

U.S. Fish & Wildlife Service

Participation and Expenditure Patterns of African-American, Hispanic, and Women Hunters and Anglers

*Addendum to the 1996 National
Survey of Fishing, Hunting and
Wildlife-Associated Recreation*

It is important to know that differences in percentages of 2 percent or less or differences of 2 days or less for African-Americans, Hispanics and women are not usually statistically significant at the .10 level of significance. This means that for 90 percent of all possible samples, percentage differences of 2 percent or 2 days or less are not statistically significant and therefore should not be treated as true differences.

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*Addendum to the 1996 National
Survey of Fishing, Hunting and
Wildlife-Associated Recreation*

Report 96-6



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Genevieve Pullis
Division of Federal Aid
U.S. Fish and Wildlife Service
Washington, D.C.

Division of Federal Aid
U.S. Fish and Wildlife Service
Washington, D.C. 20240
Director, Jamie Clark
Chief, Division of Federal Aid, Bob Lange
<http://fa.r9.fws.gov/>

This report is intended to complement the National and State reports from the 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. The Reports are the authors' and do not represent official positions of the U.S. Fish and Wildlife Service.

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Front cover photo by Karen & John Hollingsworth

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Introduction

Hunting and fishing have predominantly been white male activities since at least 1955 when the Fish and Wildlife Service began tracking the demographics of hunters and anglers. Participation rates of females and minorities have consistently been below the national average. This fact is becoming more significant to the future of hunting and fishing due to the changing demographic structure of the United States. According to U.S. Census projections, the Nation's Hispanic and African-American populations are growing faster than the rest of its population. In 1999, the Nation's Hispanic population totaled 30 million, a 35 percent increase since 1990. This trend is expected to continue. In 1999, 1 in 9 Americans was Hispanic. In 2030, almost 1 in 5 Americans will be Hispanic. In 1999, the Nation's African-American population totaled 35 million, a 14 percent increase since 1990. In 1999, 1 in 8 Americans was of African-American descent; in 2030 1 in 7 will be African-American. Women are also under-represented in hunting and fishing. Although women make up 51 percent of the population (this is expected to remain constant through 2030) their participation in hunting and fishing is far below that of the national average.

If wildlife policy makers wish to improve the hunting and fishing experiences of these low participation groups, then it is important to understand how African-American, Hispanic, and female hunters and anglers differ from participants in general. This report analyzes these differences in terms of participation rates, geographical distribution, participation levels (days and trips per year), and related expenditures. It also reports the relative usage of private or public land hunting, types of hunting and fishing, and species sought.

The report is divided into a hunting section and a fishing section. Each section contains a table and several bar graphs showing participation rates, participation levels, expenditures, and hunting and fishing preferences of African-Americans, Hispanics and women. The bar graphs allow comparisons between these subpopulations and the total population. At the end of the hunting and fishing sections, there are separate subsections for female hunters and female anglers. Women's participation and expenditures are broken down by age, education, income and place of residence. Ideally, all subpopulations would have the same demographic breakdowns. However, due to small sample sizes for African-American and Hispanic hunters and anglers it was not always possible to break down these populations into smaller groups and still provide statistically reliable results. For hunting, there are no demographic breakdowns for African-Americans and Hispanics. For fishing, which had a larger sample size, participation rates are broken down for all subpopulations.

It is important to know that differences in percentages of 2 percent or less or differences of 2 days or less for African-Americans, Hispanics and women are not usually statistically significant at the .10 level of significance. This means that for 90 percent of all possible samples, percentage differences of 2 percent or 2 days or less are not statistically significant and therefore should not be treated as true differences.

All reported data are from the 1996 National Survey of Fishing, Hunting and Wildlife-Associated Recreation and represent participation and expenditures for the calendar year 1996. The data for the total population of hunters and anglers include all subpopulations. Data on African-Americans include all persons who identified themselves as Black in the Survey. This includes all African-American participants who are male or female and those who identified themselves also as Hispanic. Likewise, the Hispanic category includes persons of both sexes and of any race. The female category also includes all races.

The 1996 survey was conducted for the Fish and Wildlife Service by the U.S. Bureau of the Census. The Bureau of the Census collected the data primarily by telephone; respondents who could not be reached by telephone were interviewed in-person. The survey was conducted in two phases. First, a screening interview was conducted to identify wildlife-related recreationists. In the second phase, multiple interviews were conducted to collect detailed information on participation and expenditures for persons 16 years of age and older. The response rate was 80 percent. For more detailed information on the methods of data collection see the *1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*.¹

¹ Available from the U.S. Fish and Wildlife Service, National Conservation Training Center, Publication Unit, Route 1, Box 166, Shepherd Grade Road, Shepherdstown, WV 25443. 304/876 7203. It is also available on the Internet: <http://www.census.gov/prod/www/abs/fishing.html>.

Hunting

Overview

Table 1 shows the total number of hunting participants, days and trips, and trip-related and equipment expenditures for African-American hunters, Hispanic hunters, female hunters and for the total population of hunters. Women were the largest subpopulation, and spent the most money, a combined total of \$488 million on hunting equipment and trip-related expenditures. Hispanic hunters spent more on average for hunting than the other subpopulations and in the case of trip-related expenditures more than the national average for all hunters. African-American hunters spent more days hunting and took more hunting trips per year on average than the other subpopulations.

Hunting Participation

Figure 1 shows the U.S. hunting participation rates — the percent of the population that hunted — for persons age 16 and over for the total population, African-Americans, Hispanics and women. The participation rates of the African-Americans, Hispanics and women were much lower than the total population. While 7 percent of the total population hunted, only 2 percent of African-Americans and Hispanics hunted and 1 percent of women hunted.



USFWS photo by Mike Hemming

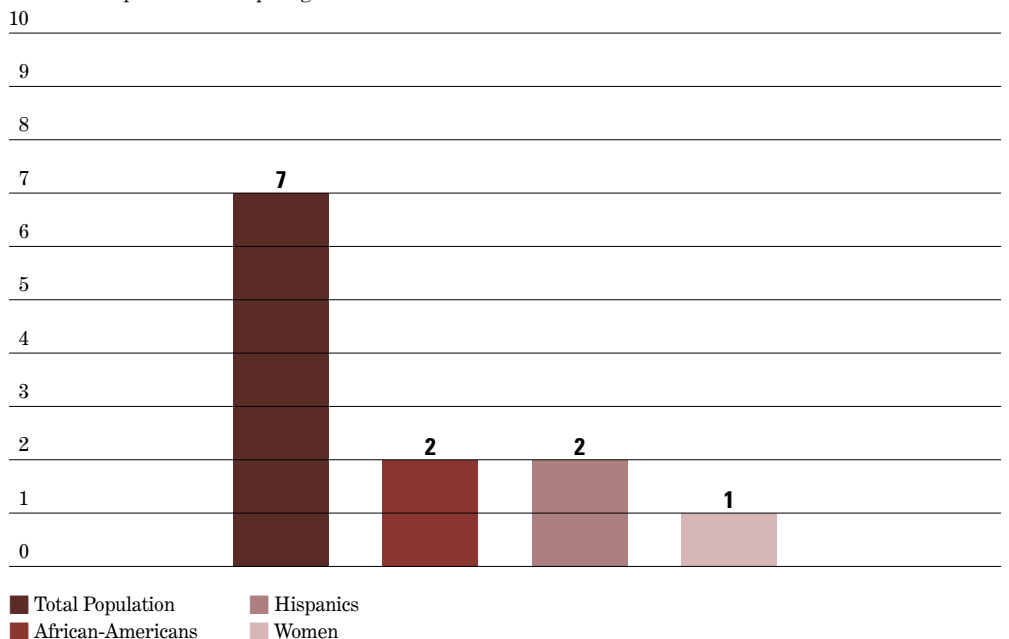
Table 1. Hunters, Days, Trips and Expenditures: 1996

(Population Group 16 years of age and older. Numbers in thousands.)

	All Hunters	African-American Hunters	Hispanic Hunters	Female Hunters
Hunters	13,975	303	335	1,192
Days of Hunting	256,676	4,839	4,363	13,074
Mean Days of Hunting	18	16	13	11
Trips	222,938	4,004	3,522	10,191
Mean Hunting Trips	16	13	11	9
Total Hunting Expenditures	\$10,674,456	\$174,186	\$305,136	\$488,154
Trip Expenditures	\$5,155,319	\$87,470	\$190,526	\$262,681
Mean Trip Expenditures	\$369	\$290	\$570	\$220
Equipment Expenditures	\$5,519,137	\$86,716	\$114,610	\$225,473
Mean Equipment Expenditures	\$395	\$286	\$343	\$189

Figure 1. Participation Rates for Hunting

Percent of Population Participating



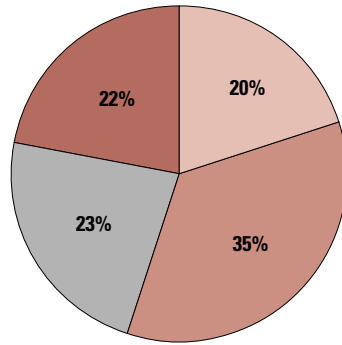
Regional Distribution of Hunters

Since some of the topics covered in this study may vary by region of the country, it is important to know where hunters live so that the results can be interpreted in context. For example, access to public or private land varies by region. If a subpopulation of hunters is concentrated in a region with little access to public land than they may hunt at lower levels on public land than other groups.

Subpopulations of hunters were not evenly distributed throughout the country. As Figure 2 shows, the majority of African-American hunters lived in the South (73 percent). The largest regional population of Hispanic hunters lived in the West (43 percent), and in the South (39 percent). The largest number of female hunters (35 percent) lived in the Midwest.

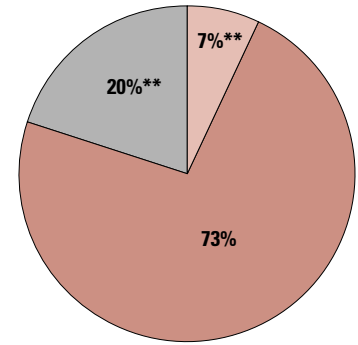
Figure 2. Where Do They Live? Regional Distribution of Hunters.

All Hunters



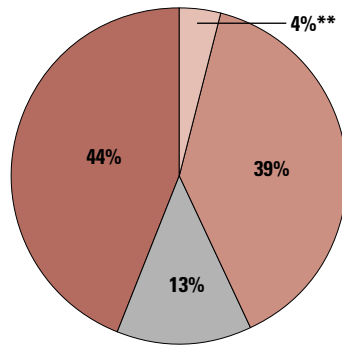
■ Northeast ■ Midwest
■ South ■ West

African-American Hunters



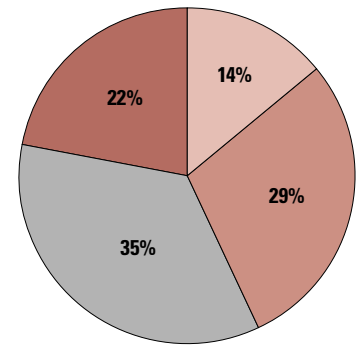
■ Northeast ■ Midwest
■ South ■ West*

Hispanic Hunters

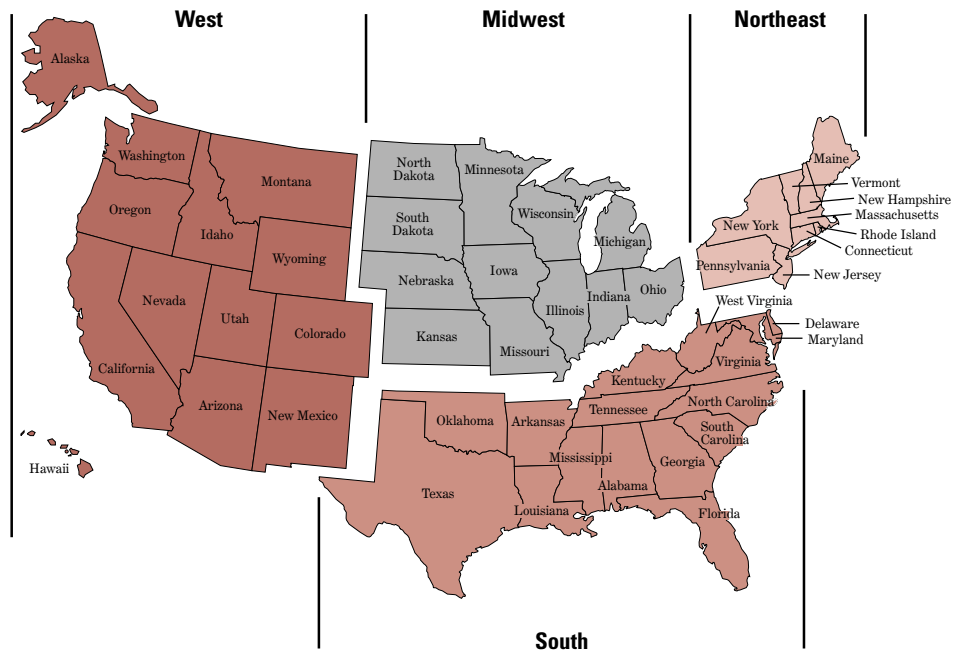


■ Northeast ■ Midwest
■ South ■ West

Female Hunters



■ Northeast ■ Midwest
■ South ■ West



* The sample size for African-American Hunters who lived in the West was too small to report reliably.

** Percentage based on small sample size.

Hunting Participation Levels

How often people hunt is as important a question as how many people hunt in terms of resource management. For that reason, information is presented on the mean number of days spent hunting and the mean number of hunting trips taken.

All subpopulations hunted fewer days and took fewer hunting trips on average than the national average for all hunters. Figures 3 and 4 show mean days of hunting per year and mean trips per year for each population group. The national average for all hunters was 18 days and 16 trips. Of the subpopulations, African-Americans hunted more days on average (16 days) than did Hispanics (13 days) and women (11 days). The same pattern holds true for mean number of hunting trips. African-American hunters took the most hunting trips (13 trips), followed by Hispanics (11 trips) and women (9 trips).

