

Economic Impact of Waterfowl Hunting in the United States

*Addendum to the 2011 National
Survey of Fishing, Hunting, and
Wildlife-Associated Recreation*

Report 2011-6



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This report is intended to complement the National and State reports from the 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. The conclusions are the author's and do not represent official positions of the U.S. Fish and Wildlife Service.

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Contents

- Introduction** **3**
- Waterfowl Hunters** **4**
 - Demographics 5
 - Avidity and Expenditures..... 8
- The Economic Impacts of Waterfowl Hunting** **9**
 - Total Industry Output 9
 - Employment and Employment Income..... 9
 - Federal and State Taxes 9
- Summary**..... **10**
- Appendix A** **11**
- References**..... **12**

Introduction

Every year millions of sportspersons take to the field to hunt. Among them are waterfowl hunters who pursue ducks and geese in the nation's flyways. Waterfowl hunters have an important economic impact on local, state, and national economies. In 2011, waterfowl hunters constituted 11 percent of all hunters, 6 percent of all hunting trip-related expenditures, and 7 percent of all hunting equipment expenditures.

This report provides information on these hunters, including their participation, demographic characteristics, and the economic impact of their expenditures. The first section of this report examines the demographic characteristics of waterfowl hunters. The second section examines the economic impact of waterfowl hunting on state and national economies. Due to small sample sizes, some state-level impacts are not presented. All dollar estimates are presented as 2011 dollars.

All data are from the *2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* and represent participation and expenditures for the 2011 calendar year by U.S. residents 16 years of age and older. The 2011 Survey was conducted for the U.S. Fish and Wildlife Service by the U.S. Census Bureau. The survey was conducted in two phases. First, the screening interview identified wildlife-related recreationists. Second, multiple interviews collected detailed information on participation and expenditures for persons 16 years of age and older. The U.S. Census Bureau collected the data primarily by telephone; respondents who could not be reached by telephone were interviewed in person. The response rate was 71 percent for the screen phase and 69 percent for the detailed sportspersons phase. For more detailed information on the methods of data collection, refer to the *2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation*¹.

¹ This document is available on the U.S. Fish and Wildlife Service webpage: <http://wsfrprograms.fws.gov>.



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Waterfowl Hunters

Table 1 highlights the total number of waterfowl hunters, days, and trip-related and equipment-related expenditures². In 2011, approximately 1.5 million people participated in waterfowl hunting. While some waterfowl hunters hunt both ducks and geese, nearly 90 percent at least hunt ducks. Waterfowl hunters spent \$663 million on trip expenditures and \$699 million on equipment expenditures in 2011. For trip expenditures, 33 percent was allocated for food and lodging, 42 percent was spent on transportation, and 25 percent was spent on other costs such as guide fees, user fees, and boat costs.

² The Survey does not have an expenditure category for waterfowl hunters. Therefore, expenditures are prorated by multiplying migratory bird expenditures by a ratio to derive waterfowl expenditures. This ratio is (number of days hunting geese and ducks)/(total number of days hunting migratory birds). For separate duck and geese expenditures, the numerator included only duck hunting days or goose hunting days.



Table 1. 2011 Waterfowl Hunters, Days, & Expenditures

(Includes hunters 16 years of age and older.)

Hunters, all waterfowl*	1,517,000
Duck	1,371,000
Geese	781,000
Days, all waterfowl	17,292,000
Duck	15,295,000
Geese	8,684,000
Total Waterfowl Expenditures	
Trip Expenditures**	\$663,054,000
Food and Lodging	\$220,745,000
Transportation	\$274,682,000
Other Trip Costs	\$167,627,000
Equipment Expenditures***	\$699,488,000

*The number of duck hunters, goose hunters, and days of hunting does not sum to the total number of waterfowl hunters because of multiple responses.

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

***Equipment expenditures consist of rifles, shotguns, other firearms, ammunition, telescopic sights, decoys, hunting dogs and associated costs. Also included are auxiliary equipment such as camping equipment, binoculars, special hunting clothing, processing and taxidermy costs. Due to small sample sizes, special equipment purchases such as boats, campers, trucks, and cabins are excluded from equipment expenditures.

Demographics

This section illustrates the demographic characteristics for waterfowl hunters. In addition, demographic characteristics are presented for all hunters to depict the differences and similarities with the waterfowl hunter subset.

Figures 1 and 2 show where hunters live by region and flyway. By region, the majority of waterfowl hunters live in the South (38 percent) and the Midwest (37 percent). While 18 percent of waterfowl hunters live in the West, only 7 percent live in the Northeast.

