it represents one approach used by the PFBC in its recruitment, retention, and reactivation efforts. (A *family* in this context is any socially connected group of adults and children, which may or may not have connection by birth.)

continued

Requests from adults with children in their households prompted FFP development, which is unlike previous agency-driven, 'build it and they will come' programs. We heard that people wanted a family-based educational experience that offered more than a derby. Guiding the development was the growing body of R3 research, along with research on effective educational program development, delivery, and evaluation. The Recreational Boating and Fishing Foundation (RBFF) compiled much of this work to produce *Best Practices in Aquatic Resource Education*.

We aggressively sought participant feedback during the two-year pilot phase. That feedback directly shaped the educational content; however, and perhaps more importantly, it helped define the FFP context. The FFP is longer than other programs (3 hours), includes significantly more hands-on experiences, has a low student-instructor ratio, and has instructors who are empowered to adapt the skill level of the instruction to meet the needs of participants. Formal evaluation showed that participants had a high degree of satisfaction with these aspects of the program (its length, the hands-on opportunities provided, the group size, and the skill level). We see a corresponding drop in the participant's satisfaction level when using the FFP format to reach larger numbers of participants. These results help when countering arguments made for large-scale events—we have shown that increasing participant numbers in a program results in lower participant satisfaction.

PFBC staff and PFBC-trained instructors deliver FFP at state, county, and local parks. Program time is evenly divided between formal instruction (including practicing skills) and an actual fishing experience. Instructors assist participants during the fishing experience. The FFP is ideal for 30 or fewer participants. Larger groups require additional instructors to keep the student-instructor ratio low (10:1 or less).

During the period 2010-2016, instructors reported that they conducted 570 FFP events, reaching an estimated 21,000 participants. Because we know instructors are not diligent in their reporting, we are confident that the actual number reached is significantly higher. Approximately two-thirds of these participants were younger than 16 years of age.

The FFP format has been adapted to deliver specialized and advanced programs. Several instructors and PFBC staff conduct Family *Fly* Fishing Programs at varying levels of skill. Family *Ice* Fishing Programs occur during the winter when ice is available, as well. Species-specific FFPs (trout, catfish), along with a kayak-fishing version, were piloted in 2015 and will continue in the foreseeable future.

continued

While instructors provide formal instruction, we observe a great deal of informal teaching. The adults in the group often assume that role; however, we see the children assisting the adults. Adult presence in the family group also reduces the amount of 'classroom management' that instructors must utilize; they most often address behavior issues.

Results from the 2014 Responsive Management study evaluating the effectiveness of R3 programs show the FFP ranking among the top five most effective programs in ten categories. The study measured the program's positive change to significant factors associated with fishing activity and participant attitudes.

In 2014, contact information for a sample of participants in FFP (n=1,000) was used to assess their fishing license buying patterns. The majority of participants age 16 and older (70%) had no record of a fishing license purchase prior to participating. Of those, an estimated 10% purchased their first fishing license within 24 months of the program date. Short-term decreases in the churn rate of those with a prior purchase have also been observed. Plans include analyzing a larger sample to evaluate outcomes related to license purchase in the short and long-term.

We have also seen that the adult participants in FFPs (younger, more women) are more representative of the state's population, when compared to the license buying population. In addition, a family group often includes the youth's friends or distant relatives. Multi-generational groups are also participating in many programs. This program truly is a family fishing experience.

Carl Richardson is the manager of the Pennsylvania Fish and Boat Commission's education and outreach efforts related to angler R3 and aquatic resource stewardship. He has been with the Commission for more than 25 years and has been involved in formal and informal education for more than 35 years. A graduate of Penn State University, his interests are in the human dimensions of sport fishing and social marketing.

SATISFACTIONS WITH AND MOTIVATIONS FOR FISHING

Like with hunting, satisfactions with fishing mostly come from aesthetic and natural aspects, with a smaller portion fishing for food. This examination of fishing motivations starts with an open-ended question about the main reasons for going fishing.[462] While the top reason is for the sport/recreation/relaxation/fun (70% gave a reason related to this), the second category of responses relates to fishing for food (32%) (Figure 7.1.8).

Figure 7.1.8. Main Reasons for Going Fishing in the Past 5 Years, Open-Ended Question[463]
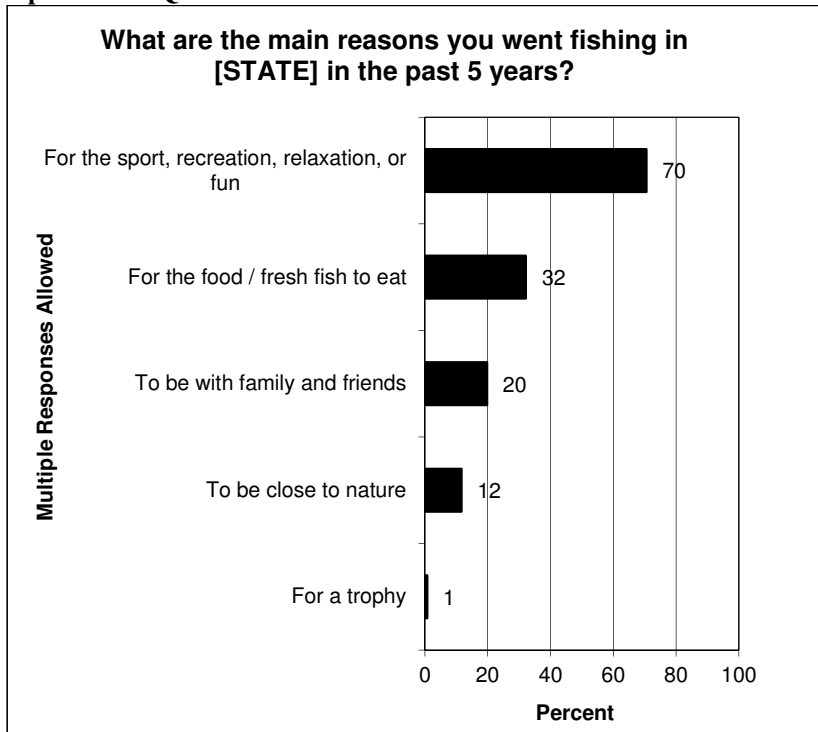
This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

A different way of exploring motivations is to present possible reasons to anglers and ask them to select all the ones that they consider to be a reason that they fish. This study[464] found being outdoors (81% include this as a reason that they fish) and spending time with family (65%) to be the top reasons, with food (31%) relatively low in the ranking but still with almost a third of anglers saying that they fish for this reason (Figure 7.1.9).

Figure 7.1.9. Reasons for Fishing, Chosen From a List[465]

Which of the following are reasons why you fish?

Reason	Percent
I enjoy spending time outdoors	81
It allows me to spend time with my family	65
I participated as a child	57
It is a low-cost activity	54
It gives me an opportunity to unplug	52
I enjoy the solitude	47
I wanted to take my children	46
It offers adventure and excitement	45
It's easily accessible	41
To continue the tradition passed down by family members	36
I like to catch my own food	31
My children asked me to take them	31
A friend or relative invited me to join them	23
It is a good way to promote conservation	15
I went as a part of a vacation or group outing	13
I wanted to try a new hobby	11
I recently moved to the state and wanted to try fishing here	5

Multiple Responses Allowed

Percent

The list of 17 possible reasons was presented to anglers; they chose all that applied.

Another national survey[466] explored factors involved in anglers' decisions to go fishing, using a list of 18 possible factors that may have affected their decisions. For each factor, anglers were asked to indicate if it was a major influence, a minor influence, or not an influence in their decision to go fishing (Figures 7.1.10 and 7.1.11). The top influence was one over which the fishing industry and agencies have no control—the weather—with 67% saying it was a major or minor influence. However, that top influence was followed by some influences which the fishing industry and agencies can directly affect (e.g., through regulatory changes) or indirectly affect (e.g., advertising). These include less crowding in fishing areas (56%), improved ecological factors (also 56%), interest in fishing to provide a

"green" source of food (51%), better access (47%), and stocking programs (44%). Figure 7.1.10 shows the percent who said the factor was a *major* or *minor* influence; Figure 7.1.11 includes only the percent who said it was a *major* influence.

Figure 7.1.10. Factors That Were a Major or Minor Influence in Decisions To Go Fishing[467]

Percent of respondents who indicated that each of the following was a major or a minor influence on their decision to go fishing, in the years that they went fishing:

Factor	Percent
Weather	67
Less crowding in fishing areas	56
Improved ecological factors	56
Interest in fishing as a local, natural, or "green" food source	51
Better access, such as more boat ramps	47
Stocking programs	44
To save money in a bad or declining state economy	39
Improvement in personal finances that have allowed you to fish more often	36
Regulation or policy modifications	33
Retirement or a change in your employment	33
Changes to the license purchasing process	30
Changes to license costs	30
Youth fishing programs	28
Changes to license structure in [state]	23
Special events other than fishing programs	20
Marketing or advertising you saw	20
Adult fishing programs	18
A recent move or relocation to the state	11

The list of 18 possible factors was presented to anglers; for each factor, anglers were asked to indicate if it was a major influence, a minor influence, or not an influence in their decision to go fishing. The results were then compiled on one graph.

Figure 7.1.11. Factors That Were a Major Influence in Decisions To Go Fishing[468]

Percent of respondents who indicated that each of the following was a major influence on their decision to go fishing, in the years that they went fishing:

Factor	Percent
Weather	44
Improved ecological factors	39
Less crowding in fishing areas	34
Better access, such as more boat ramps	28
Interest in fishing as a local, natural, or "green" food source	27
Stocking programs	24
Retirement or a change in your employment	19
To save money in a bad or declining state economy	18
Improvement in personal finances that have allowed you to fish more often	15
Regulation or policy modifications	14
Youth fishing programs	13
Changes to the license purchasing process	12
Changes to license costs	11
Changes to license structure in [state]	7
Adult fishing programs	7
Special events other than fishing programs	6
A recent move or relocation to the state	5
Marketing or advertising you saw	4

Percent

The list of 18 possible factors was presented to anglers; for each factor, anglers were asked to indicate if it was a major influence, a minor influence, or not an influence in their decision to go fishing. The results were then compiled on one graph.

SATISFACTIONS WITH AND MOTIVATIONS FOR SPORT SHOOTING

Sport shooters are divided regarding their motivations for sport shooting, between fun/enjoyment and more utilitarian reasons. Two studies used an open-ended format to ask about reasons for going sport shooting. In the first study,[469] just over half (56%) of target shooters said they go target shooting for the simple fun of it (Figure 7.1.12). This top answer was followed by to increase skill (24%), as an ancillary activity to hunting (15%), and to be with family or friends (7%).

Figure 7.1.12. Reasons for Going Sport Shooting, Open-Ended Question[470]
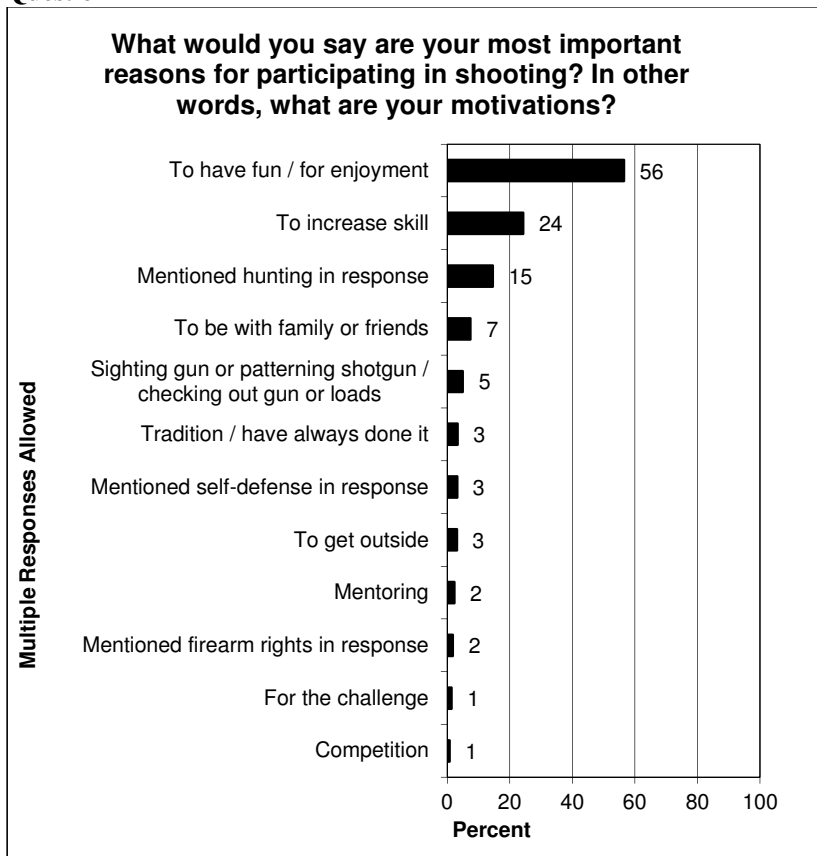
This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

This same study[471] also asked about reasons that participants' amount of shooting went up (among those whose shooting had increased). Two answers predominate: that respondents simply had more time/more opportunities (34% of target shooters whose target shooting had increased) and that they had family who wanted to go target shooting (16%) (Figure 7.1.13). Of importance to agencies and organizations—or perhaps

improved because of agencies and organizations—are an increased interest (10%) and better access (6%). It is also worth noting that many sport shooters increase their shooting when they acquire a new (new to them) firearm (8%).

Figure 7.1.13. Reasons Sport Shooting Participation Increased[472]

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

A recent study presented sport shooters with a list of 15 possible reasons for going sport shooting; respondents could choose all that apply.[473] Being outdoors was a top reason (75% of sport shooters said this was one of their reasons for participating in sport shooting), followed by adventure and excitement (60%), spending time with family (54%), and being able to "unplug" (48%) (Figure 7.1.14).

Figure 7.1.14. Reasons for Sport Shooting, Chosen From a List[474]

Which of the following are reasons why you participate in shooting sports?

Reason	Percent
I enjoy spending time outdoors	75
It offers adventure and excitement	60
It allows me to spend time with my family	54
It gives me an opportunity to unplug	48
I participated as a child	39
I enjoy the solitude	36
To continue the tradition passed down by family members	36
I like to harvest my own food	33
A friend or relative invited me to join them	33
It is a good way to promote conservation	28
I wanted to take my children	25
My children asked me to take them	19
I wanted to try a new sport	17
I went as a part of a vacation or group outing	12
I recently moved to the state and wanted to try shooting/hunting here	6

Multiple Responses Allowed

Percent

The response set was presented to respondents, who could choose all that applied.

Finally, a national study[475] of sport shooters presented a short list of general reasons for going sport shooting, as shown in Figure 7.1.15. The top reason that active shooters give, when asked to choose among six reasons that they shoot, is for fun and recreation (40% of active shooters). However, this is followed by three utilitarian reasons (19% shoot to improve hunting skills, 17% shoot to improve shooting skills, and 13% shoot for self defense training) that together sum to nearly half of active shooters (49%). These results suggest that active shooters should be thought of as about evenly split between those who shoot for utilitarian reasons and those who shoot for appreciative-oriented reasons.

Figure 7.1.15. Motivations for Shooting Among Active Shooters[476]

What is your most important reason for target or sport shooting?
(Among active shooters.)

Reason	Percent
For fun and recreation	40
To improve hunting skills	19
To improve shooting skills	17
For self defense training	13
To be with family and friends	8
For competition	2
Don't know	1

The response set was presented to respondents, who could choose only one. "Active" is defined as having participated in the previous 2 years.

SATISFACTIONS WITH AND MOTIVATIONS FOR SHOOTING ARCHERY

In archery, familial aspects play an important role in motivations for participating. Again, the analysis of motivations starts with open-ended questions. A 2015 survey[477] asked archery participants to indicate what had influenced them to become involved in archery (Figure 7.1.16). The top influence was family/as part of their heritage—39% of 2014 archery participants gave this response. Other ways to be initiated included wanting to have fun (16%), through friends/community (13%), and through hunting (11%).

Figure 7.1.16. Influences To Become Involved in Archery, Overall[478]
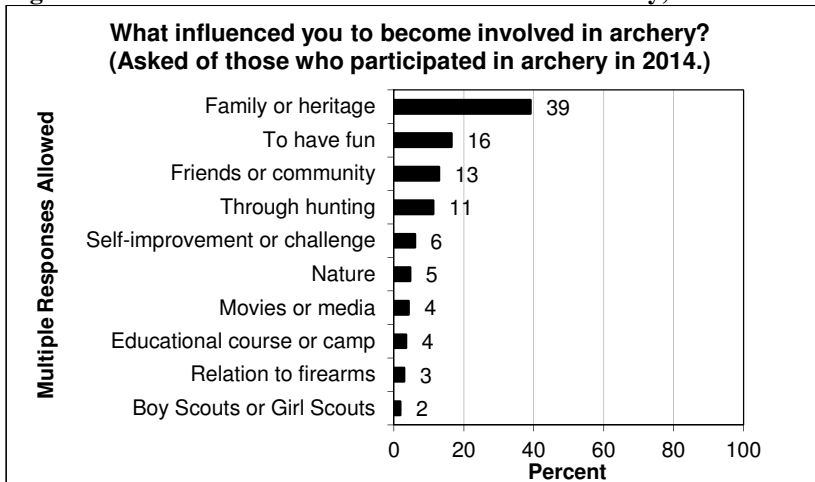
What influenced you to become involved in archery?
(Asked of those who participated in archery in 2014.)

Multiple Responses Allowed

Influence	Percent
Family or heritage	39
To have fun	16
Friends or community	13
Through hunting	11
Self-improvement or challenge	6
Nature	5
Movies or media	4
Educational course or camp	4
Relation to firearms	3
Boy Scouts or Girl Scouts	2

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the influences shown.

The question above[479] about initiation into archery was also analyzed among the three subgroups: target archery only participants (Figure 7.1.17), target archery and bowhunting participants (Figure 7.1.18), and bowhunting only participants (Figure 7.1.19). Family/heritage is slightly more important among those who bowhunt than those who do not: among target archery only participants, 34% were influenced to become involved through family or heritage, compared to 45% of target archery and bowhunting participants and 41% of bowhunting only participants.

Figure 7.1.17. Influences To Become Involved in Archery, Among Target Archery Only Participants[480]
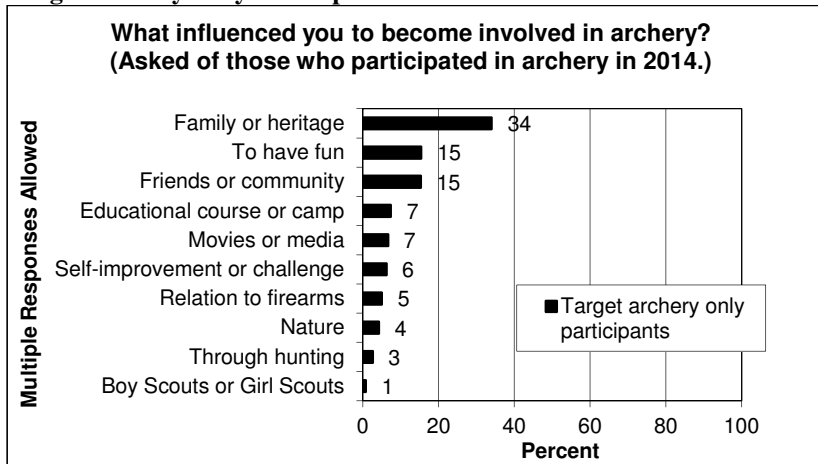
What influenced you to become involved in archery?
(Asked of those who participated in archery in 2014.)

- Family or heritage — 34
- To have fun — 15
- Friends or community — 15
- Educational course or camp — 7
- Movies or media — 7
- Self-improvement or challenge — 6
- Relation to firearms — 5
- Nature — 4
- Through hunting — 3
- Boy Scouts or Girl Scouts — 1

Multiple Responses Allowed

■ Target archery only participants
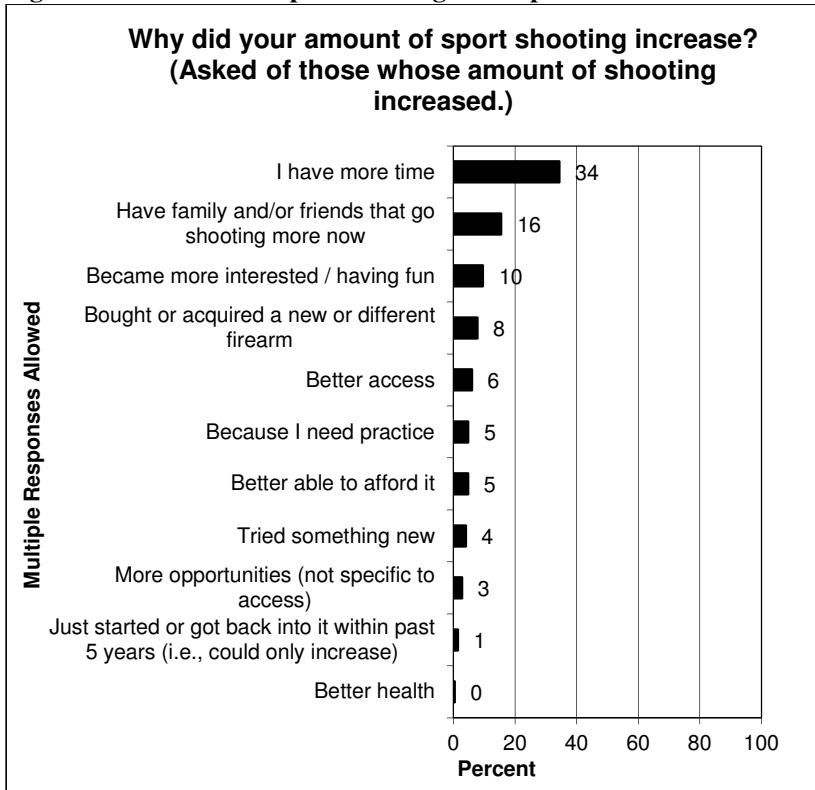
Percent (0, 20, 40, 60, 80, 100)

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the influences shown.

Figure 7.1.18. Influences To Become Involved in Archery, Among Target Archery and Bowhunting Participants[481]

What influenced you to become involved in archery?
(Asked of those who participated in archery in 2014.)

- Family or heritage — 45
- To have fun — 18
- Through hunting — 15
- Friends or community — 11
- Self-improvement or challenge — 6
- Nature — 6
- Boy Scouts or Girl Scouts — 3
- Movies or media — 2
- Relation to firearms — 1
- Educational course or camp — 1

Multiple Responses Allowed

■ Target archery and bowhunting participants

Percent (0, 20, 40, 60, 80, 100)

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the influences shown.

Figure 7.1.19. Influences To Become Involved in Archery, Among Bowhunting Only Participants[482]

What influenced you to become involved in archery? (Asked of those who participated in archery in 2014.)

Influence	Percent
Family or heritage	41
Through hunting	23
To have fun	17
Friends or community	10
Self-improvement or challenge	5
Nature	3
Boy Scouts or Girl Scouts	2
Movies or media	2
Relation to firearms	1

Multiple Responses Allowed

■ Bowhunting only participants

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the influences shown.
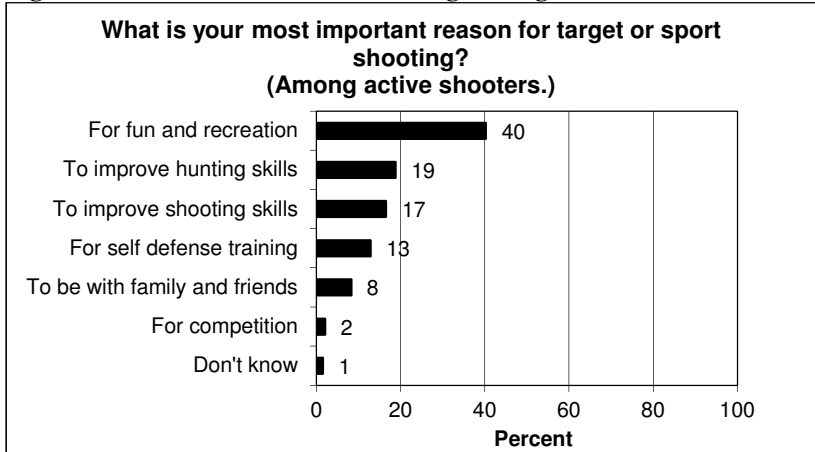
A crosstabulation of this question[483] by gender shows an interesting difference: women are much more likely than men to have started archery through family or heritage (Figure 7.1.20). Conversely, women are less likely to have gotten started to have fun or through hunting.

Figure 7.1.20. Influences To Become Involved in Archery, Crosstabulated by Gender[484]

What influenced you to become involved in archery?

Influence	Male	Female
Family or heritage	35	53
To have fun	20	5
Friends or community	14	9
Through hunting	14	3
Educational course or camp	2	9
To be with nature	4	6
Self-improvement or challenge	7	2
Movies or media	4	5
Relation to firearms	3	4
Boyscouts or girlscouts	2	1

Multiple Responses Allowed

■ Male
□ Female

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the influences shown.

An earlier study[485] asked archery participants to name their influences to begin archery, worth looking at because of a slightly more detailed categorization that was used at the lower end of the ranking. The top influence again was a relative or family member—46% gave this response (Figure 7.1.21). Two other influences have a relatively high percentage: a friend (17%) and through hunting (16%). Those who gave a hunting-related response and were coded as being influenced by "hunting" include some who said that they started hunting with firearms and then became interested in bowhunting, as well as some who participated in archery target shooting and became interested in hunting.

Figure 7.1.21. Influences To Become Involved in Archery, Earlier Study[486]

What influenced you to become involved in archery?

	Percent
A relative or family member	46
A friend	17
Hunting	16
Was searching for a fun activity	5
Was searching for a challenging activity	3
Scouts	2
Always did it / learned in early childhood	2
Other shooting sports	2
At school	1
Hunter education	1
Summer camp	1
Movies / literature / television	1
Other program in my community	1
Through my children	1
Sporting goods store or archery shop	1
Work environment (friends at work,…	Less than 0.5%
Other outdoor activities	Less than 0.5%
After-school program or club	Less than 0.5%
National Archery in the Schools Program	Less than 0.5%
Local shooting, conservation or…	Less than 0.5%
Parks and recreation program	Less than 0.5%
4-H	Less than 0.5%
Outdoor skills program	Less than 0.5%

Multiple Responses Allowed

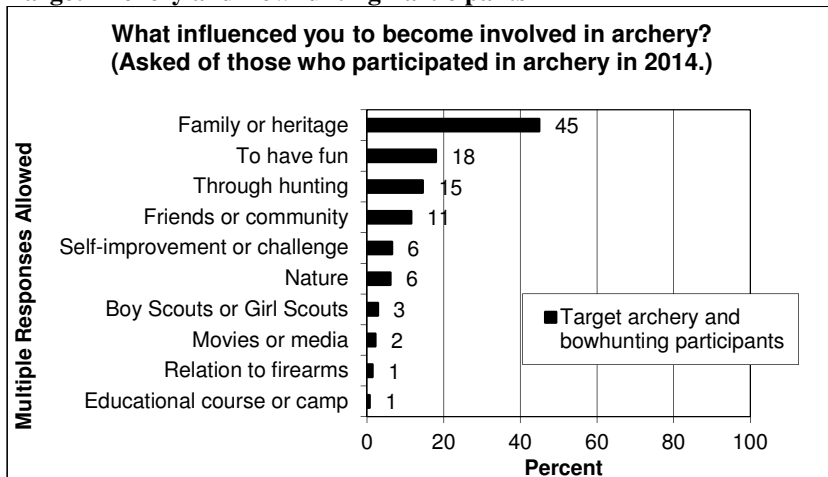This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the influences shown. The truncated items are: "Work environment (friends at work, ranching, etc.)" and "Local shooting, conservation or archery club." (The influences at less than 0.5% are shown so as to not lose data low down on the graph, which would otherwise round to 0. This level of detail is not meant to imply that the survey is accurate to that level.)

Archery participants who had increased their archery participation within the past 5 years were asked a follow-up question in an open-ended format to determine what had prompted the increase.[487] The top reason for increased archery participation over the past 5 years, as shown in Figure 7.1.22, is family involvement (27% of those who say their participation increased), followed by three other common reasons: increased interest (17%), more free time available (12%), and hunting opportunities (11%).

Figure 7.1.22. Things That Prompted an Increase in Archery Participation[488]

Q106. What prompted you to increase your participation in archery activities over the past 5 years? (Asked of those whose archery participation increased in the past 5 years.)

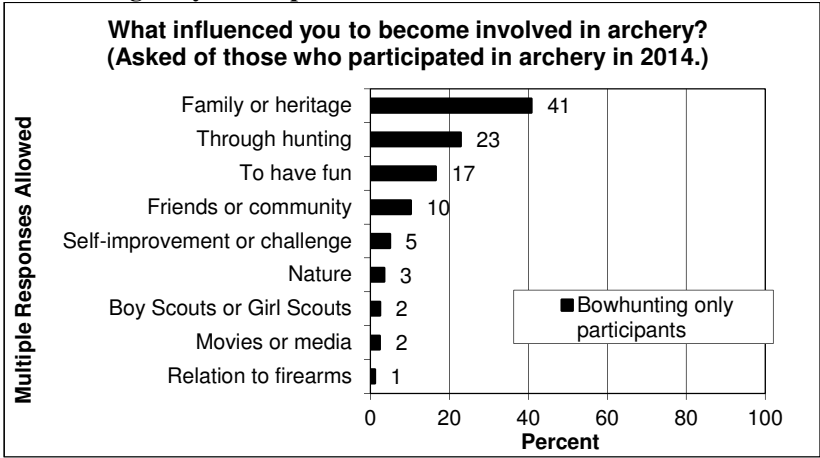| Category	Percent
Family involvement	27
Increased interest	17
More free time	12
Hunting opportunities	11
Friends	7
Community involvement	5
Nature appreciation	4
Desire to improve or challenge	3
Movies and media	3
Better or new locations	2
Competitive sports	2
Newly acquired equipment	2

Multiple Responses Allowed

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized as shown.
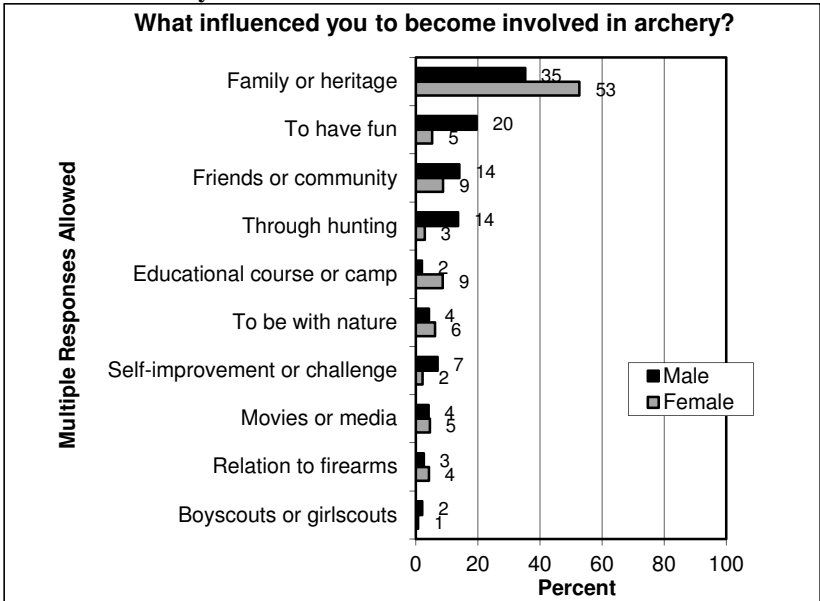
An analysis by gender provides some insight into those whose archery participation had increased in the 5 years previous to the survey.[489] Family involvement appears to have particularly drawn women into the sport of archery: 48% of women who increased their participation did so because of family involvement (Figure 7.1.22). Furthermore, this is also the most common reason given by men (but at 20%, well less than half the percentage of women). Hunting, on the other hand, is male-oriented.