Hunting Expenditures

Spending on hunting is divided into two categories, trip-related expenditures² and equipment expenditures.³ Figure 5 shows a comparison of mean trip expenditures for hunters. Hispanics spent more on average, \$570, for hunting trips than all hunters, \$369. The other subpopulations spent less on average than all hunters: African-Americans spent \$290 per year and women spent the least, \$220.

Mean spending for hunting equipment is shown in Figure 6. In this case, each of the subpopulations averaged less than the national average for all hunters. Of the subpopulations, Hispanics again spent the most, \$343, African-Americans spent \$286, and women spent the least, \$189.

Figure 3. Mean Days of Hunting

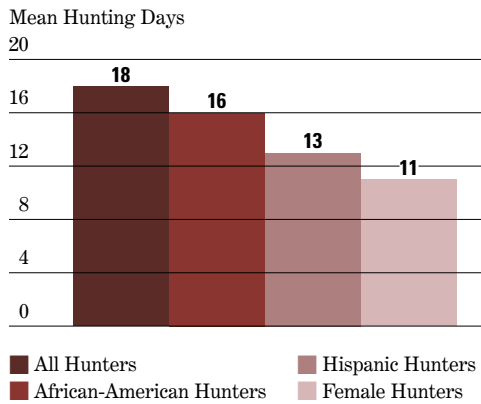


Figure 4. Mean Hunting Trips

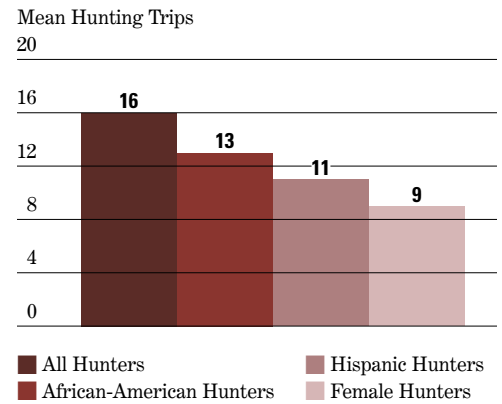


Figure 5. Mean Trip Expenditures for Hunters

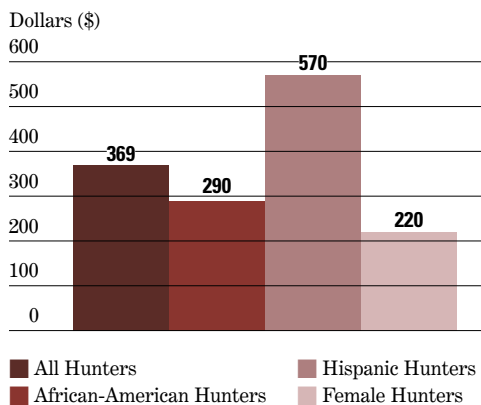
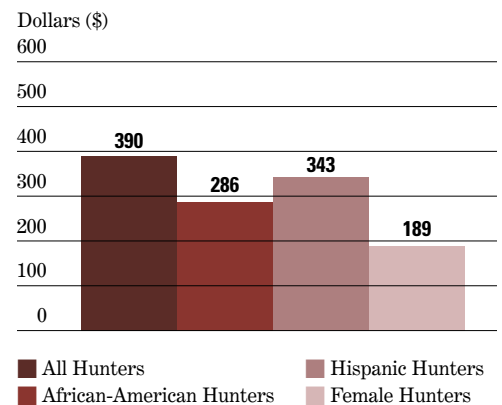


Figure 6. Mean Equipment Expenditures for Hunters



² Trip-related expenditures are made up of food, drink, lodging, public and private transportation, guide fees, pack trip or package fees, public and private land use access fees, rental of equipment, boating costs, and heating and cooking fuel.

³ Equipment expenditures consist of rifles, shotguns, other firearms, ammunition, bows and arrows, telescopic sights, decoys, hunting dogs and associated costs. Excluded from these expenditures are auxiliary equipment such as camping equipment, binoculars, special hunting clothing, processing and taxidermy costs, and special equipment purchases such as boats, campers, trucks and cabins.

Hunting on Private and Public Land

Information about the relative usage of public and private land for hunting by African-American, Hispanic and female hunters can be useful to resource managers trying to meet the needs of these groups. Figures 7 and 8 show, respectively, what percentage of each group hunted on private and public land.

Typically, more hunters hunt on private than on public land although many hunt on both. At least 60 percent of each population hunted on private land. A far greater percentage of African-American hunters hunted on private land (86 percent) than on public land (37 percent). Female hunters too favored private land hunting (74 percent) versus public land hunting (39 percent). In contrast, only slightly more Hispanic hunters hunted on private land (60 percent) than on public land (52 percent).

Types of Hunting and Selected Game

In order to better understand the needs of African-American, Hispanic and female hunters it is helpful to know what kind of hunting they are participating in and, more specifically, which game they are hunting. Figure 9 shows the percentage of hunters that participated in big game hunting, small game hunting, migratory bird hunting and hunting for other animals.⁴ Figure 10 shows the percentage of hunters that hunted selected game.⁵

In general, female hunters mimicked the national trend for all hunters with 75 percent participating in big game hunting, fewer (36 percent) in small game hunting and fewer still pursuing migratory birds (16 percent) and other animals (8 percent). Also similar to all hunters, deer is their most popular type of game.

For Hispanic hunters, big game hunting was far more popular than other types of hunting. Ninety-one percent of Hispanic hunters hunted big game in comparison to small game (32 percent) and migratory bird (24 percent). Correlated with these findings, 85 percent of Hispanic hunters hunted deer and only 20 percent hunted rabbit.

Uniquely, slightly more African-American hunters hunted small game (68 percent) than big game (65 percent). This is reflected in their high participation in rabbit hunting (54 percent) and squirrel hunting (45 percent), which was much greater than for all other groups of hunters.

Figure 7. Hunters Hunting on Private Land

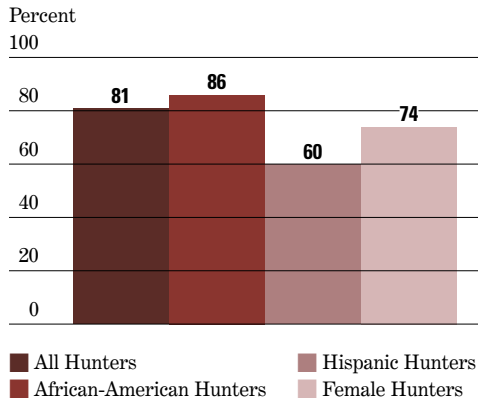


Figure 8. Hunters Hunting on Public Land

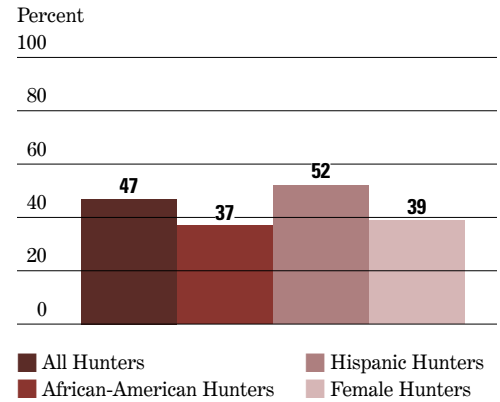


Figure 9. Percent of Hunters, by Types of Hunting

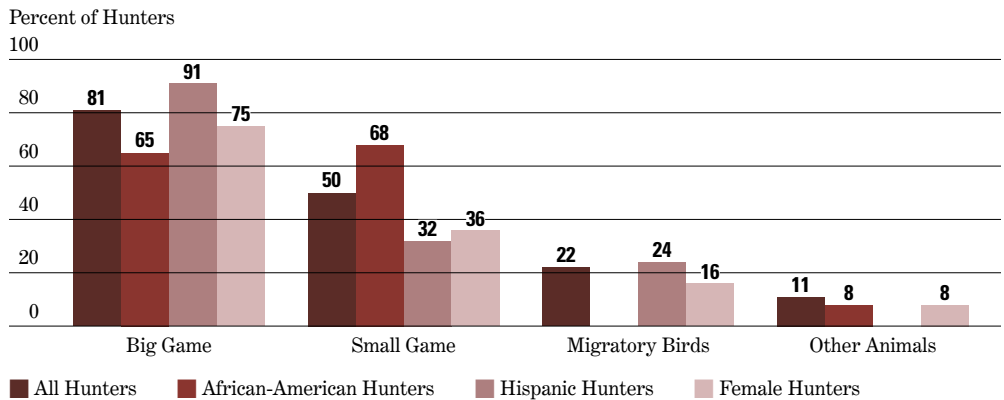
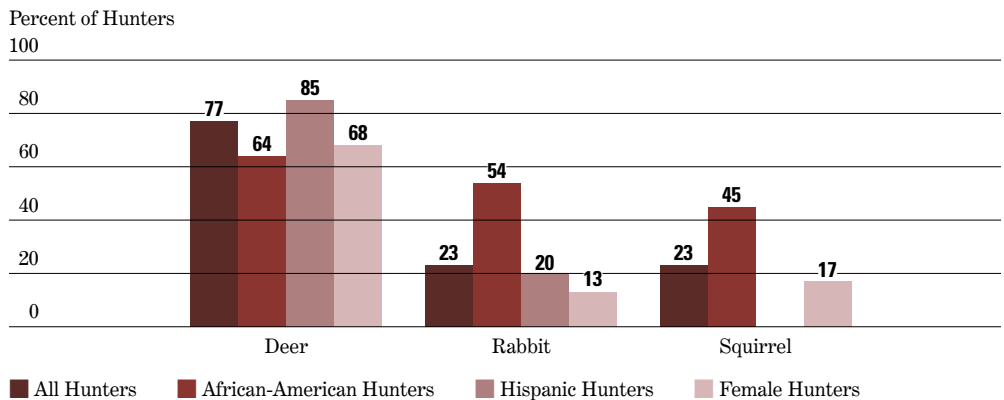


Figure 10. Percent of Hunters, by Selected Game



⁴ Coyotes, crows, foxes, groundhogs, prairie dogs, raccoons, and similar animals. "Other animals" may be classified as unprotected or nongame animals by the state in which they are hunted.

⁵ These game were selected because they were the most sought after species.

Female Hunters

For a more in-depth look at female hunters, data on participation, expenditures and private/public land preferences are broken down by age, education, income and place of residence. Comparisons are made between female hunters and all hunters. Due to small sample sizes for African-American and Hispanic hunters, it was not possible to break down these populations into smaller groups and still provide statistically reliable results.

Female's Hunting Participation

Only 1 percent of females 16 years of age and over in the United States participated in hunting (see Figure 1) as opposed to 7 percent for the entire population. A comparison of all hunters and female hunters by age, education, income and residency finds similar patterns between the two as well as some distinct differences.

As seen in Figure 11, female participation in hunting was highest in the 25-34 and 35-44 age categories, and was lowest in the 55 and older age category. This was also the general pattern for the total population.

Women of all education levels participated at about the same rate. The participation rate for women remained at 1 percent for all education levels (Figure 12). This is not true for the total population whose rate increased to its highest point for high school graduates and then decreased with increasing educational achievement.

Income level also did not have a large effect on female participation. Figure 13 shows that women of all income levels participated at about the same rate (1 percent) with the exception being the \$30,000-49,999 income category where participation doubled to 2 percent. This is again different from the total population which showed increasing participation with increasing income up to the \$30,000-49,999 bracket.

Women living in rural areas hunted at 3 times the rate of women living in big or small cities (Figure 14). This high rural participation rate holds true for the total population as well.

Figure 11. Participation Rates for Hunting, by Age

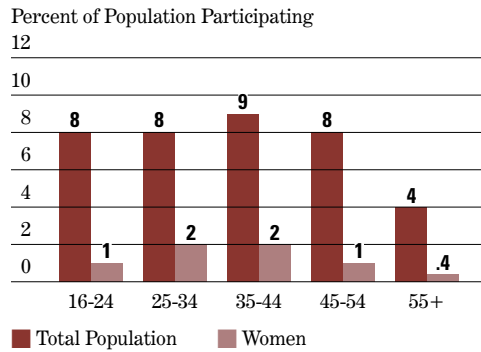


Figure 13. Participation Rates for Hunting, by Income

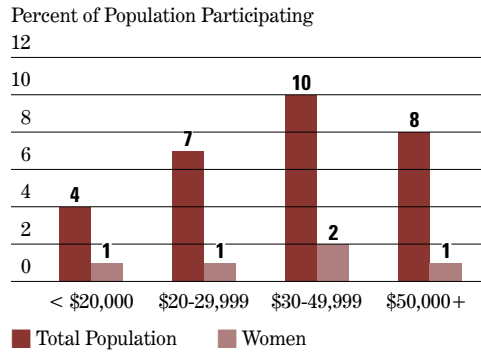


Figure 12. Participation Rates for Hunting, by Education

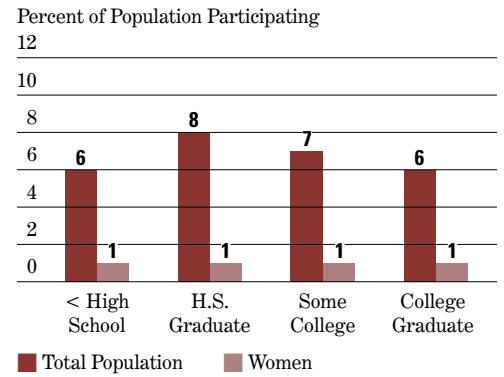
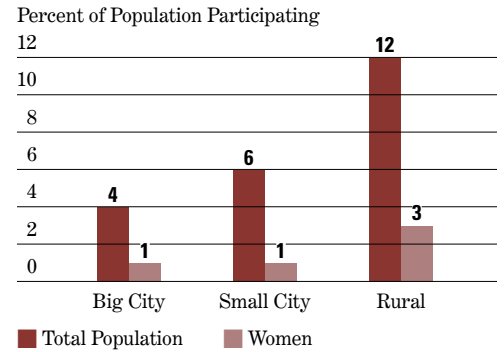


Figure 14. Participation Rates for Hunting, by Place of Residence



Female Hunters' Participation Levels

Figures 15 thru 18 contain breakdowns of mean days and trips for female hunters and all hunters by age, education, income and place of residence.