The continental United States is divided into four flyways: Atlantic, Central, Mississippi, and Pacific. These flyways represent major migration routes for migratory birds. Figure 2 shows that the majority of waterfowl hunters live in the Mississippi flyway (48 percent). Less than 1 percent of waterfowl hunters do not live in a designated flyway in the continental United States, instead living in Hawaii or Alaska.

Figure 1. Distribution of Waterfowl Hunters by Region

(Population 16 years of age and older.)

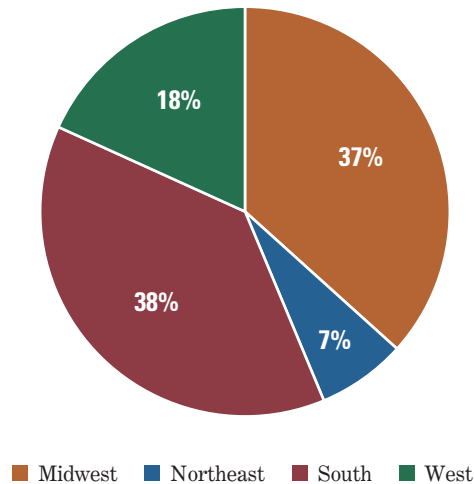
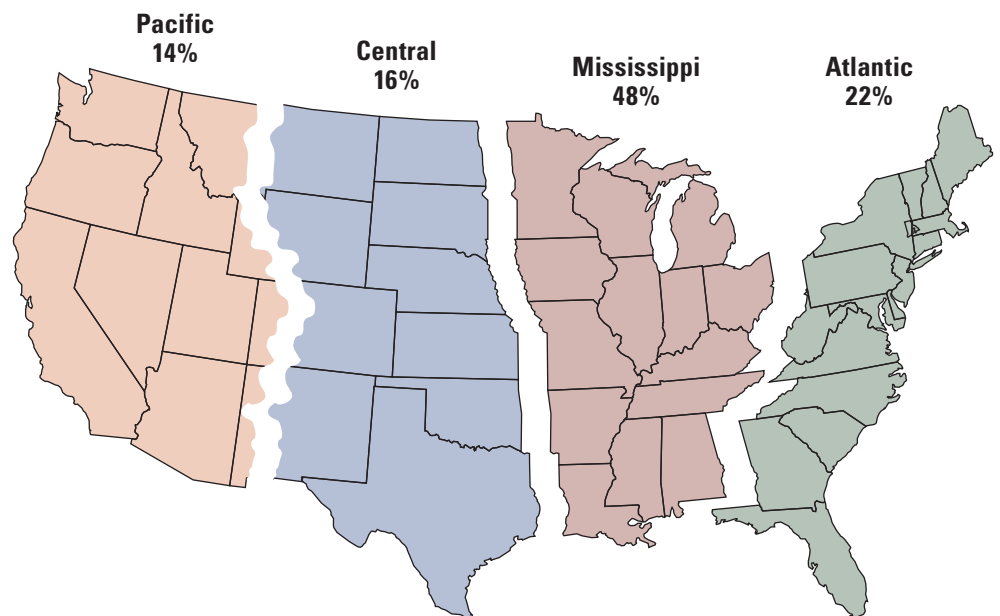


Figure 2. Distribution of Waterfowl Hunters by Flyway

(1.5 million total waterfowl hunters)



For all hunters, participation increases with age. In contrast, for waterfowl hunters participation is lowest for the 16–24 age category and is relatively even for each subsequent cohort.

Figure 4 depicts the association between waterfowl hunting and educational attainment. The number of waterfowl hunters generally increases with educational achievement. Only 84,000 waterfowl hunters (6 percent) have not obtained their high school degrees. The percentage of all hunters also increases after attaining high school degrees. However, the percentage of waterfowl hunters with more educational attainment after high school degrees (66 percent) is higher than all hunters (53 percent).

Figure 5 shows that waterfowl hunting is positively correlated with income. That is, as household income increases, the percentage of waterfowl hunters for each group also increases. Income is also positively correlated with the participation rate of all hunters. However, all hunters do not tend to be as affluent as waterfowl hunters. Waterfowl hunters with an annual household income of over \$50,000 is 69 percent (896,000 hunters) compared with 57 percent for all hunters (7.8 million hunters). (In Figure 5, “all hunters” does not sum to 100 percent due to those who did not report household income.)