Figure 7.1.22. Things That Prompted an Increase in Archery Participation, Crosstabulated by Gender[490]

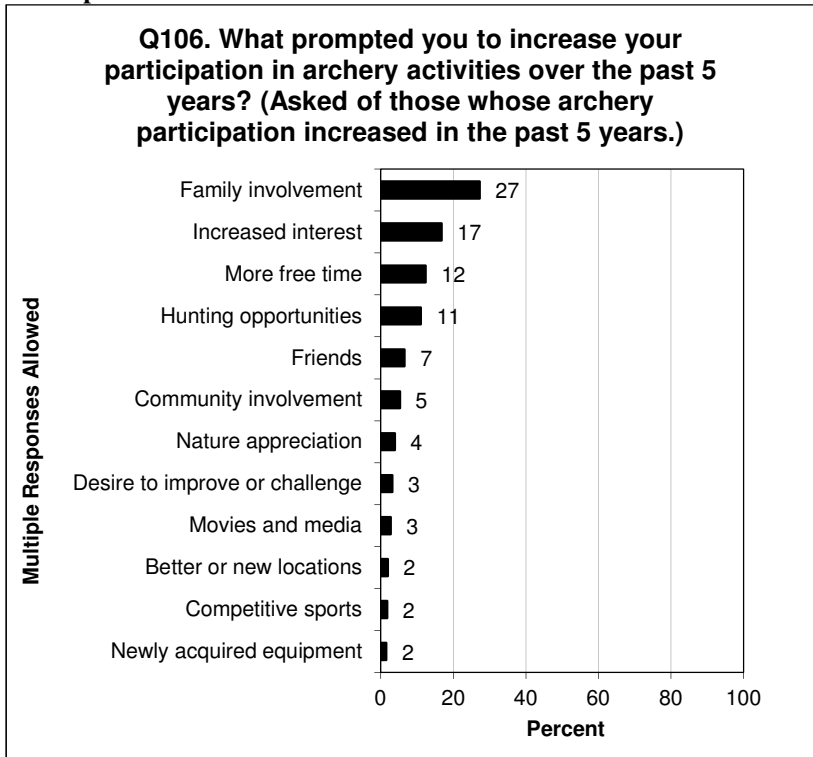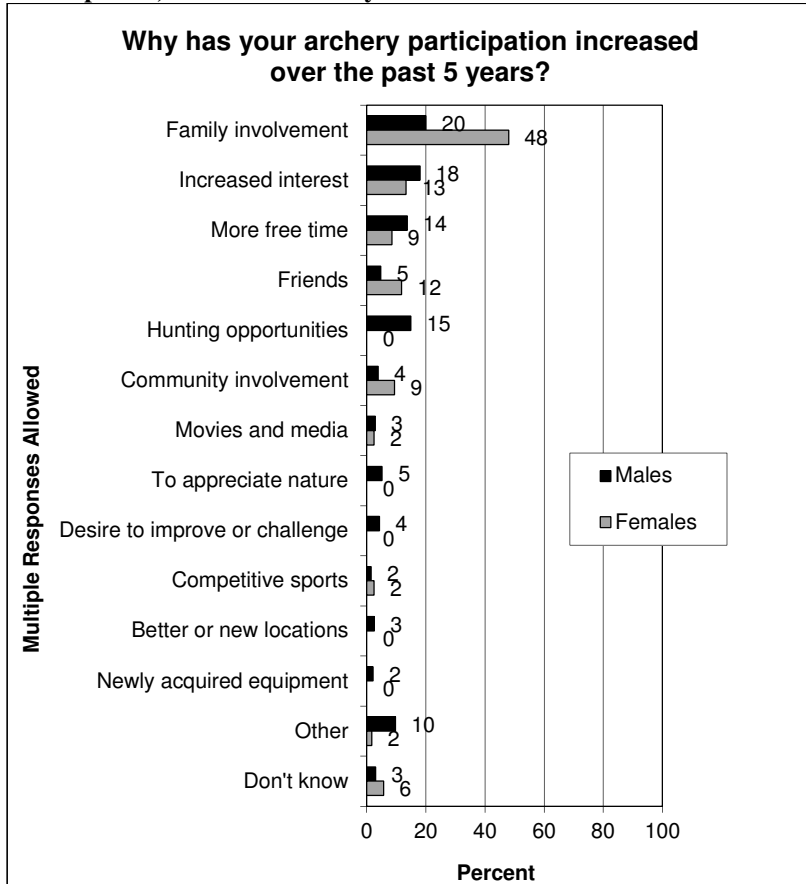This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized as shown.

7.2. DISSATISFACTIONS AND FACTORS THAT NEGATIVELY AFFECT PARTICIPATION

The last section showed why people hunt, fish, sport shoot, and shoot archery, what they seek when they do these activities, and what pleases them about those activities. This section now looks at those factors that detract from the experiences, that cause participants to do them less often, and that cause participants to drop out of the activities altogether.

DISSATISFACTIONS WITH HUNTING

In the various findings on dissatisfactions with hunting reviewed below, six themes are prominent. Dissatisfactions are most commonly related to access and crowding, poor behavior of others (including littering), lack of game, complexity of regulations, costs of licenses and equipment, and

regulatory issues such as bag limits and season length/timing. In general, access/crowding appears to be the biggest issue.

The review of existing research first looks at the most direct question about dissatisfactions: an open-ended question in a national survey asked hunters to name things that may have taken away from enjoyment of hunting, even if they did not prevent actual hunting (Figure 7.2.1).[491] These dissatisfactions tend to be those over which agencies may have some influence: lack of access (12%), poor behavior of other hunters (5%), not enough game (5%), complicated regulations (3%), and crowding (3%).

Figure 7.2.1. Dissatisfactions With Hunting[492]
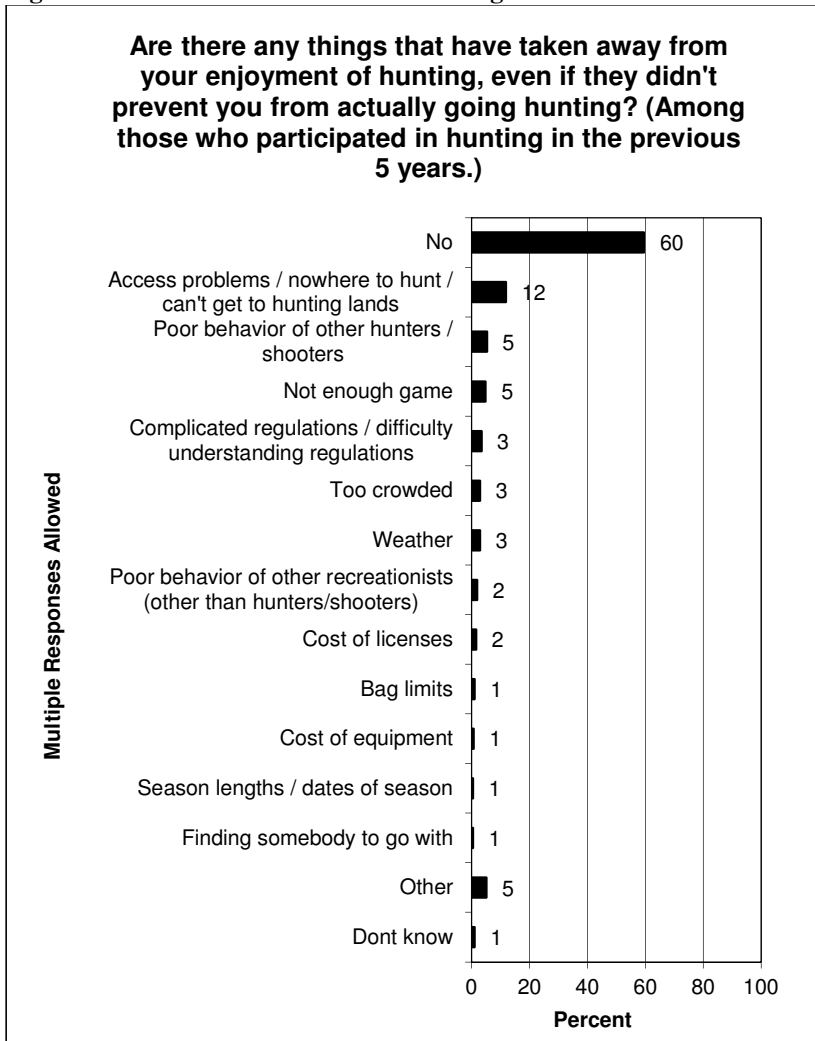
This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

Germane to this discussion of dissatisfactions is a look at reasons that have contributed to a decrease in participation in hunting, among those whose participation declined.[493] As shown in Figure 7.2.2, the two most common social issues—age/health issues and lack of time—are at the top, but below those issues are those over which agencies and organizations may have some influence. These include access issues (16%), lack of game (6%), complicated regulations (3%), and cost of licenses (2%).

Figure 7.2.2. Reasons for Declines in Hunting Participation[494]

What are the main factors that have contributed to a decrease in your hunting activity over the past 5 years? (Asked of all hunters whose amount of hunting decreased in the past 5 years.)

Reason	Percent
Poor health / age	42
No time / family obligations / work obligations	32
Lack of access / nowhere to hunt / can't get to hunting lands	16
Not enough game	6
Did not want to go	4
Complicated regulations / difficulty understanding regulations	3
Finding somebody to go with	2
Cost of licenses	2
Weather	2
Having to travel too far	1
Bag limits	1
Poor behavior of other hunters / shooters	1
Too crowded	1
Cost of equipment	1
Other	6

Multiple Responses Allowed

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

Another survey asked hunters to say why their hunting participation had decreased (among those whose participation had decreased), in an open-ended question.[495] In this study, access, cost, lack of hunting companions, and lack of game were all notable reasons (Figure 7.2.3).

Figure 7.2.3. Constraints To Hunting Participation[496]

Why did your amount of hunting decrease?
(Asked of those whose amount of hunting decreased.)

Response	Percent
Had less time / more obligations	37
Age / health	30
Lost interest	10
Had less access / land was closed	8
Cost	7
Lost hunting partners / lack of people to go with	5
Lack of game	4
Other interests	2
Dislike some aspect of regulations / game management	1
Crowding / too many other hunters or recreationists	1
Weather was bad	1
Can't have firearms anymore	0
Don't have dogs anymore	0
Moved to different state / don't know where to hunt	0
Don't have equipment or it is in disrepair	0
Other	2
Don't know / no answer	2

Multiple Responses Allowed

Similarly, active hunters were asked in an open-ended question about things that may have prevented them from going hunting in recent years (Figure 7.2.4). As with declines in hunting, the top reasons that *prevent* participation are also social: lack of time and age/health issues.[497] Below that, however, are reasons that agencies and organizations may be able to address: these include access issues, cost issues, lack of game, complicated regulations, and crowding.

Figure 7.2.4. Constraints To Hunting Participation[498]

Are there any things that have prevented you from going hunting in recent years? (Asked of active hunters.)

Response	Percent
No	35
No time / family obligations / work obligations	29
Poor health / age	19
Lack of access / nowhere to hunt / can't get to hunting lands	9
Weather	4
Cost of licenses	3
Not enough game	3
Cost of equipment	2
Complicated regulations / difficulty understanding regulations	2
Bag limits	2
Too crowded	1
Having to travel too far	1
Poor behavior of other hunters / fear of injury from other hunters	1
Other	1

Multiple Responses Allowed

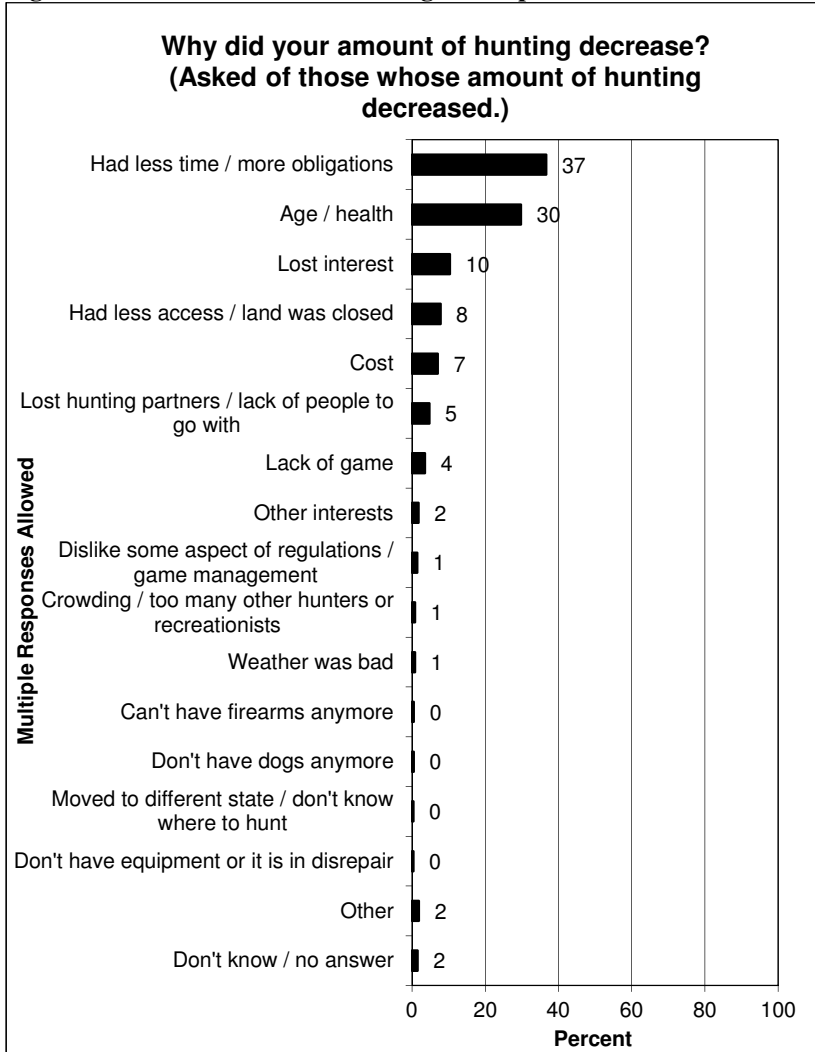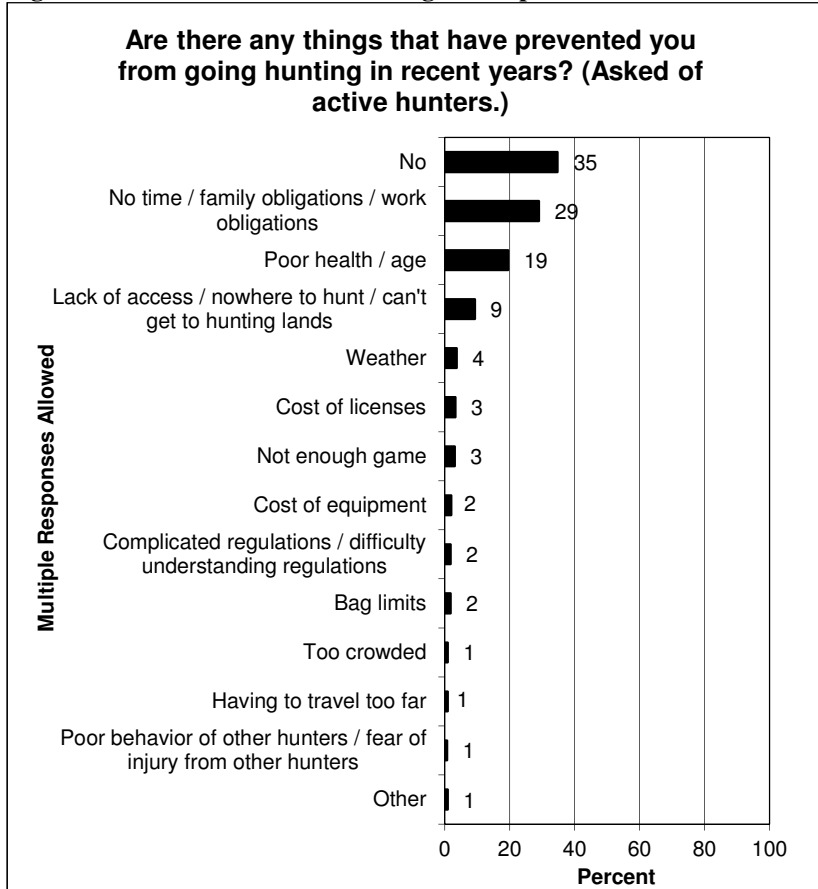This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown. "Active" is defined as having participated in the previous 2 years.

Another way to look at dissatisfactions is to present various items to hunters and, for each, ask them if the item strongly or moderately took away from enjoyment or did not take away from enjoyment of hunting. The results to this line of questioning are put into one graph (Figure 7.2.5). In this study,[499] access topped the list—both of the top two items pertain to it. Other items that can be influenced by agencies/organizations include pollution/litter, poor behavior of other hunters, license costs, lack of game, and crowding—all within the top half of the ranking.

Figure 7.2.5. Series of Dissatisfaction Questions Asked of Hunters[500]

Percent who indicated that the following things strongly took away from his/her enjoyment of hunting or strongly influenced his/her decline in participation. (Among active hunters.)
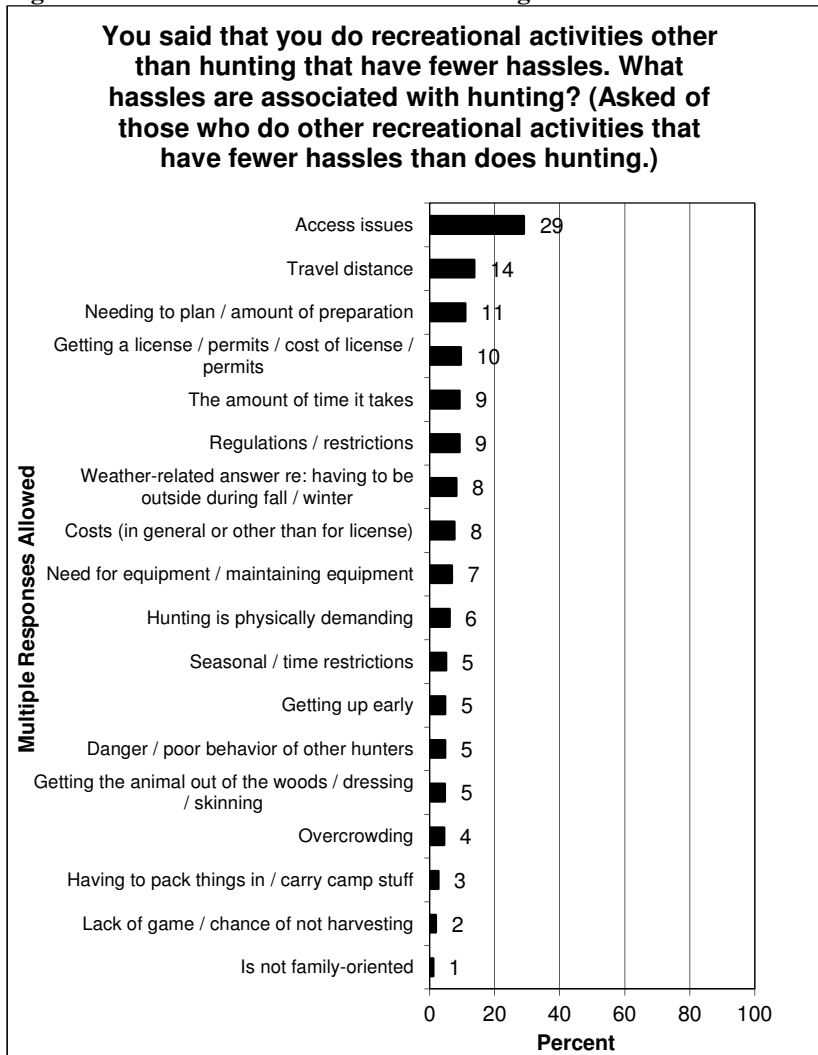
	Percent
Not enough places to hunt	26
Not enough access	23
Work obligations	21
Amount of free time	17
Pollution or litter	15
Poor behavior of hunters	14
Family obligations	11
Costs of licenses	10
No one to go with	9
Having to travel to hunt	8
Not enough game	8
Personal health	8
Too many hunters in the field	7
Cost of hunting equipment	7
Mandatory hunter education	6
Complex regulations	5
Not enough law enforcement officers	4
Fear of injury by another hunter	4
Feeling of causing pain to animals	4
Other people's negative opinions	4
Not enough trophy game	4
Bag limits/season lengths	3
Harassment by anti-hunters	3
Loss of interest	2
Feeling that hunting endangers animal...	2

Each of these questions was asked individually, with 25 questions in all. For each item, the survey asked, "Did this strongly, moderately, or not take away from your enjoyment of hunting?" (for active hunters whose participation did not decline) or "Did this strongly, moderately, or not influence your decline in hunting participation in the past 5 years?" (for active hunters whose participation declined). The results were then combined into this single graph. "Active" is defined as having participated in the previous 2 years. The truncated item is "Feeling that hunting endangers animal populations."

An interesting study identified hunters who had said that they do other activities that have fewer "hassles" than hunting, and then the survey asked them, in an open-ended format, what hassles are associated with hunting.[501] Hunters' responses related to access topped the list (29% of these respondents), and next was travel distance, another access issue of

sorts (14%) (Figure 7.2.6). Other notable responses related to preparing for hunting, getting a license, and regulations/restrictions.

Figure 7.2.6. Perceived Hassles With Hunting[502]

You said that you do recreational activities other than hunting that have fewer hassles. What hassles are associated with hunting? (Asked of those who do other recreational activities that have fewer hassles than does hunting.)

| Category	Percent
Access issues	29
Travel distance	14
Needing to plan / amount of preparation	11
Getting a license / permits / cost of license / permits	10
The amount of time it takes	9
Regulations / restrictions	9
Weather-related answer re: having to be outside during fall / winter	8
Costs (in general or other than for license)	8
Need for equipment / maintaining equipment	7
Hunting is physically demanding	6
Seasonal / time restrictions	5
Getting up early	5
Danger / poor behavior of other hunters	5
Getting the animal out of the woods / dressing / skinning	5
Overcrowding	4
Having to pack things in / carry camp stuff	3
Lack of game / chance of not harvesting	2
Is not family-oriented	1

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

The same study referenced immediately above also asked hunters who had said that other activities have advantages over hunting to name those advantages that those other activities have, in an open-ended question; the converse of each shows the dissatisfactions with or constraints to hunting participation. At the top of the list in Figure 7.2.7 are that other activities are easier to do (ergo, the disadvantage of hunting is that it is difficult to do relative to some other activities for these people), that the other activities

have no time/season restrictions, that other activities can better include the family, that the other activities are more fun or more relaxing, or that the other activities offer more exercise.[503]

Figure 7.2.7. Advantages of Other Activities Over Hunting[504]
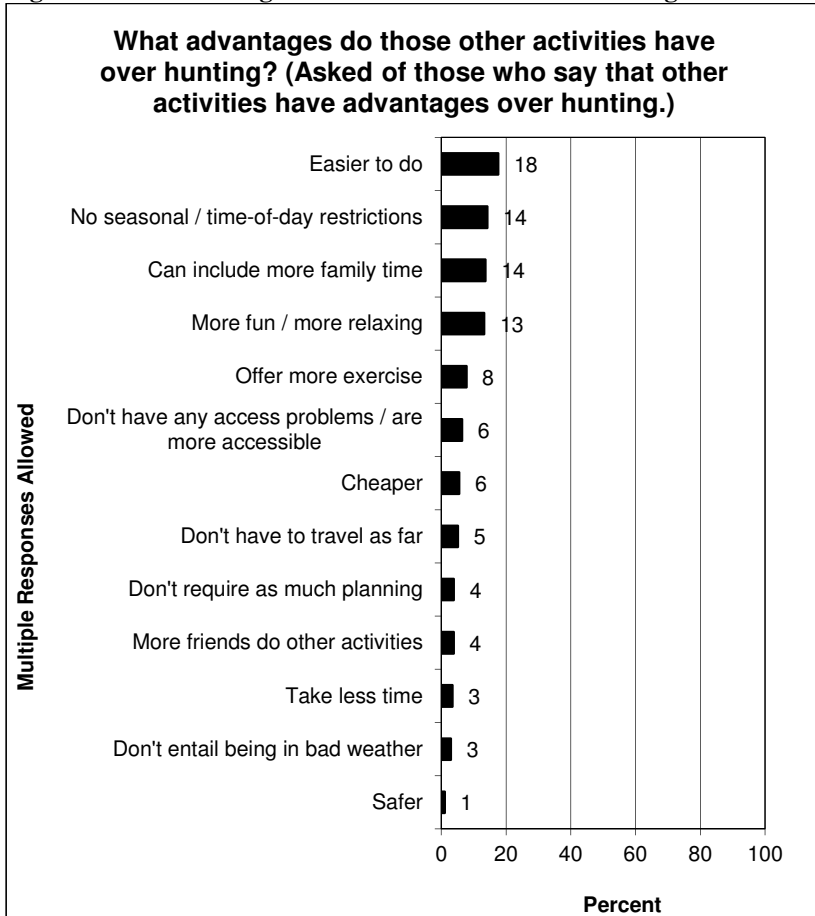
This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

Before moving on to fishing, it is worth looking at one more survey result, which pertains to attempts to recruit non-hunters into hunting. While there will be some success—some non-hunters become hunters in part through R3 efforts—many people will not be recruited to active participation in hunting, and perhaps the best that can be hoped is that they will still support hunting if they understand its use in wildlife management and the perpetuation of healthy wildlife populations. But it is important to keep in mind that, in a national study, 46% of non-hunters said that "concern about causing pain to animals" *strongly* influenced their decision to never hunt.[505] It is unlikely that this ingrained feeling will be overcome to make this person be a hunter (although it is not impossible). Also, 21% said that

being "uncomfortable around firearms" *strongly* influenced their decision to never hunt, another obstacle, but not insurmountable.

DISSATISFACTIONS WITH FISHING

Four categories of dissatisfactions are commonly named, these being not catching fish, access/crowding issues, water quality issues, and costs, as demonstrated in the research below. Some of that most current research on dissatisfactions with fishing has been compiled in Figures 7.2.8 and 7.2.9. These surveys asked anglers to name the worst things about fishing, with three years of data divided by gender. Notable complaints are lack of fish, crowding, water quality, and the expense.[506]

**Figure 7.2.8. Dissatisfactions With Fishing, Among Males**[507]
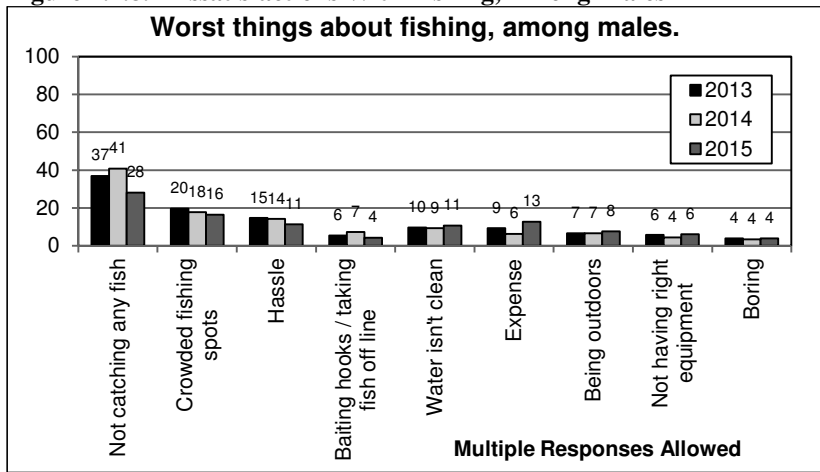
Figure 7.2.9. Dissatisfactions With Fishing, Among Females[508]
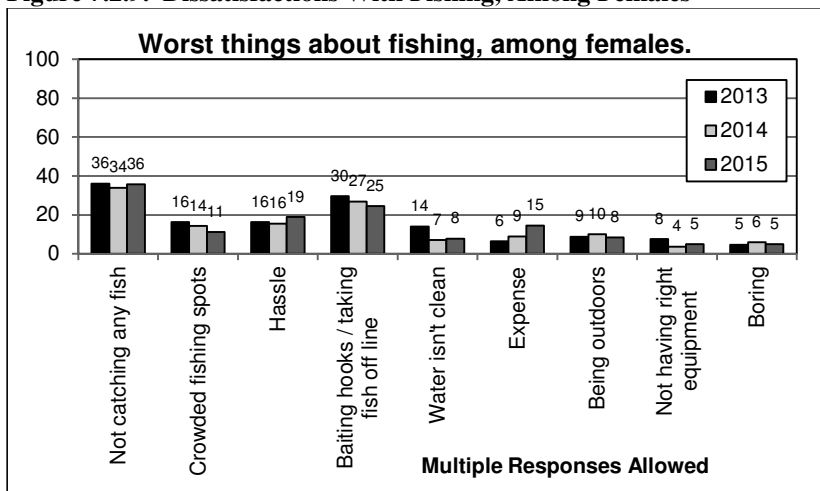
These same studies[509] also asked anglers to name any barriers to fishing participation. These include water quality, lack of places to fish, the expense, a lack of knowledge, and a lack of equipment, as shown in Figure 7.2.10.

Figure 7.2.10. Barriers To Fishing Participation[510]
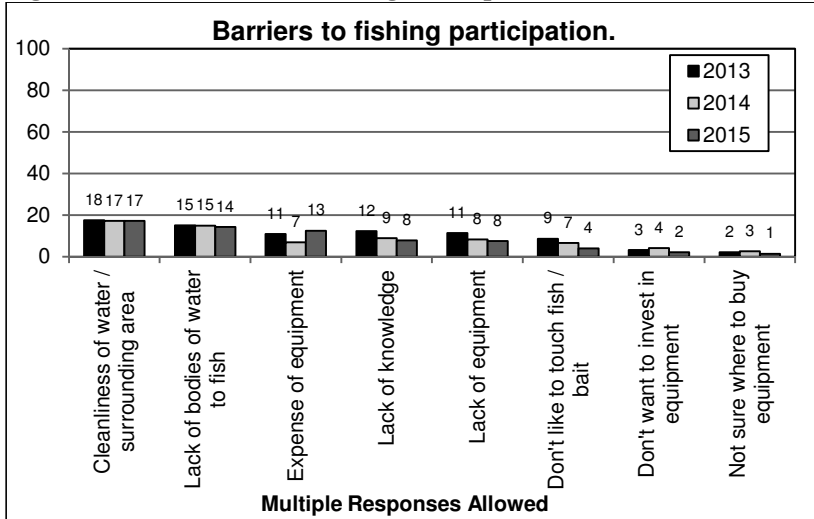
Not shown are the percent who said that they had no barriers to fishing participation.

Fishing Class

Doug Darr

The goal of increasing the number of fishing license buyers is difficult to achieve. It is easy to convince one person or a group of people to fish: provide the gear, location, education, and transportation (if necessary). Everyone is happy. However, angler recruitment, retention, and reactivation means inspiring people to believe the gear needed is worth the expenditure; encouraging them to find locations that provide them with their desired experience; and convincing them to expend the time needed to travel to and fish those locations.

To provide that inspiration, the experience being facilitated must be excellent. The knowledge to fish, of course, needs to be communicated. More than that, the instructor must impart to participants the awareness of why they are having fun. People who have not yet fished may understand the benefits of relaxation and being out in nature, but rarely do they realize that a common reason people fish is to spend quality time with other people. Obtaining a source of food can be important to many anglers, but the challenge of fishing and the thrill of fishing both

continued

rank ahead of providing a meal as reasons to fish. People also need to be taught that just because they did not catch a fish does not mean they did not have fun while fishing.

When programs are being developed, thought should first be given to the reason for each class: what will the class accomplish and what audience should be targeted? For example, is the goal to attract people to a location and learn to fish that water, or is the goal to introduce fishing by communicating the basics of how to fish for bream (sunfish) and bass?

Not every class is for beginning anglers. How are these class members being moved on the continuum of being an angler (Awareness, Interest, Trial, Decision To Continue, Continuation With Support, and Continuation Without Support) and then becoming a mentor to other anglers? From these answers, an evaluation of the effectiveness of the classes can be developed.

The ideal situation is for a class to be an ongoing effort that meets a number of times and incorporates on-the-water fishing experiences. An ongoing effort cultivates anglers with social support and develops confidence in their new abilities. Unfortunately, fishing classes are often a one-time event.

Once the framework of the audience, location, and length of the events are set, then the focus can be on the needs of the audience. The more that is known about the audience, the more effective the class delivery can be and the more useful the learning experience will be for the participants. If the abilities and needs of the audience are not known, those needs can be discerned two ways.

The simplest way to determine the needs of participants is to ask them what they want to learn. The answers are written for all to see and check off when completed. The difficulty is that the instructor must immediately develop a sequential learning experience using these desires.

Another way to give appropriate instruction is to use feedback from the participants. Begin the class with knot tying to prepare for casting an appropriate rod and reel. Then casting is taught. The abilities demonstrated by these two activities will give the instructor insight into the knowledge level of the participants. This insight will affect the pace, subjects, and detail taught during the class. Casting and knot tying are the two skills needed to fish, although other knowledge will

continued

greatly increase an angler's success. The pace and details presented in a fishing program need to take into account both the audience and the time available.

During the class, participants should do and think for themselves as much as time will allow. After introductory remarks (who the speakers are, where the restrooms are, and what the rules are), safety should be discussed. The discussion can begin by asking participants, "In any new activity, we need to think about safety. What are some things we need to keep in the back of our minds relative to being safe while fishing?" Anglers should learn how to handle fish to protect themselves and to protect the fish.

Anglers should be taught about the fish available locally. Each species has differences with respect to habitat, food, and feeding strategy. This knowledge translates to fishing location, bait and technique. Because of differing habitat requirements, not all species are present in all waters.

The next step is to discuss various types of baits used as well as how to rig them. All anglers should be very clear on what to do with their bait after the fishing trip. Aquatic bait should not be released.

Then the teacher can discuss the different types of rods used to get the bait or lure to the fish, and the benefits and drawbacks of these different types. Information presented should include the breaking strength of the lines used, the drag, and how to fight a fish.

If time permits, processing and cooking the fish are popular subjects with all anglers. A fishing class needs to be organized, but most of all, a fishing class needs to be fun.
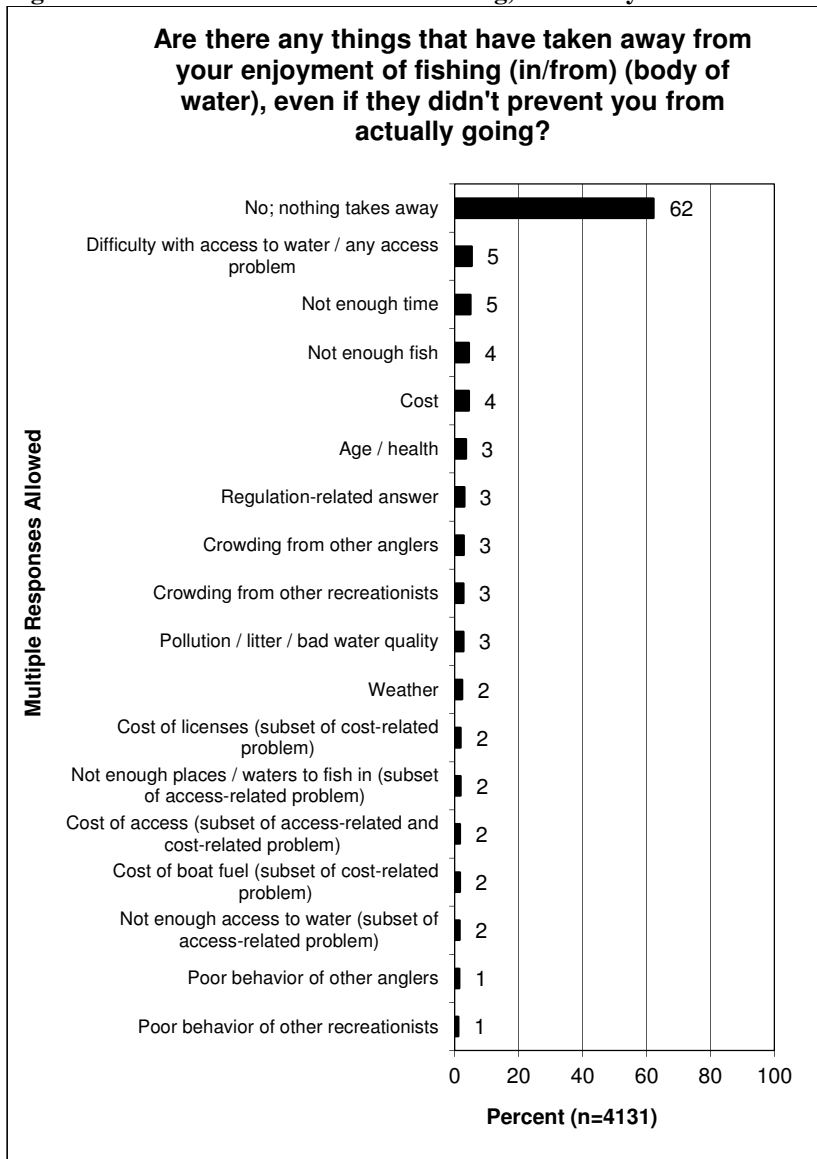
The task of increasing fishing license buyers can only be significant as more instructors are trained and encouraged to conduct these programs.