Figure 15 shows that female hunters' mean days of hunting was lowest in the 16-24 age category. Other age groups spent, on average, about the same number of days hunting (plus or minus 2 days).

Looking at female hunters' mean days of hunting by education (Figure 16) reveals no clear pattern. Female hunters with less than a high school degree hunted the least number of days, while those with high school degrees hunted the most. Female hunters with some college education hunted a little less than high school graduates, and female hunters with a college degree hunted slightly more than those with some college education. This is plainly different from the pattern of all hunters which shows, after the high school graduate level, decreasing mean days with increasing educational achievement.

Income level and mean days of hunting (Figure 17) also did not seem to have a clear-cut pattern. Female hunters in the \$20,000-29,999 income category had the lowest mean days and females in the \$50,000 and greater income category had the highest mean days of hunting. In contrast, for all hunters, the highest mean days are in the \$20,000-29,999 income category.

Figure 18 shows that female hunters who live in big cities hunted the least number of days, residents of small cities the most, and rural residents slightly less than small city residents. This is somewhat different from all hunters whose mean days were highest for rural residents.

Figures 19 thru 22 contain breakdowns of demographics for mean hunting trips taken. The pattern of mean trips is for the most part similar to that of mean days of hunting.

Figure 15. Mean Days of Hunting, by Age

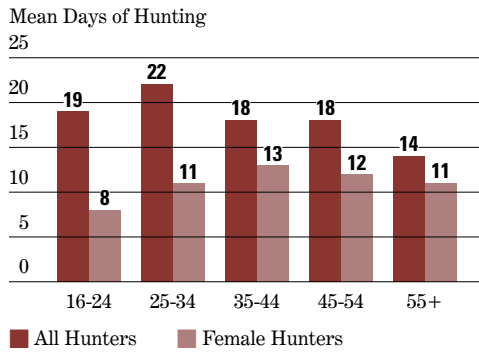


Figure 16. Mean Days of Hunting, by Education

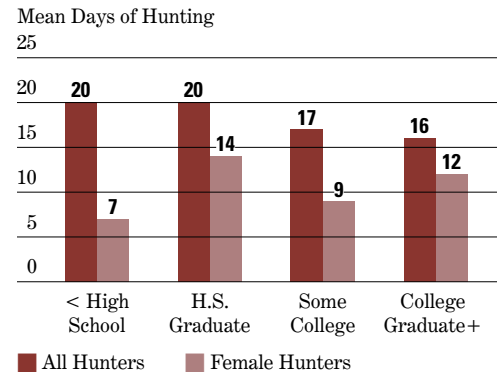


Figure 17. Mean Days of Hunting, by Income

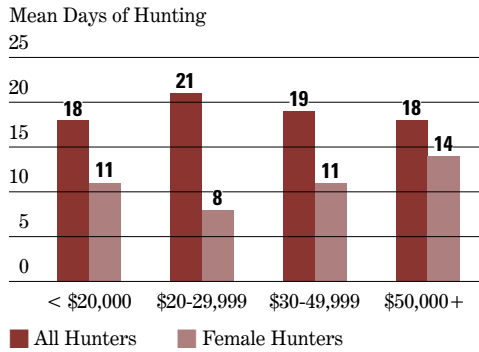


Figure 18. Mean Days of Hunting, by Place of Residence

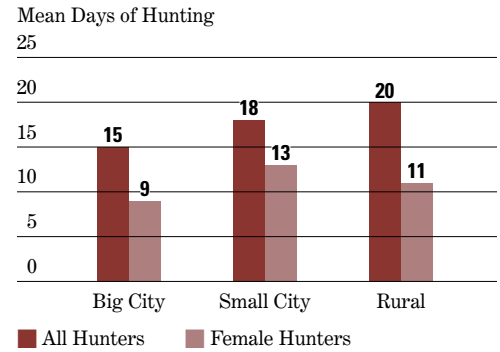


Figure 19. Mean Hunting Trips, by Age

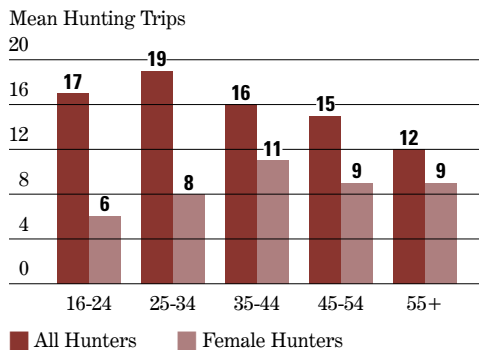


Figure 20. Mean Hunting Trips, by Education

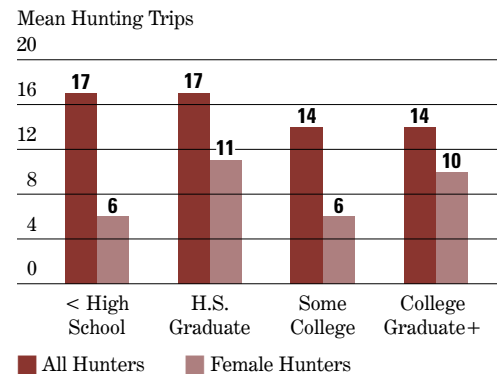


Figure 21. Mean Hunting Trips, by Income

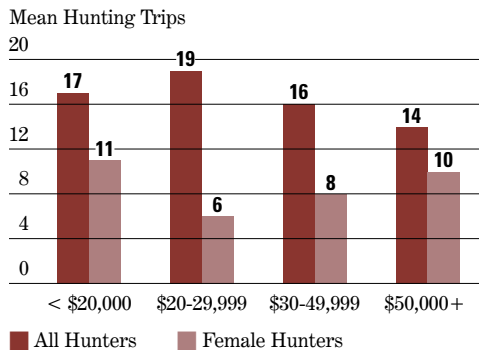
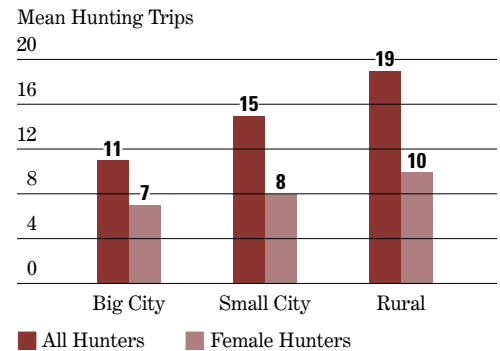


Figure 22. Mean Hunting Trips, by Place of Residence



Female Hunting Expenditures

As seen on page 7, Figures 5 and 6, female hunters on average spent considerably less for hunting trips and equipment than all hunters. Despite this finding, demographic breakdowns of female hunters' trip and equipment expenditures show spending patterns similar to that of all hunters. Mean trip expenditures for female hunters and all hunters are presented in Figures 23 through 26.

Like all hunters, female hunters' trip expenditures increased with age up to the age category 45-54 after which they decreased (Figure 23). Also like all hunters, their trip expenditures increased with increasing educational achievement (Figure 24).

However, unlike all hunters, whose mean trip expenditures increased with increasing income levels, female hunters' mean trip expenditures decreased in the \$30-49,999 category (Figure 25). Both female hunters and all hunters in the \$50,000 and greater income category spent the most.

Female hunters who live in small cities spent the most on trips, those in big cities slightly less, and rural residents, the least (Figure 26). This was different from the spending pattern for all hunters whose average trip expenditures declined as place of residence became less urbanized.

Figures 27 thru 30 contain breakdowns for mean equipment expenditures by demographic characteristics for female hunters and all hunters. The pattern of equipment expenditures was very similar to that of trip expenditures. One exception is income. Female hunters in the under \$20,000 income category spent slightly more on equipment than the next two higher income categories (Figure 29). Also, there is a dissimilarity by place of residence, where spending declined as place of residence became more rural — the same trend as all hunters (Figure 30).

Figure 23. Mean Trip Expenditures, by Age

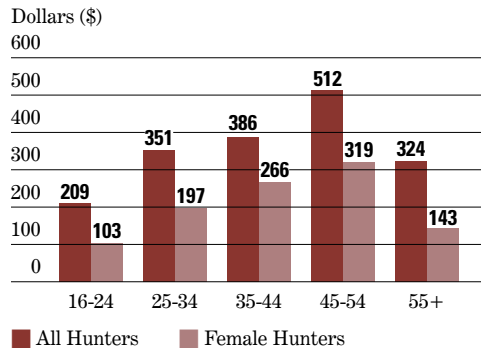


Figure 25. Mean Trip Expenditures, by Income

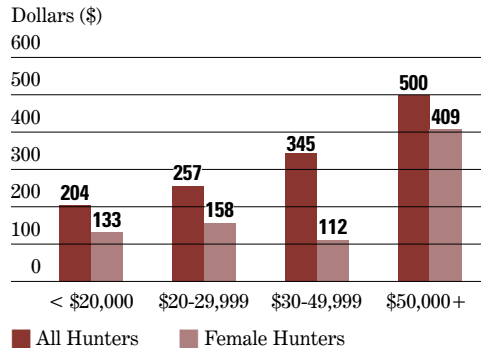


Figure 27. Mean Equipment Expenditures, by Age

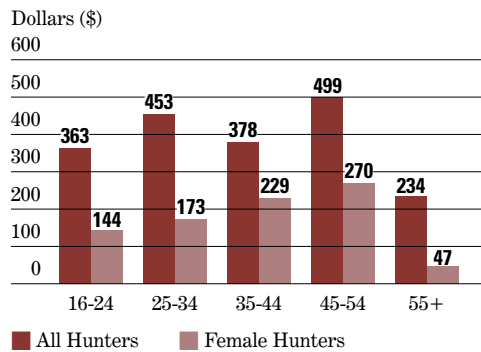


Figure 29. Mean Equipment Expenditures, by Income

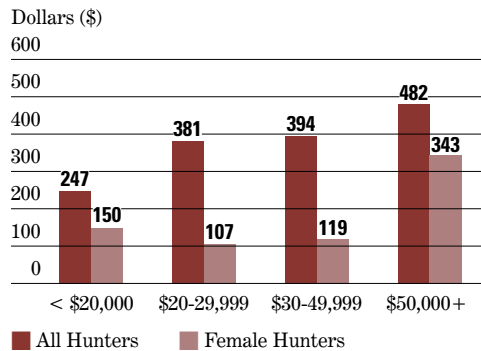


Figure 24. Mean Trip Expenditures, by Education

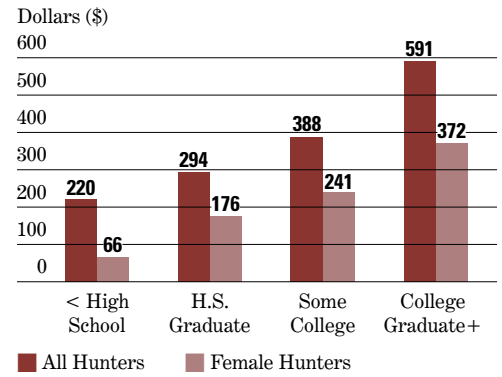


Figure 26. Mean Trip Expenditures, by Place of Residence

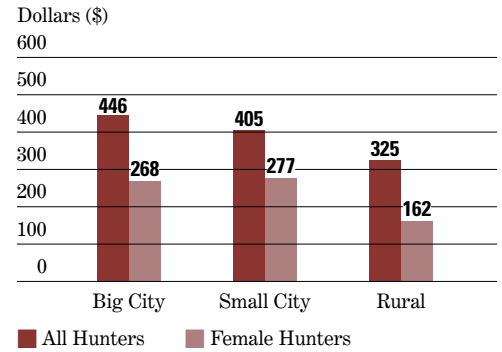


Figure 28. Mean Equipment Expenditures, by Education

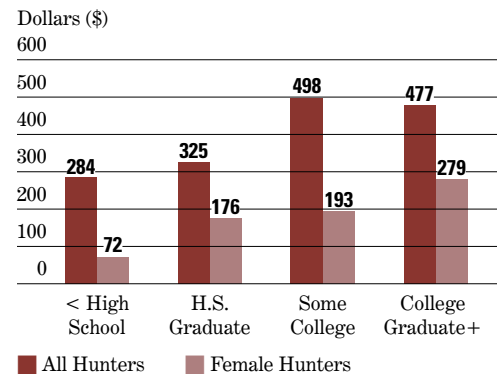
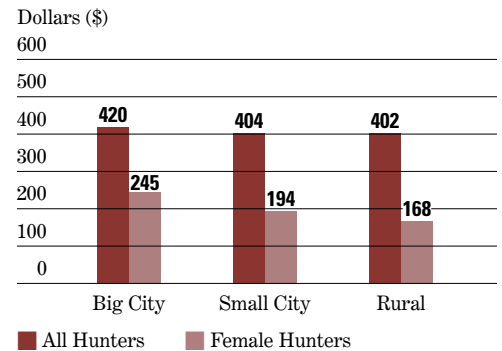


Figure 30. Mean Equipment Expenditures, by Place of Residence



Female Hunting on Private and Public Land

As shown earlier on page 8, Figures 7 and 8, many more female hunters hunted on private land (74 percent) than on public land (39 percent). A demographic breakdown is found in Figures 31 thru 38.