Figure 3. Percent of Hunters by Age

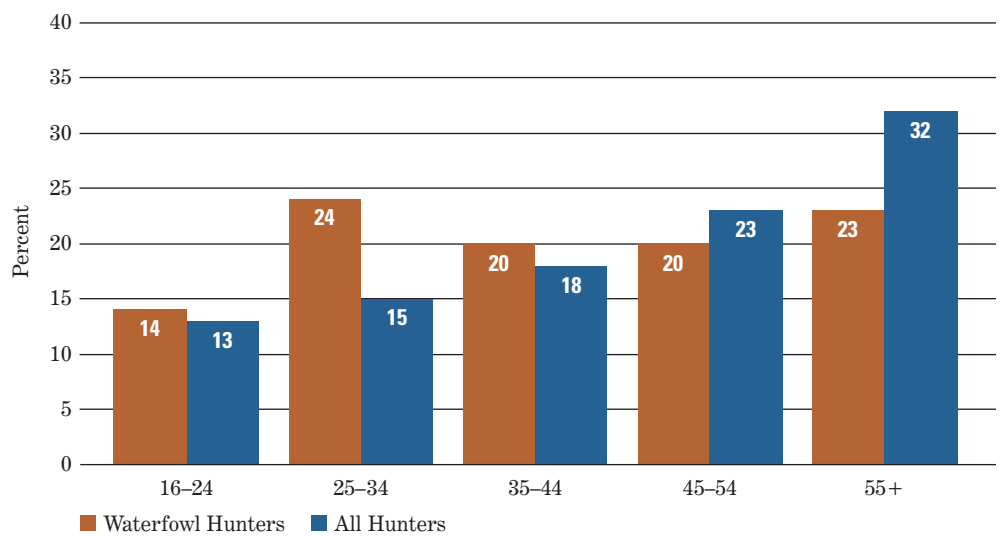


Figure 4. Percent of Hunters by Education

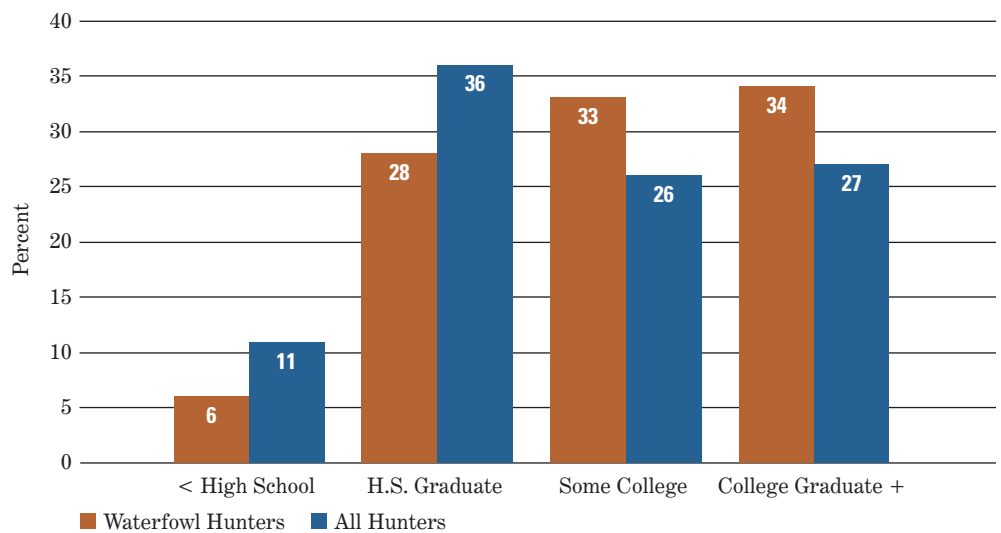
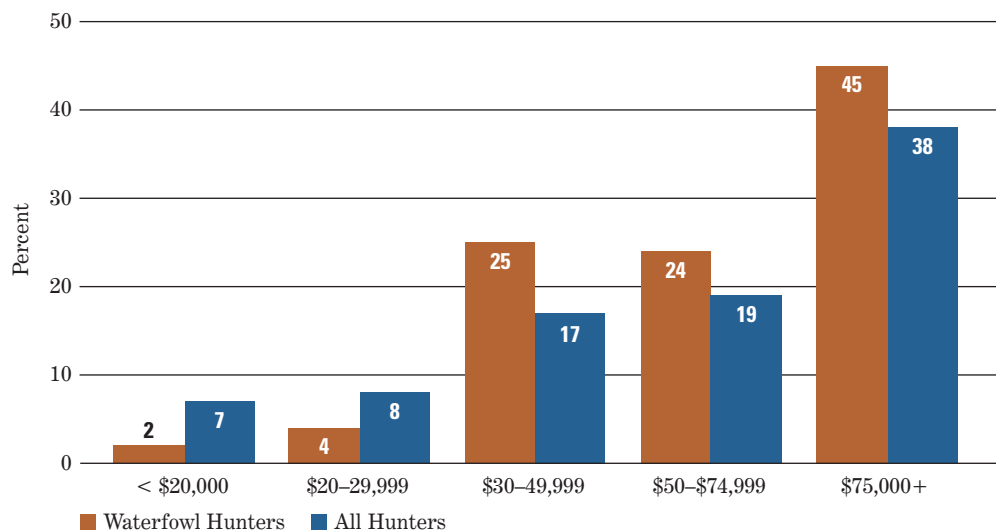