Doug Darr has been the Aquatic Education Coordinator for the Alabama Wildlife and Freshwater Fisheries Division since May of 1997; as a District Biologist, he wrote Basic Fishing for the Division. Doug received bachelor's and master's degrees in fisheries from Auburn University. He taught himself canoeing strokes and fly casting at age nine, but learned about fish and aquatic ecosystems from his father, who was a high school biology teacher.

In an open-ended question, anglers nationwide[511] were asked if anything had taken away from their enjoyment of fishing, even if it had not prevented them from going fishing (Figure 7.2.11). Although the majority (62%) said nothing had taken away from their enjoyment, notable things that did take

away included access, lack of fish, and cost, albeit at fairly low percentages. (Note that access-related and cost-related problems were further broken down in the survey; these answers are included on this graph as subsets of access-related problems overall and cost-related problems overall.)

Figure 7.2.11. Dissatisfactions With Fishing, Nationally[512]

Are there any things that have taken away from your enjoyment of fishing (in/from) (body of water), even if they didn't prevent you from actually going?

Category	Percent
No; nothing takes away	62
Difficulty with access to water / any access problem	5
Not enough time	5
Not enough fish	4
Cost	4
Age / health	3
Regulation-related answer	3
Crowding from other anglers	3
Crowding from other recreationists	3
Pollution / litter / bad water quality	3
Weather	2
Cost of licenses (subset of cost-related problem)	2
Not enough places / waters to fish in (subset of access-related problem)	2
Cost of access (subset of access-related and cost-related problem)	2
Cost of boat fuel (subset of cost-related problem)	2
Not enough access to water (subset of access-related problem)	2
Poor behavior of other anglers	1
Poor behavior of other recreationists	1

*Multiple Responses Allowed* · Percent (n=4131)

Shows only those items named by at least 1% of anglers.

Another study[513] did not look at dissatisfactions directly but asked anglers for reasons that they had taken a break from fishing for a while. Rather than a national study, it sampled only a few states that are, nonetheless,

geographically spread across the country: Alaska, Idaho, New York, North Carolina, South Dakota, Vermont, and Washington. Specifically, the survey first identified anglers who had taken a break of at least 3 years from recreational fishing and then had come back to the sport. It then asked them to give the reasons that they had taken that break. While not always based on a dissatisfaction (there are other reasons to take a break beyond simple dissatisfaction), some of the notable reasons include other competing interests and costs (Figure 7.2.12). Most of the reasons were social, such as work obligations or health issues. Reasons related to the resource itself, such as the fishery, were of minor consequence (only at 3%). It is worth noting that 10% of these respondents gave a response related to having recently moved—something that perhaps can be addressed by agencies and organizations.

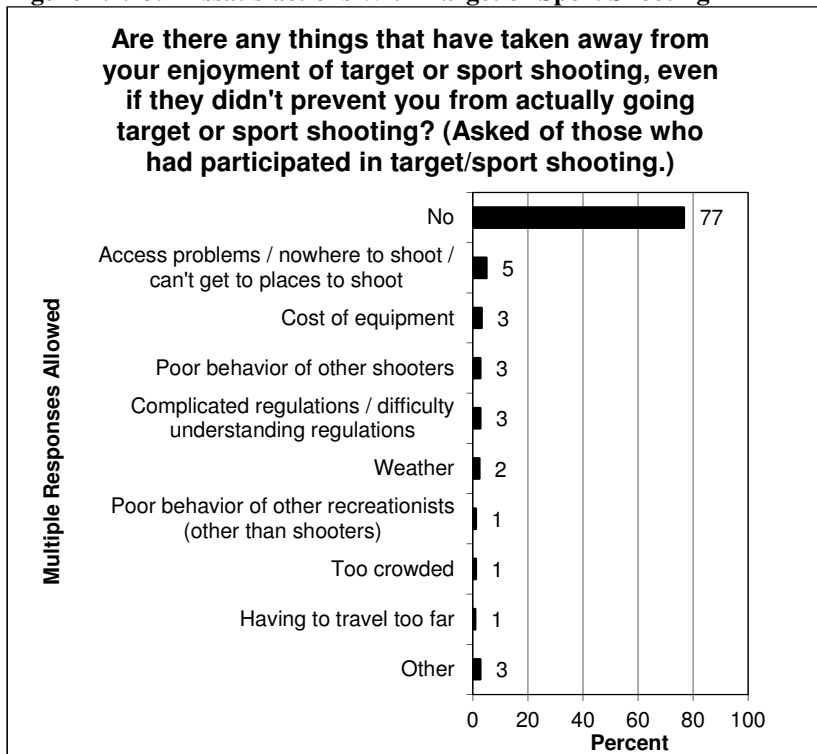**Figure 7.2.12. Reasons for Taking a Break From Fishing**[514]
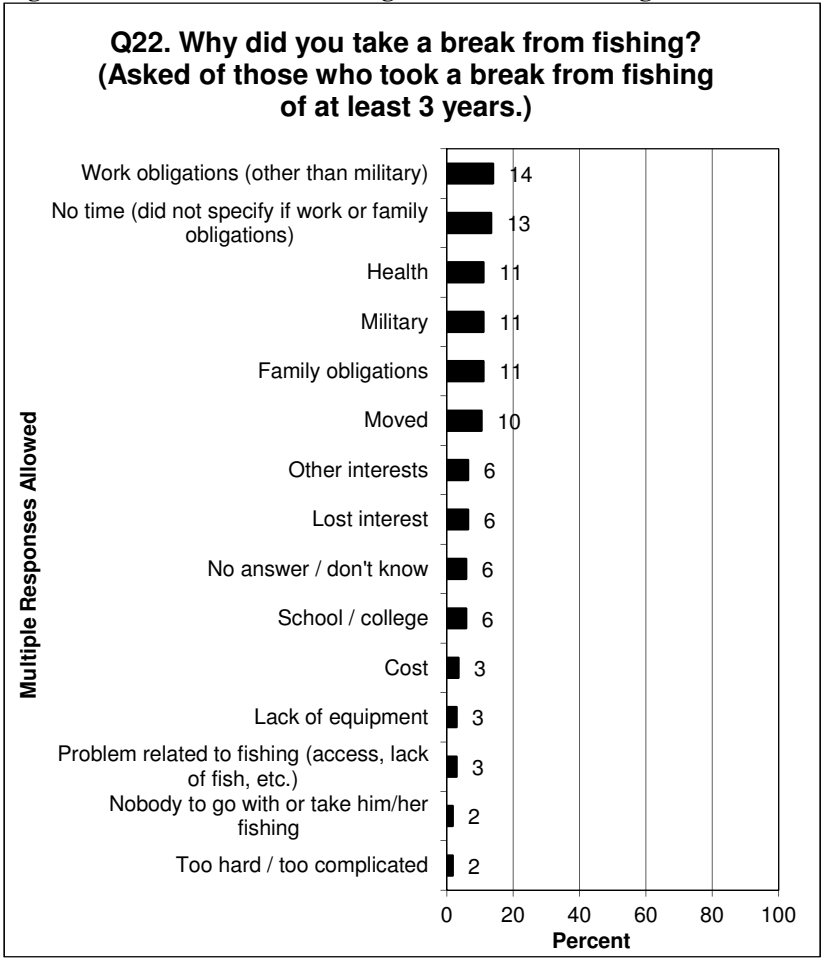
DISSATISFACTIONS WITH SPORT SHOOTING

Five categories of dissatisfactions and constraints emerge from all of the data reviewed: access/crowding, costs, poor behavior of other recreationists, lack of a companion to go with, and not having equipment. The review of research into dissatisfactions with sport shooting starts below with a direct question about dissatisfactions.

A national study of sport shooters asked them, in an open-ended question, to name things that took away from their enjoyment of target or sport shooting.[515] Although most sport shooters did not name any detractions, commonly given problems include lack of access (5%), cost of equipment (3%), poor behavior of other shooters (3%), and complicated regulations (3%)—all things that agencies and organizations may be able to address (Figure 7.2.13).

Figure 7.2.13. Dissatisfactions With Target or Sport Shooting[516]

Are there any things that have taken away from your enjoyment of target or sport shooting, even if they didn't prevent you from actually going target or sport shooting? (Asked of those who had participated in target/sport shooting.)

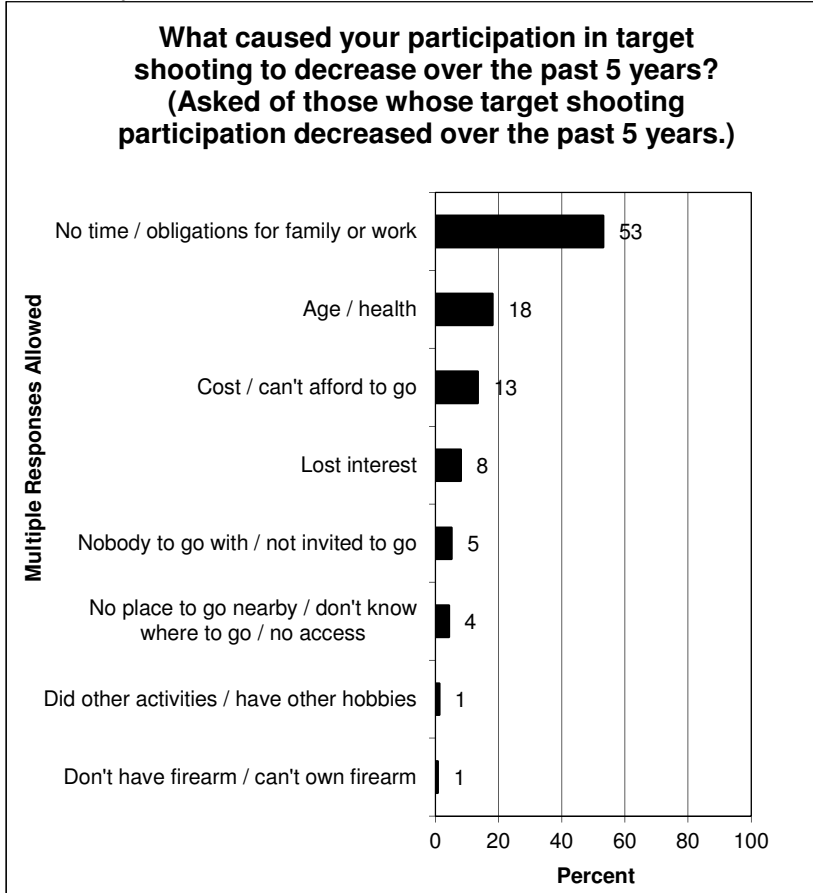|	Percent
No	77
Access problems / nowhere to shoot / can't get to places to shoot	5
Cost of equipment	3
Poor behavior of other shooters	3
Complicated regulations / difficulty understanding regulations	3
Weather	2
Poor behavior of other recreationists (other than shooters)	1
Too crowded	1
Having to travel too far	1
Other	3

Multiple Responses Allowed

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

Two national studies asked sport shooters whose participation had declined over the 5 years previous to each survey to say why, in an open-ended question. Along with the social reasons of time and age/health, two reasons are prominent in both: cost and access. Figure 7.2.14, from the more recent[517] of these two studies, shows the two social issues at the top: lack of

time (the reason for 53% of these sport shooters) and age/health (18%). The next few reasons are those over which agencies and organizations may have some influence: cost (13%), loss of interest (8%), having nobody to go with (5%), and lack of access (4%).

Figure 7.2.14. Reasons for Declines in Target Shooting Participation, First Study[518]

What caused your participation in target shooting to decrease over the past 5 years? (Asked of those whose target shooting participation decreased over the past 5 years.)

Multiple Responses Allowed

Reason	Percent
No time / obligations for family or work	53
Age / health	18
Cost / can't afford to go	13
Lost interest	8
Nobody to go with / not invited to go	5
No place to go nearby / don't know where to go / no access	4
Did other activities / have other hobbies	1
Don't have firearm / can't own firearm	1

Percent

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.
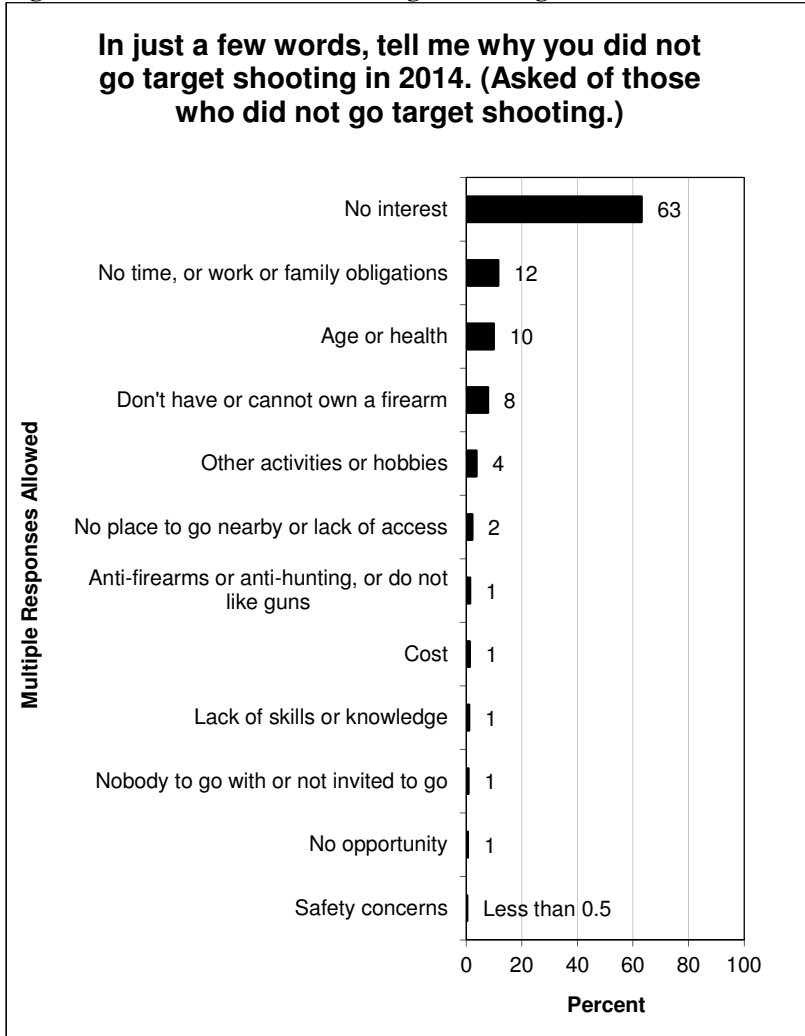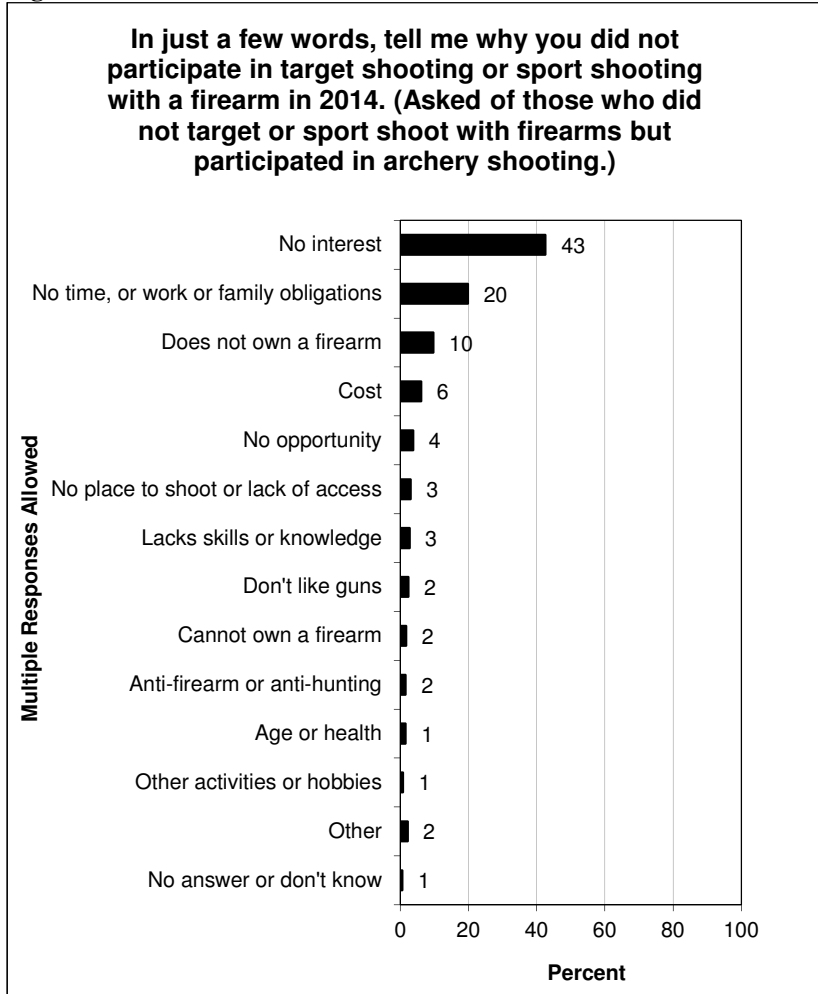
The second of the aforementioned national studies that asked about causes of declining participation, as shown in Figure 7.2.15, also found time and age/health issues at the top.[519] In this study, these are followed by access issues (11%), loss of interest (8%), cost (8%), and lack of a companion to go with (5%). This second study includes some issues that were not in the first study, in particular crowding (although only at 1%) and poor behavior of other recreationists (also at 1%).

Figure 7.2.15. Reasons for Declines in Target Shooting Participation, Second Study[520]

What caused your target or sport shooting participation to decline? (Asked of those whose amount of shooting has decreased over the past 5 years.)

Reason	Percent
Time obligations (family, work)	42
Health / age	33
Lack of access / no place to go / travel too far	11
Loss of interest / not interested	8
Cost of equipment / cost of ranges / cost of travel	8
Nobody to go with	5
Complicated regulations / too many changes in regulations	2
Too crowded	1
Weather	1
Poor behavior of other recreationists	1

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

Also germane to this discussion are the reasons that non-shooters did *not* go target or sport shooting at all. Responsive Management asked those who did not go target or sport shooting to name their reasons for not going in an open-ended question, and their responses were categorized.[521] Not surprisingly, lack of interest topped the list, but of more importance are those reasons that follow on the list, because presumably some of these people had some interest in shooting but could not participate for the reasons given (Figure 7.2.16). Again, time and age/health were top reasons, which are social reasons. Fourth in the ranking was lacking a firearm, including those who could not legally own one (8% of non-shooters said that they lacked a firearm), which was followed by having other activities or hobbies (4%) and lack of access (2%). Interestingly, only 1% said that they did not shoot because they do not like firearms (although at least some of the "no interest" respondents most likely do not like firearms). Also, it is of note that less than 0.5% had safety concerns.

Figure 7.2.16. Reasons for Not Target Shooting[522]

In just a few words, tell me why you did not go target shooting in 2014. (Asked of those who did not go target shooting.)

Reason	Percent
No interest	63
No time, or work or family obligations	12
Age or health	10
Don't have or cannot own a firearm	8
Other activities or hobbies	4
No place to go nearby or lack of access	2
Anti-firearms or anti-hunting, or do not like guns	1
Cost	1
Lack of skills or knowledge	1
Nobody to go with or not invited to go	1
No opportunity	1
Safety concerns	Less than 0.5

Multiple Responses Allowed

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.
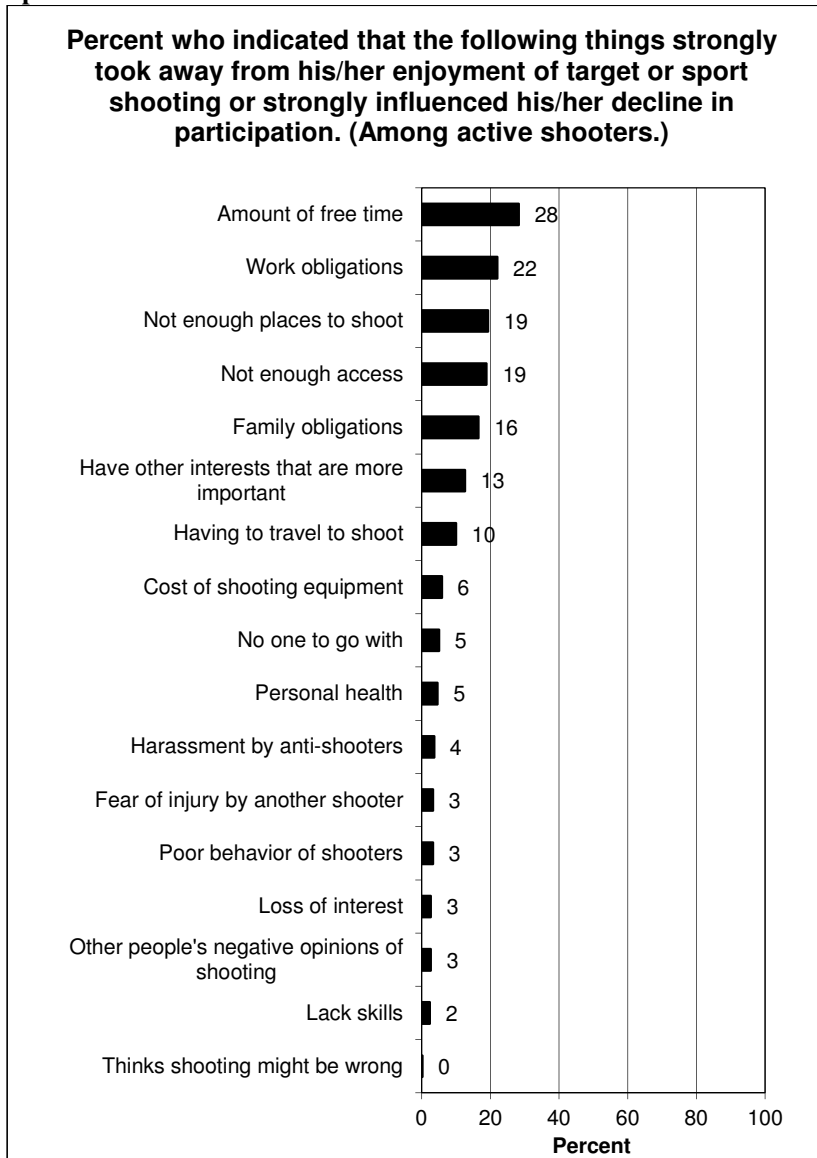
A subset of the respondents who did not go target shooting in 2014 are those who did not participate in target or sport shooting with a firearm but *participated in archery* (to include target archery and/or bowhunting). Figure 7.2.17 shows that, among this group, the responses related to "lack of interest" decreased to 43% (compared to 63% overall in Figure 7.2.16). Lack of time was given by 20% of these respondents, and lack of a firearm was the reason for 10% of them.

Figure 7.2.17. Reasons Archers Do Not Shoot Firearms[523]

In just a few words, tell me why you did not participate in target shooting or sport shooting with a firearm in 2014. (Asked of those who did not target or sport shoot with firearms but participated in archery shooting.)

Reason	Percent
No interest	43
No time, or work or family obligations	20
Does not own a firearm	10
Cost	6
No opportunity	4
No place to shoot or lack of access	3
Lacks skills or knowledge	3
Don't like guns	2
Cannot own a firearm	2
Anti-firearm or anti-hunting	2
Age or health	1
Other activities or hobbies	1
Other	2
No answer or don't know	1

Multiple Responses Allowed — **Percent** (axis 0 to 100)

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

Another study[524] asked about things that prevented participation and may provide insight into dissatisfactions as well. Active sport shooters—those who had shot within the 2 years previous to the survey—were asked about any constraints that had prevented them from going target or sport shooting in recent years (Figure 7.2.18). Social reasons, not surprisingly, topped the list (no time, given by 25% of active shooters; age/health, given by 12%). Below those were lack of access (10%) and cost of equipment (5%).

Figure 7.2.18. Constraints To Sport Shooting Participation[525]
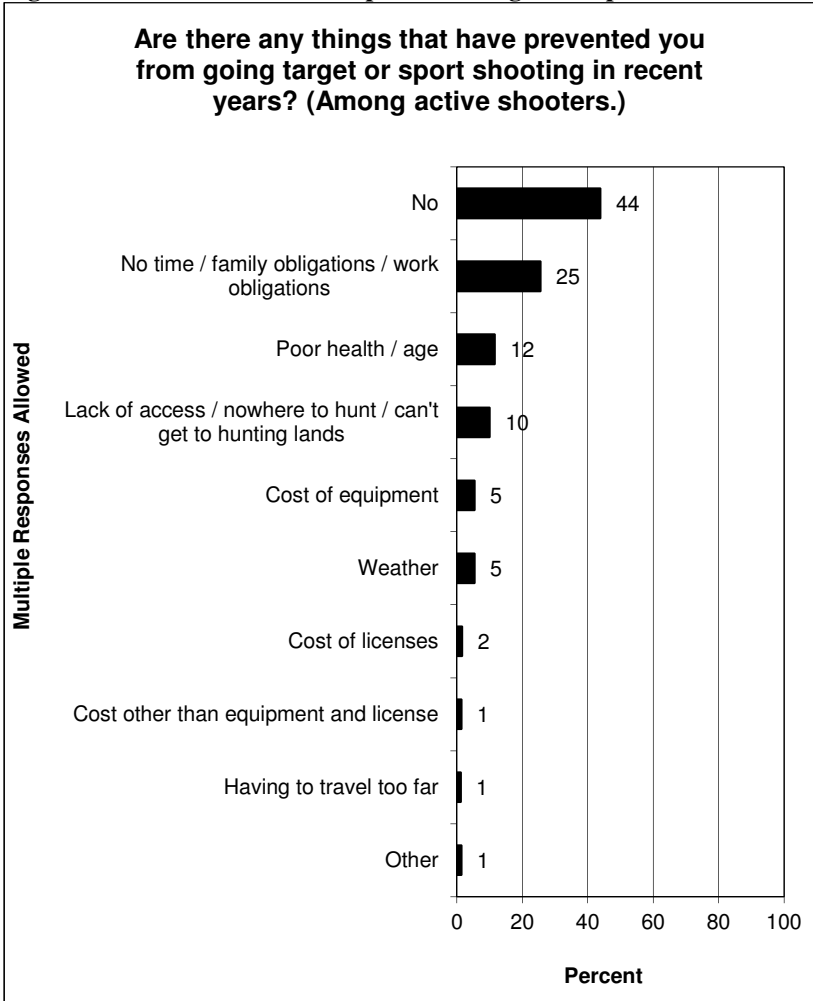
This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

Also of interest here are items that were presented to sport shooters (similar to the items that were presented to hunters in research described previously); for each item, sport shooters rated their level of dissatisfaction with it or the level of influence it had in their decline in participation (among those whose participation declined). The results of these 17 questions were put into one graph (Figure 7.2.19). In this study,[526] access was one of the top issues on the list (below the social issues of time/work obligations).

Figure 7.2.19. Series of Dissatisfaction Questions Asked of Sport Shooters[527]

Percent who indicated that the following things strongly took away from his/her enjoyment of target or sport shooting or strongly influenced his/her decline in participation. (Among active shooters.)

Category	Percent
Amount of free time	28
Work obligations	22
Not enough places to shoot	19
Not enough access	19
Family obligations	16
Have other interests that are more important	13
Having to travel to shoot	10
Cost of shooting equipment	6
No one to go with	5
Personal health	5
Harassment by anti-shooters	4
Fear of injury by another shooter	3
Poor behavior of shooters	3
Loss of interest	3
Other people's negative opinions of shooting	3
Lack skills	2
Thinks shooting might be wrong	0

Percent

Each of these questions was asked individually, with 17 questions in all. For each item, the survey asked, "Did this strongly, moderately, or not take away from your enjoyment of shooting?" (for active sport shooters whose participation did not decline) or "Did this strongly, moderately, or not influence your decline in shooting participation in the past 5 years?" (for active sport shooters whose participation declined). The results were then combined into this single graph. "Active" is defined as having participated in the previous 2 years.

Parallel to the section on hunting, this section on sport shooting includes information from a study wherein sport shooters who had said that they do

other activities that have fewer "hassles" than sport shooting were then asked to name sport shooting's hassles.[528] Cost and the related issue of getting and maintaining equipment topped the list, followed by poor behavior of other sport shooters (Figure 7.2.20).

Figure 7.2.20. Perceived Hassles With Sport Shooting[529]
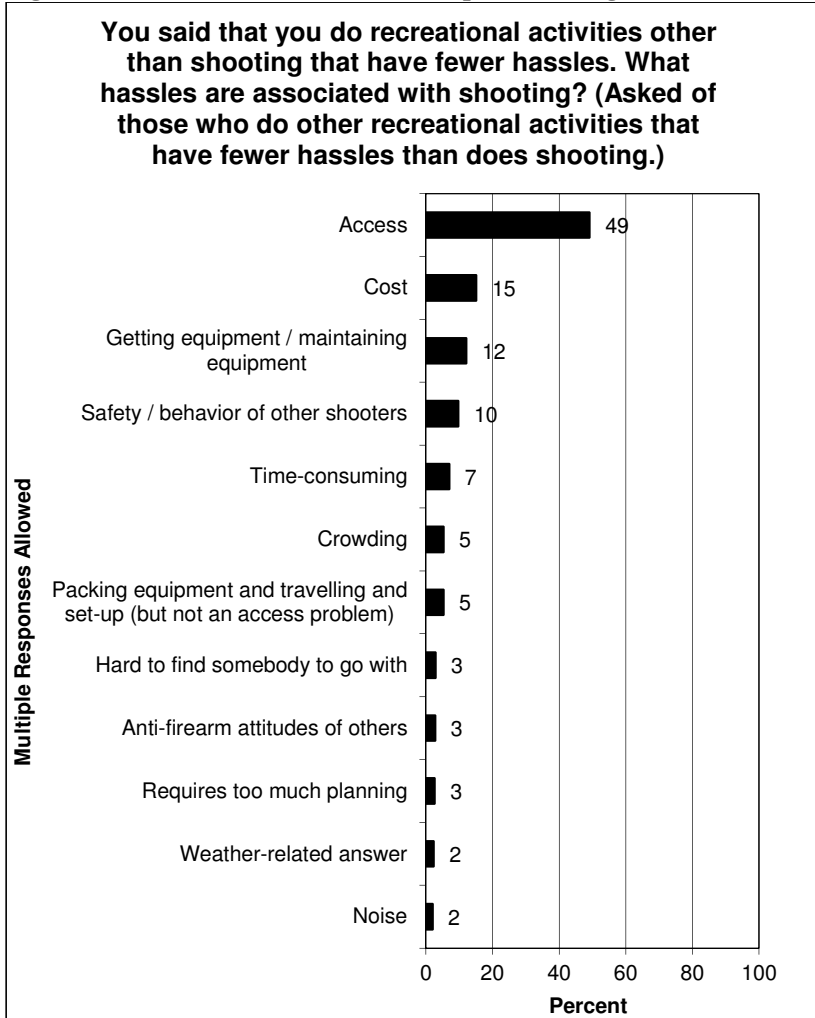
This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.
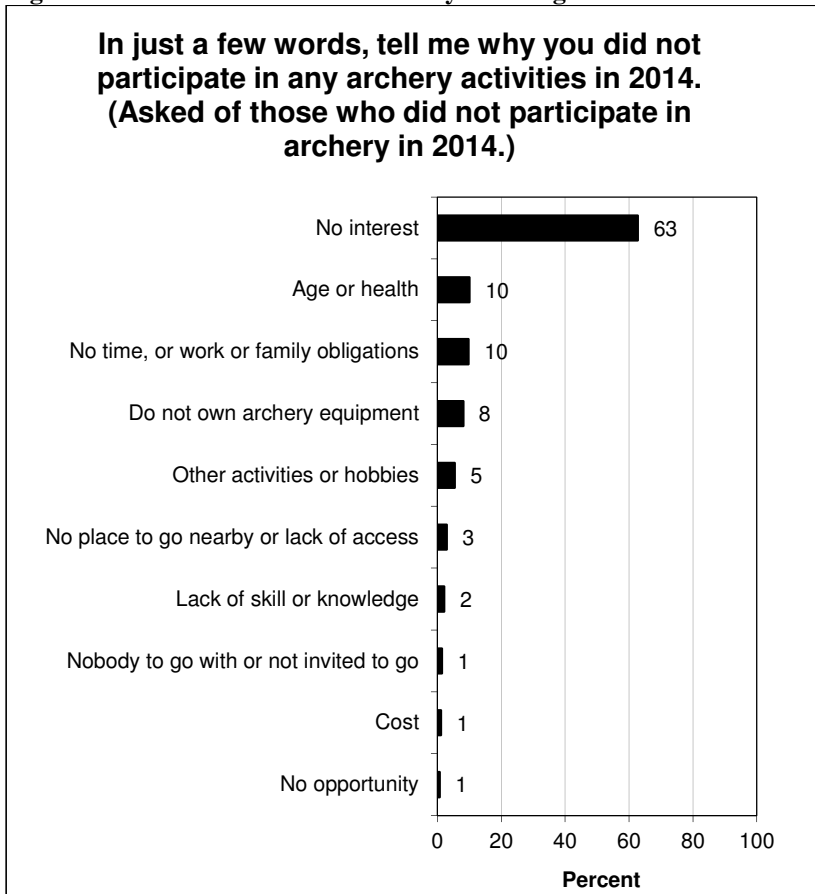
The study discussed immediately above also asked sport shooters who said that other activities had advantages over sport shooting to name those advantages of other activities.[530] Topping the list are that the other activities are more enjoyable, provide more exercise, are cheaper, have better access, and are more inclusive of family (Figure 7.2.21).