A breakdown by age finds that female hunters of all ages hunted on private land at the same rate (Figure 31). This is true for all hunters as well. In Figure 32, which shows the breakdown for public land, there is no clear relationship. The highest percent of female hunters hunting on public land were in the 45-54 age category. Female hunters age 55 and older hunted on public land the least.

Like the age pattern, female hunters of all educational levels hunted on private land at the same rate (Figure 33). This is not the case for public land hunting. Female hunters with a high school degree or less hunted on public land more than those with higher educational achievements (Figure 34). Female hunters with some college education hunted on public land the least. For all hunters there was little indication of a connection between education and hunting on either public or private land.

As seen in Figure 35, female hunters in the middle income categories, \$20,000-29,999 and \$30,000-49,999 hunted on private land less than those in the lowest and highest income categories. Female hunters in the lowest income category, with a household income less than \$20,000, hunted on public land at the lowest rate (Figure 36).

A breakdown by residence shows that the highest percent of female hunters hunting on private land were residents of small cities and towns; whereas the highest percent of female hunters hunting on public land were residents of big cities (Figures 37 and 38). For all hunters, the largest percent hunting on private land were rural residents, and the largest percent hunting on public land were big city residents.

Figure 31. Hunters Hunting on Private Land, by Age

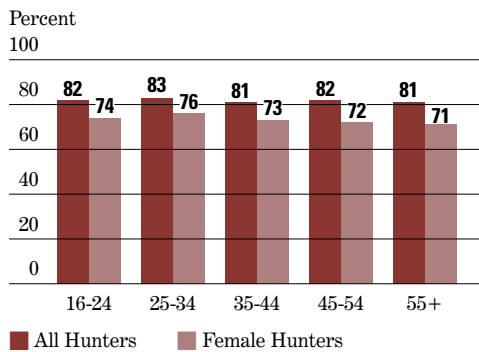


Figure 32. Hunters Hunting on Public Land, by Age

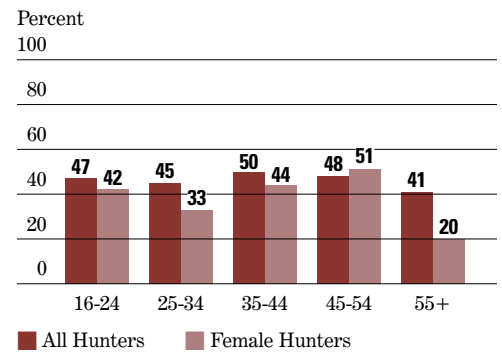


Figure 33. Hunters Hunting on Private Land, by Education

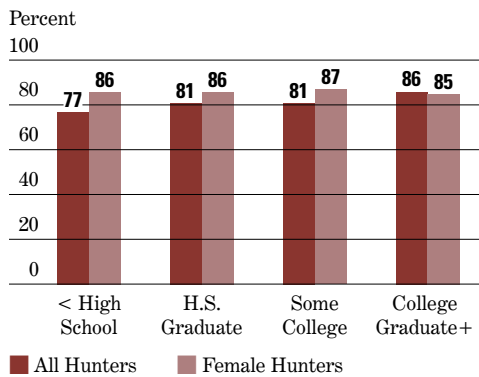


Figure 34. Hunters Hunting on Public Land, by Education

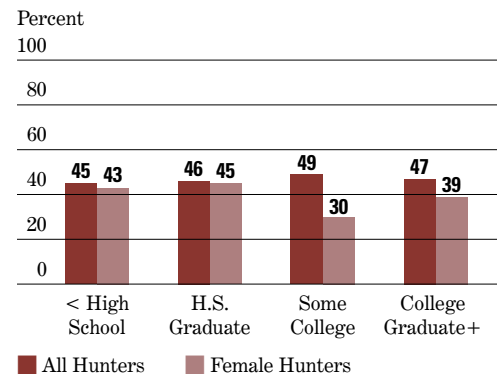


Figure 35. Hunters Hunting on Private Land, by Income

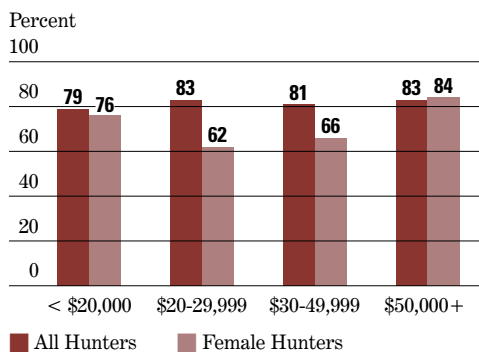


Figure 36. Hunters Hunting on Public Land, by Income

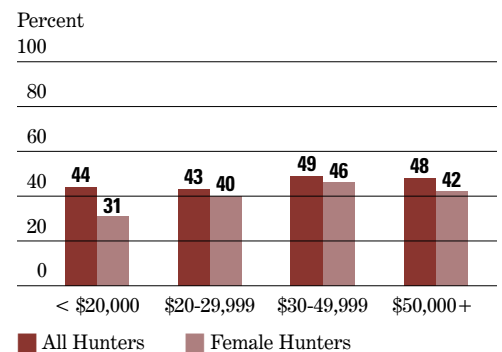


Figure 37. Hunters Hunting on Private Land, by Place of Residence

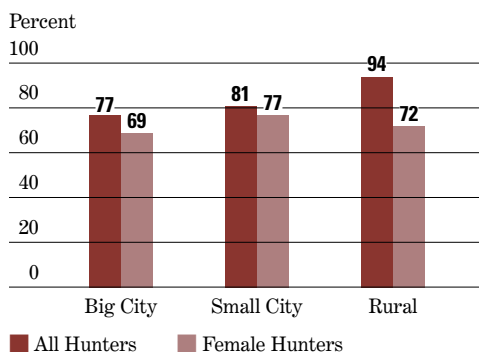
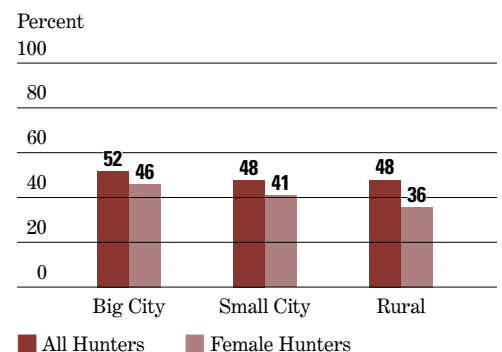


Figure 38. Hunters Hunting on Public Land, by Place of Residence



1991-1996 Comparison of Hunting Activity

Table 2 shows the number of hunting participants, days, and expenditures from the 1991 and 1996 Surveys and the percentage change between the two years. For purposes of comparison with the 1991 data, some 1996 expenditure figures are slightly different from numbers reported in Table 1, page 5.

The number of people hunting and their days spent hunting were roughly the same for the last two National Surveys. There was no significant change for any subpopulation. However, in some cases, expenditures for hunting increased substantially. All hunters' trip expenditures increased 23 percent and equipment expenditures increased 46 percent. Hispanic hunters had a notably large increase, 218 percent, for trip expenditures. Female hunters' equipment expenditures increased 32 percent.

Table 2. 1991-1996 Comparison: Participants, Days and Expenditures.

(Numbers in thousands.)

	1991	1996	Percent Change
Hunters			
Hunters, Total	14,006	13,975	*
African-American	294	303	*
Hispanic	274	335	*
Women	1,069	1,192	*
Days			
Days, Total	235,806	256,676	*
African-American	5,499	4,839	*
Hispanic	3,229	4,363	*
Women	13,512	13,074	*
Hunting Expenditures**			
Trip Expenditures, Total	\$3,956,626	\$4,871,183	+23
African-American	\$75,887	\$81,360	*
Hispanic	\$58,055	\$184,447	+218
Women	\$212,786	\$218,388	*
Equipment Expenditures, Total	\$3,776,503	\$5,519,137	+46
African-American	\$58,672	\$86,716	*
Hispanic	\$64,333	\$114,610	*
Women	\$170,914	\$225,473	+32

* Not different from zero at the 90 percent confidence interval. This means that for 90 percent of all possible samples, the estimate of one survey year is not different for the other survey year.

** 1991 expenditure estimates have been adjusted for inflation to be comparable. 1996 trip expenditures are slightly different from those reported in Table 1 because expenditures for heating and cooking fuel are not included. This was done to make it comparable with the 1991 Survey which did not collect this information.

Fishing

Overview

Table 3 shows the total number of anglers, total and mean fishing days, fishing trips, trip expenditures and equipment expenditures for African-American, Hispanic and female anglers and for all anglers. Women made up the largest number of anglers from any of the subpopulations, 9.5 million, and they spent the most money, \$3 billion, on trip and equipment expenditures. Although Hispanics participated at lower rates than African-Americans and women, they spent, on average, more money fishing (\$434 for trip expenditures and \$154 for equipment expenditures) than either of the other subpopulations. African-American anglers spent more days fishing (22) and took more trips (18) on average than all anglers.

Fishing Participation

Figure 39 shows the fishing participation rates — the percent of the population that fished — for all persons 16 years of age and older, African-Americans, Hispanics and women. All subpopulations participated at notably lower rates than the population as a whole (17 percent). Of the subpopulations, African-Americans had the highest participation rate at 10 percent. Women participated at a rate of 9 percent and Hispanics had the lowest participation rate, 7 percent.

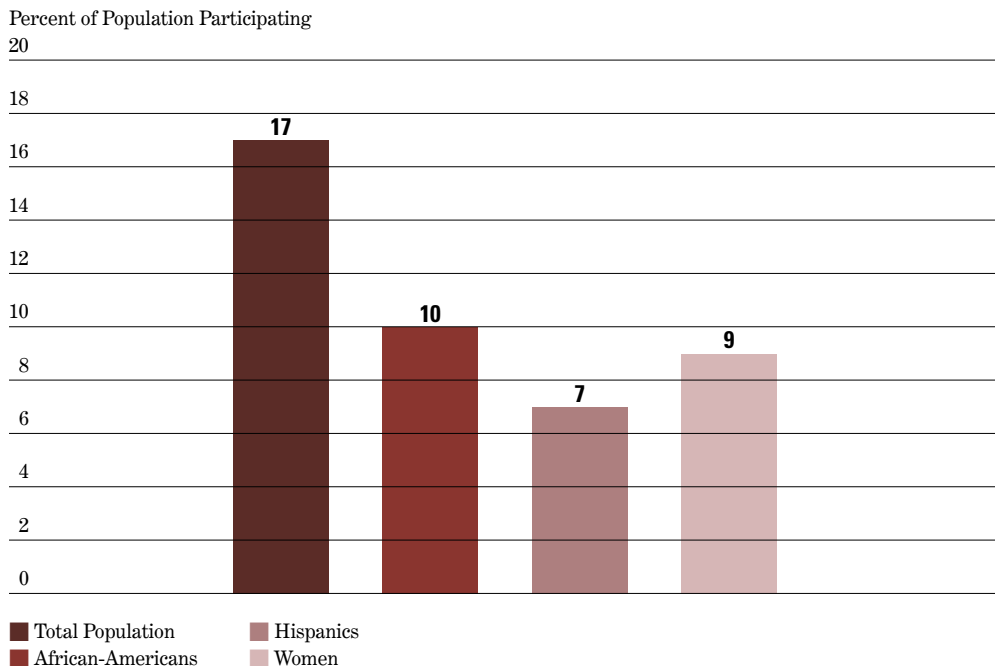


USFWS photo by Tami Heilemann

Table 3. Anglers Days, Trips and Expenditures by Population Group: 1996.
(16 years of age and older. Numbers in thousands.)

	All Anglers	African-American Anglers	Hispanic Anglers	Female Anglers
Anglers	35,246	1,802	1,185	9,509
Days of Fishing	625,893	40,131	16,685	112,841
Mean Days of Fishing	18	22	14	12
Trips	506,556	32,550	13,562	94,267
Mean Fishing Trips	14	18	11	10
Total Hunting Expenditures	\$20,694,946	\$813,836	\$695,532	\$3,003,094
Trip Expenditures	\$15,386,271	\$583,687	\$513,346	\$2,334,499
Mean Trip Expenditures	\$437	\$324	\$434	\$246
Equipment Expenditures	\$5,308,675	\$230,149	\$182,186	\$668,595
Mean Equipment Expenditures	\$151	\$128	\$154	\$70

Figure 39. Participation Rates for Fishing



Of the 35.2 million anglers in the United States, 27 percent were female and 73 percent were male. Twenty-eight percent of the 1.8 million African-American anglers were female, and 23 percent of the 1.2 million Hispanic anglers were female.

In Figures 40 thru 43 participation is broken down by age, education, income and residency. Keep in mind that differences in percentages of 2 percent or less are not usually statistically significant and therefore should not be treated as true differences.⁶

Participation rates by age are shown in Figure 40. For most groups, fishing participation increased with age to the 35-44 age category, after which, fishing participation decreased with age. African-Americans followed this basic pattern except their participation peaked in the 45-54 age category.

With the exception of African-Americans, people with less than a high school degree participated at lower rates than those with higher educational achievements (Figure 41). For all other higher educational categories, participation was flat (plus or minus 2 percent) for all populations.

Figure 42 shows that for the total population and Hispanics, participation increased with increasing income up to the \$30,000-49,999 income category after which it leveled off. For African-Americans and women, this leveling off occurred in the \$20,000-29,999 income category.

Participation by place of residence is shown in Figure 43. For all populations, rural residents fished the most. In the cases of the total population and African-Americans, residents of small cities and towns were more likely than big city residents to fish. Hispanics from large cities and small cities were equally likely to participate in fishing.

⁶ This means that for 90 percent of all possible samples, percentage differences of 2 percent or less are not statistically significant.