Figure 5. Percent of Hunters by Annual Household Income



Figures 6 and 7 compare hunting participation by residents of metropolitan statistical areas (MSA) with that of individuals living outside those areas. A MSA is a major populated area comprising a central city or urban core of 50,000 or more people and its surrounding counties or communities, as identified by the U.S. Census Bureau. It is not surprising that a majority of all hunters also reside in those areas.

In 2011, 94 percent of the U.S. population 16 years of age and older, 80 percent of all hunters, and 82 percent of waterfowl hunters lived in MSAs (Figure 6).

It is not difficult to see that hunters are less urban than the population as a whole, and that a nonmetropolitan resident has a higher percentage chance of being a hunter than does a metropolitan resident. In 2011, 18 percent of all nonmetropolitan residents hunted and 2 percent waterfowl hunted; only 5 percent of all metropolitan residents hunted and 1 percent waterfowl hunted (Figure 7).

Figure 6. Percent of Hunters by Residence

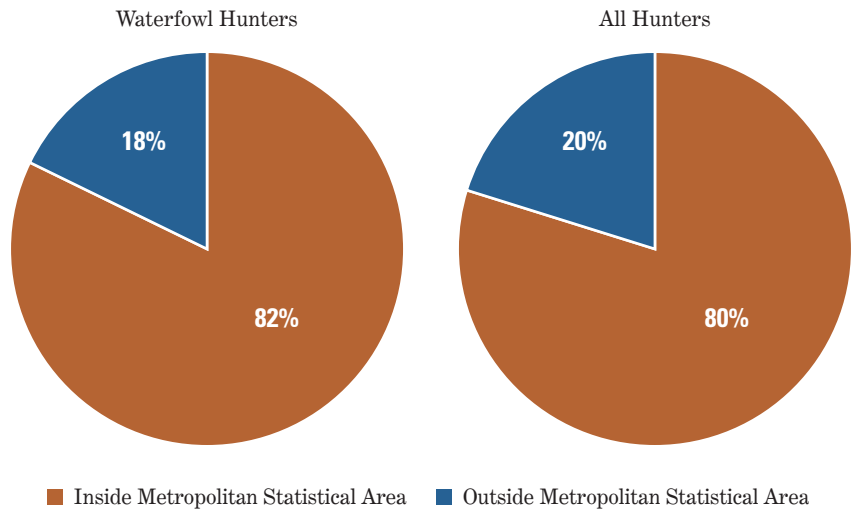
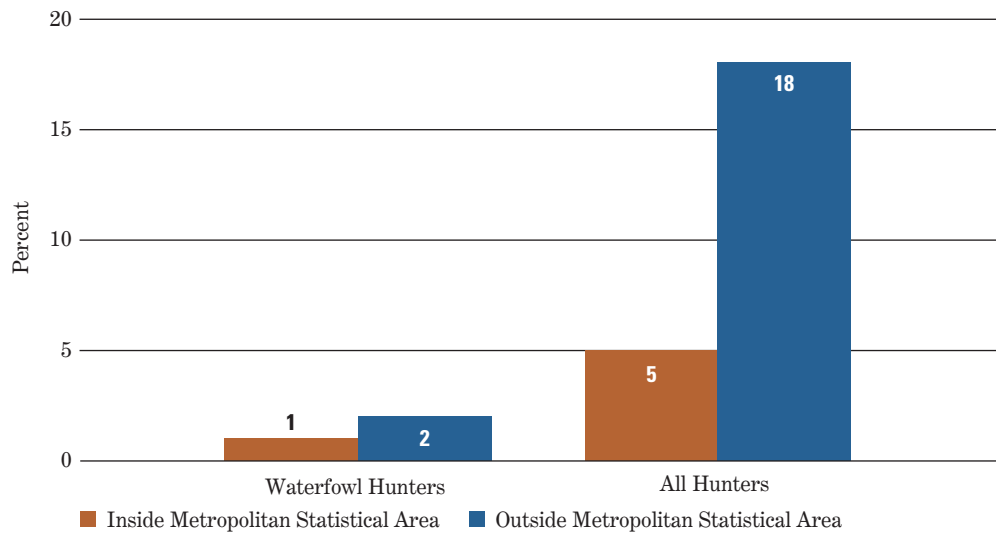