Figure 7.2.21. Advantages of Other Activities Over Sport Shooting[531]

What advantages do those other activities have over shooting? (Asked of those who say that other activities have advantages over shooting.)

| Advantage	Percent
They are more enjoyable	29
They provide more exercise	12
They are cheaper	12
They have better access / are closer to home	10
More family can participate	9
They are less physical / easier	7
They provide food	6
They are more convenient	5
More in the outdoors	4
More friends do it	3
They are more exciting / challenging	2
They are not seasonally restricted	2
They are perceived to be safer	2
They require less equipment / already have equipment for other activity	1
They entail less time	1

Multiple Responses Allowed

Percent

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

DISSATISFACTIONS WITH ARCHERY

Among the few studies that look into dissatisfactions with archery is a study that looked into bowhunters' dissatisfactions or things that detracted from their bowhunting experiences.[532] While most bowhunters (70%) indicated that nothing had detracted from their bowhunting experiences, smaller percentages cited the things that hunters commonly cite as taking away

from their experiences: weather (4%), poor behavior of other hunters (3%), crowding (3%), season or bag limits (1%), and fear of injury (1%).

Also of interest here are reasons that people did not participate in archery, among those who did not do so, asked in an open-ended question (Figure 7.2.22).[533] Although not, technically speaking, dissatisfactions, they give insight into constraints to participation in general. The responses below the top one (a lack of interest) are worth noting: age/health (said by 10% of non-participants), lack of time (10%), lack of equipment (8%), competing activities (5%), and lack of access (3%). The responses related to *equipment* and *access* are likely the most amenable to influence by agencies and organizations.

Figure 7.2.22. Reasons for Not Archery Shooting[534]

In just a few words, tell me why you did not participate in any archery activities in 2014. (Asked of those who did not participate in archery in 2014.)

Reason	Percent
No interest	63
Age or health	10
No time, or work or family obligations	10
Do not own archery equipment	8
Other activities or hobbies	5
No place to go nearby or lack of access	3
Lack of skill or knowledge	2
Nobody to go with or not invited to go	1
Cost	1
No opportunity	1

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

Considering a subset of the respondents above, it is worthwhile to look at reasons for not participating in archery among those who, however, *had participated in sport or target shooting with a firearm* (Figure 7.2.23). Among this group, the responses related to "lack of interest" fall to only 49% (compared to 63% overall in Figure 7.2.22). Lack of equipment is the reason for 15% of these respondents—a fairly big pool of firearm shooters composed of those who would seem ripe for recruitment into archery if they had equipment easily on hand.

Figure 7.2.23. Reasons Firearm Shooters Do Not Shoot Archery[535]
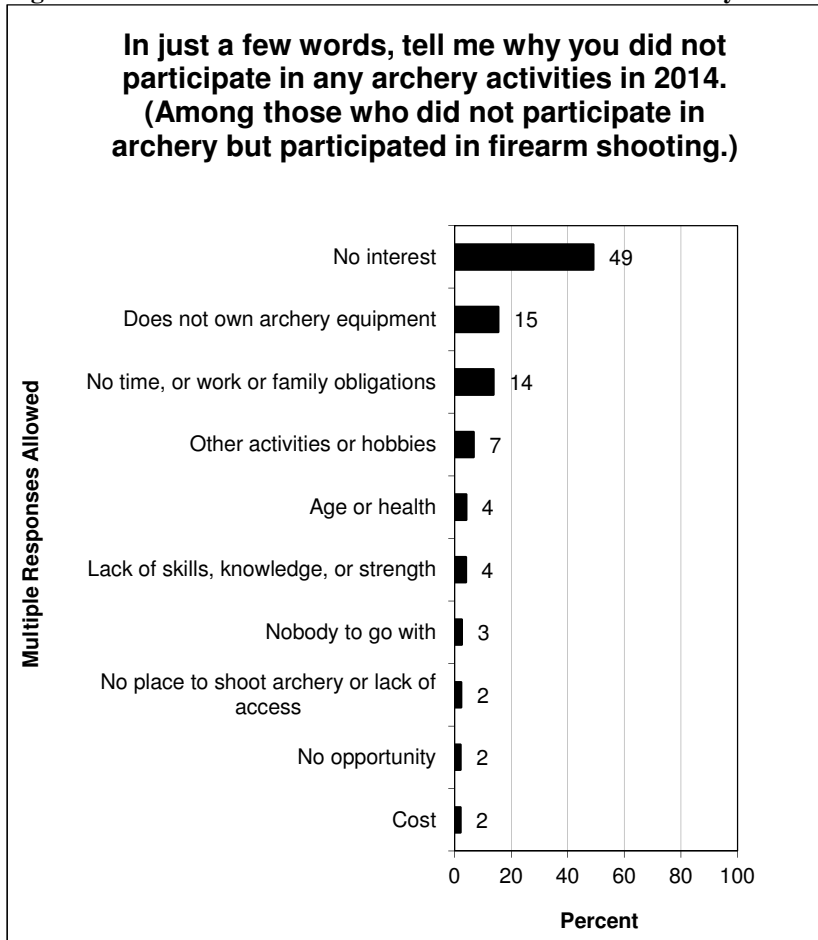
This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

Before moving on, there is one more aspect of archery to examine: non-participants' past experiences with archery and their level of knowledge. U.S. residents were asked some questions[536] to determine whether they had ever shot archery and, if so, when. Figure 7.2.24 shows that 27% of Americans indicate having done archery as a child but not as an adult;

another 19% have done it as an adult at some point but not in the year of the survey (2014), both groups combining to a sizeable target audience that is, at least somewhat, predisposed to participate in archery.

Figure 7.2.24. Americans' Experience With Archery[537]
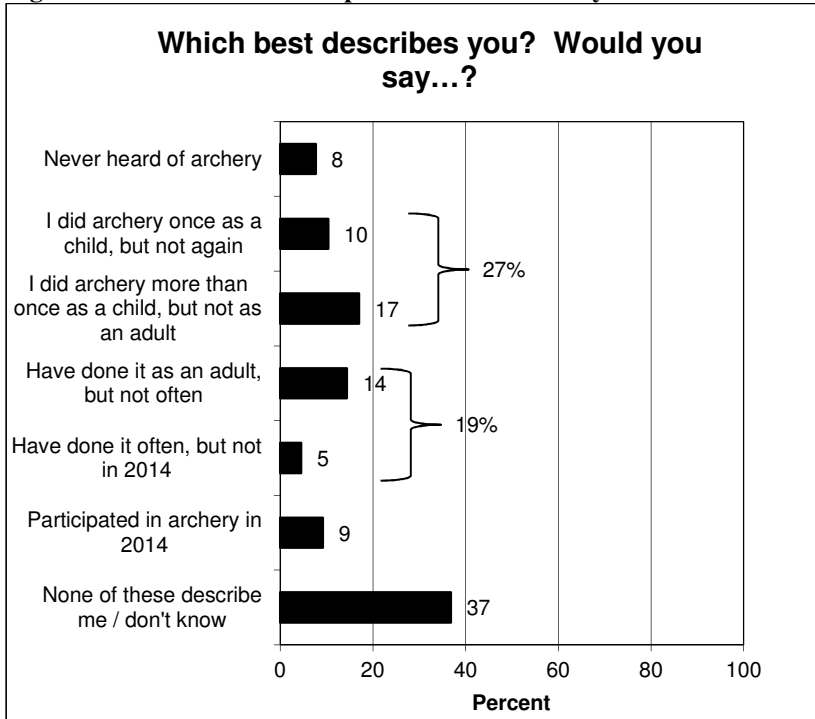
This graph shows the results of multiple questions. Respondents were asked about participation in archery, as well as their awareness of archery; results of the participation were then added to this graph for the "awareness" question.

7.3. AVID VS. NON-AVID PARTICIPANTS: DEMOGRAPHIC AND SOCIAL DIFFERENCES

This section takes a brief look at some differences between avid and non-avid participants. These demographic and social differences must be considered in any R3 efforts. One study[538] that delved into this topic first identified U.S. residents who had ever hunted, then categorized them, as shown in Figure 7.3.1, into active hunters (had hunted in the previous 2 years), recently lapsed hunters (had hunted in past 5 but not past 2 years), and long-ago lapsed hunter (had hunted but not in the past 5 years). The study then looked at demographic and social differences in the three groups.

Figure 7.3.1. Composition of Hunters Among Those Who Ever Hunted[539]

Composition of hunters (of those who ever hunted).

- 43% — Active hunter (has hunted in past 2 years)
- 14% — Recently lapsed hunter (hunted in past 5 years, but not in past 2 years)
- 43% — Long-ago lapsed hunter (has hunted, but not in the past 5 years)
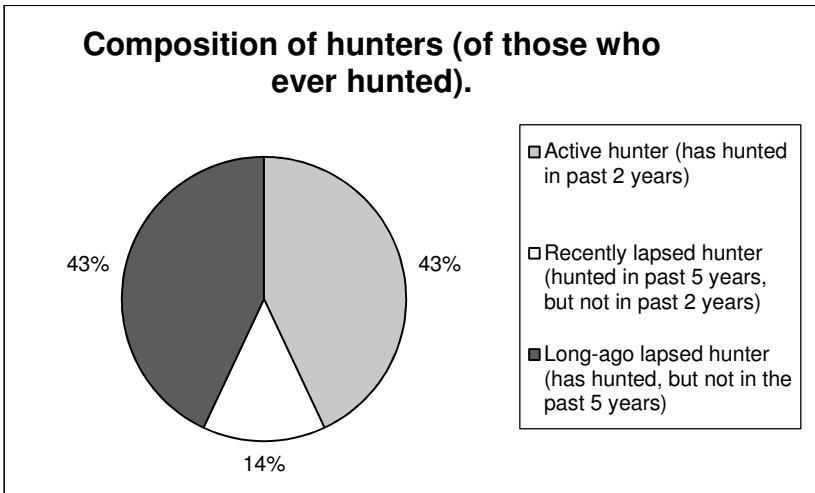
Figure 7.3.2 shows the characteristics that active hunters are more likely to have than lapsed hunters, and Figure 7.3.3 shows the characteristics that are associated with lapsed hunters. Active hunters, relative to lapsed hunters, are more likely to have social support, to be younger, to have been initiated into hunting by their father, to have been initiated at a young age, and to be on the rural side of the rural-urban continuum.

Figure 7.3.2. Characteristics of Active Hunters[540]

Active hunters are more likely than are lapsed hunters to have the following characteristics:

- Currently has family members who hunt   ← social support
- Has fished in the past 5 years
- Has camped in the past 5 years
- Has friends who hunt   ← social support
- Is between 18 and 34 years old   ← younger
- Has gone boating in the past 5 years
- Has been invited to go hunting with a friend   ← social support
- Has gone hiking in the past 5 years
- Rates access for hunting in state of residence as excellent or good
- Has viewed wildlife in the past 5 years
- Is male
- Was first taken hunting by his/her father   ← initiated by father
- Lives in a small city or town or rural area
- Grew up in a household with firearms
- Was younger than the median age when first went hunting   ← initiated when young

Figure 7.3.3. Characteristics of Lapsed Hunters[541]

**Lapsed hunters are more likely than are active hunters to have the following characteristics:**

- Does not currently have family members who hunt ⎤
- Does not have friends who hunt ⎬ ← no social support
- Has not been invited to go hunting with a friend ⎦
- Is 35 years old or older   ← older
- Is female
- Was not first taken hunting by his/her father   ← not initiated by father
- Lives in a large urban area or suburban area   ← urban
- Did not grow up in a household with firearms
- Rates access for hunting in state of residence as fair or poor
- Was the median age or older when first went hunting   ← initiated when older

This same study[542] also looked at sport shooting participants. The data first suggest that sport shooters are a little less likely to completely drop out of shooting than are hunters to completely drop out of hunting. Figure 7.3.4 shows that half of shooters (those who have ever participated in sport or target shooting) are active; only 36% of that group are completely lapsed. The subsequent analysis of differences between active and lapsed shooters finds that active shooters are more likely, compared to lapsed shooters, to have social support, to be male, and to be younger (Figures 7.3.5 and 7.3.6). Rural-urban residency is not a factor in shooting participation as it is in hunting participation.

Figure 7.3.4. Composition of Hunters Among Those Who Ever Hunted[543]

Composition of sport shooters (of those who ever went sport shooting).

- 50% Active shooter (has shot in past 2 years)
- 14% Recently lapsed shooter (shot in past 5 years, but not in past 2 years)
- 36% Long-ago lapsed shooter (has shot, but not in the past 5 years)
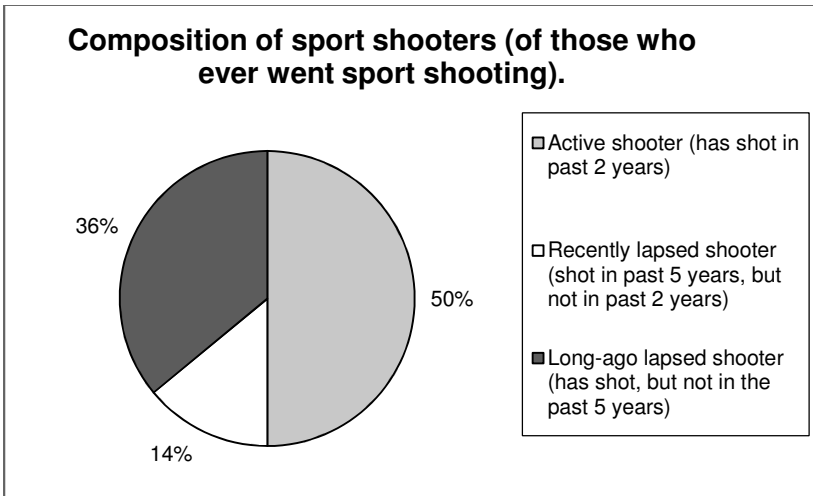
Figure 7.3.5. Characteristics of Active Shooters[544]

Active shooters are more likely than are lapsed shooters to have the following characteristics:

- Has friends who shoot ← social support
- Has fished in the past 5 years
- Has taken somebody shooting who is new to the sport of shooting
- Goes hunting in addition to shooting
- Has camped in the past 5 years
- Has gone boating in the past 5 years
- Is male
- Currently has family members who shoot ← social support
- Has been a member of or donated to a conservation or sportsman's organization in the past 2 years
- Household income is $80,000 or more
- Has gone water skiing in the past 5 years
- Has viewed wildlife in the past 5 years
- Has gone hiking in the past 5 years
- Is between 18 and 34 years old ← younger
- Grew up in a household with firearms ← initiated when young
- Has visited a state or national park in the past 5 years

Figure 7.3.6. Characteristics of Lapsed Shooters[545]

Lapsed shooters are more likely than are active shooters to have the following characteristics:

- Has not taken somebody shooting who is new to the sport of shooting
- Does not have friends who shoot ← no social support
- Is female
- Does not currently have family members who shoot ← no social support
- Is 65 years old or older ← older
- Has not been a member of nor donated to a conservation or sportsman's organization in the past 2 years
- Did not grow up in a household with firearms ← not initiated when young
- Household income is less than $80,000

One more word on the important differences between more avid and less avid participants pertains to initiating trips to engage in an activity. Focus group research[546] on anglers suggests, albeit in qualitative research rather than quantitative research, that non-avid anglers almost never initiate fishing trips but, instead, are willing to go when asked by others.

7.4. ACTIVITIES THAT COMPETE WITH HUNTING, FISHING, SPORT SHOOTING, AND ARCHERY

One of the studies that most directly examined this issue—the competition from other interests and activities—looked only at hunting and target shooting; nonetheless, some of the findings may apply to both fishing and archery. One question in the survey asked respondents if recreational activities other than hunting (in the hunting survey) and target shooting (in the shooting survey) had taken time that they had previously used for hunting/target shooting.[547] The results show that a quarter of hunters and just less than a quarter of target shooters say that other recreational activities take time away from hunting and target shooting (Figures 7.4.1 and 7.4.2).

Figure 7.4.1. Time Used for Activities Other Than Hunting[548]
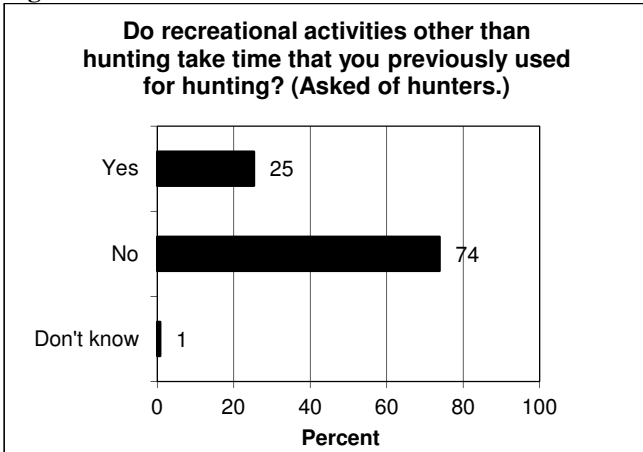
Figure 7.4.2. Time Used for Activities Other Than Sport Shooting[549]
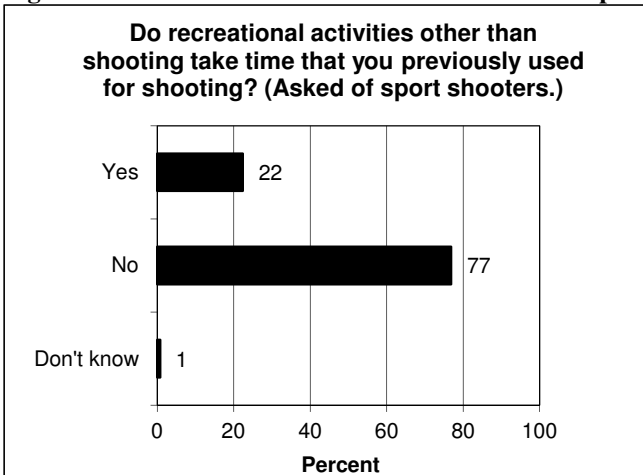
Among hunters, the activities that most commonly took their time away from hunting include fishing (by far the top other activity), camping, hiking, golfing, boating, snow sports, and bicycling (Figure 7.4.3). These are, for the most part, the same activities replacing sport shooting among sport shooters, with the addition of family-oriented activities (Figure 7.4.4).[550]

Figure 7.4.3. Other Activities That Took Time From Hunting[551]

What were the activities that took time that you previously used for hunting? (Asked of hunters who participated in activities that took time away that they previously used for hunting.)

Activity	Percent
Fishing	38
Camping	12
Hiking	10
Golfing	8
Boating or water skiing or water tubing	7
Snow sports	6
Bicycling or mountain biking	5
Any family-oriented activities	4
Field sports, such as football, soccer	4
Fitness exercises, such as jogging, walking	3
Baseball or softball	3
Gardening	3
Off-highway driving / using an ATV	3
Motocross / motorcycle riding / dirt biking	3
Visiting a state or national park	2
Swim outdoors in pool / natural water body	2
Horseback riding / horse-related activities	1
Cruising / driving / site-seeing by automobile	1
Basketball	1
Scouting (boy, cub, girl, etc.)	1
Shooting	1
Auto racing / auto repair / auto restoration	1
Church activities	1
Photography	1

Multiple Responses Allowed

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the activities shown.

Figure 7.4.4. Other Activities That Took Time From Sport Shooting[552]

What were the activities that took time that you previously used for shooting? (Asked of sport shooters who participated in activities that took time away that they previously used for shooting.)

Activity	Percent
Fishing	44
Camping	15
Hiking	13
Golfing	11
Boating or water skiing or water tubing	9
Family-oriented activities	6
Off-highway driving / riding an ATV	4
Hunting	4
Baseball or softball	4
Basketball	3
Bicycling or mountain biking	3
Motocross / motorcycling / dirt biking	3
Gardening / landscaping	2
Snow sports	2
Fitness exercises, such as jogging, walking	2
Auto racing / repair / restoration	2
Swimming outdoors in a pool or natural body of water	1
Field sports, such as football, soccer, or lacrosse	1
Horseback riding / horse-related activities	1
Training dogs	1
Archery	1
Site-seeing in automobile / cruising around	1
Home improvement	1

Multiple Responses Allowed

Percent

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the activities shown.

Following along in this line of questioning, the survey[553] asked those respondents who had indicated in a precursor question that some other

activity had become more interesting to them than hunting (in the hunting survey) or target shooting (in the shooting survey) to say why the other activity became more interesting. Most commonly, hunters gave as a reason that the other activity was more enjoyable/more interesting (Figure 7.4.5). Other reasons include that the other activity was easier (about a third of those who gave the "easier" response mentioned it in context of age/health), that they could go with their whole family, and that it offered more exercise. Many of the remaining reasons pertained to some constraint to hunting rather than to a motivation for doing the other activity.

Figure 7.4.5. Reasons Other Activities Done Rather Than Hunting[554]

What were the reasons that these other activities won out over hunting? (Asked of hunters who said another activity became more interesting to them than hunting.)

Reason	Percent
Enjoy it more / more interest in other activities	32
Easier (but did not mention age or health)	14
Can go with family	8
Easier (specifically mentioned age or health)	8
Does not have seasonal / time restrictions	6
Lost interest in hunting	4
Better / easier access	4
Necessity (e.g., have to work, school)	4
Offer better exercise / more physical	4
Is cheaper / costs less	3
Requires less planning	3
More friends do it	3
Don't need to be out in bad weather	2
Requires less time	2
Don't need to kill / don't like to kill animals	2
Is perceived to be safer	2
Enjoy it more (more exciting / challenging)	2
Can do it alone / don't need partners	1
Don't need to travel as far	1
Has fewer restrictions	1
Don't have hunting equipment	1
Can't legally own firearm	1

Multiple Responses Allowed

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

Target shooters were asked about reasons that other activities won out over target shooting.[555] Most commonly, target shooters who said that another activity became more interesting than target shooting gave as a reason that the other activity was more enjoyable (Figure 7.4.6). Other reasons pertaining to motivations include that the whole family can participate, that the other activity is easier, and that it offers more exercise.

Figure 7.4.6. Reasons Other Activities Done Rather Than Sport Shooting[556]

What were the reasons that these other activities won out over shooting? (Asked of sport shooters who said another activity became more interesting to them than shooting.)

Reason	Percent
They are more enjoyable / more fun	34
Family can participate	13
They are less active / easier	6
They have better access	6
More people to do them with	6
They are more active / provide exercise	3
They are cheaper	3
They are more convenient	3
Different / something new	2
They require less time	2
No seasonal / time restrictions	2
They are more in the outdoors	2
They are more exciting	2
Weather (e.g., can do in all weather)	1
They provide food	1
They are more peaceful	1
More opportunities (other than access)	1
More challenging / more competition	1
They are safer	1

Multiple Responses Allowed

This question was open-ended to which respondents could say anything that came to mind; their responses were then categorized into the reasons shown.

The survey[557] then asked hunters and sport shooters if they regularly did other activities that offered certain advantages over hunting (in the hunter survey) or sport shooting (in the shooter survey), and the survey presented the list to respondents (Figure 7.4.7). The results suggest that certain percentages of hunters are motivated to participate in other activities for camaraderie with family and friends (43% of hunters said that they regularly do activities other than hunting that are preferred by family members and friends), for a different experience (38%), for more exercise (33%), for thrills (29%), to be part of a group in which they are comfortable (28%), for benefits of some sort (26%), and for the challenge (22%).

Figure 7.4.7. Advantages of Other Activities Over Hunting[558]

Some activities are preferred over hunting because they offer greater benefits or thrills, while others are preferred because they have fewer hassles associated with them. Compared to hunting, please tell me if you regularly do other recreational activities that...? (Asked of hunters.)

Category	Percent
Have fewer seasonal restrictions	44
Are preferred by family members or friends	43
Are cheaper	38
Offer new or different experiences	38
Offer more exercise	33
Are safer	33
Don't have as many hassles	33
Don't involve as much travel	32
Offer more thrills	29
Allow you to be with people you're more comfortable with	28
Offer more benefits	26
Are more challenging	22
None of these	20

This list was read to respondents, who could say yes to all that applied.

Among target shooters in this line of questioning, the results in Figure 7.4.8 suggest that some target shooters are motivated to participate in other activities for more exercise (54%—by far the top answer among target shooters), for a different experience (47%), for camaraderie with family and friends (42%), for benefits of some sort (35%), for thrills (34%), for the challenge (33%), and to be part of a group in which they are comfortable (26%).[559]

Figure 7.4.8. Advantages of Other Activities Over Sport Shooting[560]

Some activities are preferred over shooting because they offer greater benefits or thrills, while others are preferred because they have fewer hassles associated with them. Compared to shooting, please tell me if you regularly do other recreational activities that...? (Asked of sport shooters.)

Multiple Responses Allowed	Percent
Offer more exercise	54
Offer new or different experiences	47
Are cheaper	43
Are preferred by family members or friends	42
Offer more benefits	35
Offer more thrills	34
Are more challenging	33
Have fewer seasonal restrictions	29
Are safer	28
Don't involve as much travel	28
Allow you to be with people you're more comfortable with	26
Don't have as many hassles	26
None of these	14

This list was read to respondents, who could say yes to all that applied.

Both the NSGA and the SFIA show data on crossover activities—those other recreational activities that one type of recreationist does. For instance, NSGA reports[561] on archery participation in 2014 and 2015 show that

hunting with firearms, camping, target shooting with firearms, walking for exercise, freshwater fishing, bowhunting, hiking, and swimming all are crossover activities—many of them wildlife- or wilderness-related activities. Figure 7.4.9 shows those crossover activities done by at least 15% of archers in 2015; Table 7.4.1 shows the full results. This does not mean that these activities were done *in place of archery*; it only means that they were done by archers at some time during the year.

Figure 7.4.9. Other Activities Participated in by Archers, NSGA Data[562]
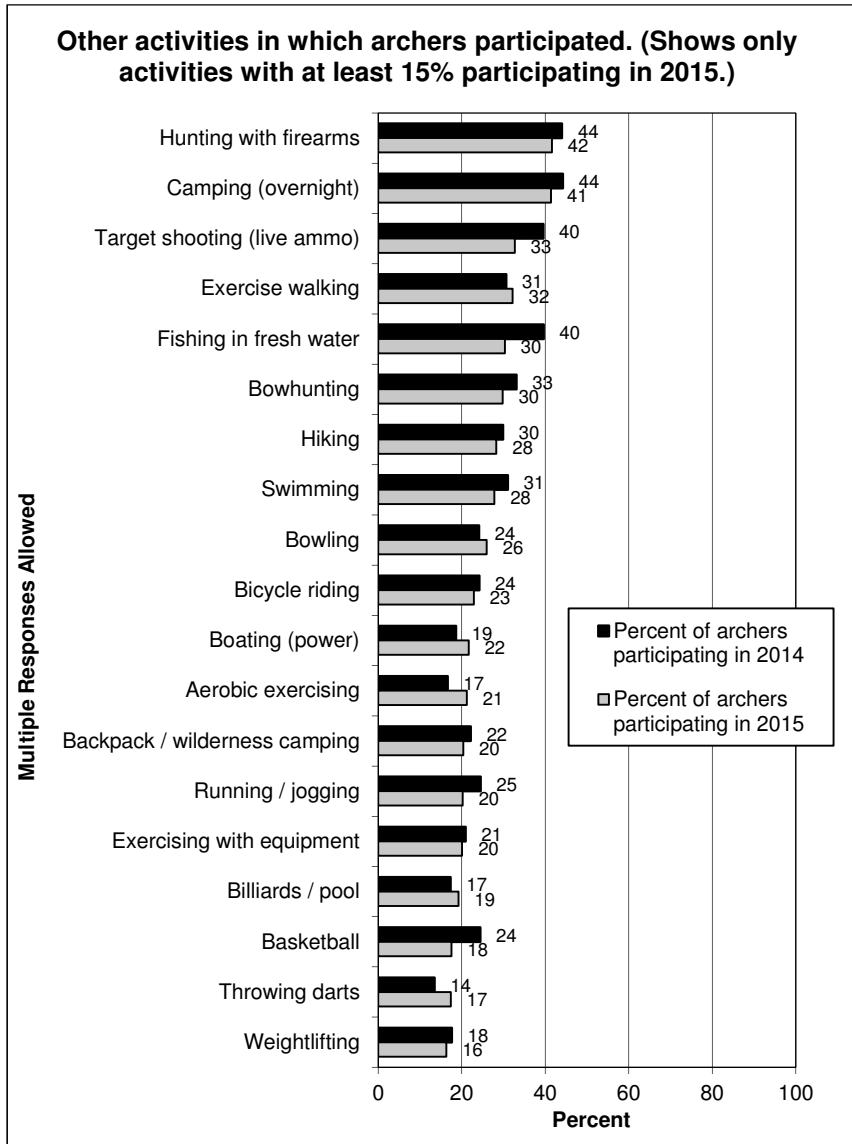
Table 7.4.1. Other Activities Participated in by Archers, Full Data[563]

Activity	Percent of archers participating in 2014	Percent of archers participating in 2015	Activity	Percent of archers participating in 2014	Percent of archers participating in 2015
Hunting with firearms	44.0	41.6	Yoga	13.2	11.8
Camping (overnight)	44.2	41.4	Martial arts	11.5	11.8
Target shooting (live ammo)	39.5	32.7	Workout at club or gym	10.1	11.1
Exercise walking	30.6	32.2	Football (touch)	17.1	10.9
Fishing in fresh water	39.6	30.3	Mountain biking (off-road)	9.4	9.9
Bowhunting	33.1	29.8	Volleyball	11.9	9.9
Hiking	29.9	28.3	Soccer	12.4	9.6
Swimming	31.0	27.8	Softball	10.4	9.6
Bowling	24.1	26.0	Tennis	10.8	9.5
Bicycle riding	24.2	22.9	Fishing in salt water	9.9	9.4
Boating (power)	18.6	21.7	Ice skating	8.8	9.0
Aerobic exercising	16.6	21.2	Snowboarding	7.2	8.6
Backpack / wilderness camping	22.1	20.4	In-line roller skating	10.0	8.2
Running / jogging	24.5	20.2	Skateboarding	8.8	8.1
Exercising with equipment	20.9	20.1	Paintball	11.0	7.8
Billiards / pool	17.3	19.2	Football (flag)	11.1	7.8
Basketball	24.4	17.5	Water skiing	6.1	7.5
Throwing darts	13.5	17.4	Ice hockey	7.2	7.3
Weightlifting	17.6	16.3	Downhill skiing	8.6	6.9
Canoeing	16.9	14.6	Football (tackle)	12.0	6.8
Target shooting w/ airgun	16.4	13.7	Boxing	8.1	5.8
Kayaking	13.5	12.8	Gymnastics	6.4	5.3
Table tennis	14.7	12.4	Lacrosse	5.0	3.8
Golf	12.4	12.2	Wrestling	5.4	3.3
Baseball	16.4	12.0	Pilates	0.0	2.6

The SFIA also collects data on crossover activities—those recreational pursuits engaged in by those who do the activities of focus in this handbook.[564] The first examined here are anglers' other activities. On the graphs, gray bars show outdoor/wildlife-related activities (e.g., camping, hiking, hunting), shooting activities, or non-motorized types of boating (canoeing, kayaking). Prominent among those other activities done by anglers are camping, hiking, hunting, target shooting, and wildlife watching (Figure 7.4.10).

Figure 7.4.10. Other Activities Participated in by Anglers, SFIA Data[565]

Other activities in which anglers participated. (Shows top 19 activities.)

Activity	Percent
Fitness walking	44
Camping	35
Bowling	31
Free weights	30
Bicycling	28
Hiking	25
Hunting	25
Running	25
Target shooting	24
Treadmill	23
Paddling	22
Wildlife viewing / birdwatching	22
Stationary cycling	18
Golf	18
Swimming for fitness	17
Stretching	17
Weight / resistance machines	16
Basketball	16
Baseball	13

Multiple Responses Allowed

Percent

SFIA's data on archery participants are shown next in Figures 7.4.11 and 7.4.12. The first figure shows only those other activities at 20% or more; the second shows all of the outdoor/wildlife-related activities, shooting activities, and non-motorized types of boating. Fishing, camping, hiking, and other non-consumptive outdoor activities are prominent among archery participants.

Figure 7.4.11. Other Activities Participated in by Archers, SFIA Data[566]

Other activities in which archers participated. (Shows only activities with at least 20% participating.)