Figure 40. Participation Rates for Fishing, by Age

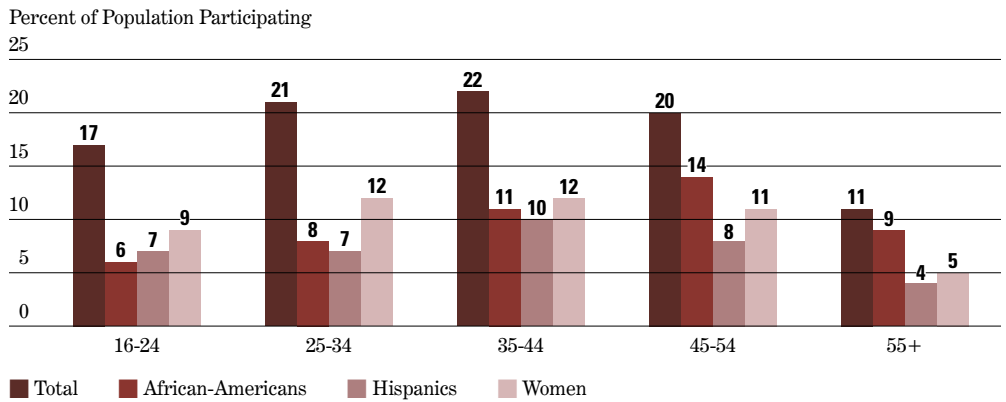


Figure 41. Participation Rates for Fishing, by Education

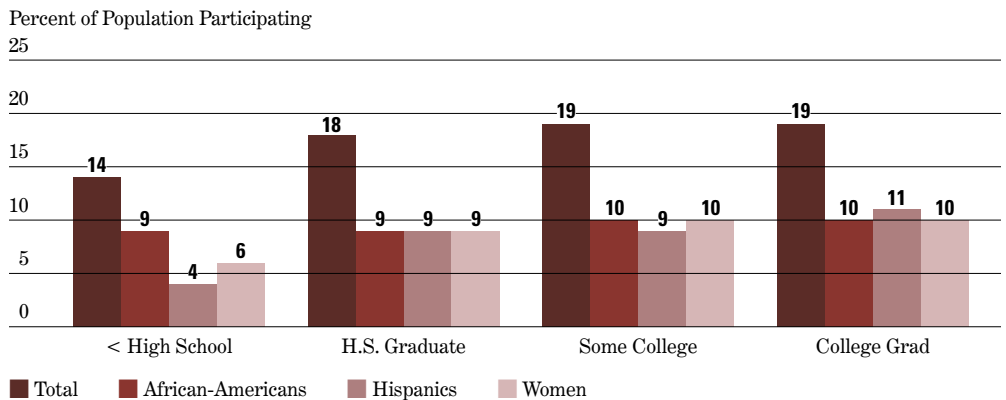


Figure 42. Participation Rates for Fishing, by Income

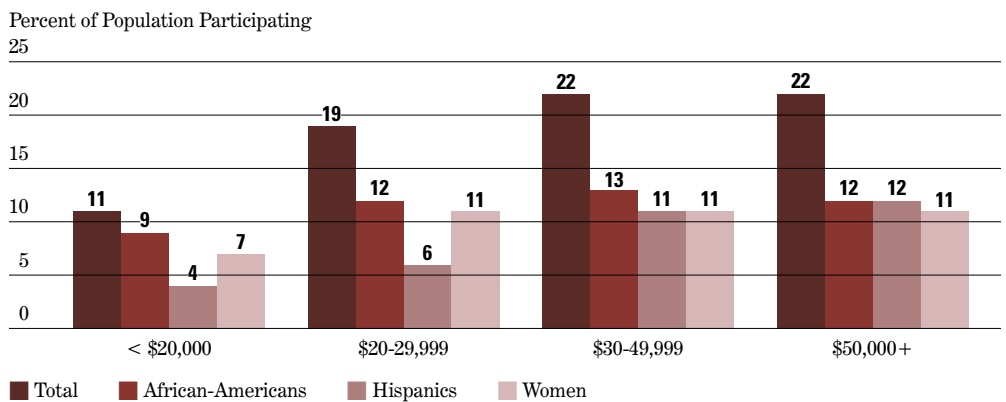
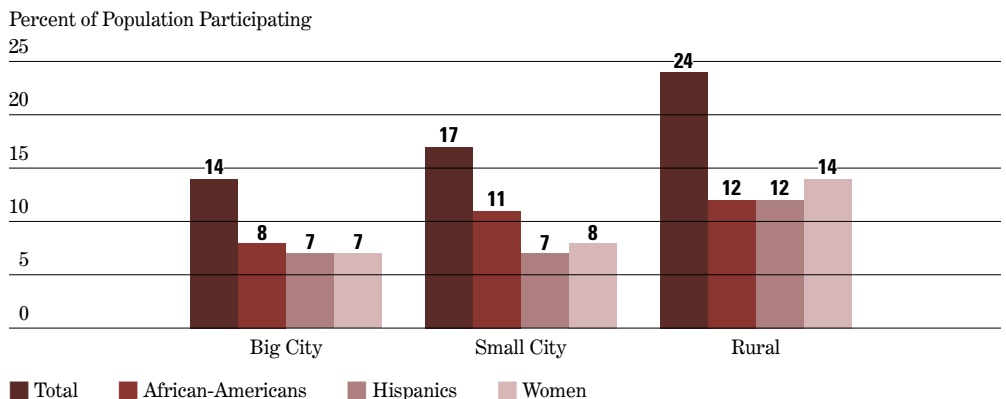


Figure 43. Participation Rates for Fishing, by Place of Residence



Regional Distribution of Anglers

Several topics reported in this study such as type of fishing and species sought are highly variable by region of the country. It is therefore important to know where anglers lived so that the results can be interpreted in context. Figure 44 shows the percent of each angler subpopulation that resided in the Northeast, the South, the Midwest and the West.

The largest regional population of all anglers (39 percent) was in the South. The South also had the highest shares of African-American (64 percent), Hispanic anglers (43 percent) and female anglers (43 percent).

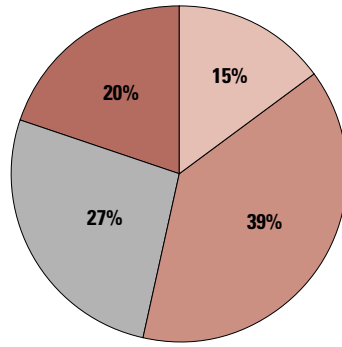
The West had a large share of Hispanic Anglers (38 percent) in comparison to all anglers (20 percent) but a low share of African-American anglers (6 percent). The Midwest had nearly the same share of female anglers (26 percent) as all anglers (27 percent), but lower shares for African-American anglers (16 percent) and Hispanic anglers (10 percent). The Northeast had the lowest share of all anglers (15 percent) and low shares for all subpopulations.



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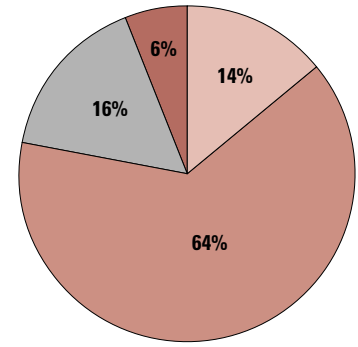
Figure 44. Where Do They Live? Regional Distribution of Anglers.

All Anglers



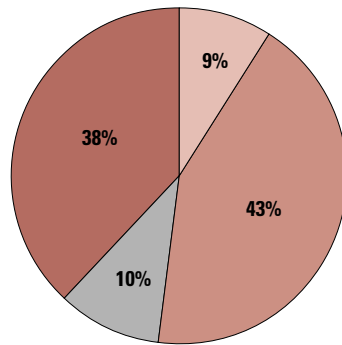
■ Northeast ■ Midwest
■ South ■ West

African-American Anglers



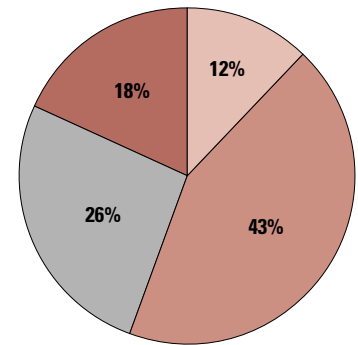
■ Northeast ■ Midwest
■ South ■ West

Hispanic Anglers

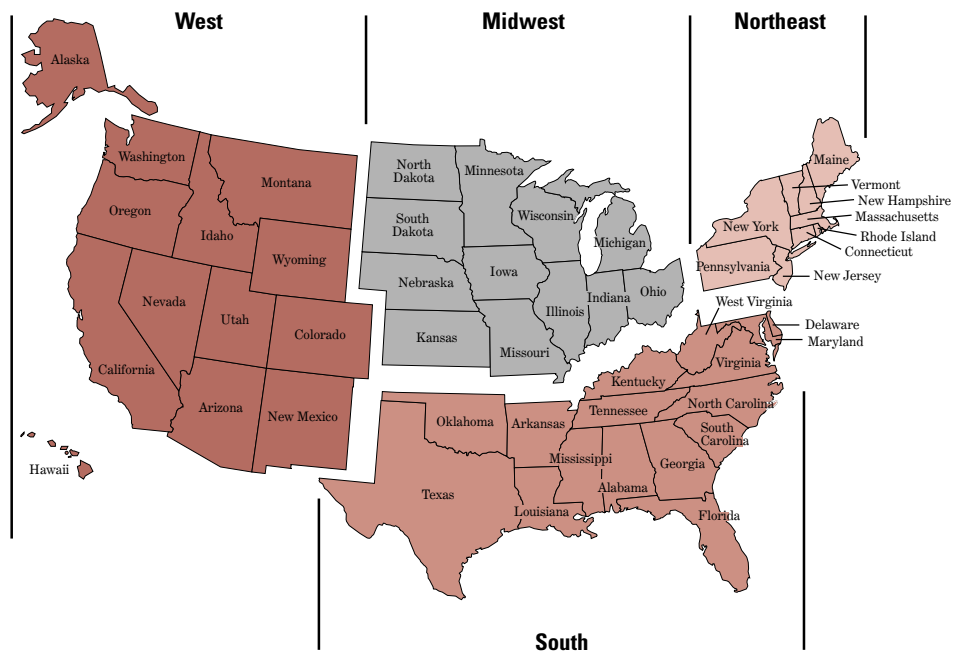


■ Northeast ■ Midwest
■ South ■ West

Female Anglers



■ Northeast ■ Midwest
■ South ■ West



Fishing Participation Levels

In terms of resource management, how often people fish is as important a question as how many people fish. For that reason, information is presented on the mean number of days spent fishing and the mean number of fishing trips taken.

Figures 45 and 46 show mean days and trips of fishing, respectively. African-American anglers, on average, spent more days fishing (22 days) and took more trips (18 trips) per year than all other groups including all anglers (18 days and 14 trips). Hispanic anglers spent fewer days fishing (14) and took fewer trips (11) than the national average. Female anglers spent the fewest number of days fishing (12) and took the fewest number of trips (10).

Fishing Expenditures

Figure 47 shows angler mean fishing trip expenditures⁷ and Figure 48 shows mean equipment expenditures.⁸ Hispanic anglers spent, on average, \$434 on trip-related expenditures and \$153 on equipment. This is more than any other subpopulation and roughly the same amount as all anglers.⁹

African-American anglers spent, on average, \$324 per year for trip-related fishing expenses and \$127 per year on fishing equipment. Female anglers on average spent the least, \$245 per year for trip-related fishing expenses and \$70 per year on fishing equipment.

Figure 45. Mean Days of Fishing

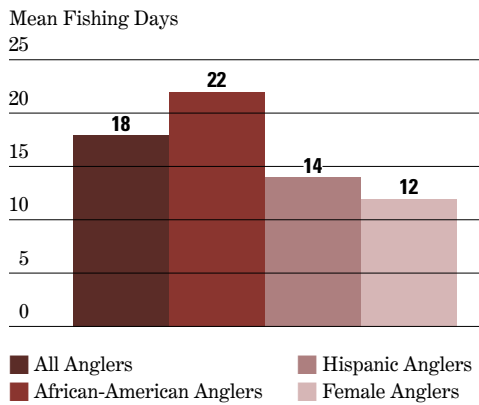


Figure 46. Mean Fishing Trips

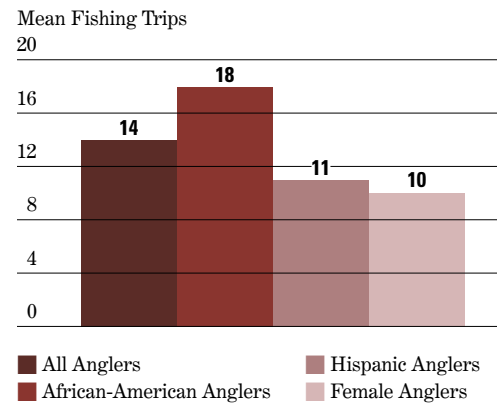


Figure 47. Mean Trip Expenditures for Anglers

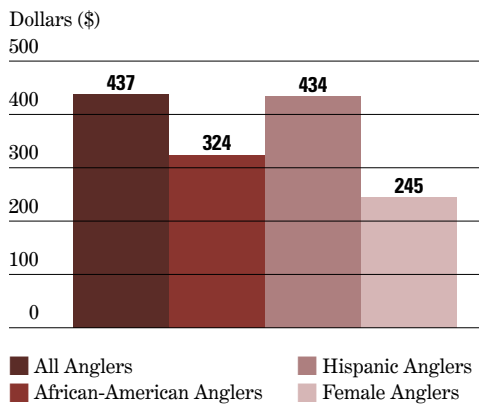
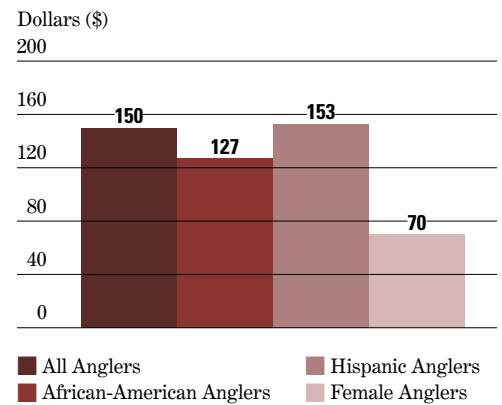


Figure 48. Mean Equipment Expenditures for Anglers



⁷ Trip expenditures are made up of food, drink, lodging, public and private transportation, guide fees, pack trip or package fees, public and private land use access fees, boat fuel, launching, mooring, storage, maintenance, insurance fees, bait, ice, and rental of equipment.