Figure 7. Percent of U.S. Population Who Hunted by Residence



Avidity and Expenditures

Figure 8 depicts the mean days of waterfowl hunting nationwide. Waterfowl hunters who hunt both ducks and geese average over twice as many days (27 days) as waterfowl hunters that do not hunt both. On average, duck hunters spend the same number of days hunting as goose hunters (11 days). All hunters averaged about 18 days per year, which is more often than the estimate for all waterfowl hunters (11 days).

Although they hunt the same number of days on average, duck hunters tend to spend more than goose hunters annually (Figure 9). However, waterfowl hunters who hunt both ducks and geese spend nearly 50 percent more (\$1,324) than duck hunters or goose hunters. All hunters tend to spend more (\$1,497) than waterfowl hunters.

Table 2 compares national-level avidity and expenditures for 2006 and 2011.

Figure 8. Average Annual Days of Hunting

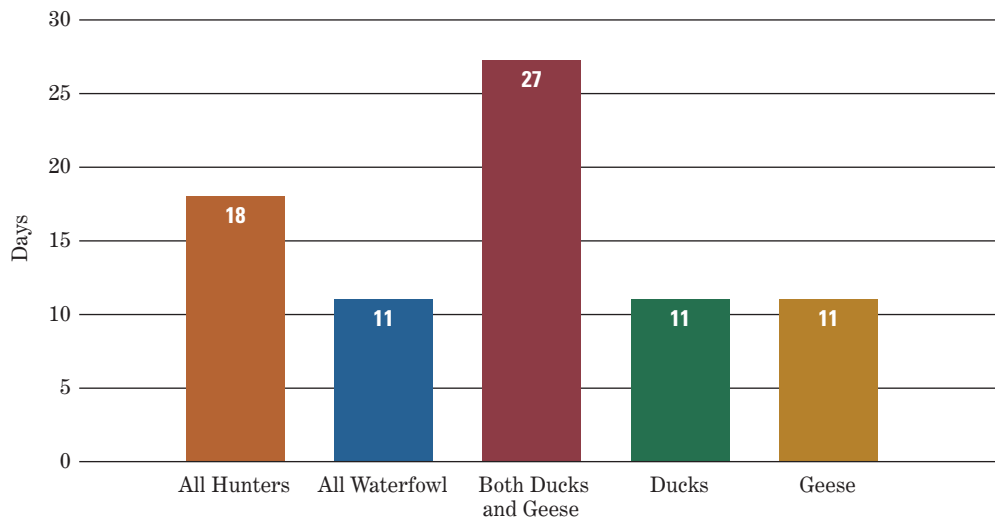


Figure 9. Average Annual Expenditures

(Including Trip-related and Equipment-related expenditures)