Activity	Percent
Fishing (freshwater / other)	41
Camping (1/4 mile from home)	40
Walking for fitness	39
Bowling	37
Treadmill	34
Running / jogging	32
Free weights (dumbbells over 15 lbs)	31
Hiking (day)	31
Target shooting (rifle)	30
Target shooting (handgun)	30
Baseball	29
Golf (on a golf course)	28
Bowhunting	28
Backpacking overnight	27
Aerobics (high impact / intensity)	27
Stationary cycling (recumbant / upright)	27
Hunting (rifle)	26
Shooting (trap / skeet)	26
Bicycling (road / paved)	26
Free weights (hand weights < 15 lbs)	25
Free weights (barbells)	25
Ice skating	24
Kettlebells	24
Calisthenics / weight training	23
Wildlife viewing	22
Table tennis	22
Hunting (shotgun)	22
Swimming for fitness	22
Basketball	22
Ab machine	21
Stretching	21
Weight / resistance machines	21
Camping (RV)	21

Multiple Responses Allowed

Percent

Figure 7.4.12. Other Select Activities Participated in by Archers, SFIA Data[567]
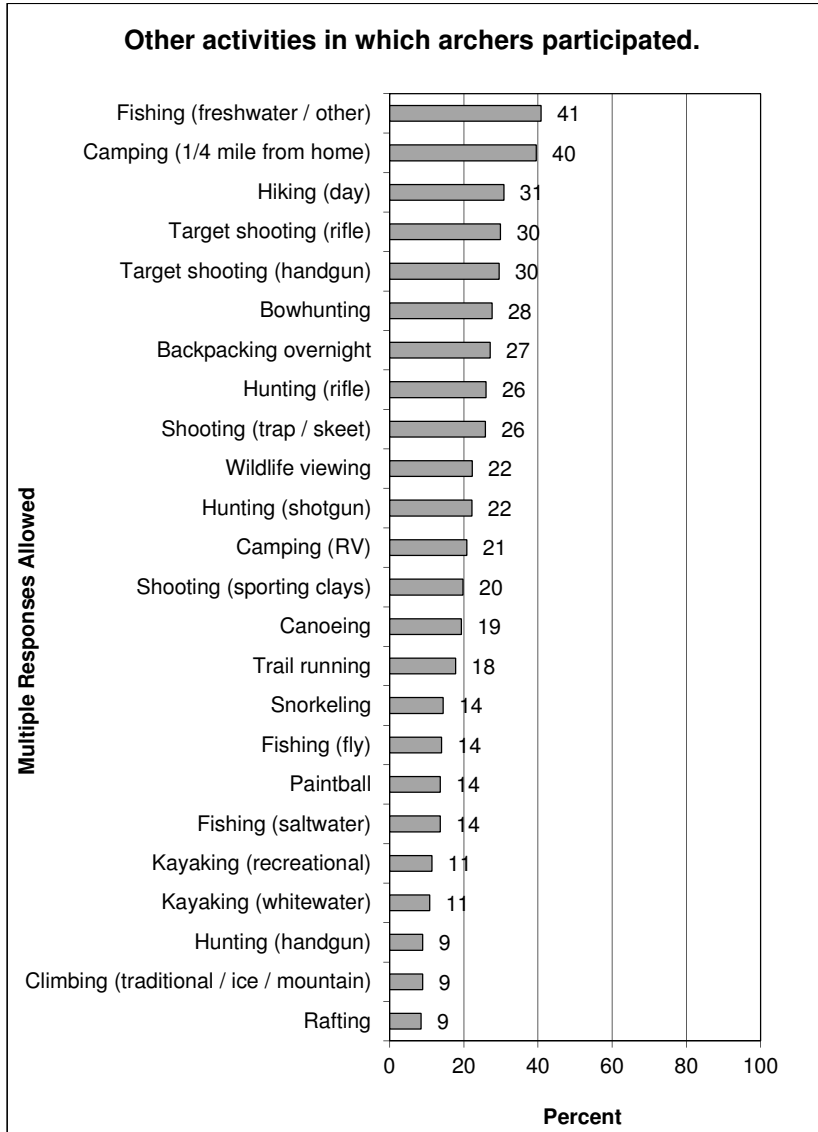
Finally, in findings that pertain to both hunting and archery, SFIA's data on bowhunting participants are shown next in Figures 7.4.13 and 7.4.14. Again, the first figure shows only those other activities at 20% or more; the second shows all of the aforementioned selected activities (outdoor and wildlife-related activities, shooting activities, and non-motorized boating). Other types of hunting, as well as fishing, shooting, and archery are prominent among bowhunters.

Figure 7.4.13. Other Activities Participated in by Bowhunters, SFIA Data[568]

Other activities in which bowhunters participated. (Shows only activities with at least 20% participating.)

Activity	Percent
Hunting (rifle)	64
Fishing (freshwater / other)	61
Hunting (shotgun)	59
Target shooting (rifle)	44
Archery	43
Walking for fitness	43
Camping (1/4 mile from home)	41
Target shooting (handgun)	37
Bowling	35
Free weights (dumbbells over 15 lbs)	35
Hiking (day)	33
Wildlife viewing	30
Bicycling (road / paved)	30
Hunting (handgun)	29
Running / jogging	29
Shooting (sporting clays)	29
Free weights (hand weights < 15 lbs)	28
Free weights (barbells)	27
Fishing (saltwater)	26
Treadmill	26
Shooting (trap / skeet)	25
Weight / resistance machines	25
Camping (RV)	24
Golf (on a golf course)	23
Calisthenics / weight training	23
Canoeing	23
Backpacking overnight	23
Stretching	22
Swimming for fitness	22
Basketball	21
Fishing (fly)	21

Multiple Responses Allowed

Percent

Figure 7.4.14. Other Select Activities Participated in by Bowhunters, SFIA Data[569]

Other activities in which bowhunters participated.

Activity	Percent
Hunting (rifle)	64
Fishing (freshwater / other)	61
Hunting (shotgun)	59
Target shooting (rifle)	44
Archery	43
Camping (1/4 mile from home)	41
Target shooting (handgun)	37
Hiking (day)	33
Wildlife viewing	30
Hunting (handgun)	29
Shooting (sporting clays)	29
Fishing (saltwater)	26
Shooting (trap / skeet)	25
Camping (RV)	24
Canoeing	23
Backpacking overnight	23
Fishing (fly)	21
Paintball	17
Snorkeling	14
Kayaking (recreational)	14
Trail running	13
Kayaking (whitewater)	12
Rafting	12
Climbing (traditional / ice / mountain)	11

Multiple Responses Allowed — x-axis: **Percent** (0, 20, 40, 60, 80, 100)

CHAPTER 7 ACTION ITEMS[570]

➤ **Be cognizant of the fact that broad demographic changes in the U.S. affect participation in hunting, fishing, sport shooting, and archery.**

Urbanization and loss of rural land affect participation in the four activities, particularly hunting and the shooting sports. Urbanization reduces the land available for hunting and shooting (including not only the actual land that is developed but a buffer zone around it in which

hunting and shooting are limited and even prevented), and urbanization also reduces access to available lands.

Understand that urbanization causes a loss of rural people as well as a dilution to the culture of hunting, fishing, sport shooting, and archery. The implication is that not only is land and access to that land disappearing, but the rural culture that fosters these activities is disappearing, resulting in fewer people that have the typical demographic characteristics of hunters, anglers, shooters, and archers—there is therefore a dilution of the social environment in which the four activities can flourish. Additionally, because urbanization often contributes to more difficult access, it can thereby make hunting, fishing, and sport shooting more time-consuming, further negatively affecting participation (time is hugely important as a constraint to or dissatisfaction with participation).

➢ **Be aware of the effects that an aging society has on hunting and shooting participation in particular.**

Younger participants are more avid than older participants. As the hunting and shooting population ages, more desertion is expected. Retention and reactivation programs for seniors are vital and, in particular but not exclusively, should be in the form of volunteer mentors for R3 programs.

➢ **Understand that many people perceive that they have less free time than they once did.**

This is the result of an urban and suburban environment in which lives are busier and more households require both parents to work, and where more activities other than hunting, fishing, shooting, and archery (such as kids' soccer) are scheduled. Unfortunately, this is a constraint over which agencies and organizations have little influence. Nonetheless, knowledge of this constraint is important in any decision-making regarding R3 strategies: R3 programs and efforts that take into consideration existing and potential participants' time constraints will be more effective than programs and efforts that do not. An example is the location of facilities or the hours of operation, which will greatly affect potential participants' ability to use the facilities. If Americans' lack of time is made to be an important consideration in development of programs and efforts, more effective recruitment, retention, and reactivation will result.

➢ **Retention is important because it targets the most amenable market: existing participants.**

Efforts to bolster participation in the four activities should focus on retention as much as or perhaps even more than recruitment, as retaining existing participants will be efficacious in bolstering participation levels.

➢ **As with recruitment, there is evidence that a "traditional" path to retention exists, with people who stay active in a sport moving from a continuum of simplicity to more specialized activities.**

Encourage a variety of activities among active participants to move them up the continuum within the sports in order to retain them. While cause and effect can go both ways (people become more avid because they try more specialized activities within these sports, and people try more specialized activities because they become more avid), there would certainly be some participants who would increase their avidity if they were introduced to specialized activities within the four sports. Encourage active participants to try a variety of activities within these sports by providing information on the range of opportunities that are available.

➢ **While aesthetic/natural and social factors remain the most important reasons for hunting, meat has become an increasingly important reason over the past decade.**

➢ **Like hunters, anglers are motivated to fish for multiple reasons, the most important of which include aesthetic and natural factors relating to time spent outdoors, catching fresh fish to eat, and the social component of spending time with family and friends.**

➢ **Sport shooters also have multiple important motivations for participating, notably the fun and enjoyment of sport shooting, the desire to increase skills, and shooting as a part of involvement in hunting.**

➢ **Archers, meanwhile, are principally motivated to participate for reasons pertaining to family or heritage, although many also name the desire to have fun or reasons having to do with friends or community.**

In short, many participants in the four activities have multiple motivations for participating. Agencies and organizations must recognize that motivations for some of the activities, particularly hunting, can shift (as indeed they have to some extent)—it is worth paying close attention to these trends.

With hunting specifically, it is worth mentioning that R3 coordinators should not overly emphasize "trophy" game; this is an important motivation for only a minority of hunters. Promotion aimed at new or potential hunters that focuses on large, trophy game may be ineffective.

➢ **Consistent with the multiple motivations, there are also multiple satisfactions with the four activities.**

Agencies should strive to manage for multiple satisfactions. To take the example of hunting, harvest is an important aspect, although it is not the only important aspect. Agencies must manage for all aspects of hunting to enhance hunter satisfaction—from keeping wildlife management areas as aesthetically appealing as possible, to considering family issues whenever decisions are made that affect hunters, to publicizing game recipes. (Note that managing for multiple satisfactions also enhances recruitment, but is most important as a means of retaining participants.)

➢ **To the extent possible, areas for the four activities should be managed for a range of opportunities.**

For instance, while trophy hunting is not a top motivation for many hunters, there will be value in having some areas managed for quality game, while managing other areas primarily for the largest possible herd, and still other areas (or seasons) for the naturalistic/wilderness qualities.

Similarly, R3 coordinators should recognize that current anglers are further motivated to fish for several reasons: less crowded fishing areas, improved ecological conditions, interest in fishing as a "green" source of food, better fishing access, and fish stocking programs. Agencies and organizations should take note of these multiple motivations and attempt to balance management priorities between them wherever possible.

There are markets for each of these experiences. Matching target groups to preferred opportunities will enhance participant satisfaction. Also, when managing for multiple satisfactions, make every attempt to keep regulations from becoming overly complicated, as a dissatisfaction for some hunters and anglers is the complexity of regulations.

➤ **Recognize that the social dimensions of the four activities are also important in the development of strategies to keep current participants involved.**

Ensure that R3 strategies address the social dimensions of hunting, fishing, sport shooting, and archery—do not focus solely on resource issues without also addressing the social dimensions.

➤ **Retention is higher when participants have others, especially family members, to go with.**

Encourage continued participation with family members, and develop R3 programs with families in mind (in this context, think of families as a whole rather than as individuals). This ensures that participants have the social support necessary to sustain interest and participation. This is especially important from the standpoint of archery, as research has found family involvement to be an important influence among those who increased their archery participation over a five-year period.

While encouraging participation with friends can be important in retention, note that participation with friends is secondary to participation with family. Those who participate with family have higher retention rates than do those who participate only with friends.

➤ **Understand that social and psychological constraints to participation are highly important.**

Social and psychological constraints to participation in the four activities (such as family obligations, amount of free time, work obligations, and loss of interest) are as or more important than are resource-based constraints (such as land availability, access to water, and access to a nearby range). Any R3 effort that does not take into account the social and psychological constraints to hunting, fishing, shooting, and archery will not be effective. As Aldo Leopold[571] wrote, "Recreational development is a job not of building roads into lovely country, but of building receptivity into the still unlovely human mind."

➤ **Encourage people to make time to hunt, fish, and shoot.**

Make efforts to get hunters, anglers, sport shooters, and archers to schedule their activities (send reminders well in advance of events or seasons, for instance) so that the four activities do not become those things that people do when they have no other activities scheduled. In short, people make time for scheduled activities simply because they feel it necessary to do them once they are on the calendar; unscheduled activities get put off. In other words, encourage participants to make time for their activities. Consider a campaign to "put it on the calendar." This will also help to minimize the need to reactive those

whose participation in hunting, fishing, sport shooting, or archery has been diminished because of their involvement in other activities.

➢ **Encourage active participants to invite others.**

Though mentioned elsewhere in this handbook, this recommendation bears repeating because of its importance in helping less avid participants become more avid through outings with family members or friends. The research shows that there is an important market segment of people who will go when asked but will not initiate a trip on their own.

➢ **Continue efforts to address potential constraints over which agencies and organizations have influence.**

The most important such constraints include poor behavior of other participants; too many other participants in the field, on the water, or at the range; costs of licenses; amount of law enforcement presence; complex regulations; amount of game or fish; bag or creel limits; and season lengths.

➢ **Use a multi-pronged approach to advertise where to hunt, fish, or shoot and how to access the appropriate lands, waters, or facilities.**

Not having enough places to participate and not having enough access to the appropriate places are two of the top resource-based constraints for active participants. Agencies and organizations should use websites, social media, printed materials, and resources from nonprofit partners and private vendors to provide hunters, anglers, shooters, and archers with information on how to overcome these issues.

➢ **Keep popular fishing areas clean.**

Concern over the cleanliness of water and the surrounding areas is a top barrier to fishing participation—a good example of an issue over which agencies and organizations have influence.

➢ **Identify bodies of water where anglers are most likely to catch fish, such as stocked ponds and lakes.**

While the likelihood of catching a fish at a certain body of water is, naturally, not something that will remain constant over time, agencies and organizations may nonetheless wish to use social media and other easily updated resources to help anglers who are especially interested in catching fish to find the bodies of water that offer them the best chances of doing so (recall that not catching a fish is a top dissatisfaction to fishing).

➤ **Promote the availability of rental or loaner equipment at shooting and archery ranges.**

With cost or lack of equipment often being named as a constraint to sport shooting and archery participation, the availability of rental or loaner equipment at ranges is well worth emphasizing.

➤ **Recognize that there is more crossover from hunting to shooting rather than shooting to hunting. More people start out as hunters and later became active in shooting rather than the other way around.**

The implication is that recruiting shooters from the ranks of hunters will be easier than recruiting hunters from the ranks of shooters.

➤ **Most of the other activities that compete with hunters', anglers', sport shooters', and archers' time are natural resource-based or outdoor recreational activities—consider these activities as targets for crossover marketing.**

Other activities in which hunters participate (that may take away from their time to hunt) include fishing, camping, and hiking; these are also the most common activities that compete for time from sport shooters. For anglers, the top competing activities include walking for fitness/exercise, camping, bowling, and lifting free weights. Among archers, the top activities competing for their time include hunting with firearms, freshwater fishing, camping, target shooting, and walking for fitness/exercise. The preferred other activities for bowhunters specifically generally align with hunting, fishing, and shooting: they include hunting with a rifle or shotgun, freshwater fishing, target shooting with a rifle, archery, walking for fitness/exercise, and camping.

CHAPTER 8: CULTURAL ACCEPTANCE OF HUNTING, FISHING, SPORT SHOOTING, AND ARCHERY

CHAPTER OVERVIEW

➢ **Approval of hunting has been steady over the past decades, being at 77% in the latest research, with only 12% disapproving (the rest being neutral).**

➢ **Approval of fishing is quite high: at 93% in the latest research, and never falling below 90% in the past couple of decades. Only 2% disapprove.**

➢ **Approval of sport shooting was not measured the same way; nonetheless, a large majority of Americans (66%) say that the shooting sports are perfectly acceptable, and only 5% say that they are inappropriate nowadays.**

➢ **Many factors can affect approval of hunting, including species hunted (there is high approval of hunting for common species like deer; less approval for rarer species like elk and predators like black bear and mountain lion); motivations for hunting (for the meat, to protect humans from harm, and for animal population control have high approval; hunting for a trophy does not); and methods of hunting (high-tech is generally not favored, nor are those methods that are perceived to not provide fair chase).**

➢ **The consequences of hunting or the lack of hunting also affect Americans' perceptions of it. Beneficial ecological effects improve people's perceptions and approval of hunting.**

➢ **Being within a hunting culture affects approval of hunting. Those who personally know hunters are more favorable to hunting.**

➢ **Approval of fishing is affected by reasons to fish. Like hunting, participating for food is more acceptable than is doing so for a trophy. Fishing methods also matter, with gigging (legal only on some fish) and snagging (widely illegal) being particularly disliked.**

➢ **The motivation for sport shooting affects approval of or support for it. There is more support among Americans for shooting to practice self-defense than for shooting for recreation, although there is a majority in support of each: 78% of Americans support sport shooting to learn self-defense, and 72% support it for recreation.**

➢ **Americans' approval of all of the activities is affected by the behavior of participants. For instance, 64% of non-hunting Americans in one study agreed that a lot of hunters violate hunting laws, and 50% of all Americans said that a lot or a moderate amount of hunters drink alcohol while hunting. Additionally, 40% of Americans believe that a lot of anglers violate fishing laws.**

➢ **State fish and wildlife agencies enjoy high credibility, as does the U.S. Fish and Wildlife Service. These agencies can use that credibility in their outreach efforts.**

➢ **The words chosen in outreach matter. Hunting by itself is not as supported as "legal, regulated hunting." When it is by itself, many Americans conflate legal hunting with poaching and other illegal hunting-related activities.**

This chapter looks at support for and approval of hunting, fishing, and sport shooting, as well as the factors that affect that support/approval. It also looks at messages and message themes, as well as communication strategies related to the cultural acceptance of these activities.

8.1. CURRENT LEVELS OF APPROVAL OF OR SUPPORT FOR HUNTING, FISHING, SPORT SHOOTING, AND ARCHERY

There is much research on the cultural acceptance of hunting, fishing, and sport shooting, as compiled below. There is not much available data on the cultural acceptance of archery.

APPROVAL OF OR SUPPORT FOR HUNTING

Surveys going back as far as 1995 have looked at the American public's approval or disapproval of legal, regulated hunting.[572] Approval has been fairly steady, between 73% and 79% in the six surveys (the latest in 2015 showing a 77% approval rate), as shown in Figure 8.1.1. The disapproval

rate has dropped over the time period, from 22% in 1995 to 12% in the 2015. (Approval and disapproval do not sum to 100% because some people gave a neutral response or said, "don't know.")

Figure 8.1.1. Trend in Approval and Disapproval of Hunting[573]

Trend in approval and disapproval of legal, regulated hunting.
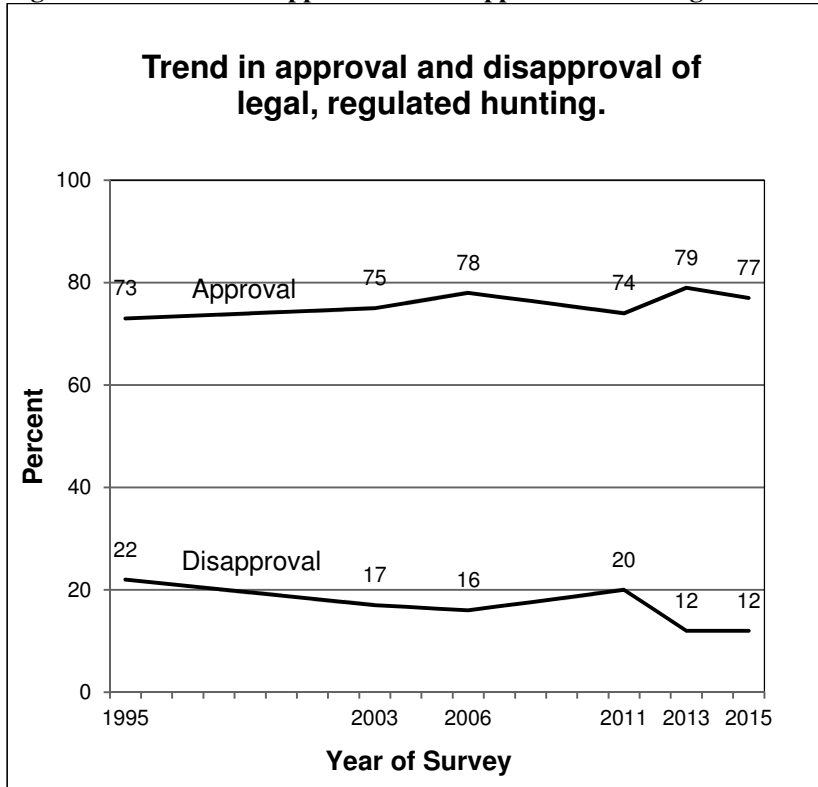
Six nationwide surveys were used to produce this graph. Currently, data points are connected by straight lines, the most simple interpolation; it is unknown how much the actual approval and disapproval rates deviated from this straight line interpolation between known data points. Neutral and "don't know" responses are not shown, which is why the sum of approval and disapproval is not 100%.

Other surveys have reiterated the general support for hunting going back several decades. In 1992, a *USA Today* survey[574] found that 80% of Americans feel that hunting should remain legal, with 17% saying that it should be illegal.

When asked from a different tack, the results still find a majority in support of hunting, as shown in this one statewide example. A study of Oregon residents[575] asked them to indicate if they agreed or disagreed with the statement, "I oppose the hunting of wildlife." In this study, 61% disagreed with the statement, while 22% agreed.

It is important to keep in mind that opposition to hunting does not automatically translate to wanting to ban hunting altogether. For instance,

one study[576] found that 13% of women disapproved of hunting while only 4% of women indicated that it is *not* okay for women to hunt. In other words, there were at least 9% of women disapproving of hunting but also saying that women who wanted to hunt could do so.

APPROVAL OF OR SUPPORT FOR FISHING

This section looks at four surveys regarding approval of fishing.[577] Fishing has consistently had an approval rating of 90% to 95% in the four surveys going back to 1995 (Figure 8.1.2). Disapproval has always been at no more than 5%.

Figure 8.1.2. Trend in Approval and Disapproval of Fishing[578]

Trend in approval and disapproval of recreational fishing.

95		93	93
Approval	90		

3	Disapproval	4	5	2

1995   2003   2006   2011
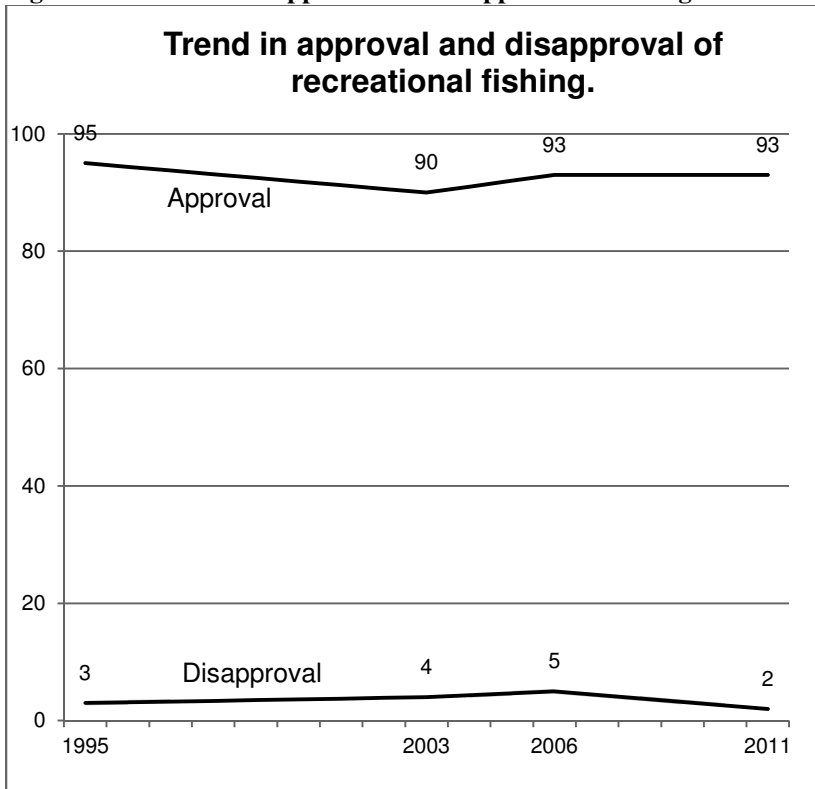
Four nationwide surveys were used to produce this graph. Currently, data points are connected by straight lines, the most simple interpolation; it is unknown how much the actual approval and disapproval rates deviated from this straight line interpolation between known data points. Neutral and "don't know" responses are not shown, which is why the sum of approval and disapproval is not 100%.

APPROVAL OF OR SUPPORT FOR SPORT SHOOTING

A large majority of Americans support the right of their fellow citizens to engage in sport shooting activities: 71% of respondents in a nationwide survey indicated approval of legal, recreational shooting, with 44% saying that they *strongly* approve. Also noteworthy are trends in Americans' overall opinions of the shooting sports: 66% of Americans in 2011 indicated shooting sports are perfectly acceptable, compared to 59% in 2001 (Figure 8.1.3). At the same time, the percentage of Americans who said shooting sports are inappropriate nowadays has declined from 11% in 2001 to 5% in 2011.[579]

Figure 8.1.3. Trend in Approval and Disapproval of Sport Shooting[580]
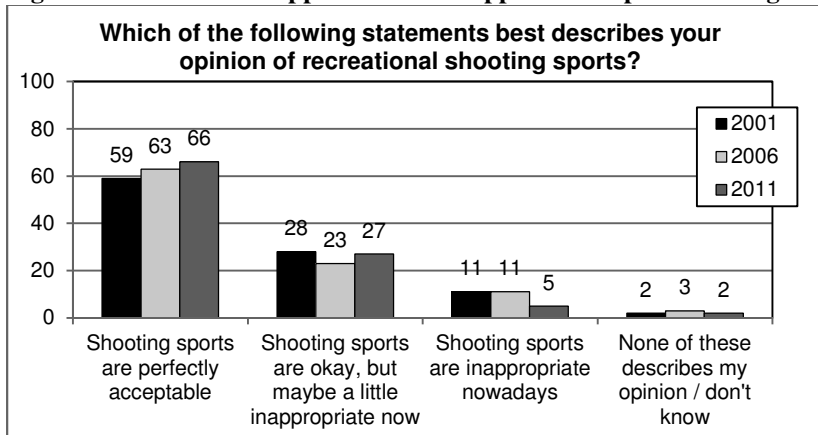
Three nationwide surveys were used to produce this graph.

8.2. FACTORS THAT AFFECT APPROVAL AND SUPPORT

There are many factors that affect how the general population perceives hunting, fishing, sport shooting, and archery. These factors include those pertaining to the activities themselves, such as the motivations for doing the activities, as well as factors pertaining to the people holding those opinions, such as their demographic makeup.

FACTORS AFFECTING APPROVAL OF OR SUPPORT FOR HUNTING

The aforementioned high level of support for hunting demonstrated in the previous section is conditional rather than absolute. Research suggests that Americans' approval of hunting tends to vary considerably according to species, motivation, and method of hunting.

Support/Approval of Hunting by Species Hunted

For example, one Responsive Management national study[581] found that approval of hunting ranged from 78% to 40%, depending on the species being hunted (Figure 8.2.1). Hunting the more rare species of mammal

(black bear and mountain lion) has lower approval than hunting the more common deer. There is relatively high approval of turkey and waterfowl, too—perhaps seen as commonly eaten species, a motivation for which there is relatively high approval (see the next section regarding motivations).

Figure 8.2.1. Approval of Hunting for Various Species[582]

Percentage of adult Americans who moderately or strongly approve of hunting various species.

Species	Percent
Deer	78
Wild turkey	75
Small game	71
Waterfowl	69
Elk	60
Black bear	47
Mountain lion	42
Mourning dove	40
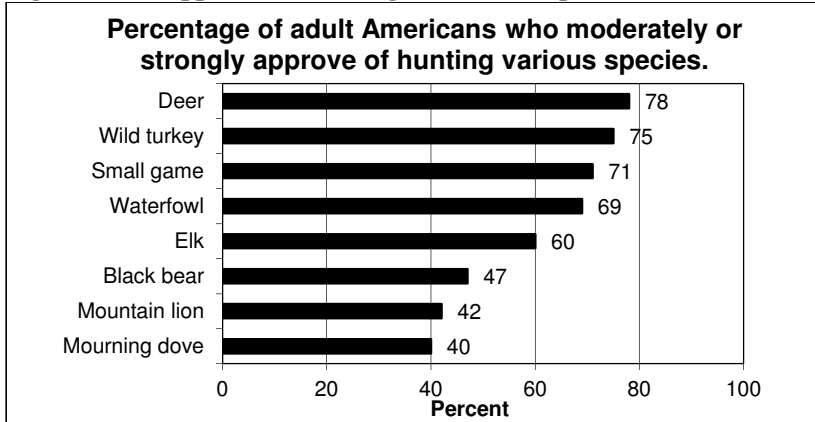
Eight individual questions were asked in this series; for each, respondents were asked if they strongly approved, moderately approved, were neutral, moderately disapproved, or strongly disapproved (or did not know) regarding hunting that species.

Support/Approval of Hunting by Motivations for Hunting

In addition to hunting for meat, there is relatively high approval for hunting to protect humans from harm, as well as for wildlife population control and management (Figure 8.2.2). Hunting for a trophy has low approval.[583]

Figure 8.2.2. Approval of Hunting for Various Motivations Among Americans Nationally, Responsive Management Data[584]

Percentage of adult Americans who moderately or strongly approve of hunting for various reasons.

Reason	Percent
For the meat	85
To protect humans from harm	85
For animal population control	83
For wildlife management	81
To protect property	71
For the sport	53
To supplement income	44
For the challenge	40
For a trophy	28
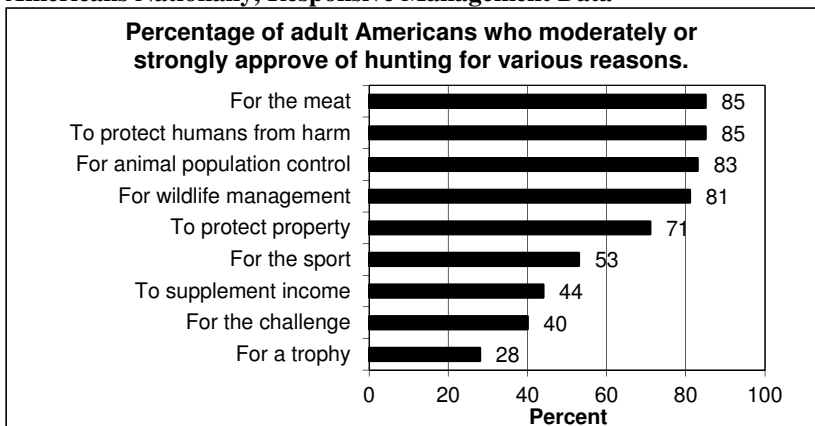
Nine individual questions were asked in this series; for each, respondents were asked if they strongly approved, moderately approved, were neutral, moderately disapproved, or strongly disapproved (or did not know) regarding hunting for that reason.

Cornell University[585] also examined approval of hunting according to motivation. In its study, hunting for wildlife control had the highest approval, while hunting for a trophy had the lowest approval (Figure 8.2.3). Approval of the ecological motivation also was higher than trophy hunting or other recreational reasons for hunting.

Figure 8.2.3. Approval of Hunting for Various Motivations Among Americans Nationally, Cornell University Data[586]
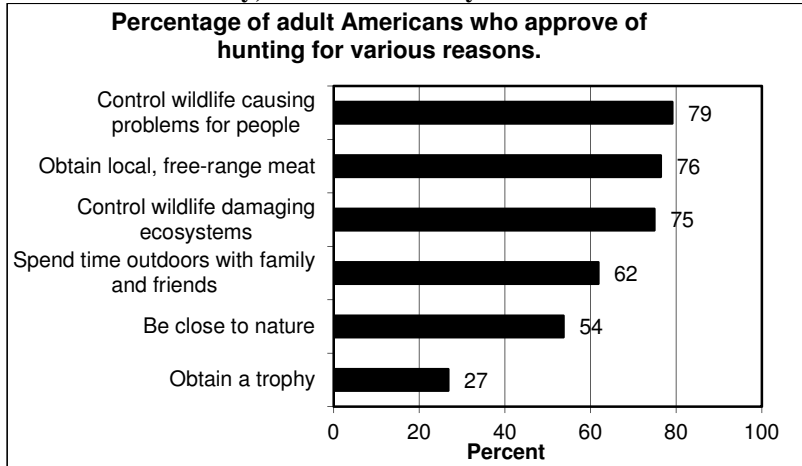
Other research affirms this finding, going back several decades. A study[587] in 1975 found that nonconsumptive values—aesthetic, existential, and ecological—were considered to be more important than all other values, including sport hunting. Kellert[588] found in 1980 that 85% approved of hunting for meat, 64% approved of hunting for recreation and meat, and 18% approved of hunting for a trophy. A 1992 study of Ohio residents[589] found overwhelming support for hunting for food (at 83%) but only 10% support for hunting for a trophy (Figure 8.2.4).

Figure 8.2.4. Approval of Hunting for Various Motivations Among Ohio Residents[590]
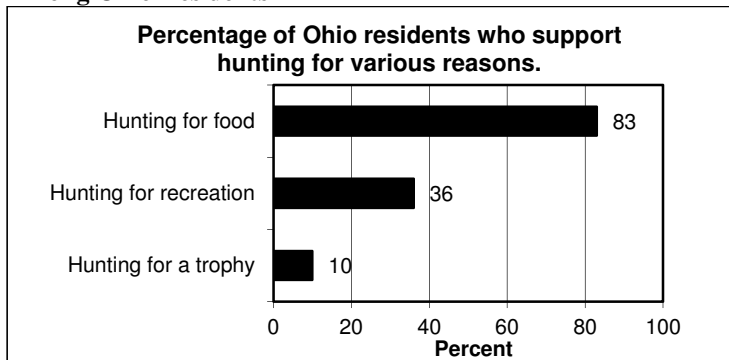
Support/Approval of Hunting by Method of Hunting

The method of hunting makes a difference in approval from the general public. In particular, those that are seen as not providing fair chase (the concept that the animal has a fair chance to get away from the hunter) have lower approval,[591] with the lowest approval for hunting in a high-fence preserve (Figure 8.2.5). Interestingly, even among hunters, there is relatively low approval of hunting in a high-fence preserve—nationally, only 33% of hunters support the idea of fenced preserve hunting.[592]

Figure 8.2.5. Approval of Hunting Using Various Methods[593]

Percentage of adult Americans who moderately or strongly approve of hunting using various methods.