⁸ Equipment expenditures are made up of rods, reels, lines, lures, tackle boxes, creels, stringers, fish nets, minnow traps, seines, bait containers, depth and fish finders, ice and spear fishing equipment. Excluded from these expenditures are auxiliary camping equipment such as binoculars, special fishing clothing, processing and taxidermy costs and special equipment such as boats, campers, trucks and cabins.

⁹ The difference between Hispanic and all angler average trip expenditures is not statistically significant at the 0.05 level of significance.

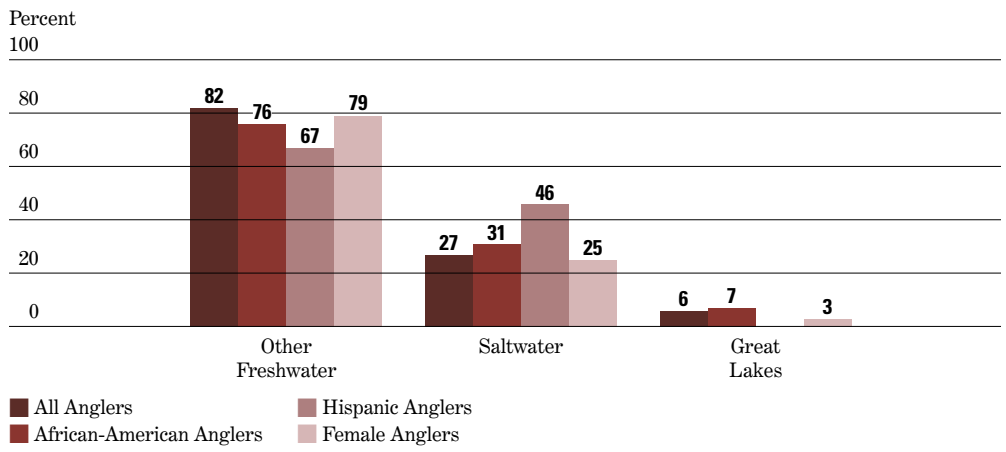
Types of Fishing and Selected Species

Figure 49 shows the percent of each angler subpopulation that participated in Great Lakes, saltwater and other freshwater fishing (excluding Great Lakes fishing). Other freshwater fishing was the most popular type of fishing. The percent of African-American anglers (76 percent) and female anglers (79 percent) that fished in other freshwater were close to the percent for all anglers (82 percent). Other freshwater fishing was least popular with Hispanic anglers (67 percent).

Participation in saltwater fishing was lower than in freshwater fishing. Only 27 percent of all anglers fished in saltwater. However, a relatively large percentage of Hispanic anglers — 46 percent — participated in saltwater fishing. This was greater than African-American anglers (31 percent), and female anglers (25 percent).

Participation in Great Lakes fishing was low for all subpopulations of anglers. Only 6 percent of all anglers fished in the Great Lakes. The African-American angler participation rate was 7 percent. Female anglers participated the least, 3 percent. The sample size for Hispanic anglers was too small to report an estimate accurately.

Figure 49. Percent of Anglers, by Type of Fishing



USFWS photo by Jim Palmer

Figures 50 thru 55 show the percentage of each angler subpopulation that pursued popular freshwater and saltwater fish species. Great Lakes fishing was not included. In each Figure, for purposes of comparison, the percentage of all anglers that pursued each species is also presented.

For African-American freshwater anglers, panfish was the most pursued species (Figure 50). Forty-two percent of African-American freshwater anglers fished for panfish, a greater percentage than any other group. Crappie, catfish and black bass were also popular with at least 33 percent of African-American anglers. African-American freshwater anglers fished for “anything”¹⁰ at a higher rate (26 percent) than all anglers (15 percent). Only 12 percent fished for trout which is far below the rates for all anglers and other angler subpopulations.

Of the saltwater species (Figure 51), African-American saltwater anglers fished for all species at rates higher than all anglers. The most pursued species were: “anything”(41 percent), flatfish such as flounder and halibut (36 percent) and striped bass (24 percent).

Hispanic freshwater anglers participated in trout fishing at 43 percent — exceeding the rate for all freshwater anglers and other freshwater angler subpopulations (Figure 52). Black bass fishing was equally high (43 percent). Participation in catfishing was relatively high (37 percent) but panfishing was not as popular as it was with other groups (16 percent).

Figure 53 shows that 51 percent of Hispanic saltwater anglers fished for “anything,” at a rate higher than did all anglers and all subpopulations. Other saltwater species were less favored, with 25 percent and less of Hispanic saltwater anglers pursuing them.

¹⁰ Respondents identified “anything” from a list of categories of fish. They were not fishing for any particular kind of fish.

Figure 50. African-American Freshwater Anglers, by Type of Species
(excludes Great Lakes fishing)

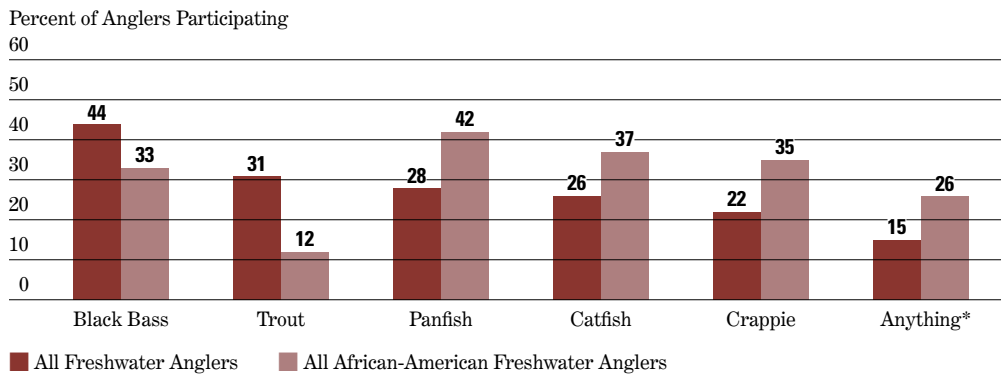


Figure 51. African-American Saltwater Anglers, by Type of Species

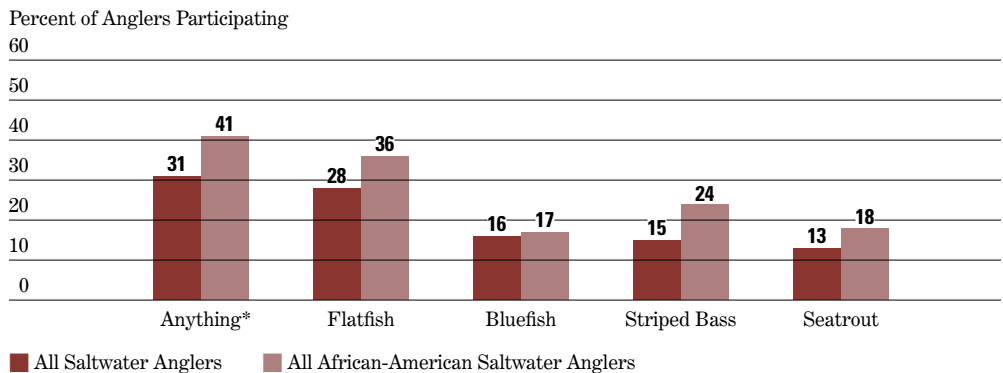


Figure 52. Hispanic Freshwater Anglers, by Type of Species
(excludes Great Lakes fishing)

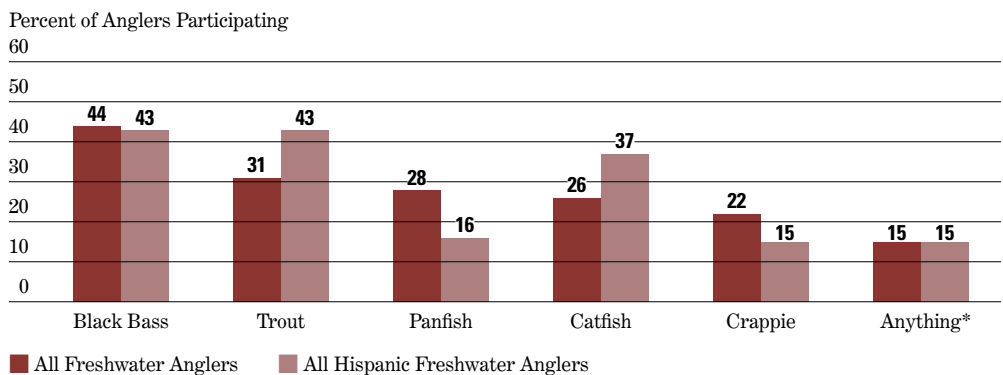
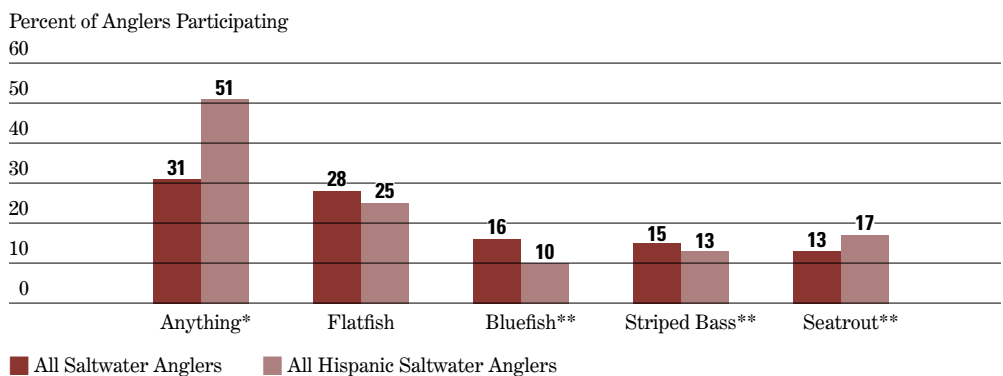


Figure 53. Hispanic Saltwater Anglers, by Type of Species



* Respondents identified “anything” from a list of categories of fish. They were not fishing for any particular kind of fish.

** Estimate based on small sample size.

For female freshwater anglers, participation in black bass fishing (33 percent) and trout fishing (26 percent) was below the participation rates for all freshwater anglers (Figure 54). Panfish, catfish and crappie fishing had approximately the same participation rates for female freshwater anglers as they did for all freshwater anglers. Fishing for “anything” was more popular with female freshwater anglers (22 percent) than it was for all freshwater anglers (15 percent).

Female saltwater anglers fished for “anything” at a slightly higher rate (36 percent) than all anglers (Figure 55). Flatfish (flounder, halibut) were also popular (26 percent) but all other saltwater species had lower participation rates with less than 10 percent of female saltwater anglers fishing for them.

Angler Participation In Catch and Release

Figure 56 shows angler participation in catch and release fishing. Participation by subpopulations, in particular African-Americans anglers, was lower than the national average of 58 percent. Only 35 percent of African-American anglers participated in catch and release. Hispanic anglers’ participation was higher at 45 percent and female anglers’ was the highest at 50 percent.

Figure 56. Angler Participation in Catch and Release

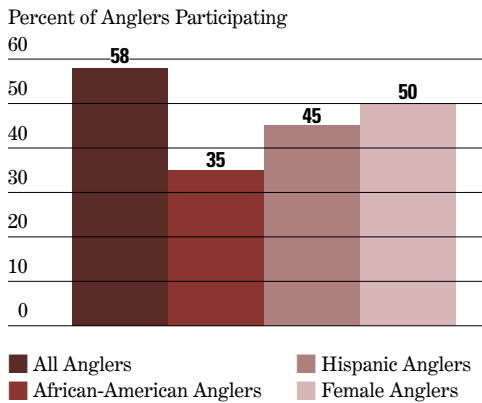


Figure 54. Female Freshwater Anglers, by Type of Species
(excludes Great Lakes fishing)

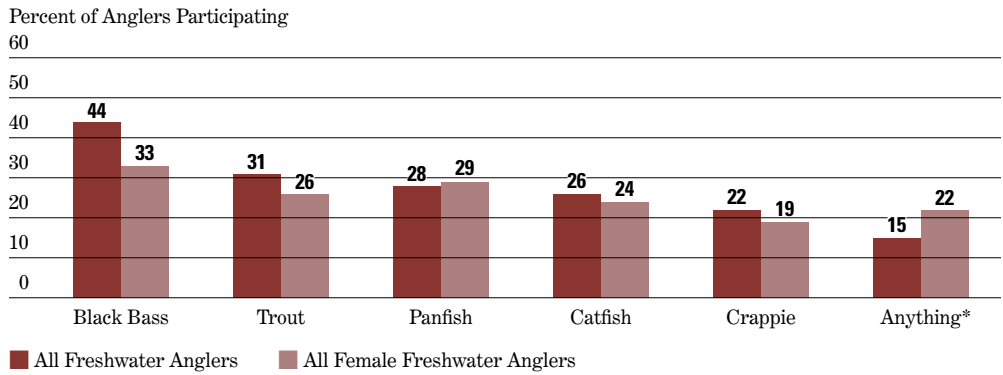
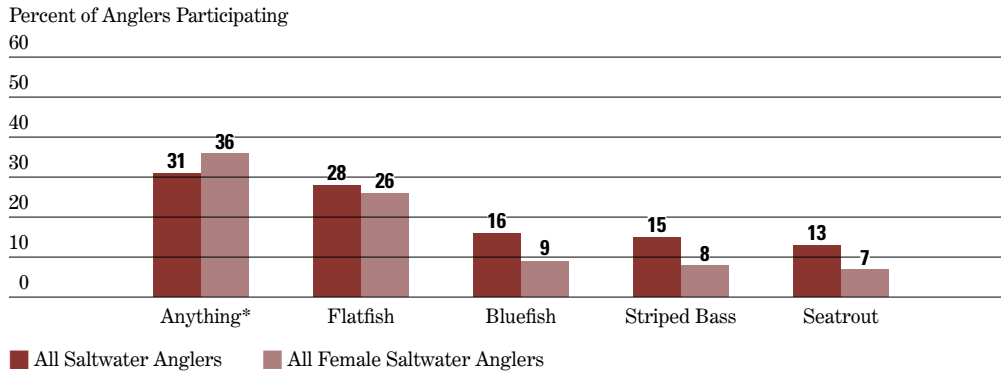


Figure 55. Female Saltwater Anglers, by Type of Species



* Respondents identified “anything” from a list of categories of fish. They were not fishing for any particular kind of fish.



USFWS photo by Tami Heilemann

Female Anglers

In this section, female anglers' fishing days, fishing trips and fishing expenditures are broken down by age, education, income and residency. This more in-depth analysis was not possible for African-American and Hispanic anglers due to small sample sizes.

Female Anglers' Participation Levels

Figures 57 thru 60 show mean days of fishing by age, education, income and residency. On average, female anglers spent 12 days fishing per year and took 10 fishing trips (see Figures 45 and 46 on page 17). Although this was substantially lower than the average for all anglers (18 days and 14 trips) when broken down by demographic category, the patterns of female anglers and all anglers were fairly similar. Furthermore, the pattern of mean days was nearly identical to that of mean trips.

As seen in Figure 57 female anglers' mean fishing days increased from the 16-24 age category to the 25-34 age category, remained fairly level, until it increased to its highest point in the 45-54 age category, and finally declined in the 55-plus age category. This is different from the pattern for all anglers, who had their highest mean days in the 25-34 age category.

Female anglers' mean days of fishing by education showed a drop in days spent fishing as the level of educational achievement increased (Figure 58). This is the same pattern for all anglers. It must be kept in mind, however, that for women the difference between high school graduates and female anglers with some college is 1 day, which means that the difference is not statistically significant.

Figure 57. Mean Days of Fishing, by Age

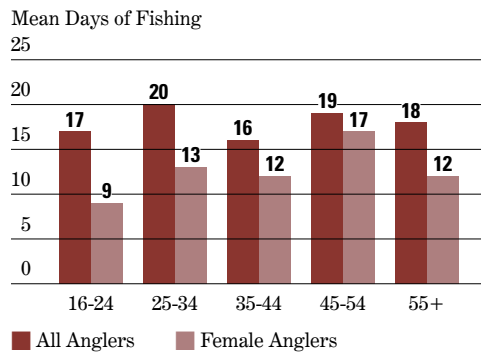
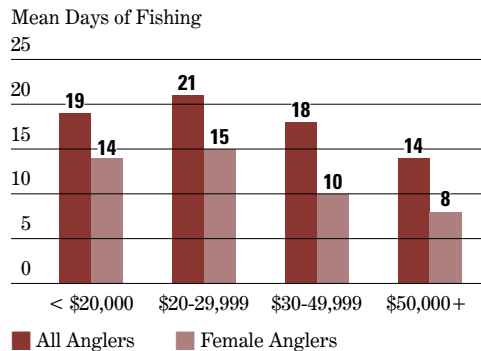


Figure 59. Mean Days of Fishing, by Income



A look at income level and mean days in Figure 59 shows that fishing activity by female anglers and all anglers peaked in the \$20,000-29,999 income category. From this point, mean days decreased with increasing income until its lowest point in the greater than \$50,000 category.

Place of residency seems to be a factor in how often female anglers fish. Figure 60 shows that mean days were lowest for big city residents. Female residents of small city/towns and rural residents had roughly the same number of fishing days. For all anglers, mean trips were highest for rural residents.

Figure 58. Mean Days of Fishing, by Education

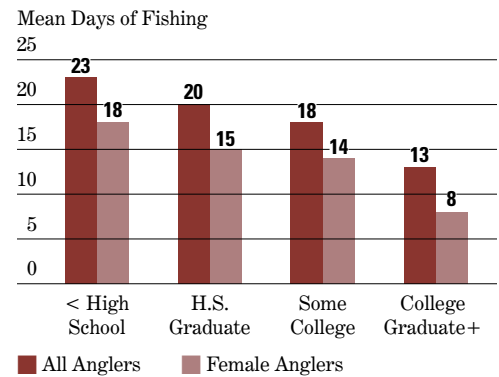
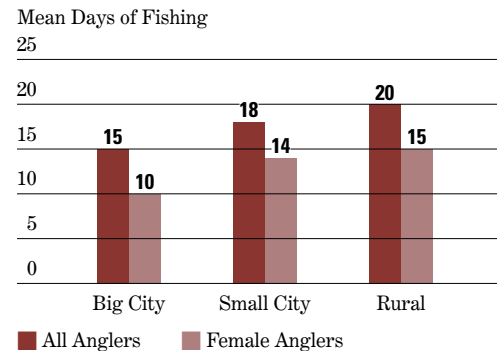


Figure 60. Mean Days of Fishing, by Place of Residence



Mean trips are broken down in Figures 61 thru 64. The pattern of mean trips is very similar to that of mean days.

Female Anglers' Fishing Expenditures

As seen on page 17, Figures 47 and 48, women spent on average \$245 per year for trip-related fishing expenditures and \$70 per year on fishing equipment. This was substantially below the average expenditures for all anglers. In order to better understand which segments of the female population are spending more and which are spending less, and how this compares with anglers in general, demographic breakdowns are given by age, education, income and residency. This analysis finds several differences between the spending patterns of women anglers and all anglers.

Figure 65 shows mean trip expenditures broken down by age. Women's trip expenditures increased with age up to the 35-44 age category where it peaked, after which spending decreased with age. For all anglers, this spending peak occurred later in life — in the 45-54 age category — after which expenditures started decreasing.

Women anglers' trip expenditures increased with increasing education up to completion of some college, after which spending leveled off (Figure 66). This is different from all anglers for whom trip expenditures increased steadily with increasing educational achievement without leveling off.

Women anglers' trip expenditures were least in the lowest income category — less than \$20,000 — and greatest for the highest income category — greater than \$50,000 (Figure 67). However, for both income categories in between, mean trip expenditures decreased with increasing income. For all anglers, there is a consistent pattern of increased spending at each higher income category.

Female anglers from big cities spent more, on average, for fishing trips than residents of small cities/towns and rural residents (Figure 68). Female residents of small cities and rural areas spent about the same. This is again somewhat different from all anglers for whom spending was the highest for big city residents, less for small city residents and least for rural residents.

Figure 61. Mean Fishing Trips, by Age

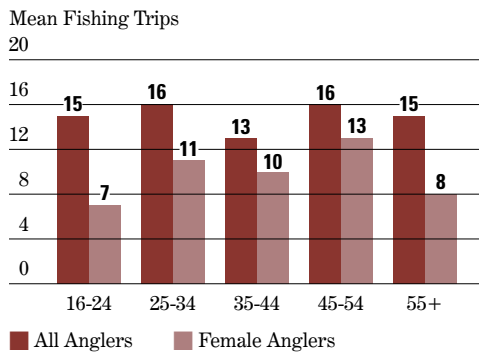


Figure 63. Mean Fishing Trips, by Income

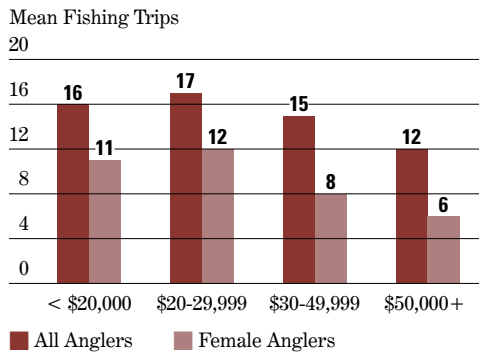


Figure 65. Mean Trip Expenditures, by Age

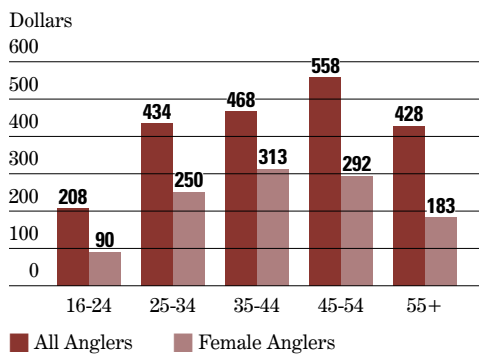


Figure 67. Mean Trip Expenditures, by Income

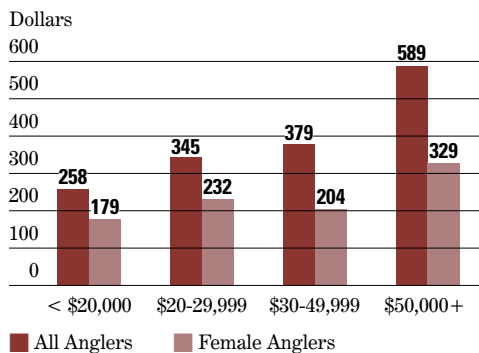


Figure 62. Mean Fishing Trips, by Education

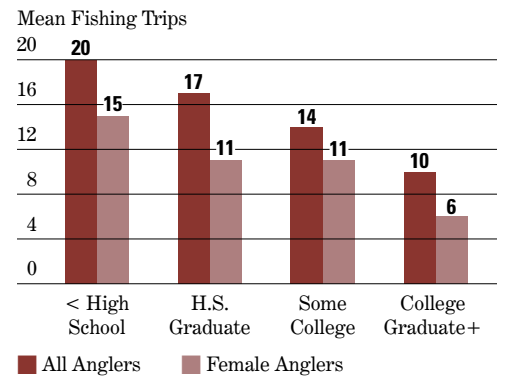


Figure 64. Mean Fishing Trips, by Place of Residence

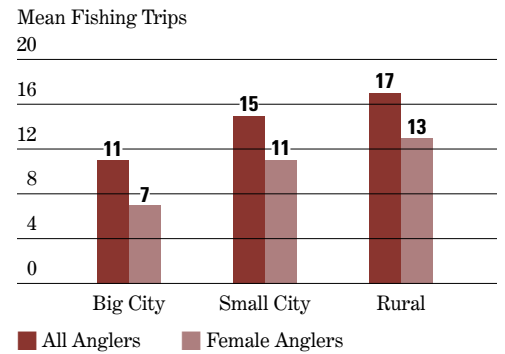


Figure 66. Mean Trip Expenditures, by Education

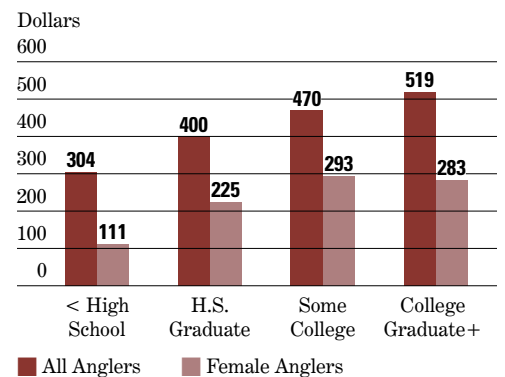
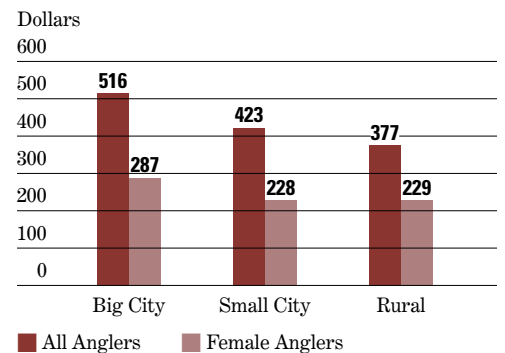


Figure 68. Mean Trip Expenditures, by Place of Residence



Figures 69 thru 72 show mean equipment expenditures. Figure 69's breakdown by age has a similar pattern to trip expenditures except, that mean trip expenditures peaked in the age category 35-44, while equipment expenditures peaked in the 45-54 age category.

Mean equipment expenditures increased with increasing educational achievement up to the some college category but then decreased for women with a college degree or more (Figure 70).

There is no discernible pattern for female anglers' equipment expenditures and income (Figure 71). Women in the less than \$20,000 income category spent the least and women in the \$20,000-29,999 income category spent the most. Women in the \$50,000 and greater category spent slightly more than those women in the \$30,000-49,999 income category. This was not the case for all anglers who had a clear pattern of increasing expenditures with increasing income.

As for equipment expenditures by place of residence (Figure 72), female anglers do not follow the expenditure patterns of all anglers. Female anglers from rural areas spent the most on average of all female anglers, whereas all anglers from rural areas spent the least on average.