Method	Percent
Hunting with dogs	57
Hunting on Sundays	41
Hunting using special scents that attract game	38
Hunting over bait	27
Hunting using high-tech gear	20
Hunting in a high-fence preserve	20
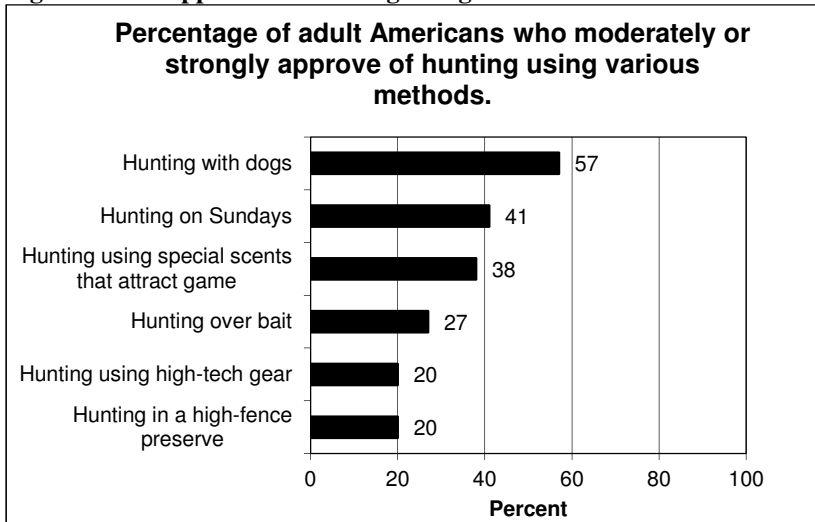
Six individual questions were asked in this series; for each, respondents were asked if they strongly approved, moderately approved, were neutral, moderately disapproved, or strongly disapproved (or did not know) regarding hunting using that method. Hunting on Sunday is not a method but was included in this graph. Sunday hunting is currently legal in most states but is banned in a few.

Support/Approval of Hunting as Affected by the Consequences of Hunting

Research also suggests that the ecological benefits of hunting resonate more with Americans than do human-centered benefits, such as recreational benefits. For example, a recent survey of New Hampshire residents found that majorities of respondents who favored an increase in the deer population were still in support of the increased population even if it meant an increased likelihood of damage to gardens and landscapes, more vehicular accidents, losses to farmers or timberland owners, or an increased risk of Lyme Disease (Figure 8.2.6). On the other hand, well less than a majority of those respondents (those who originally favored an increase in the deer population) of respondents would support an increase in the deer population if it meant reduced deer health (only 37% still wanted an increase), while just 28% remained supportive of the increase if it meant less food or poorer quality habitat for other wildlife.[594] These results suggest that the hunting community will realize the greatest return on

investment by employing communications that connect hunting to broader conservation concerns impacting wildlife and habitat.

Figure 8.2.6. Support of an Increase in the Deer Population With Various Consequences[595]

Percent who would still strongly or moderately support an increase in the deer population in their county in the following situations. (Asked of those who supported an increase in the deer population.)

Situation	Percent
If it meant an increased likelihood of damage to your gardens or landscape plantings	85
If it meant you would have an increased likelihood of having an automobile accident with a deer	74
If it meant an increased likelihood of losses to farmers or to timber land owners	67
If it meant an increased risk of people contracting Lyme Disease	56
If it meant reduced deer health as reflected by higher winter mortality and/or reduced fawn production	37
If it meant less food or poorer quality habitat for other wildlife	28

Unfortunately, one perceived consequence among many Americans is actually false.[596] Figure 8.2.7 shows that nearly half of Americans agree (46%) with the statement, "Hunting as practiced today in the U.S. causes some species to become endangered." However, modern hunting laws and regulations and modern wildlife management ensures that hunting in the United States does *not* endanger wildlife. This fact needs to be disseminated.

Figure 8.2.7. Belief That Hunting Endangers Wildlife[597]
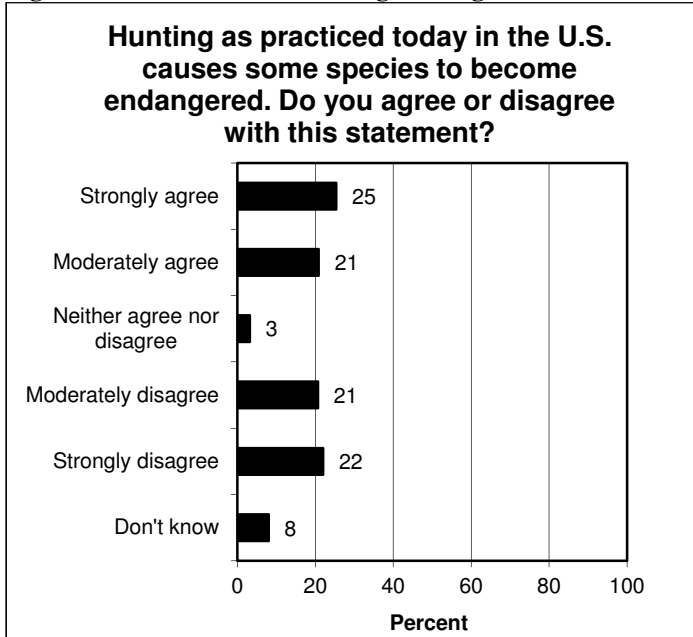
Support/Approval of Hunting as Affected by Wording
Approval of hunting tends to shift when the activity is strongly implied but
not explicitly stated. A survey of Pennsylvania residents[598] conducted for
the Pennsylvania Game Commission included two similar questions, one
asking about support for lethal methods to manage deer populations, and the
other asking specifically about support for legal, regulated hunting to
control deer populations. While just 63% of Pennsylvania residents
indicated strong or moderate support for lethal methods, an overwhelming
majority (85%) supported legal, regulated hunting to manage deer
populations. In this instance, respondents' uncertainty over the implications
of "lethal methods" may have contributed to the lower level of support for
that option, despite that "legal, regulated hunting" constitutes a lethal
method of deer management as well.

**Knowing a Hunter and Behavior of Hunters and Effects on
Support/Approval of Hunting**
Other research has helped agencies to better understand their constituents,
including which groups within the population are most likely to support
hunting. Studies have shown that attitudes change as people gain direct
experience—in this way, one of the greatest predictors of feelings about
hunting is the extent to which a personal connection to it exists, such as
knowing or being related to a hunter or having parents or other family
members who approve of hunting.[599] Another researcher, Applegate,[600]
found that people who know hunters are more likely to approve of hunting
than are those who do not know any hunters. There is also research that has
identified an important relationship between frequency of game meat

consumption and attitudes about hunting—essentially, the more game meat a person consumes, the more likely he or she is to hold positive opinions about hunting.[601]

Despite strong approval of hunting among Americans, it is critical to keep in mind that attitudes toward hunting may not always reflect attitudes toward hunters. Consider that, in one study, 64% of non-hunters agreed that a lot of hunters violate hunting laws; in another survey, 50% of American adults said that a lot or a moderate amount of hunters drink alcohol while hunting.[602]

Another researcher[603] summed up his studies on this issue by saying that the public was not against hunting "but sure feels differently about the hunter," and went on to write that "no amount of advertising to the general public could work to change these beliefs [that there are problems with hunting] unless some fundamental changes were made in the preparation of hunters and in the ethical manner in which hunters conduct themselves." It is interesting that this research found that the highest ranking perceived problems with hunting the public had were with *wounding* the animal (including not properly tracking wounded animals) causing it to unduly suffer, not with *killing* the animal with a clean shot, suggesting little tolerance for inept hunters or hunters who are not properly trained. For this reason, programs and communications may need to separate hunter behavior from the activity of hunting itself.

Wildlife Attitude Typologies and Attitudes Toward Hunting

Some research has used a typology of wildlife values that broadly describes and categorizes people into various mindsets. Either of these typologies described below can help in understanding attitudes toward wildlife, and it is worth looking at this research because of its implications regarding hunting (and to fishing, as well).

The first of these typologies reviewed here was developed by Kellert and Berry.[604] These wildlife value types describe common human perspectives for affiliating and interacting with nature and wildlife. The values, shown in Table 8.2.1, range from naturalistic, which emphasizes interest and affection for wildlife, to negativistic, which emphasizes fear of nature and wildlife. The estimated percentage of Americans oriented to that type (in 1980) is also shown. Interestingly, the two most prominent types— humanistic and neutralistic—are antithetical to hunting participation.

Table 8.2.1. Kellert and Berry's Wildlife Typologies[605]

Value Type	Estimated Percent of Americans Strongly Oriented Toward the Value Type*	Definition of Type	Common Behavioral Expression
Naturalistic	10	Primary interest and affection for wildlife and the outdoors	Outdoor wildlife-related recreation
Ecologistic	7	Primary concern for the environment as a system, for interrelationships between wildlife species and natural habitats	Conservation support, activism, and membership; ecological study
Humanistic	35	Primary interest and strong affection for individual animals, principally pets	Pets, wildlife tourism, casual zoo visitation
Moralistic	20	Primary concern for the right and wrong treatment of animals, with strong opposition to exploitation or cruelty toward animals	Animal rights support and membership; kindness to animals
Scientistic	1	Primary interest in the physical attributes and biological functioning of animals.	Scientific study; collecting as a hobby
Aesthetic	15	Primary interest in the artistic and symbolic characteristics of animals	Nature appreciation, art, wildlife tourism
Utilitarian	20	Primary concern for the practical and material value of animals or the animal's habitat	Wearing of furs, consumption of meat, hunting
Dominionistic	3	Primary interest in the mastery and control of animals, typically in sporting situations	Animal spectator "sports", trophy hunting, animal training
Negativistic	2	Primary orientation is an active avoidance of animals due to dislike or fear	Cruelty, overt fear behavior
Neutralistic	35	Primary orientation is an active avoidance of animals due to indifference	Avoidance of animals

* Totals to more than 100% because persons can be strongly oriented toward more than one value type.

The second typology reviewed was developed by the Human Dimensions in Natural Resources Unit at Colorado State University.[606] It uses four types to define the public's attitudes toward wildlife; the types are defined in a matrix created from two scales, as shown in Figure 8.2.8. In this study of western U.S. residents, respondents were assigned a score on the two wildlife value scales, the utilitarian scale and the mutualism scale, based on their responses to a series of questions.

Figure 8.2.8. Colorado State University Wildlife Typologies[607]

	Utilitarian	
	Low	High
Mutualism Low	**Distanced**	**Utilitarian**
Mutualism High	**Mutualist**	**Pluralist**
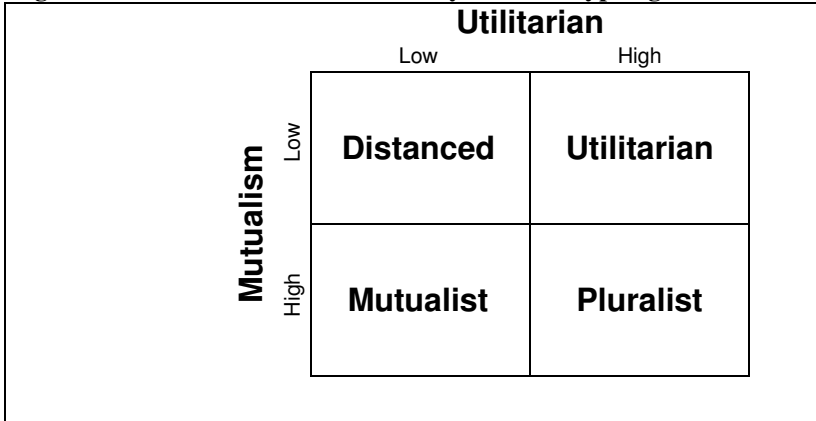
In this typology, Utilitarians support the use and management of wildlife for the benefit of humans, are more likely to prioritize human well-being over wildlife in their attitudes and behaviors, and are more likely to rate actions that result in death or harm to wildlife as acceptable. The researchers speculate that this orientation, once the predominant orientation in American society, is one from which society may be moving away.

Pluralists score high on both of the scales, indicating that their views regarding wildlife are often situational and may sometimes appear to be contradictory. For example, a person may approve of hunting but may not personally feel capable of killing an animal. The researchers suggest that the existence of this type may be indicative of the societal shift from a utilitarian to a mutualist orientation regarding wildlife.

Mutualists view wildlife as capable of living in relationships of trust with humans and as deserving of rights and caring. They are less likely to support actions, such as hunting, that result in death or harm to wildlife.

Distanced types do not identify with either utilitarian or mutualist views, indicating that they may be less interested in wildlife-related issues or that their values in general are simply less wildlife-oriented.

The study categorized western U.S. residents (the survey was only conducted at that time in the western United States) into the four types, finding that the Utilitarian and the Mutualist categories each contain about a third of western U.S. residents, with the last third being divided unequally between the Pluralist and the Distanced categories—the latter having the lowest proportion of residents (Figure 8.2.9). The study also suggested that mutualist attitudes have become more prevalent than utilitarian attitudes among the American public. For this reason, messages about hunting that address animal welfare (e.g., ethical shot placement and clean, quick kills) may be most likely to resonate with the general public.

Figure 8.2.9. Proportion of Western United States Residents in the Four Colorado State University Wildlife Types[608]

Wildlife Value Orientations in the West

Distanced
13%

Utilitarian
34%

Mutualist
33%

Pluralist
20%
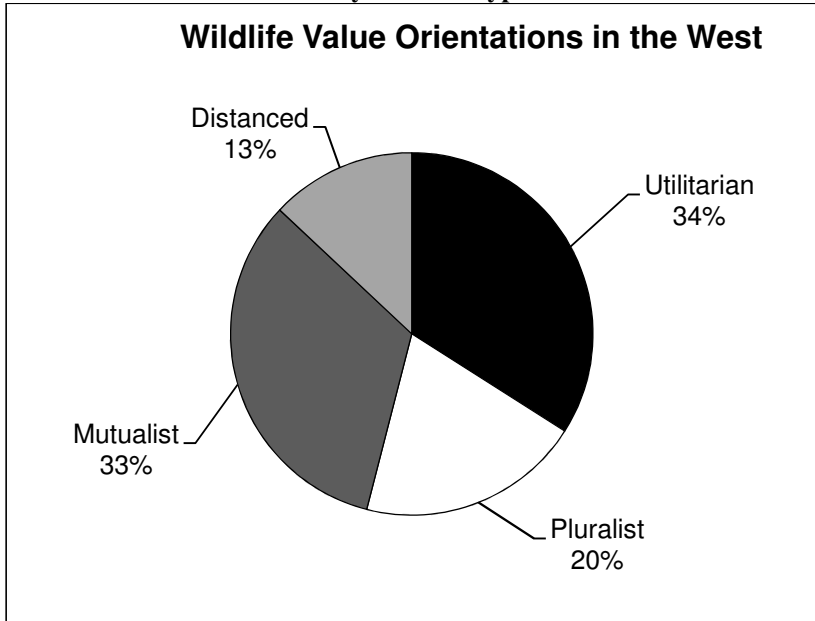
Demographic Factors Related To Support/Approval of Hunting

Before moving on to the factors that affect approval of fishing, this review of research looks at key demographic characteristics that are correlated to approval of hunting, determined through largescale quantitative surveys.[609] Characteristics positively correlated with approval of hunting include living in a rural area, being male, being between the ages of 45 and 64 years old, being white or Caucasian, and residing in the South Atlantic region of the United States (Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia).

On the other hand, characteristics negatively correlated with approval of hunting include living in a large city or urban area, being female, being between the ages of 18 and 24 years old, being Hispanic/Latino or African-American, and residing in the New England or Pacific regions of the United States (the former including Connecticut, Massachusetts, Maine, New Hampshire, Rhode Island, and Vermont, and the latter including Alaska, California, Hawaii, Oregon, and Washington).

FACTORS AFFECTING APPROVAL OF OR SUPPORT FOR FISHING

While fishing has higher approval and support among the American public than does hunting, this relatively high approval is, again, not absolute, as the motivations for and methods of fishing affect its acceptance.

Support/Approval of Fishing by Motivations for Fishing

Figure 8.2.10 shows that recreational fishing for food has the most approval (96%), with fishing for sport, to supplement income, for the challenge, and fishing to get a trophy fish have less approval.[610]

Figure 8.2.10. Approval of Fishing for Various Motivations[611]
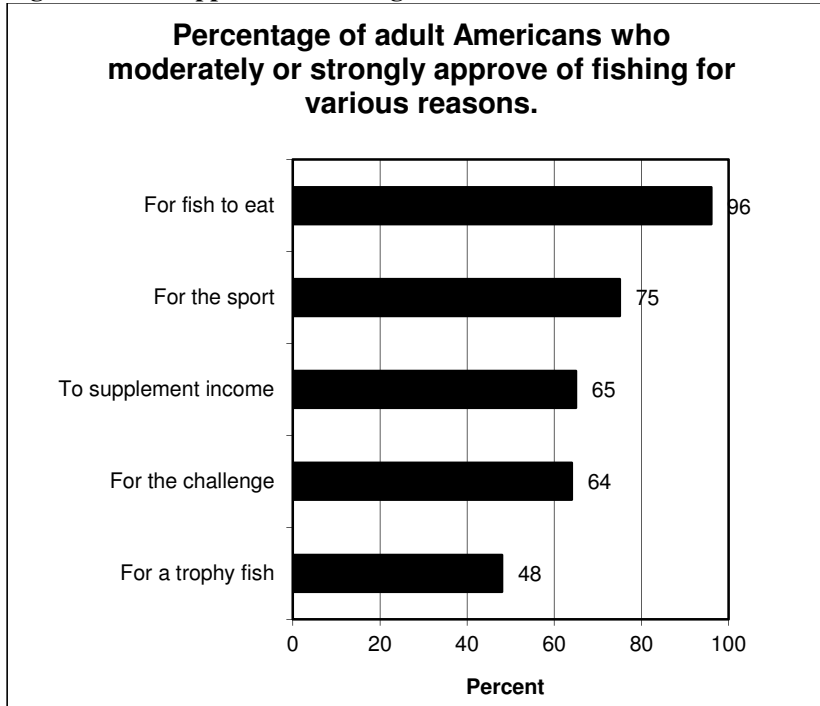
Other research produced similar findings. For instance, a study of Ohio residents[612] found much more support for fishing for food than fishing for either recreation or for a trophy (Figure 8.2.11).

Figure 8.2.11. Approval of Fishing for Various Motivations Among Ohio Residents[613]

Percentage of Ohio residents who support fishing for various reasons.

Reason	Percent
Fishing for food	96
Fishing for recreation and sport	78
Fishing for a trophy	30
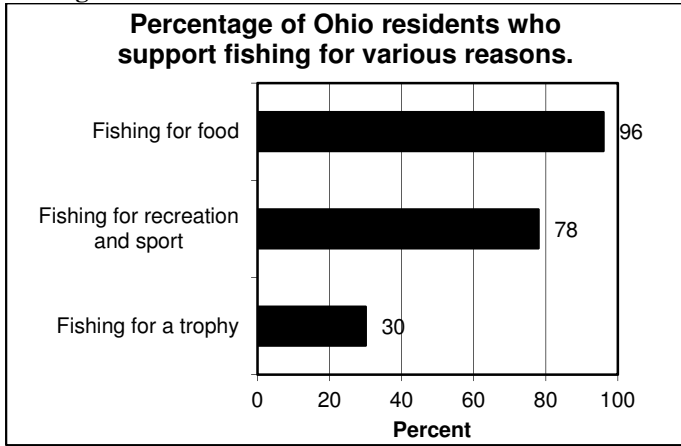
Support/Approval of Fishing by Methods of Fishing

The method used to catch fish also affects its acceptance.[614] While hook-and-line fishing is generally accepted, Figure 8.2.12 shows that gigging and snagging fish are not well accepted (and are, indeed, illegal for most fishing in the United States).

Figure 8.2.12. Approval of Fishing Using Various Methods[615]

Percentage of adult Americans who moderately or strongly approve of fishing using various methods.

Method	Percent
Fishing with bait	90
Fishing with lures	86
Catch-and-release fishing	86
Fly fishing	85
Crabbing	79
Gigging	45
Snagging	32
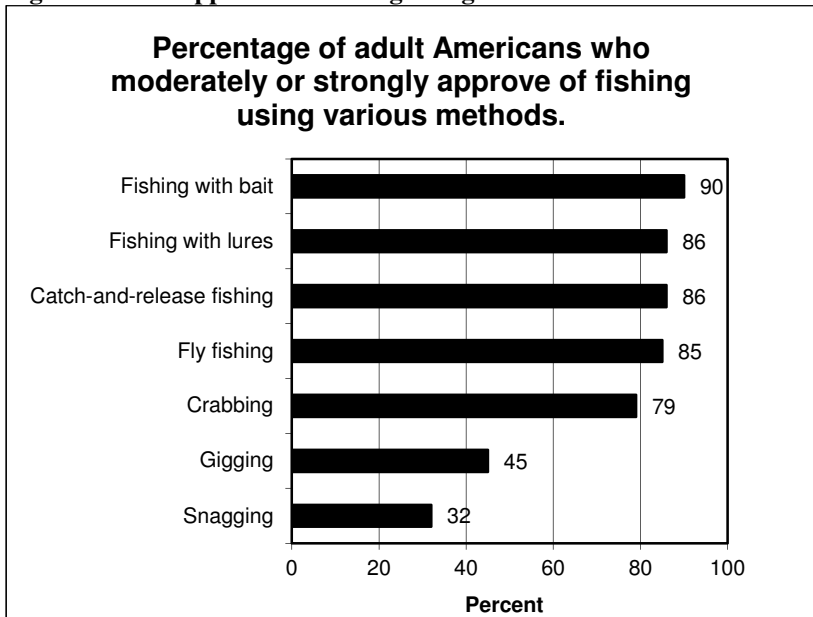
Support/Approval of Fishing as Affected by Angler Behavior

As was done with hunters' behavior, this review looks at anglers' behaviors and the public's attitudes toward anglers. Nationwide survey research found that 40% of Americans agreed with the statement that "a lot of fishermen violate fishing laws"; interestingly, among active anglers the results are nearly the same, with 42% of active anglers agreeing with the statement.[616] Because this research was conducted some time ago, it is not known if these attitudes are still prevalent, but it is likely that some of the public does not have a wholly positive attitude toward anglers.

In this study of anglers' behavior, those who agreed or answered neutrally (i.e., did *not* indicate that they disagreed) that "a lot of fishermen violate fishing laws" were asked in follow-up to say which laws they thought anglers most often violate. Figure 8.2.13 shows that fishing over creel limits and catching undersized fish are the most commonly named violations. Another follow-up question found that 64% of those respondents think that the angler knows the law but violates it anyway, while only 24% think that the violation occurs because the angler does not know the law.[617]

Figure 8.2.13. Perceptions of Fishing Laws Most Commonly Violated[618]

Which laws do fishermen violate most often? (Asked of those who agreed [or answered neutrally] that "a lot of fishermen violate fishing laws.")

Law	Percent
Fishing over creel limits	41
Catching undersized fish	27
Fishing without a license	15
Drinking alcohol	12
Catching fish out of season	10
Fishing in restricted areas	6
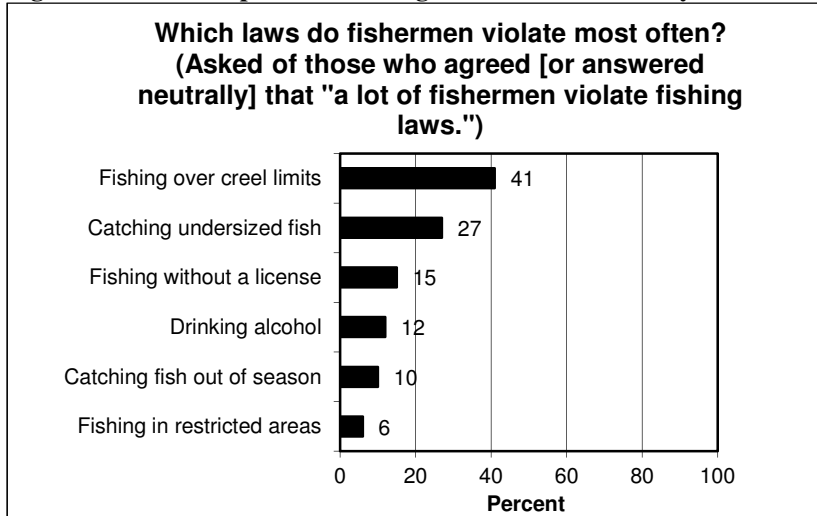
FACTORS AFFECTING APPROVAL OF OR SUPPORT FOR SPORT SHOOTING

One study asked the general public about two motivations for sport shooting: to learn self-defense and for recreation.[619] Support for shooting for these reasons is high: 78% of the American public supports shooting for self-defense training, and 72% support it for recreation (Figure 8.2.14).

Figure 8.2.14. Support for / Opposition To Sport Shooting for Two Motivations[620]
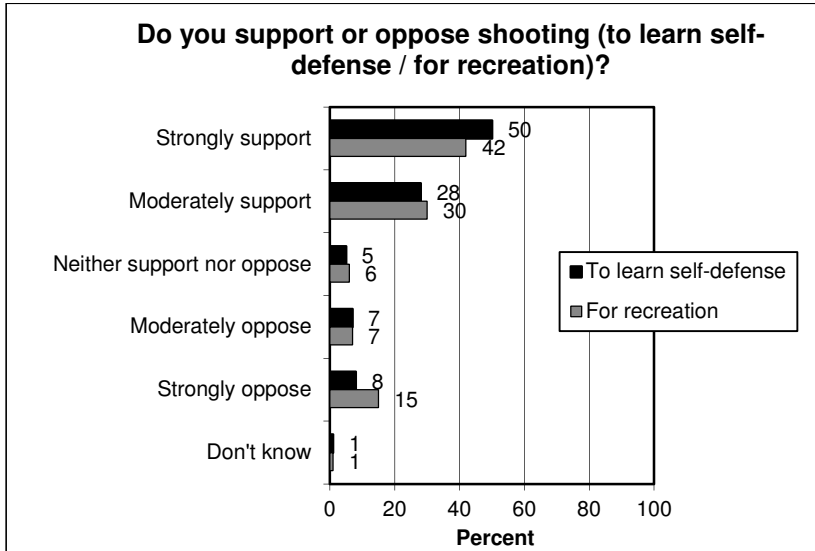
Sport shooters' behavior was examined in the same study referenced immediately above.[621] A large majority of Americans feel that, in general, sport shooters safely handle firearms. The question about this was asked in two ways to a randomly divided general population sample to eliminate bias in the wording, with both questions using an agree-disagree scale. In the two questions, 70% of Americans agreed that "most shooters safely handle firearms," and 66% disagreed that "most shooters carelessly handle firearms." Additionally, 78% of the American general public agreed that sport shooting participants "are highly concerned about safety and responsible use of firearms"; only 11% disagreed (the rest being neutral). Finally, 66% of Americans agreed that "shooters respect living things"; only 16% disagreed.

While the mass media rarely show sport shooting events, the media do often show people using firearms, often in the commission of a crime on police shows. Therefore, it is not surprising that 73% of Americans disagree (with 54% *strongly* disagreeing) that the mass media "accurately portray how firearms are used in the real world."[622]

There are some demographic findings regarding support for or approval of sport shooting.[623] Research suggests that men are more approving of sport shooting than are women, and rural residents are more approving than urban residents. Finally, older respondents showed more approval than did younger respondents. Education level, on the other hand, did not show any marked effect on approval.

CHILDREN'S DEVELOPMENT AND THEIR SUPPORT OF FISH- AND WILDLIFE-RELATED RECREATION

This section is included simply because trying to sway adults' opinions is simply different than trying to sway children's opinions. Therefore, it is useful to look at how children develop in their attitudes toward wildlife. One researcher[624] looked at children's cognitive development as it relates to obtaining environmental knowledge and understanding ecological concepts. The first stage is *literalism*, wherein children have little ability to see themselves removed from their physical surroundings. The second stage is *organization*, wherein children learn natural laws that allow them to classify things and to systematically reduce the complexity of the world by applying these laws. The third stage is *moralism*, wherein children begin to understand ecosystem concepts. This classification affects the messages and message themes that will resonate at various ages.

Building on the research above, other researchers[625] suggest that children go through three major transitions, and they approximated the grade level at which these transitions occur. In the (approximately) 2nd to 5th grades, children have an increase in emotional concern and affection for animals; from the 5th to 8th grade, children have an increase in cognitive understanding of animals; and in the 8th to 11th grades, children have an increase in ethical and ecological concern for animals and the natural environment (presumably to include concern for animal *populations*). This latter stage also is accompanied (sometimes) by an increased interest in wildlife and outdoor recreation (at the time of that study in 1980).

One of the researchers who posited the transitions theory a few years later applied the research to teaching the various grade levels.[626] In the 2nd to 5th grades, wildlife educational efforts should focus on concern for the environment and the natural world. In the 5th to 8th grades, the focus should be on factual understanding of animals, and in the 8th to 11th grades, the focus should be an ethical concern for animals and an understanding of ecological concepts.

Three separate studies[627] by various researchers all suggested that the strongest influence on children's knowledge of and attitudes toward wildlife was knowledge gained through direct contact or direct experience with various animals, whereas indirect instruction (such as showing photographs) was not as effective. One of those studies found that participation in animal-related activities had the strongest association with knowledge levels in youth of any of the variables considered. Other research[628] suggests that programs aimed at school children are more effective in imparting knowledge if the program includes hands-on activities.

8.3. STRATEGIES TO IMPROVE APPROVAL AND SUPPORT

This discussion about strategies to improve the cultural acceptance of the activities of focus in this handbook first looks at the sources of information on these activities—after all, sources of information have a huge influence on perceptions of the activities. It first looks at the sources that are used before looking at the perceived credibility of those sources. The section then looks at wording, messages, and message themes that resonate before looking at other messaging strategies.

SOURCES THAT PEOPLE USE

The formats that people use to obtain information on hunting, fishing, sport shooting, and archery that are most commonly used have changed dramatically in the past decades going from pre-Internet days to nowadays when the Internet is the predominate format for obtaining information. However, while the format of the information has changed, there is more stability in the actual sources that are producing the information. In other words, the state fish and wildlife agency was once a leading source of information through paper copies of the hunting and fishing regulations manuals, and the agency is still a leading source, but the paper copies have been replaced with electronic copies on people's computer or cell phone screens.

Because of the difference between the format of the information and the source of the information, some recent surveys had divided heretofore single questions about the sources of information that people use into two questions: the first asking about the format of the information that people most commonly use and the second asking about the entity that produced the information. Agencies and organizations that are disseminating information have to account for both the format and the actual source.

An illustration of this dual line of questioning is shown in Figure 8.3.1, from a statewide study of trout anglers in North Carolina.[629] The survey first asked the format of information, and anglers overwhelmingly use the Internet (73% do so), although substantial percentages use printed materials such as magazines, books, or brochures (39% use this format) and on-site signage (36% obtain information from this format). Note that anglers could give multiple responses. The survey then asked the trout anglers to name the entities that had produced the information. An overwhelming majority had obtained the information from the state wildlife agency (84% had done so), distantly followed by outdoors stores (25%), not-for-profit organizations (13%), guides (13%), and fishing clubs (6%).

Figure 8.3.1. Sources of Information Used by Trout Anglers[630]

When you look for information about trout fishing in North Carolina, what formats do you use? Please tell me all that apply. Do you use...? (List was read to respondents.)
Who produces the information about trout fishing that you use? (Open-ended, asked of those who named an information format in the previous question.)

Source	Percent
The Internet	73
Printed things like magazines, books, or brochures	39
On-site signage	36
Television	3
Radio	2
None of these	14
Don't know	2
North Carolina Wildlife Resources Commission	83
A store / outdoors store	25
A not-for-profit fishing organization, such as Trout Unlimited	13
A guide or guide service	13
A fishing club	6
A for-profit organization other than store / outfitter	3
Don't know	9

Multiple Responses Allowed

Percent

CREDIBILITY OF SOURCES

It is now worth looking at the credibility of those conveying information about hunting, fishing, sport shooting, and archery. Fish and wildlife agencies themselves are highly influential when providing the public with information about legislative or policy decisions likely to affect biological resources, as research has shown that agencies enjoy strong credibility on these issues. A survey of northeast state residents asked them to rate the credibility of various sources of information on fish, wildlife, and outdoor recreation.[631] Two of the top three sources in the ranking considered to be very or somewhat credible were entities associated with the state fish and

wildlife agency: a biologist with the agency (the top source in terms of being credible) and an agency enforcement officer (Figure 8.3.2).

Figure 8.3.2. Credibility of Sources in the Northeast[632]

For each, the survey asked, "Do you think [SOURCE] is very credible, somewhat credible, or not at all credible as a source of information on fish, wildlife, and outdoor recreation?" (Ranked by very and somewhat credible combined.)

- ■ Very credible
- ▨ Somewhat credible
- □ Not at all credible
- ▨ Don't know

Source	Very credible	Somewhat credible	Not at all credible	Don't know
A biologist with the [AGENCY]	68	19	2	11
A biologist from the U.S. Fish and Wildlife Service	64	23	2	11
A [STATE] [ENFORCEMENT OFFICER]	61	26	2	11
A biologist from the State Department of Environmental Protection	57	27	3	12
A professor of environmental science or biology at [STATE UNIVERSITY]	55	29	3	13
A spokesperson from the National Wildlife Federation	45	37	4	13
A spokesperson from a local environmental organization	28	48	11	13
A spokesperson from a local sportsmen's organization	19	51	17	13
A spokesperson from the American Society for the Prevention of Cruelty…	29	39	19	13

Percent

In the question wording, the survey interviewer used the name of the respondent's state agency, the name of state, the name of the state enforcement officer (e.g., warden), and the state's agricultural university because these state universities are generally most associated with wildlife-related programs (e.g., in Virginia, the state university used in the wording was Virginia Tech).

Likewise, in the southeastern[633] part of the country, residents find the state's fish and wildlife agency itself and an enforcement officer with the fish and wildlife agency to be the most credible sources of information (Figure 8.3.3). In short, state fish and wildlife agencies have high credibility and can use that credibility to advance their efforts.

Figure 8.3.3. Credibility of Sources in the Southeast[634]
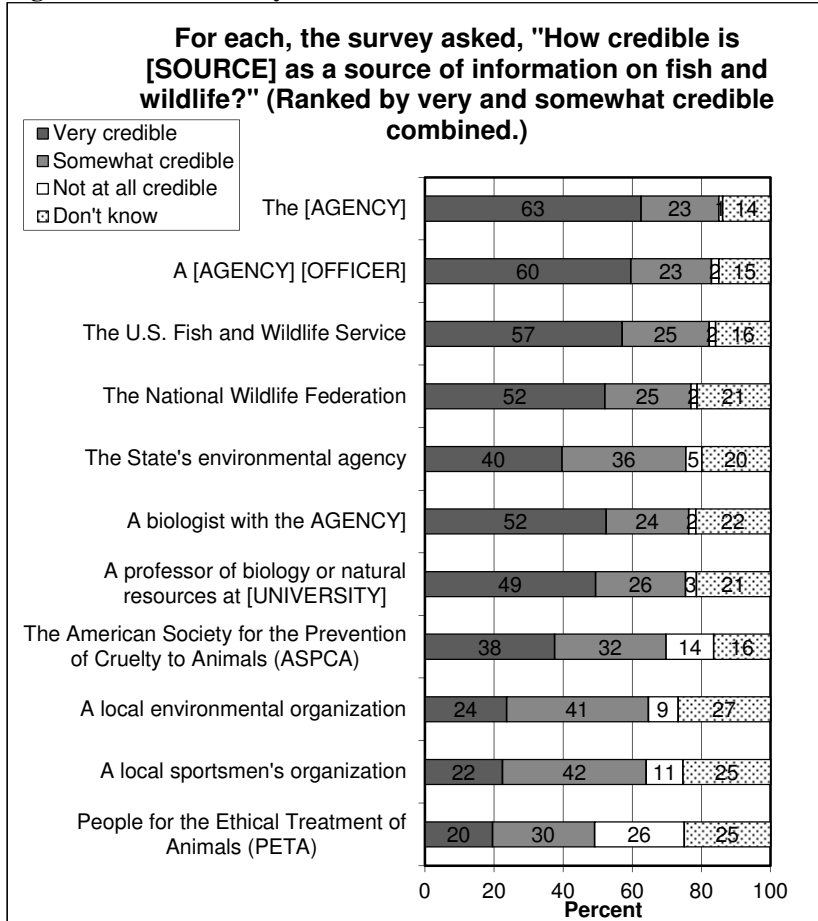
In the question wording, the survey interviewer used the name of the respondent's state agency, the name of the state enforcement officer (e.g., warden), and the state's agricultural university because these state universities are generally most associated with wildlife-related programs (e.g., in Texas, the state university used in the wording was Texas A&M University).

Colleges and Universities: Prime Habitat for Hunter Recruitment and Retention?

Brett Stayton, Lincoln R. Larson, Ryan L. Sharp,
Adam A. Ahlers, and Billy Downer

One of the most promising R3 targets is a demographic group that has been largely overlooked: young adults. Efforts to understand the hunting-related perceptions and behaviors of young adults are especially critical because (a) this group represents a key audience for long-term

continued

recruitment and retention efforts and (b) hunting participation among young adults has been historically low relative to other age groups. Among young adults, college students are a population of particular interest for several reasons.

Over 40% of young adults ages 18 to 24 currently attend some form of college, and research shows that leisure and recreation activity experimentation levels peak while individuals are in college. At this age, many young adults may be looking for new activities to fill voids left by regimented schedules and extracurricular commitments of high school, and the new activities explored and adopted during the college years often contribute to an individual's identity as they progress through life. As an added bonus, autonomous college students are able to easily circumnavigate many common barriers to hunting among children and teens, and they are not reliant upon adults to take them hunting or to purchase the necessary gear, licenses or tags. Considering all of this, colleges and universities might represent a very fruitful ground for R3 efforts.

In 2016, we tested this proposition by studying a random sample of undergraduate students at two major land grant universities: Clemson University in South Carolina and Kansas State University. Our survey effort generated over 5,000 responses designed to answer four questions:

> 1) How many college students hunt or support hunting?
> 2) Who exactly are these college students who hunt?
> 3) What are the major barriers to hunters expressed by college students?
> 4) How likely are college students to engage in hunting in the future?

Roughly 40% of students at each school indicated that they had gone hunting before, while an additional 10% said they had accompanied someone on a hunt. However, of those students that had been hunting, more than half indicated that their participation had decreased since the beginning of college. In most cases, this was due to the fact that they had moved away from previous hunting locations and/or perceived a lack of available hunting land in their current location. Most student hunters seemed to have followed the traditional pathway into the activity: they were likely to be white males from rural areas with family members (especially fathers) who hunted. But these students were not the only ones interested in hunting. About 60% of non-hunting students indicated that they approved of hunting, and almost 65% of these students indicated that they would consider hunting in the future (including 60% of females with no previous hunting experience). More

continued

than 30% of non-hunting students said they regularly ate game meat acquired through hunting or talked about hunting with friends and family. Only a small percentage of the students (11%) indicated that they moderately or strongly disapproved of hunting. Hunting to control wildlife populations, obtain local meat, connect with nature, and spend time outdoors with family and friends were the most acceptable reasons for hunting, while hunting to engage in sport and harvest a trophy animal were the least acceptable.

Prominent barriers to hunting reported by students who did not hunt were inadequate knowledge and skills required to hunt and/or prepare game meat. Both are concerns that could be easily addressed through education and programming. Perhaps most importantly, students expressed an eagerness to learn more about hunting and try it out. Over half of the students in our study that had never been hunting before indicated that they would definitely consider hunting at some point in the future.

To give students a chance to make good on their word, we are currently working with the South Carolina Department of Natural Resources (SCDNR) and Clemson University to offer one-day deer hunting clinics to college students who have never been hunting before. Response to the clinics has been overwhelming, and participant slots have filled quickly with individuals from diverse demographic backgrounds. Preliminary evaluation efforts suggest that these clinics have been very successful tools for increasing interest in and awareness of hunting and hunting-related benefits. Clinics have also helped students develop skills needed for successful hunting experiences. To provide opportunities for these aspiring young adult hunters to get some field experience, the SCDNR partnered with the National Wild Turkey Federation to offer mentored deer hunts. Several students successfully harvested their first deer on these hunts. Other students have ventured out on their own after the events to successfully harvest deer on public lands. To build on these encouraging success stories, we will continue tracking the long-term hunting participation of clinic participants.

What have we learned throughout this process to date? First, many college students like to hunt, and many who don't currently hunt would like to try it. These patterns are reflected in the immense popularity of the hunting, shooting, and archery classes offered to undergraduates at both institutions, which increasingly attract a wide range of diverse participants (including large numbers of women and first-time hunters). Second, college students are generally supportive of hunting. Even if students do not hunt in the future, strategic education and outreach efforts (including those linked to formal college curricula) could help

continued

these students become hunting advocates. Finally, our data suggest that colleges and universities provide a deep pool of potential hunters and could be a target-rich environment for hunting-related marketing and programming. Future work should explore this potential in different contexts. With growing concerns about the future of hunting and limited resources to support R3 efforts, college campuses might be a great place to start.

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Adam Ahlers is an Assistant Professor at Kansas State University. He received his Ph.D. from the University of Illinois, Urbana-Champaign in 2015. He teaches courses related to hunting and wildlife management at KSU and his research focuses on understanding how environmental change affects wildlife populations.

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WORDING AND MESSAGES

Regarding messages that resonate with the public, research has reinforced the importance of semantics, particularly key qualifiers and adjectives applied to the term "hunting." In the early 1990s, when Responsive Management was beginning to study attitudes toward hunting, qualitative focus group discussions[635] with members of the general population revealed that some participants interpreted "hunting" to be inextricably tied to "poaching." Further discussion suggested that some of the same participants viewed recreational hunting as a threat to certain wildlife populations. For these reasons, many subsequent Responsive Management surveys specified legal or regulated hunting as opposed to simply "hunting."

Incorporating the word "regulated" alone, however, can also pose problems, as some respondents may misinterpret or misconstrue the term as "regulating"—in other words, rather than hearing a description of the type of hunting, respondents may hear a verb describing new restrictions that may be applied to hunting (i.e., regulating the activity). A comparison of similar surveys measuring approval of hunting may illustrate the effect of this minor but crucial difference in wording. In a 2013 telephone survey conducted by the Cornell Survey Research Institute, respondents were asked whether they approved of regulated hunting, while a 2013 Responsive Management survey asked about approval of legal hunting. The Cornell study[636] found that just 61% of respondents approved of regulated hunting, compared to 79% of respondents who expressed approval in the Responsive Management survey.[637] The percentage giving a neutral response was much higher in the Cornell survey than in the latter survey.

Of course, while it is impossible to verify that some of the Cornell respondents misinterpreted the phrase "regulated," the semantic implications discussed previously are nonetheless useful to keep in mind when examining the differences in the levels of approval. Interestingly, asking the question using the most complete phrase—"legal, regulated hunting"—may yield the highest overall level of approval: a 2014 survey of Washington State residents that used this wording found that 88% of residents approved of legal, regulated hunting, with 54% strongly approving (Figure 8.3.4).[638] It may be that the added specificity helps to communicate hunting in a positive way as a carefully managed and controlled recreational activity.

Figure 8.3.4. Approval of Hunting Using Various Wording[639]
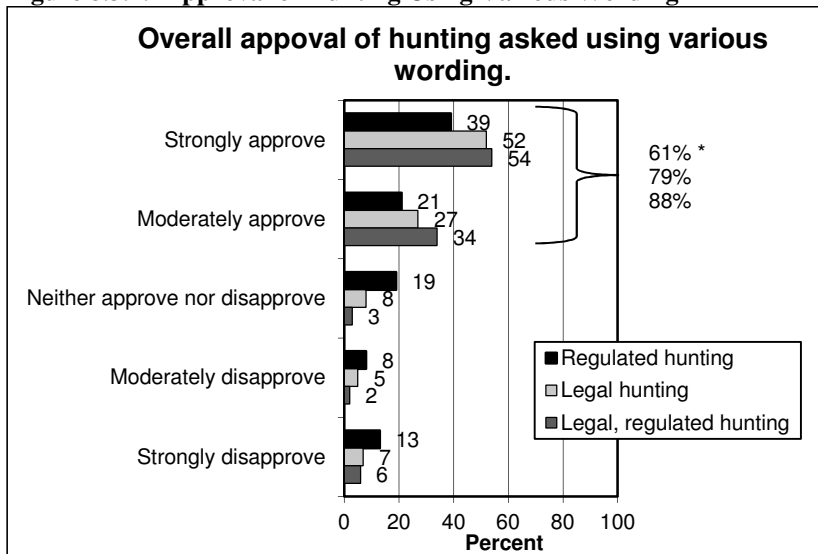
* Rounding on the graph to the integer causes apparent discrepancy in sum; calculation was made on unrounded numbers.

MESSAGING STRATEGIES

Another researcher and writer on hunting issues, Michael Sabbeth, suggests that influencing the public's thinking about hunting involves first defining the terms of the discussion in ways that show hunting in a good way.[640] He uses the finding that "trophy hunting" has low approval, particularly relative to hunting for other motivations. But he points out that the term, "trophy hunting," is vague. He asks the hypothetical questions, "Would trophy hunting include creating a trophy but donating the meat?" and "Would trophy hunting include hunting where a trophy is created but funds from the hunt itself finance clean water for a village or support anti-poaching actions?" He posits that, regardless of the answers, no decent person would oppose something the yields those benefits. His implication is clear: first define hunting as having positive aspects before the discussion can turn against hunting. Also, make sure the terms are properly defined and properly used in the discussion. Conversely, do not allow ill-defined or vague wording to be attached to hunting and used against it, such as "trophy hunting" as defined in most people's minds.

Sabbeth also points out that it may not be logical that the motive should determine hunting's acceptability at all. As he says, "Making motive primary means that the consequences of hunting are less important. Yet consequences define reality." In other words, it is the consequences that should determine hunting's acceptability, and there are many good consequences of hunting.

OPINIONS ON HUNTING, FISHING, AND SPORT SHOOTING IN SCHOOLS

One topic of interest that stakeholders wanted to see in the handbook related to the messages about these activities that children were hearing from school sources. There was conjecture that schools have an anti-hunting and anti-sport shooting slant. However, the evidence does not support this conjecture, although, in truth, there is not much data on this topic either way.

One study[641] that was done on youth participation in hunting and fishing asked children if any of their teachers or guest speakers had talked about hunting at school. Of more importance is the follow-up question that asked if the teacher or speaker had said good or bad things about hunting. On this question, 61% of those who said that a teacher or guest speaker had talked about hunting said that the teacher or speaker had said good things, and only 7% reported that bad things had been said (with 32% reporting neutral things being said).

Another question in the same study was asked of those children who said that a teacher or guest speaker had talked about hunting. The children were asked in follow-up if they thought that their teacher, or most of their teachers, supported or opposed hunting. On this question, 34% of students said that they felt that their teachers supported hunting, while 15% reported

that they felt that their teachers opposed it. (Again, a large amount answered neutrally.) While there are undoubtedly some teachers who oppose hunting, it would appear that support for hunting exceeds opposition among teachers, among those teachers who are saying anything about hunting.

Both of the above questions were also asked about fishing: whether good or bad things were said about fishing, and whether the children think that their teachers supported or opposed fishing. Those children who had heard teachers or guest speakers talk about fishing overwhelmingly said that good things had been said (80%); only 1% indicated that bad things had been said. Additionally, 70% of those children said that they think that their teachers supported fishing, with only 1% saying that they think that their teachers opposed fishing.

CHAPTER 8 ACTION ITEMS[642]

➤ **Recognize that Americans' approval of hunting, fishing, and sport shooting has remained high for decades.**

R3 efforts should be carried forth with the understanding that these activities have approval from large majorities of Americans. Three out of four Americans approve of hunting, a rate that has more or less held steady since 1995. Approval of fishing is even higher, with at least nine out of ten Americans approving of the activity (again, a rate that has remained consistent for decades). Meanwhile, seven out of ten Americans approve of sport shooting, with the percentage of Americans describing sport shooting as "perfectly acceptable" climbing from 59% in 2001 to 66% in 2011.

➤ **There may be a tendency to think that hunting, sport shooting, and firearms themselves are not widely accepted among the general public; those who disapprove of these things may be quite vocal.**

Keep in mind and communicate to others that the large majority of Americans approve of hunting, sport shooting, and accept the legitimate use of firearms.

➤ **Understand that hunting for deer, wild turkey, or waterfowl is more acceptable among the general population than is hunting for predators or species perceived as exotic or less common.**

Introductory R3 programs directed at newcomers and communication strategies directed at non-hunters should keep in mind the lower acceptance of hunting for species like mourning dove, mountain lion, and black bear.

➢ **Understand that hunting for the meat is highly accepted, as is hunting to protect humans from harm, hunting for animal population control, and hunting for wildlife management.**

Make these concepts the cornerstone motivational ideas behind R3 hunting programs as well as general messaging concepts aimed at the public. In particular, discuss programs such as "Hunters for the Hungry," which provide food for others, and emphasize the value that the meat from hunting provides for others (it is also worth noting that the vast majority of hunters eat the game they harvest).

On the other hand, avoid overly emphasizing hunting for a trophy, for the challenge, for sport, or to supplement income—these motivations have much lower rates of approval from Americans.

➢ **Understand that approval of hunting depends on the specific hunting techniques used.**

Avoid discussing hunting techniques that infringe on the public's perception of fair chase, particularly hunting in a high-fence preserve, hunting using high-tech gear, hunting over bait, and hunting using special scents to attract game. With this in mind, communications to non-hunters about hunting may be best in general terms.

➢ **Stress the ecological benefits of hunting, which tend to resonate better than the human-centered benefits.**

When discussing hunting with non-hunters, note that, in general, ecological benefits (e.g., hunting to protect habitat) resonate better than human benefits (e.g., hunting to protect personal property, hunting to protect crops), with the exception of hunting to protect humans from harm. R3 coordinators and proponents of hunting in general should communicate that hunting keeps wildlife from harming critical habitat; there is high support for hunting to protect habitat from being damaged from overpopulation of deer and other species. In general, proponents of hunting should attempt to define the activity through its consequences (i.e., its considerable ecological benefits, not to mention conservation funding and potential donations of game meat), rather than the motivations of hunters.

➢ **Emphasize the role that hunting plays in wildlife management, and stress that management entails protection of wildlife populations.**

Wildlife management today is a science—hunting is part of the scientific management of wildlife, which entails the work of trained biologists to ensure the protection of wildlife populations as a whole.

> ➢ **Focus on facts, but do not forget the heart.**

Non-hunters may perceive hunters as uncaring because, simply put, they shoot game. Emphasize that hunters deeply care about wildlife.

> ➢ **Stress that hunting does not endanger wildlife.**

Realize that there is an erroneous perception that must be countered: nearly half of Americans think that hunting as practiced today in the U.S. causes some species to become endangered.

Indicate that no species in the U.S. ever became threatened, endangered, or extinct from legal, regulated hunting. (In fact, note that past hunter-fueled extinctions happened in an era when there were no agencies to protect wildlife and, therefore, no controls on hunting.)

Educate the public on the North American Model of Wildlife Management, which includes hunting and the funding hunters and shooters provide and which, furthermore, has made North America arguably the best place in the world for wild animals.

> ➢ **There is a strong correlation between connection to a hunting culture and approval of the activities.**

People who know hunters personally are more likely to have positive opinions of hunting. To the extent possible, work to create an environment conducive to a hunting culture. Simply getting groups together socially and to participate in the activities will allow and encourage development of such a culture. Likewise, foster social support after R3 programs or events by encouraging participants to get together. Finally, encourage hunters to share their game meat with others, especially non-hunters.

> ➢ **Reinforce an image of hunters as respectful, compassionate, and responsible conservationists.**

Be aware that disconcertingly high percentages of Americans, while approving of hunting, nonetheless believe that a lot of hunters violate hunting laws or drink alcohol while hunting. A few illegal or unethical acts by just a handful of hunters can sully the reputation of hunters as a whole and erode support for hunting (of course, the same applies to unethical conduct by shooters). With this in mind, realize that every participant is an ambassador to the public and a role model for others— problematic misperceptions must be countered through direct experience and personal knowledge of respectful, responsible individuals.

➢ **Recognize the difference between animal rights and animal welfare; while very few Americans support animal rights, nearly all support animal welfare.**

Be clear on the distinction between animal rights and animal welfare: animal rights typically is defined as absolutely no use of animals, while animal welfare means that some use is acceptable as long as animals are treated humanely and with respect.

Because the overwhelming majority of Americans agree with the animal welfare philosophy, not the animal rights philosophy, it is important to portray the "caring" side of wildlife management. Presenting facts in discussions about hunting is vital; however, it is also vital to show the listener how much wildlife professionals care about wildlife and the wildlife resource. Anti-hunters should not be allowed to commandeer the "we care about wildlife" message as theirs.

➢ **Be aware that the shift in Americans' wildlife values that has occurred over the last decade has implications on support for and participation in hunting.**

Largely a result of urbanization and diminished personal connections to wildlife, more Americans today hold mutualistic views toward wildlife (the idea that animals have rights like humans) rather than utilitarian views (the idea that animals can be used as humans see fit). This shift in values suggests the growing importance of stressing the humane nature of hunting through quick, clean kills.

➢ **Recognize that Americans' approval of various motivations for fishing is fairly consistent with their attitudes toward motivations for hunting.**

The most approval is for fishing for fish to eat, the least approval for fishing for a trophy fish. (Sizable, but not overwhelming majorities approve of fishing for the sport, fishing to supplement income, and fishing for the challenge.) Again, these tendencies are useful to keep in mind when promoting R3 programs and efforts.

➢ **Understand that most methods of fishing are widely accepted by the public, with the exception of two: gigging and snagging.**

➢ **In line with the difference between Americans' attitudes toward hunting and hunters, a sizable percentage of Americans may have the impression that a lot of anglers violate fishing laws.**

Consistent with the recommendation discussed previously, realize that every active angler is an ambassador for the sport and has the obligation to act as an ethical and responsible role model.

➢ **Promote positive images of sport shooting.**

The positive aspects of sport shooting may not be widely known, and the media tend to highlight negative aspects. Encourage dissemination of information about the good aspects of sport shooting to counteract bad publicity. Press releases that highlight, for instance, the awarding of a scholarship related to shooting would provide positive images in the mass media. Closely work with and interact with media representatives by inviting them to events and courses to assist them in understanding the positive aspects of sport shooting.

➢ **Consider the stages of youth development as guidelines for determining the appropriate times for key messages and information.**

Consider the transition from second to fifth grade as the opportune time to emphasize affective and/or emotional concern for animals, the transition from fifth to eighth grade as the time for youth to develop cognitive and factual understanding of animals, and the transition from eighth to eleventh grade as the time to foster ethical and ecological appreciation of animals and the natural environment.

➢ **Understand that the terms "hunting" and "legal, regulated hunting" have an important difference. The latter term is much more acceptable than the former to non-hunters, as the former term can be interpreted as including illegal hunting.**

When discussing hunting with non-hunters, use the term "legal, regulated hunting" to ensure that the non-hunters are not reacting against illegal hunting, as focus group research has indicated that some non-hunters include illegal hunting in their concept of "hunting" when the term is not otherwise stipulated. Also note the importance of separating hunting from poaching in general—poaching, an illegal activity, should never be considered in the same category as regulated hunting.

➢ **Take advantage of the credibility of fish and wildlife agencies when communicating with the public.**

The public thinks of agency personnel as highly credible spokespersons regarding wildlife, hunting, fishing, and shooting. When using agency staff in programs, ensure that they wear a uniform or have another way to clearly identify them as a person of authority.

> **Realize that discussions about hunting and shooting can be emotionally charged.**

Be prepared for potentially extreme reactions and emotions when discussing hunting and shooting. However, do not respond in an extreme, contentious, or emotional manner (while, at the same time, avoiding a condescending tone).

Understand the social context and competing values that people have. An example is the opinions on Sunday hunting: there are many who support hunting in general but not on Sundays. It is important to understand the values that affect opinions on hunting. (Although this example pertains to hunting, understanding the social context applies to shooting as well.)

> **Stress the safety of shooting sports.**

Relative to countless other sports, shooting has a very low injury rate. Continue efforts to ensure that shooters are ethical and safe. Note that simply increasing non-participants' knowledge of the relative safety of the shooting sports is important in overcoming potential fear of firearms.

> **Educate hunting and shooting professionals regarding how profound some non-participants' fears of firearms is; this fear may be underestimated by many professionals.**

Take steps to eliminate the fear of firearms. This is the first step in encouraging participation in the shooting sports among some Americans.

Consider that the use of non-lethal firearms may be effective in initially getting non-shooters to shoot, allowing them to become more comfortable around firearms. After they are comfortable with non-lethal firearms, they will "graduate" to lethal firearms.

Do not avoid talking about safety in hunting and shooting programs, as simply ignoring safety does not alleviate concerns.

When promoting R3 programs involving shooting activities, emphasize that they are conducted in a safe and controlled manner. It is not enough that the programs be conducted in a safe and controlled manner; it must be communicated that they are conducted in a safe and controlled manner. Describe the safety features of programs.

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END NOTES

Some end notes include the entire reference for several entities that have multiple citations in this handbook. These include the NSSF, the Recreational Boating and Fishing Foundation, DJ Case and Associates, Southwick Associates, and Responsive Management.

For citations in other end notes, including those entities cited for only one article or report, the end note directs the reader to the reference in the Sources section but does not include the entire reference in the endnote.

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[2] About the Wildlife Management Institute: https://wildlifemanagement.institute/about. Website content verified November 12, 2016.

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[4] Glaser and Strauss, 1967.

[5] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA).

[6] NSGA refers to the National Sporting Goods Association.

[7] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA).

[8] NSGA refers to the National Sporting Goods Association.

[9] NSRE refers to the National Survey on Recreation and the Environment, conducted periodically in conjunction with the U.S. Forest Service. The data were presented in *Long-Term National Trends in Outdoor Recreation Activity Participation—1980 to Now: A Recreation Research Report in the IRIS Series*, 2009, by Cordell, Green, and Betz. Downloaded March 2016: http://warnell.forestry.uga.edu/nrrt/nsre/IRISRec/IRISRec12rpt.pdf. "IRIS" stands for Internet Research Information Series.

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[17] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA).

[18] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[19] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[20] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[21] "Federal Aid license data" refers to the data on number of license holders that states submit to the U.S. Fish and Wildlife Service as part of the Federal Aid in Wildlife and Sport Fish Restoration programs.

[22] "Federal Aid license data" refers to the data on number of license holders that states submit to the U.S. Fish and Wildlife Service as part of the Federal Aid in Wildlife and Sport Fish Restoration programs. Also included on this graph are data from the *National Survey*.

[23] All of these sources are discussed in the above notes.

[24] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA).

[25] NSGA refers to the National Sporting Goods Association.

[26] The National Survey on Recreation and the Environment, conducted periodically in conjunction with the U.S. Forest Service. The data were presented in *Long-Term National Trends in Outdoor Recreation Activity Participation—1980 to Now: A Recreation Research Report in the IRIS Series*, 2009, by Cordell, Green, and Betz. Downloaded March 2016: http://warnell.forestry.uga.edu/nrrt/nsre/IRISRec/IRISRec12rpt.pdf. "IRIS" stands for Internet Research Information Series.

[27] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[28] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[29] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[30] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[31] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[32] This section about fishing parallels the hunting section; all sources are discussed in the above notes.

[33] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[34] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[35] "Federal Aid license data" refers to the data on number of license holders that states submit to the U.S. Fish and Wildlife Service as part of the Federal Aid in Wildlife and Sport Fish Restoration programs. Also included on this graph are data from the *National Survey*.

[36] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA).

[37] NSGA refers to the National Sporting Goods Association.

[38] The National Survey on Recreation and the Environment, conducted periodically in conjunction with the U.S. Forest Service. The data were presented in *Long-Term National Trends in Outdoor Recreation Activity Participation—1980 to Now: A Recreation Research Report in the IRIS Series*, 2009, by Cordell, Green, and Betz. Downloaded March 2016: http://warnell.forestry.uga.edu/nrrt/nsre/IRISRec/IRISRec12rpt.pdf. "IRIS" stands for Internet Research Information Series.

[39] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[40] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[41] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[42] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[43] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[44] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA).

[45] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA).

[46] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA).

[47] NSGA refers to the National Sporting Goods Association.

[48] NSGA refers to the National Sporting Goods Association.

[49] NSGA refers to the National Sporting Goods Association.

[50] These three studies were conducted by Responsive Management for the National Shooting Sports Foundation:
Sport Shooting Participation in the United States in 2009 (survey conducted in 2010),
Sport Shooting Participation in the United States in 2012 (survey conducted in 2013),
Sport Shooting Participation in the United States in 2014 (survey conducted in 2015).

[51] These three studies were conducted by Responsive Management for the National Shooting Sports Foundation:
Sport Shooting Participation in the United States in 2009 (survey conducted in 2010),
Sport Shooting Participation in the United States in 2012 (survey conducted in 2013),
Sport Shooting Participation in the United States in 2014 (survey conducted in 2015).

[52] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[53] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[54] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[55] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[56] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[57] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[58] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[59] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[60] This study was conducted by Responsive Management for the Archery Trade Association: *Archery Participation Among Adult United States Residents in 2015* (survey conducted in 2016).

[61] This study was conducted by Responsive Management for the Archery Trade Association: *Archery Participation Among Adult United States Residents in 2015* (survey conducted in 2016).

[62] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA).

[63] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA).

[64] NSGA refers to the National Sporting Goods Association.

[65] In addition to the 2016 study for the ATA referenced above, Responsive Management conducted similar studies for the ATA in 2013 and 2015.

[66] NSGA refers to the National Sporting Goods Association.

[67] In addition to the 2016 study for the ATA referenced above, Responsive Management conducted similar studies for the ATA in 2013 and 2015.

[68] Responsive Management. 2016. *Archery Participation Among Adult United States Residents in 2015*. Harrisonburg, VA.

[69] Responsive Management. 2016. *Archery Participation Among Adult United States Residents in 2015*. Harrisonburg, VA.

[70] Responsive Management. 2016. *Archery Participation Among Adult United States Residents in 2015*. Harrisonburg, VA.

[71] Responsive Management. 2016. *Archery Participation Among Adult United States Residents in 2015*. Harrisonburg, VA.

[72] Responsive Management. 2016. *Archery Participation Among Adult United States Residents in 2015*. Harrisonburg, VA.

[73] Responsive Management. 2016. *Archery Participation Among Adult United States Residents in 2015*. Harrisonburg, VA.

[74] Responsive Management. 2016. *Archery Participation Among Adult United States Residents in 2015*. Harrisonburg, VA.

[75] Responsive Management. 2016. *Archery Participation Among Adult United States Residents in 2015*. Harrisonburg, VA.

[76] Responsive Management. 2016. *Archery Participation Among Adult United States Residents in 2015*. Harrisonburg, VA.

[77] Responsive Management. 2016. *Archery Participation Among Adult United States Residents in 2015*. Harrisonburg, VA.

[78] Most of these action items are derived from the cumulative research of all the contributors already cited. Other action items are taken from *The Future of Hunting and the Shooting Sports* produced by the NSSF and Responsive Management.

[79] The turkey data are from National Wild Turkey Federation; deer data are from the U.S. Fish and Wildlife Service; wood duck data are from the National Shooting

Sports Foundation; elk data are from the Rocky Mountain Elk Foundation; and the antelope data are from the U.S. Bureau of Land Management.

[80] Overview of Wild Turkey Restoration: http://blog.nature.org/science/2013/11/26/wild-turkey-restoration-the-greatest-conservation-success-story/. Website content verified November 21, 2016.

[81] DJ Case and Associates, Inc. / National Shooting Sports Foundation. 2007. *Best Practices Workbook for Hunting and Shooting Recruitment and Retention*.

[82] Crowe, 1983.

[83] Decker et al., 1984.; Decker and Purdy, 1986.

[84] Purdy et al., 1985.

[85] Larson et al., 2013.

[86] Send et al., 2007.

[87] Matthews, 1993.

[88] Matthews, 1996.

[89] Matthews, 1996.

[90] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[91] The Outdoor Recreation Adoption Model as refined by Bob Byrne and Matt Dunfee, 2016; summary available at: http://locavore.guide/fishing/understanding-outdoor-recreation-adoption-model-oram. Website content verified November 21, 2016.

[92] DJ Case and Associates, Inc. 2009. *Recruitment and Retention Assessment Survey Report*.

[93] Aquatic Resources Education Association / Recreational Boating and Fishing Foundation. 2016. *Recommendations and Strategic Tools for Effective Angler Recruitment, Retention and Reactivation (R3) Efforts*.

[94] Brandenburg et al., 1982.

[95] See Robert Byrne and Matt Dunfee's paper, "Evolution and Current Use of the Outdoor Recreation Adoption Model," which is not at the time of this writing published; the manuscript was provided by the researchers for this handbook and should be widely available soon.

[96] Responsive Management / National Wild Turkey Federation. 2011. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: Final Report*. Harrisonburg, VA.

[97] This is a quotation from an accompanying on-the-ground vignette by Keith Warnke of the Wisconsin Department of Natural Resources.

[98] Brewer and deLeon, 1983.

[99] Crowe, 1983.

[100] Wall, J., undated.

[101] DJ Case and Associates, Inc. / National Shooting Sports Foundation. 2007. *Best Practices Workbook for Hunting and Shooting Recruitment and Retention*.

[102] Wall, J, undated; and Powell et al., 2009.

[103] This summary is from institutional knowledge of Responsive Management, with its more than 25 years of survey experience.

[104] Wall, J., undated.

[105] Wall, J., undated.

[106] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[107] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[108] Responsive Management / National Wild Turkey Federation. 2011. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: Final Report*. Harrisonburg, VA.

[109] Most of these action items are derived from the cumulative research of all the contributors already cited. Other action items are taken from *The Future of Hunting and the Shooting Sports* produced by the NSSF and Responsive Management.

[110] The states in the survey were CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT, VA, and WV. The report was produced by Responsive Management in 2004 for the Northeast Conservation Information and Education Association: *Public Opinion on Fish and Wildlife Management Issues and the Reputation and Credibility of Fish and Wildlife Agencies in the Northeast United States*.

[111] The states in the survey were CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT, VA, and WV. The report was produced by Responsive Management in 2004 for the Northeast Conservation Information and Education Association: *Public Opinion on Fish and Wildlife Management Issues and the Reputation and Credibility of Fish and Wildlife Agencies in the Northeast United States*.

[112] The states in the survey were AL, AR, FL, GA, KY, LA, MD, MS, MO, NC, OK, SC, TN, TX, VA, and WV. The report was produced by Responsive Management in 2005 for the Southeastern Association of Fish and Wildlife Agencies: *Public Opinion on Fish and Wildlife Management Issues and the Reputation and Credibility of Fish and Wildlife Agencies in the Southeastern United States*.

[113] The states in the survey were AL, AR, FL, GA, KY, LA, MD, MS, MO, NC, OK, SC, TN, TX, VA, and WV. The report was produced by Responsive Management in 2005 for the Southeastern Association of Fish and Wildlife Agencies: *Public Opinion on Fish and Wildlife Management Issues and the Reputation and Credibility of Fish and Wildlife Agencies in the Southeastern United States*.