Figure 69. Mean Equipment Expenditures, by Age

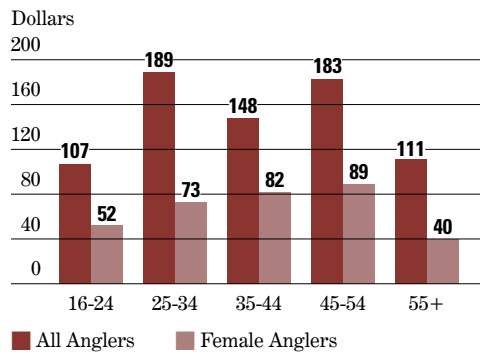


Figure 71. Mean Equipment Expenditures, by Income

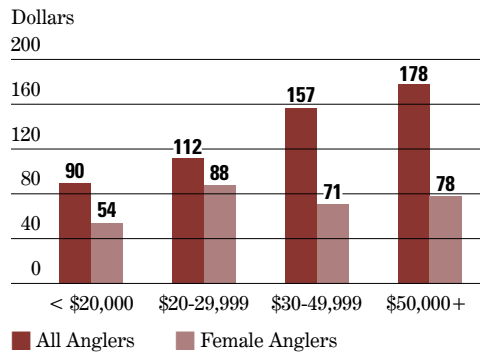


Figure 70. Mean Equipment Expenditures, by Education

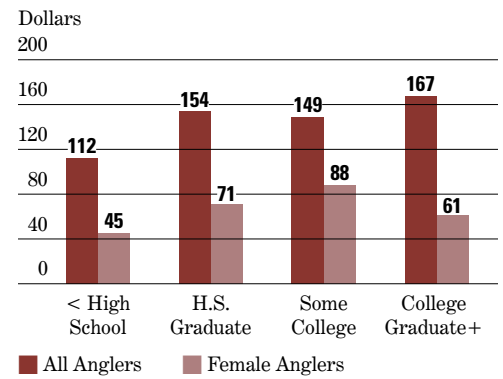
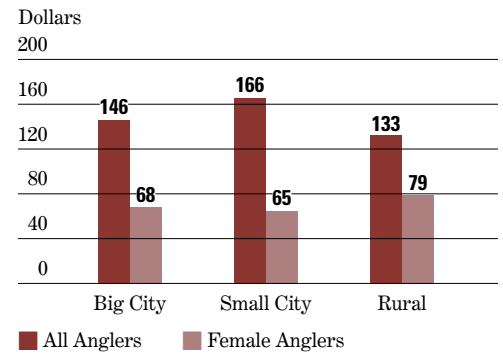


Figure 72. Mean Equipment Expenditures, by Place of Residence



1991-1996 Comparison of Fishing Activity

Table 4 compares 1991 and 1996 angler participation and expenditures. Some 1996 expenditures are slightly different from those in Table 3 because of adjustments to make them comparable. See the second footnote for Table 4, page 14. The 1991 expenditures were adjusted for inflation to make them directly comparable with 1996 estimates.

From 1991 to 1996 there was no significant change in the number of people participating in fishing for the population as a whole or any subpopulation but there was a significant increase in the number of days spent fishing. For all anglers the number of days increased 22 percent between 1991 and 1996. Of the subpopulations, African-American anglers had the largest increase (72 percent) in the number of days fishing. Female anglers' days increased 15 percent. For Hispanic anglers there were no significant difference in days.

For anglers as a whole fishing expenditures increased between 1991 and 1996; fishing trip expenditures increased 12 percent and fishing equipment expenditures increased 16 percent.

African-American anglers' equipment expenditures increased 43 percent and Hispanic anglers trip expenditures increased 50 percent. Uniquely, female anglers saw a decrease, 25 percent, in fishing equipment expenditures.

Table 4. 1991-1996 Comparison: Participants, Days and Expenditures.

(Numbers in millions.)

	1991	1996	Percent Change
Anglers			
Anglers, Total	35,787	35,246	*
African-American	1,815	1,802	*
Hispanic	1,218	1,185	*
Women	9,935	9,509	*
Days			
Days, Total	511,328	625,893	+22
African-American	23,273	40,131	+72
Hispanic	14,375	16,685	*
Women	97,699	112,841	+15
Fishing Expenditures**			
Trip Expenditures, Total	\$13,624,885	\$15,262,388	+12
African-American	\$502,089	\$581,780	*
Hispanic	\$340,003	\$509,739	+50
Women	\$2,341,797	\$2,316,634	*
Equipment Expenditures, Total	\$4,587,405	\$5,308,675	+16
African-American	\$160,891	\$230,149	+43
Hispanic	\$147,813	\$182,186	*
Women	\$834,859	\$668,595	-25

*Not different from zero at the 90 percent confidence interval. This means that for 90 percent of all possible samples, the estimate of one survey year is not different for the other survey year.

** 1991 expenditure estimates have been adjusted for inflation to be comparable. 1996 trip expenditures are slightly different from those reported in Table 1 because expenditures for heating and cooking fuel are not included. This was done to make it comparable with the 1991 Survey which did not collect this information.

Participation Models

The descriptive statistics presented in the previous sections show that African-Americans, Hispanics and women are less likely to fish and hunt than the general population. These descriptions however are limited. They cannot tell you with certainty if low participation is due to their race/gender or if it is due to other social factors associated with race/gender. For example, these groups often have lower education levels than the general population. Is low participation by minorities and women due to low education levels or is it low regardless of education? Participation models can be used to separate out the effects of race/gender and other socioeconomic variables on hunting and fishing participation. In participation models, the effect of a particular characteristic is calculated with “other things being equal.” The procedure used to estimate the probability removes the confounding effects of the correlation between race/gender and education to show each characteristic’s individual contribution to the probability of participating in hunting or fishing.

The data used for these models are from the 1996 FHWAR screener data survey that covered the year 1995. For the hunting model, the dependent variable is one if the respondent hunted in 1995 and zero if the respondent did not hunt. The model hypothesizes that a person’s decision whether or not to hunt is based on race, ethnicity, gender, residency, and other sociodemographic characteristics. The fishing model is set up the same way.¹¹

¹¹ This type of yes or no response is modeled in terms of the logarithm of the odds that the individual fished/hunted. This is called the logit and appears on the left side of equation 1. Equation 1 shows the model estimated.

$$\ln = \frac{P_i}{(1-P_i)} = \alpha + \beta x_i \quad (1)$$

Where:

P_i = Probability that the i-th individual fished/hunted

x_i = Vector of explanatory variables

α = Intercept to be estimated

β = Vector of coefficients to be estimated.

Table 5

<i>Variable</i>	<i>Description</i>
Hispanic	1 if respondent indicated Hispanic ethnicity 0 otherwise
African-American	1 if respondent indicated race is black 0 otherwise
Female	1 if respondent is female 0 otherwise
City	1 if respondent lived in an urban area 0 otherwise
Retired	1 if respondent is retired 0 otherwise
West	1 if respondent resides in West 0 otherwise
South	1 if respondent resides in the South 0 otherwise
Northeast	1 if respondent resides in the Northeast 0 otherwise
Age	Age of respondent
Age ²	Age of respondent squared
School	Highest grade respondent attended
School ²	Highest grade respondent attended squared
Income	Annual household income in thousands of dollars

The explanatory variables, x_i , were a combination of continuous and binary variables. They are described in Table 5. The frequency distribution by age suggested that middle aged people were more likely to hunt than younger or older people. To capture this hypothesized bell-shaped curve effect distribution, age is represented by two variables each: Age is a variable for the age of the respondent and Age² is age squared. Because education had a similar distribution to age, it is also represented by two variables. School is a continuous variable for number of years of education completed, and School² is the school variable squared.

Hunting Participation Model

The model in Table 6 was estimated from a sample of 68,834 households in the United States.

Retired and South were not statistically significant. Income and School² were significant at the 10 percent level. All other variables were significant at the 1 percent level.

As expected, African-Americans, Hispanics and women were less likely to hunt. The size of the estimated coefficients corresponds to the participation rates reported on page 5, Figure 1. The negative coefficient for Female is the largest of the three groups indicating that being a woman is a much bigger predictor that a person will not hunt than is being Hispanic or African-American.

The large negative value for City reveals that people living in urban areas are less likely to hunt than non-city dwellers. This supports an earlier finding on page 9, Figure 14. The insignificance of the Retired variable indicates that retired people were not more or less likely to hunt than non-retired people. Likewise, the insignificant South variable indicates that people who live in the South were not more or less likely to hunt than people who live in the Midwest (the omitted variable). The negative significant signs for West and Northeast reveal that people who live in the Northeast or West are less likely to hunt than people who live in the Midwest.

The age and education variables indicate that participation increased with age and education up to a point (reflected by the positive sign for Age and School) and then decreased (reflected by the negative sign on the squared variables — Age² and School²). This backs earlier findings on page 9, Figures 11 and 12.

Table 6. Hunting Participation Model: Logit Equation Results

<i>Variable</i>	<i>Estimated Coefficient</i>	<i>Standard Error</i>
Intercept	-2.385	0.796
Hispanic	-1.282	0.307
African-American	-1.477	0.318
City	-1.002	0.106
Female	-2.676	0.168
Retired*	-0.022	0.253
West	-0.341	0.149
South*	0.232	0.109
Northeast	-0.556	0.181
Age	0.049	0.019
Age ²	-0.001	0.000
School	0.232	0.109
School ²	-0.012	0.004
Income	0.004	0.002

* Not statistically significant.

The positive sign for Income means that as income increases so does the likelihood of hunting. This again confirms earlier findings on page 9, Figure 13.

In summary, the hunting participation model finds that a person who is African-American, Hispanic or female is less likely to hunt based on these classifications alone. Other factors that contribute to whether or not someone hunts are residency, age, education and income. Being retired does not change the likelihood of hunting.

Fishing Participation Model

The model in Table 7 was estimated from a sample of 68,834 households in the United States.

All variables were significant at the 1 percent level.

The negative coefficients for African-American, Hispanic and Female variables indicate that people in these groups are less likely to fish than other people.

The negative value for City demonstrates that people living in large urban areas are less likely to fish than non-urban dwellers. This supports an earlier finding on page 15, Figure 43.

The negative signs for West and Northeast reveal that people who live in the West or Northeast are less likely to fish than people who live in the Midwest (the omitted variable) while the positive sign for South shows that residents of the South are more likely to fish. Retired people are more likely to fish than non-retired people.

The positive sign for Age and the negative sign for Age² demonstrates that the likelihood of fishing increases with age up to a certain point and then decreases. This underscores the finding for all anglers in Figure 40 on page 15.

The school variable behaves in the same manner as Age; participation increases with education and then decreases after a certain point. This is slightly different from the finding in Figure 41, page 15, which shows participation increasing up to the some college category and then remaining at the same level with increasing education.

The positive, significant coefficient for Income indicates that as income level increases, the likelihood of fishing increases. This was also the finding for all anglers on page 15, Figure 42.

Table 7. Fishing Participation Model: Logit Equation Results

<i>Variable</i>	<i>Estimated Coefficient</i>	<i>Standard Error</i>
Intercept	-1.296	0.244
Hispanic	-0.922	0.079
African-American	-0.781	0.072
City	-0.444	0.377
Female	-1.175	0.035
Retire	0.276	0.813
West	-0.198	0.049
South	0.143	0.042
Northeast	-0.519	0.060
Age	0.048	0.006
Age ²	-0.001	0.000
School	0.122	0.032
School ²	-0.005	0.001
Income	0.005	0.001

In summary, African-Americans, Hispanics, and women are less likely to fish regardless of their age, income, education or income levels. Retired people, residents of the South and people with higher incomes are more likely to fish. Education and age are also important predictors of whether or not someone fishes.

The hunting and fishing participation models suggest that the phenomenon of low participation rates of African-Americans, Hispanics and women are primarily the result of cultural differences. These cultural differences are deep-seated enough to transcend the effects of income, education, age, and other factors normally assumed to have a large influence on behavior.

Summary

This report presents a great deal of information on the participation and expenditure patterns of African-American, Hispanic, and female hunters and anglers. The information includes participation rates, participation levels (days and trips), expenditures, usage of public and private land, types of hunting and fishing and species pursued. Comparisons of this information among the different populations and with hunters and anglers in general, show that these populations' patterns of participation and expenditures are unique in many respects.

Also presented are statistical models which predict the likelihood of participation in hunting and fishing. The models show that regardless of sociodemographics, African-Americans, Hispanics and women are less likely to hunt and fish than the general population.



USFWS photo

The data can be used in several ways to improve hunting and fishing experiences of these low participation groups. One way might be to tailor hunting and fishing conservation and safety programs for specific groups. Data on participation rates, participation levels and expenditures may help pinpoint certain groups of people more likely to participate. For instance, the data show that women living in rural areas are more likely to fish than women living in other areas. The data also show that female anglers with less than a high school education fish more on average than women with higher education levels. Fish conservation and safety programs targeted toward these demographics could be both well received and cost effective.

Hunting and fishing experiences may also be improved through efficient allocation of resources. Data provided on use of private and public land, types of hunting and fishing, and species sought combined with other data on participation may help resource managers make informed decisions. For example, the report shows that many African-American hunters live in the South and hunt predominantly on private land. To avoid overcrowding and over-hunting, resource managers could increase efforts that would open more private land for hunting by the public. Information about types of hunting and fishing and species sought can be used in a similar manner.

Another use of the data is targeting information dissemination. For instance, the report shows that a large proportion of Hispanic anglers live in the West and fish for trout. Changes in trout fishing regulations or trout fish advisories in the West could therefore have a large impact on this group. Wildlife professionals could target information to this group in Spanish and English and choose the appropriate mediums (e.g., newspaper, magazines, television, posters) to disseminate the information.

Expenditure information can provide the hunting and fishing industry with a better understanding of their customers. Demographic profiles of trip and equipment expenditures can be used to better serve customers and for marketing purposes. A key finding is that Hispanic hunters and anglers spend more on trips and equipment than many other groups. Also of note is that female anglers spend far less on average for fishing trips and equipment than the average angler and that female anglers with larger incomes do not spend more on fishing equipment — in contrast to all anglers who spend more as their income increases.

Above are just a few examples of how the information can be used. Wildlife professionals can use this material in any number of ways to arrive at a better understanding of African-American, Hispanic, and women hunters and anglers — groups that do not hunt or fish as much as the rest of the country.

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