[114] The states in the survey were CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, VT, VA, and WV. The report was produced by Responsive Management in 2012 for the Northeast Wildlife Damage Management Research and Outreach Cooperative: *Public Attitudes Toward and Expectations Regarding Management of Wildlife Problems in the Northeast United States*.

[115] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[116] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[117] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[118] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[119] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[120] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[121] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[122] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[123] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[124] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[125] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[126] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[127] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[128] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[129] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[130] Kotler, 1980.

[131] Duda et al., 1998.

[132] Kotler, 1980.

[133] Kotler, 1980.

[134] Responsive Management. 2013. *Hunters' and Anglers' Opinions on Factors Related To License Purchasing Behavior: A Comparison of Avid, Inconsistent, and One-Time License Buyers*. Harrisonburg, VA.

[135] Responsive Management / Virginia Department of Game and Inland Fisheries. 2013. *From Media to Motion: Improving the Return on Investment in State Fish and Wildlife Marketing Efforts*. Harrisonburg, VA.

[136] Responsive Management / Virginia Department of Game and Inland Fisheries. 2013. *From Media to Motion: Improving the Return on Investment in State Fish and Wildlife Marketing Efforts*. Harrisonburg, VA.

[137] Responsive Management / Virginia Department of Game and Inland Fisheries. 2013. *From Media to Motion: Improving the Return on Investment in State Fish and Wildlife Marketing Efforts*. Harrisonburg, VA.

[138] Responsive Management / Virginia Department of Game and Inland Fisheries. 2013. *From Media to Motion: Improving the Return on Investment in State Fish and Wildlife Marketing Efforts*. Harrisonburg, VA.

[139] The overall project consisted of the following parts: the initial identification of lapsed hunters from information in the licensing database, conducted by Southwick Associates; a review of agency strategic and marketing plans, a literature review regarding past research on the subject, an inventory of current agency outreach materials, and staff interviews, all conducted by Tammy Sapp; three focus groups (to help develop the survey instrument for the subsequent survey) and a telephone survey, conducted by the National Shooting Sports Foundation and Responsive Management titled, *Lapsed Hunters' License Purchasing Behaviors and Their Opinions on Messages Encouraging Them To Purchase Hunting Licenses*, produced in 2009.

[140] Southwick Associates / Tammy Sapp / National Shooting Sports Foundation / Responsive Management. 2009. *Lapsed Hunters' License Purchasing Behaviors and Their Opinions on Messages Encouraging Them To Purchase Hunting Licenses*.

[141] Southwick Associates / Tammy Sapp / National Shooting Sports Foundation / Responsive Management. 2009. *Lapsed Hunters' License Purchasing Behaviors and Their Opinions on Messages Encouraging Them To Purchase Hunting Licenses*.

[142] Southwick Associates / Tammy Sapp / National Shooting Sports Foundation / Responsive Management. 2009. *Lapsed Hunters' License Purchasing Behaviors and Their Opinions on Messages Encouraging Them To Purchase Hunting Licenses*.

[143] Southwick Associates / Tammy Sapp / National Shooting Sports Foundation / Responsive Management. 2009. *Lapsed Hunters' License Purchasing Behaviors and Their Opinions on Messages Encouraging Them To Purchase Hunting Licenses*.

[144] Southwick Associates / Tammy Sapp / National Shooting Sports Foundation / Responsive Management. 2009. *Lapsed Hunters' License Purchasing Behaviors and Their Opinions on Messages Encouraging Them To Purchase Hunting Licenses*.

[145] Southwick Associates / Tammy Sapp / National Shooting Sports Foundation / Responsive Management. 2009. *Lapsed Hunters' License Purchasing Behaviors and Their Opinions on Messages Encouraging Them To Purchase Hunting Licenses*.

[146] Bob Byrne Consulting, 2016. This study was used as a starting point to find pertinent studies conducted by or on behalf of the Recreational Boating and Fishing Foundation (RBFF).

[147] Eureka Facts LLC, 2016.

[148] Eureka Facts LLC, 2016.

[149] Eureka Facts LLC, 2016.

[150] Recreational Boating and Fishing Foundation. 2015. *State of State Partnerships Report Programs and Resources: Developments, Results and Learnings*.

[151] Recreational Boating and Fishing Foundation. 2015. *State of State Partnerships Report Programs and Resources: Developments, Results and Learnings*.

[152] Strategic Marketing and Research, Inc., 2013.

[153] Strategic Marketing and Research, Inc., 2013.

[154] Strategic Marketing and Research, Inc., 2013.

[155] Strategic Marketing and Research, Inc., 2013.

[156] Strategic Marketing and Research, Inc., 2013.

[157] Southwick Associates. 2016. *RBFF-GA New Angler Retention Pilot Program*.

[158] Southwick Associates. 2016. *RBFF-GA New Angler Retention Pilot Program*.

[159] Sport Fishing and Boating Partnership Council, 2009.

[160] North Dakota Game and Fish Department / Council to Advance Hunting and the Shooting Sports / Responsive Management. 2012. *North Dakota Residents' Use of Social Media and Its Influence on Their Hunting and Shooting Participation*. Harrisonburg, VA.

[161] North Dakota Game and Fish Department / Council to Advance Hunting and the Shooting Sports / Responsive Management. 2012. *North Dakota Residents' Use of Social Media and Its Influence on Their Hunting and Shooting Participation*. Harrisonburg, VA.

[162] North Dakota Game and Fish Department / Council to Advance Hunting and the Shooting Sports / Responsive Management. 2012. *North Dakota Residents' Use of Social Media and Its Influence on Their Hunting and Shooting Participation*. Harrisonburg, VA.

[163] Minnesota Department of Natural Resources, 2003.

[164] Minnesota Department of Natural Resources, 2003.

[165] DJ Case and Associates. 2007. *Tennessee Wildlife Resources Agency Hunting License Sales Campaign Results*. Note that another campaign was conducted the following year, with a report released in 2008, but the following year's campaign used more limited target audiences, with consequently less generally applicable results. For this reason, this handbook examines the 2007 report.

[166] DJ Case and Associates. 2007. *Tennessee Wildlife Resources Agency Hunting License Sales Campaign Results*. Note that another campaign was conducted the following year, with a report released in 2008, but the following year's campaign used more limited target audiences, with consequently less generally applicable results. For this reason, this handbook examines the 2007 report.

[167] DJ Case and Associates. 2007. *Tennessee Wildlife Resources Agency Hunting License Sales Campaign Results*. Note that another campaign was conducted the following year, with a report released in 2008, but the following year's campaign used more limited target audiences, with consequently less generally applicable results. For this reason, this handbook examines the 2007 report.

[168] Tennessee Wildlife Resources Agency, 2007.

[169] The Harvest Information Program is coordinated by the U.S. Fish and Wildlife Service in cooperation with each state wildlife agency to generate reliable estimates of hunting activity and harvest of various migratory birds. The information is used to manage the species.

[170] Montana Fish, Wildlife and Parks Department, 2008.

[171] Montana Fish, Wildlife and Parks Department, 2008.

[172] Scott, 2004.

[173] Scott, 2005.

[174] Scott, 2007.

[175] New Hampshire Fish and Game Department, 2007.

[176] Georgia Department of Natural Resources / Alabama Department of Conservation and Natural Resources / Kentucky Department of Fish and Wildlife Resources / Responsive Management. 2013. *Hunter Education and Beyond: Providing the Next Steps To Course Graduates*. Harrisonburg, VA.

[177] Georgia Department of Natural Resources / Alabama Department of Conservation and Natural Resources / Kentucky Department of Fish and Wildlife Resources / Responsive Management. 2013. *Hunter Education and Beyond: Providing the Next Steps To Course Graduates*. Harrisonburg, VA.

[178] Georgia Department of Natural Resources / Alabama Department of Conservation and Natural Resources / Kentucky Department of Fish and Wildlife Resources / Responsive Management. 2013. *Hunter Education and Beyond: Providing the Next Steps To Course Graduates*. Harrisonburg, VA.

[179] Georgia Department of Natural Resources / Alabama Department of Conservation and Natural Resources / Kentucky Department of Fish and Wildlife Resources / Responsive Management. 2013. *Hunter Education and Beyond: Providing the Next Steps To Course Graduates*. Harrisonburg, VA.

[180] Georgia Department of Natural Resources / Alabama Department of Conservation and Natural Resources / Kentucky Department of Fish and Wildlife Resources / Responsive Management. 2013. *Hunter Education and Beyond: Providing the Next Steps To Course Graduates*. Harrisonburg, VA.

[181] Georgia Department of Natural Resources / Alabama Department of Conservation and Natural Resources / Kentucky Department of Fish and Wildlife Resources / Responsive Management. 2013. *Hunter Education and Beyond: Providing the Next Steps To Course Graduates*. Harrisonburg, VA.

[182] Florida Fish and Wildlife Conservation Commission, 2010.

[183] Florida Fish and Wildlife Conservation Commission, 2010.

[184] Responsive Management. 2016. *Locavore Pilot Pre-Program, Post-Program, and Post-Season Survey Results*. Harrisonburg, VA.

[185] Responsive Management. 2016. *Locavore Pilot Pre-Program, Post-Program, and Post-Season Survey Results*. Harrisonburg, VA.

[186] Responsive Management. 2016. *Locavore Pilot Pre-Program, Post-Program, and Post-Season Survey Results*. Harrisonburg, VA.

[187] Responsive Management. 2016. *Locavore Pilot Pre-Program, Post-Program, and Post-Season Survey Results*. Harrisonburg, VA.

[188] Most of these action items are derived from the cumulative research of all the contributors already cited. Other action items are taken from *The Future of*

Hunting and the Shooting Sports produced by the NSSF and Responsive Management.

[189] Matthews, 1996.

[190] This information is discussed in a PowerPoint presentation developed by Douglas Burt of the Arizona Game and Fish Department titled, "Adaptive Hunter Recruitment: Harnessing Partners To Preserve the Outdoor Heritage."

[191] Matthews, 1996.

[192] Decker and Mattfeld, 1988, made this model that applies to hunters based on work of Rogers and Shoemaker, 1971.

[193] Decker and Mattfeld, 1988, made this model that applies to hunters based on work of Rogers and Shoemaker, 1971.

[194] This model is found in Larson et al., 2013. Within that article, the model is said to be adapted from Purdy et al, 1985.

[195] This model is found in Larson et al., 2013. Within that article, the model is said to be adapted from Purdy et al, 1985.

[196] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[197] Responsive Management. 2003. *Factors Related to Hunting and Fishing Participation Among the Nation's Youth*. Harrisonburg, VA.

[198] This includes Applegate, 1977; Decker et al., 1984; Decker et al (but different et als), 1992; and Larson et al., 2013.

[199] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[200] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[201] Physical Activity Council, 2016.

[202] Physical Activity Council, 2016.

[203] Applegate, 1977.

[204] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[205] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[206] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[207] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[208] Larson et al., 2013, cite Purdy et al., 1985; Decker et al., 1986; Decker et al., 2001; and Stedman and Heberlein, 2001.

[209] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[210] Responsive Management. 2003. *Factors Related to Hunting and Fishing Participation Among the Nation's Youth*. Harrisonburg, VA.

[211] Responsive Management. 2003. *Factors Related to Hunting and Fishing Participation Among the Nation's Youth*. Harrisonburg, VA.

[212] Responsive Management. 2003. *Factors Related to Hunting and Fishing Participation Among the Nation's Youth*. Harrisonburg, VA.

[213] Responsive Management. 2003. *Factors Related to Hunting and Fishing Participation Among the Nation's Youth*. Harrisonburg, VA.

[214] Responsive Management. 2003. *Factors Related to Hunting and Fishing Participation Among the Nation's Youth*. Harrisonburg, VA.

[215] Responsive Management. 2003. *Factors Related to Hunting and Fishing Participation Among the Nation's Youth*. Harrisonburg, VA.

[216] This comes from the SFIA's report, *2016 Special Report on Fishing*. The SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA). This particular report was produced in conjunction with the Recreational Boating and Fishing Foundation, as well.

[217] R3 efforts in which landowners—including sportsmen's clubs that own or lease land—allow their lands to be used are too numerous to be listed, but some excellent examples are detailed by Shelton, 2004; Kubas, 2004, 2006; Seng, 2004; and Mezera, 2005.

[218] A sampling of reports detailing this include Shelton, 2004; Kubas, 2004, 2006; Seng, 2004; Mezera, 2005; and Maryland Department of Natural Resources, 2010.

[219] Seng, 2004.

[220] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[221] Byrne, 2009. The 8,900 participant figure was determined based on survey results in which four states indicated that they reached 0-100 non-traditional participants, three states reached 101-500 of them, two states reached 501-1,000 of them, and one state reached 1,000-5,000 non-traditional participants. Taking the highest amount in each range produces 8,900 (4*100=400; 3*500=1,500; 2*1,000=2,000; and 1*5,000=5,000; these sum to 8,900).

[222] Byrne, 2009.

[223] For both hunting and sport shooting, "active" refers to a person who had participated within the 2 years previous to the survey. These data are from the following:

Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[224] Byrne, 2009.

[225] Byrne, 2009.

[226] Lockhart, 2008.

[227] The research on retaining volunteers is abundant; for this report, the organization KnowHowNonProfit's website was consulted (https://knowhownonprofit.org/), as well as the writings of Susan Ellis and Energize, Inc., which was obtained from https://www.score.org/resource/six-ways-motivate-your-volunteers.

[228] An example of this was provided through personal communication with Justin Wiggins, of the Connecticut Department of Energy and Environmental Protection, who discussed the ways that volunteer instructors in its Aquatic Resources Education Program are recognized for their volunteer efforts.

[229] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[230] This analysis is discussed in the following:
Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.
This analysis uses two sources of fatality data, as follows:
US Coast Guard. 2006. *Boating Statistics 2005*. Washington, D.C.
International Hunter Education Association (IHEA). 2006. *Hunter Education Program Profile*. For the 2008 research, this was accessed via the IHEA's website.

[231] Responsive Management. 2016. *Needs Assessment for the Connecticut Department of Energy and Environmental Protection's Conservation Education and Firearms Safety Program*. Harrisonburg, VA.

[232] Responsive Management. 2016. *Needs Assessment for the Connecticut Department of Energy and Environmental Protection's Conservation Education and Firearms Safety Program*. Harrisonburg, VA.

[233] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[234] This information from Marky Chavez is found on the Knoji Consumer Knowledge website at https://schools-education.knoji.com/advantages-of-classroom-education/; content was verified on December 20, 2016.

[235] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[236] Responsive Management. 2016. *Needs Assessment for the Connecticut Department of Energy and Environmental Protection's Conservation Education and Firearms Safety Program*. Harrisonburg, VA.

[237] Responsive Management. 2016. *Needs Assessment for the Connecticut Department of Energy and Environmental Protection's Conservation Education and Firearms Safety Program*. Harrisonburg, VA.

[238] Responsive Management/National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[239] Responsive Management/National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[240] Responsive Management/National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[241] Responsive Management. 2016. *Needs Assessment for the Connecticut Department of Energy and Environmental Protection's Conservation Education and Firearms Safety Program*. Harrisonburg, VA.

[242] Responsive Management / National Wild Turkey Federation. 2014. *Effectiveness of Hunting, Shooting, and Fishing Recruitment and Retention Programs: 2014 Update*. Harrisonburg, VA.

[243] Although not strictly scientific in its sampling (the sample was open-ended; the survey could be accessed by anybody on the Internet), because the questions regarded the website itself, there is value in what visitors to the website said about it. The website was evaluated by the RBFF/Strategic Marketing and Research, Inc. 2012. *Website Effectiveness Survey 2012: Take Me Fishing*.

[244] The website was evaluated by the RBFF/Strategic Marketing and Research, Inc. 2012. *Website Effectiveness Survey 2012: Take Me Fishing*.

[245] Responsive Management. 2016. *Needs Assessment for the Connecticut Department of Energy and Environmental Protection's Conservation Education and Firearms Safety Program*. Harrisonburg, VA.

[246] Most of these action items are derived from the cumulative research of all the contributors already cited. Other action items are taken from *The Future of Hunting and the Shooting Sports* produced by the NSSF and Responsive Management.

[247] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[248] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[249] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[250] Alig et al., 2004.

[251] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[252] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[253] Responsive Management / Ecosystem Management Research Institute. 2003. *Access to Federal Hunting Lands in Colorado*. Produced for The Congressional Sportsmen's Foundation. Harrisonburg, VA.

[254] Responsive Management / Ecosystem Management Research Institute. 2003. *Access to Federal Hunting Lands in Colorado*. Produced for The Congressional Sportsmen's Foundation. Harrisonburg, VA.

[255] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[256] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[257] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[258] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[259] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[260] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[261] Jensen and Guthrie, 2006.

[262] Responsive Management / National Shooting Sports Foundation (NSSF). 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[263] Responsive Management / National Shooting Sports Foundation (NSSF). 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.
Although the research cited refers specifically to hunting and sport shooting, it is intuitive that this statement can be applied, do some degree, to fishing and archery.

[264] The *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*, conducted every 5 years by the U.S. Fish and Wildlife Service and the U.S. Census Bureau.

[265] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[266] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[267] Larson et al., 2013.

[268] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[269] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[270] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[271] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[272] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[273] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[274] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[275] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[276] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[277] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[278] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[279] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[280] Responsive Management. 2000. *House Bill 38 and Future Directions for the Department of Game and Inland Fisheries: Results of Constituent and Staff Studies and Recommendations for Future Action*. Produced for the Virginia Department of Game and Inland Fisheries. Harrisonburg, VA.
Responsive Management. 2002. *Minnesota Deer Hunters' Opinions and Attitudes Toward Deer Management*. Produced for the Minnesota Department of Natural Resources. Harrisonburg, VA.

[281] Wright et al, 1988; Cordell et al, 1993; Teasley et al., 1999.

[282] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[283] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[284] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[285] Responsive Management. 2002. *Hunters' Satisfaction Toward Hunting Experiences in the United States*. Produced for Safari Club International. Harrisonburg, VA.

[286] Responsive Management, 2006. This comes from a special data release from *Hunters' and Anglers' Opinions on and Attitudes Toward Global Warming and Climate Change*, a study conducted for Trout Unlimited and the Wildlife Management Institute.

[287] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[288] Responsive Management. 2004. *Factors Related To Hunting Participation in Pennsylvania*. Produced for the Pennsylvania Game Commission. Harrisonburg, VA.

[289] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[290] Backman and Wright, 1993.

[291] Stedman et al., 2008.

[292] Stedman et al., 2008.

[293] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[294] Churn refers to the proportion of anglers who do not fish each year. Along with those who fish each year are a group of anglers who skip occasional years. Therefore, in any given year, there will be fewer people who fish than people who consider themselves anglers. The data from *Fishing Access in the United States* indicate that 81% of those who had freshwater fished in the previous 5 years had done so all 5 of those years (meaning 19% were churning), while 51% of those who had saltwater fished in that timeframe had done so all 5 of those years (meaning 49% were churning).

[295] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[296] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[297] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[298] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[299] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[300] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[301] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[302] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[303] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[304] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[305] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[306] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[307] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[308] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[309] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[310] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[311] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[312] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[313] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[314] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[315] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[316] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[317] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[318] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA. This reference is to "another survey": the primary survey in this project was of sport shooters from a targeted sample of sports shooters; another survey was conducted of the general

population, and the active shooters who exist as a proportion of the general population were given these questions.

[319] Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.

[320] Outdoor Recreation Resources Review Commission, 1962; Resources for the Future, 1983; Wright et al., 2002.

[321] This information was obtained from the National Wildlife Refuge System page on the U.S. Fish and Wildlife Service website, at www.fws.gov/refuges. The fact sheet used to determine the number of Refuges and acreage was downloaded October 20, 2016, but the fact sheet itself was last updated in 2013. The site does not contain more up-to-date information on the number of refuges and acreage. The fact sheet used to determine the number of Refuges that allow hunting and fishing was also downloaded on October 20, 2016; the fact sheet is dated 2015.

[322] This information was obtained from the U.S. Forest Service website (www.fs.fed.us); the website was accessed on October 20, 2016, but the site indicates that the numbers are accurate as of November 2013.

[323] This information was obtained from the National Park Service website (www.nps.gov); the website was accessed on October 20, 2016.

[324] This information was obtained from the Bureau of Land Management website (www.blm.gov) on October 20, 2016, specifically from the "About the BLM" link (www.blm.gov/wo/st/en/info/About_BLM.html).

[325] This information was obtained from the U.S. Army Corps of Engineers (USACE) website, which includes a link specifically to recreation areas managed by the USACE (www.usace.army.mil/Missions/Civil-Works/Recreation/); the website was accessed on October 20, 2016.

[326] All of the information in these examples was obtained from each organization's website on October 20 and 21, 2016. The data are provided merely to suggest that substantial acreage is involved, but no independent verification was made of the amounts indicated on these websites. The information was available on the home page or on the page within the organization's site as follows:
  http://www.conservationfund.org/
  http://www.ducks.org/
  http://www.nature.org/about-us/vision-mission/history/index.htm?intc=nature.tnav.about
  http://www.rmef.org/Conservation/WhereWeConserve.aspx
  https://www.pheasantsforever.org/Habitat/Why-Habitat.aspx

[327] Cordell et al., 1999.

[328] The Michigan Department of Natural Resources Wildlife Division Report No. 3446 from 2005 indicates that, between 1987 and 1997, the number of private landowners nationally who granted recreational access to people with whom they had no prior relationship decreased by 50%, attributing this finding to Wright et al., 1988, and Teasley et al., 1997.

[329] Kilgore, Snyder, Schertz, & Taff, 2008.

[330] Mozumder et al., 2007.

[331] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[332] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[333] Wright et al., 1988.

[334] Teasley et al., 1999.

[335] Wright et al., 1988.

[336] Responsive Management. 2004. *Issues Related to Hunting and Fishing Access in the United States: A Literature Review*. Produced for the Theodore Roosevelt Conservation Partnership. Harrisonburg, VA.

[337] Responsive Management. 2005. *Opinions of the General Population, Hunters, and Farmers Toward Deer Management in Delaware*. Produced for the Delaware Department of Natural Resources and Environmental Control, Division of Fish and Wildlife. Harrisonburg, VA.

[338] Responsive Management. 2004. *Opinions of Residents, Hunters, and Landowners Toward Deer Management in Georgia*. Produced for the Georgia Department of Natural Resources. Harrisonburg, VA.

[339] Duda and Brown, 2001. These reasons were reiterated in a Michigan study of landowners who were or had been enrolled in the state's Hunting Access Program (Oliver, 2005).

[340] Responsive Management. 1999. *West Virginia 1998 Landowner Survey*. Produced for the West Virginia Division of Natural Resources, Wildlife Resources Section. Harrisonburg, VA.

[341] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[342] Teasley et al., 1999.

[343] Responsive Management. 2007. *Survey of Participants in Pennsylvania's Public Access Program: Landowner Survey*. Produced for the Pennsylvania Game Commission. Harrisonburg, VA.

[344] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[345] Duda and Brown, 2001.

[346] Teasley et al., 1999.

[347] Duda and Brown, 2001.

[348] Responsive Management. 2005. *Opinions of the General Population, Hunters, and Farmers Toward Deer Management in Delaware*. Produced for the Delaware Department of Natural Resources and Environmental Control, Division of Fish and Wildlife. Harrisonburg, VA.

[349] Oliver, 2005.

[350] This information is from the Wisconsin Department of Natural Resources' website: https://dnrx.wisconsin.gov/wdacp/public/enrollment/2016/deer. This was accessed on November 1, 2016.

[351] Wright et al., 2002; Brown and Messmer, 2009.

[352] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation, National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[353] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[354] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[355] Responsive Management. 2003. *Washington State Hunters' and Landowners' Opinions on the Private Land Wildlife Management Area (PLWMA) Program*. Produced for the Washington Department of Fish and Wildlife. Harrisonburg, VA.

[356] Responsive Management. 2005. *Opinions of the General Population, Hunters, and Farmers Toward Deer Management in Delaware*. Produced for the Delaware Department of Natural Resources and Environmental Control, Division of Fish and Wildlife. Harrisonburg, VA.

[357] Responsive Management. 2004. *Opinions of Residents, Hunters, and Landowners Toward Deer Management in Georgia*. Produced for the Georgia Department of Natural Resources. Harrisonburg, VA.

[358] This is not cited; it is simply common sense.

[359] Two studies regarding hunting are cited, but there are other studies with similar results regarding the acceptance of hunting by landowners. The two cited studies are as follows:
Responsive Management. 2013. *Virginia Landowners' Opinions on and Attitudes Toward Wildlife Damage and Wildlife Management*. Harrisonburg, VA.
Responsive Management. 2007. *The Opinions of Residents, Deer Hunters, and Landowners on Deer Management in Maryland*. Harrisonburg, VA.

[360] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[361] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[362] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[363] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[364] A great example is Alabama's Forever Wild Land Trust Program. Alabama's Forever Wild Program was established by state constitutional amendment in 1992. The purpose of the program is to provide funding for the purchase of public recreational lands. Since its inception, the program has purchased lands for general recreation, nature preserves, and additions to Wildlife Management Areas and state parks.

[365] Dolcini, V., 2016.

[366] This information was downloaded from the Ducks Unlimited website on November 2, 2016, from the following webpage: http://www.ducks.org/Conservation/Public-Policy/Farm-Bill/CRP-Conservation-Reserve-Program.

[367] This information is available on the Natural Resources Conservation Service website (http://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/). Information specifically about the Voluntary Public Access and Habitat Incentive

Program, commonly called the "Open Fields Program," can be found under the heading, "Farm Bill" and "Other Farm Bill Programs" (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/farmbill/?cid =stelprdb1242739). Note that the actual name of the legislation is the Agricultural Act of 2014 but is commonly referred to as the Farm Bill.

[368] Southwick Associates. 2012. *Assessing the Economic Benefit of the Voluntary Public Access and Habitat Incentive Program (VPA-HIP): 2011*. Produced for the Association of Fish and Wildlife Agencies under Federal Aid in Wildlife Restoration grant #DC M-76-R.

[369] See the Arizona Game and Fish Department's "Adopt a Ranch" webpage: http://www.azgfd.gov/outdoor_recreation/landowner_adopt.shtml.

[370] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[371] Responsive Management / National Shooting Sports Foundation. 2010. *Issues Related to Hunting Access in the United States: Final Report*. Harrisonburg, VA.

[372] Responsive Management. 2016. *Pennsylvania Hunter Access Program: Hunter Survey*. Harrisonburg, VA.

[373] Responsive Management. 2016. *Pennsylvania Hunter Access Program: Hunter Survey*. Harrisonburg, VA.

[374] Oliver, 2005.

[375] Oliver, 2005.

[376] Arvai et al., 2004.

[377] Arvai et al., 2004.

[378] Arvai et al., 2004.

[379] Responsive Management. 2007. *Survey of Participants in Pennsylvania's Public Access Program: Landowner Survey*. Harrisonburg, VA.

[380] This writer is aware that Pennsylvania is actually a Commonwealth rather than a State, but it was thought that the wording, "...in the Commonwealth's public access program...," would be confusing to most readers had it been used.

[381] Responsive Management. 2016. *Pennsylvania Hunter Access Program: Hunter Survey*. Harrisonburg, VA.

[382] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[383] Waterfowl hunters would be the largest group of hunters to commonly use a boat as part of their hunting. The percentage of waterfowl hunters in the general population is less than the percentage of anglers who use a boat; ergo, the assertion that anglers would account for more boat use than hunters.

[384] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation, National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[385] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation,

National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[386] Responsive Management / American Sportfishing Association. 2010. *Fishing Access in the United States*. Harrisonburg, VA.

[387] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation, National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[388] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation, National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[389] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation, National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[390] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation, National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[391] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation, National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[392] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation, National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[393] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation, National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[394] Responsive Management. 2014. *Enhancing Fishing Access Through a National Assessment of Recreational Boating Access*. Study in conjunction with the States Organization for Boating Access, Recreational Boating and Fishing Foundation, National Marine Manufacturers Association, BoatUS, and the Association of Marina Industries. Harrisonburg, VA.

[395] This information comes from the U.S. Fish and Wildlife Service's website; the page with this specific information was downloaded on November 2, 2016: https://wsfrprograms.fws.gov/subpages/grantprograms/sfr/SFRA_Funding.pdf.

[396] Sport Fish Restoration Boating Access Assessment Subcommittee, 2010.

[397] Sport Fish Restoration Boating Access Assessment Subcommittee, 2010.

[398] This information was published by the Angling and Boating Alliance in a brochure titled "Sport Fish Restoration and Boating Trust Fund: Key Conservation and Recreation Access User Pay-User Benefit Fund must be reauthorized as part of the Surface Transportation Bill." It was downloaded on November 2, 2016, from:
http://www.sobaus.org/partnerships/pdf/2014SFRBTFReauthorizationABAflyer.pdf.

[399] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[400] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

[401] Responsive Management. 2015. *Sport Shooting Participation in the United States in 2014*. Harrisonburg, VA.

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[430] Most of these action items are derived from the cumulative research of all the contributors already cited. Other action items are taken from *The Future of Hunting and the Shooting Sports* produced by the NSSF and Responsive Management.

[431] The survey sample was compiled from lists of R3 specialists from the regional fish and wildlife associations, AFWA's Hunting and Shooting Sports Participation Committee, AFWA's Angler and Boating Participation Committee, and people known to be involved in R3 efforts. Hereinafter, it will be identified as Responsive Management's 2016 R3 handbook stakeholder survey.

[432] Responsive Management's 2016 R3 handbook stakeholder survey. Throughout this chapter, any reference to stakeholders and their comments refers to this stakeholder survey. In this section, any quotation or reference not to this survey will be clearly cited as such.

[433] NSSF, 2007.

[434] Responsive Management / P. Hansen / R. Sparrowe. 2015. *The Elements of Success in Fish and Wildlife Management: Looking Back at Successes and Failures of Wildlife Conservation*. Harrisonburg, VA. This report was prepared for the Plenary Session of the 100th year of the North American Wildlife Management Conference.

[435] American Wildlife Conservation Partners, 2015.

[436] This is taken from *A Sand County Almanac*.

[437] NSSF, 2007.

[438] Responsive Management's 2016 R3 handbook stakeholder survey. Again, throughout this section, any reference to stakeholders and their comments refers to this stakeholder survey, and any quotation or reference not to this survey will be clearly cited as such.

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[443] Most of these action items are derived from the cumulative research of all the contributors already cited. Other action items are taken from *The Future of Hunting and the Shooting Sports* produced by the NSSF and Responsive Management.

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[446] Hendee, 1974.

[447] Wright et al., 1977.

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[450] Five studies are used to compile these six data sets shown in the graph: Kellert, S. 1980. *Public Attitudes Toward Critical Wildlife and Natural Habitat Issues: Phase I of the U.S. Fish and Wildlife Service Study*. Washington, D.C.: Government Printing Office.
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Note that the hunting-related answer was counted only if the target shooter on his/her own specifically mentioned hunting. The question was open-ended, so no

prompting was given, and 15% of target shooters, without prompting, indicated that they go target shooting to improve their hunting skills or to keep in practice when hunting is not in season.

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[561] Both years of data come from the National Sporting Goods Association's *Sports Participation Single Sport: Archery* for report years 2015 and 2016; each year pertains to the previous year's participation.

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[564] SFIA refers to the Sports and Fitness Industry Association. It publishes participation data in conjunction with the Outdoor Foundation. The SFIA was formerly the Sporting Goods Manufacturers Association (SGMA). The reports examined here are *2016 Special Report on Fishing*, *2015 Hunting (Bow) Single Sports Participation Report*, and *2015 Archery Single Sports Participation Report*.

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[570] Most of these action items are derived from the cumulative research of all the contributors already cited. Other action items are taken from *The Future of*

Hunting and the Shooting Sports produced by the NSSF and Responsive Management.

[571] This is taken from an essay, "A Conservation Esthetic," that was included in *A Sand County Almanac With Essays on Conservation From Pound River*, copyright 1966 by Oxford University Press.

[572] The 1995, 2003, and 2006 survey results are taken from the following: Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.
The 2011 results are from unpublished survey data obtained by Responsive Management for the National Shooting Sports Foundation.
The 2013 results are from unpublished survey data obtained by Responsive Management for the Professional Outdoor Media Association.
The 2015 results are from unpublished survey data obtained by Responsive Management for the National Shooting Sports Foundation and the Archery Trade Association.

[573] The 1995, 2003, and 2006 survey results are taken from the following: Responsive Management / National Shooting Sports Foundation. 2008. *The Future of Hunting and the Shooting Sports: Research-Based Recruitment and Retention Strategies*. Produced for the U.S. Fish and Wildlife Service under Grant Agreement CT-M-6-0. Harrisonburg, VA.
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The 2011 results are from unpublished survey data obtained by Responsive Management for the National Shooting Sports Foundation.

[580] The 2001 results are taken from the following:
Roper Starch Worldwide. 2001. *American Attitudes Toward Shooting Sports and the Firearms Industry*. Conducted for the National Shooting Sports Foundation.
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[642] Most of these action items are derived from the cumulative research of all the contributors already cited. Other action items are taken from *The Future of Hunting and the Shooting Sports* produced by the NSSF and Responsive Management.

This handbook was created to summarize in a single volume the most essential and up-to-date research pertaining to hunting, fishing, sport shooting, and archery recruitment, retention, and reactivation efforts (collectively known as "R3").

The importance of hunters, anglers, sport shooters, and archers goes beyond the simple imperative of keeping alive these venerated American traditions; each year, participants in the four activities, through their purchases of licenses and sporting equipment, contribute hundreds of millions of dollars in essential funding for fish and wildlife conservation, including species recovery, habitat improvements, and other critical work carried out by agencies and organizations across the country. Any decline in hunting, fishing, sport shooting, and archery would directly translate into diminished funding and material support for fish and wildlife management activities that benefit all Americans.

As a result, the need for organized and data-driven R3 efforts—including programs, outreach initiatives, and other strategies to recruit, retain, and reactivate sportsmen and women—has never been more important. This handbook, through a careful review of research and a corresponding list of action items based on the findings, is intended as a roadmap for R3 specialists to use as they navigate a terrain whose obstacles range from the social and demographic to the structural and technological.

WILDLIFE & SPORT FISH RESTORATION