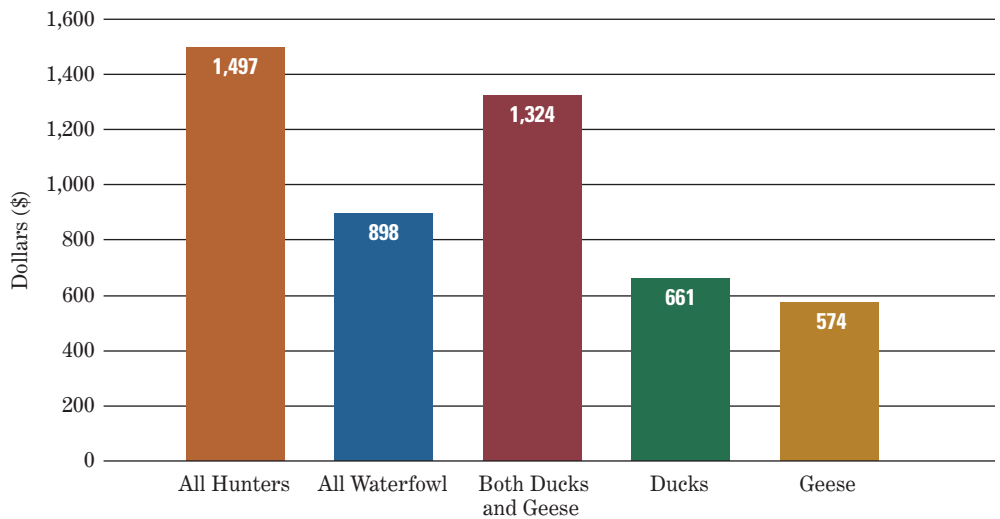


Table 2. Avidity and Expenditure Trends, 2006 and 2011

(Includes hunters 16 years of age and older. 2011 dollars)

	2006	2011	Percent change*
Hunters, all waterfowl	1,306,000	1,517,000	16%
Duck	1,147,000	1,371,000	20%
Geese	700,000	781,000	12%
Days, all waterfowl	13,071,000	17,292,000	32%
Duck	12,173,000	15,295,000	26%
Geese	6,008,000	8,684,000	45%
Total Waterfowl Expenditures	\$1,004,510,000	\$1,362,542,000	36%
Trip Expenditures	\$551,175,000	\$663,054,000	20%
Food and Lodging	\$197,631,000	\$220,745,000	12%
Transportation	\$205,669,000	\$274,682,000	34%
Other Trip Costs	\$147,876,000	\$167,627,000	13%
Equipment Expenditures	\$453,335,000	\$699,488,000	54%

*None of the 2006–2011 differences were statistically significant at the 95% level.

The Economic Impacts of Waterfowl Hunting

Waterfowl hunters spend money on a variety of goods and services for trip-related and equipment-related purchases. Trip-related expenditures include food, lodging, transportation, and other incidental expenses. Equipment expenditures consist of guns, decoys, hunting dogs, camping equipment, special hunting clothing, and other costs. By having ripple effects throughout the economy, these direct expenditures are only part of the economic impact of waterfowl hunting. The effect on the economy in excess of direct expenditures is known as the multiplier effect. For example, an individual may purchase decoys to use while duck hunting. Part of the purchase price will stay with the local retailer. The local retailer, in turn, pays a wholesaler who in turn pays the manufacturer of the decoys. The manufacturer then spends a portion of this income to pay businesses supplying the manufacturer. In this sense, each dollar of local retail expenditures can affect a variety of businesses. Thus, expenditures associated with waterfowl hunting can ripple through the economy by impacting economic activity, employment, and household income. To measure these effects, a regional input-output modeling method³ is utilized to derive estimates for total industry output, employment, employment income, and tax revenue associated with waterfowl hunting.

Total Industry Output

Table 3 depicts the economic effect of waterfowl hunting in 2011. The trip expenditures of \$663 million by waterfowl hunters generated \$1.5 billion in total output while equipment expenditures of \$699 million generated \$1.5 billion in total output in the United States. Total output includes the direct, indirect, and induced effects of the expenditures associated with waterfowl hunting.

³ The estimates for total industry output, employment, employment income, and federal and state taxes were derived using migratory bird hunting multipliers from "Hunting in America: An Economic Force of Conservation".



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Direct effects are the initial effects or impacts of spending money; for example, purchasing ammunition or a pair of binoculars are examples of direct effects. An example of an indirect effect would be the purchase of the ammunition by a sporting goods retailer from the manufacturer. Finally, induced effects refer to the changes in production associated with changes in household income (and spending) caused by changes in employment related to both direct and indirect effects. More simply, people who are employed by the sporting goods retailer, by the wholesaler, and by the ammunition manufacturer spend their income on various goods and services which in turn generate a given level of output (induced effects).

Employment and Employment Income

Table 3 shows that waterfowl hunting expenditures in 2011 created 27,348 jobs and \$956 million in employment income. Thus, each job had an average annual salary of \$35,000. Jobs and job income in Table 3 include direct, indirect, and induced effects in a manner similar to

Table 3. Summary of Economic Impacts (dollars in thousands)

Waterfowl Hunters	1,517,427
Total Expenditures	\$1,362,542
Total Industry Output	\$3,041,425
Employment	27,348
Employment Income	\$955,679
State Tax Revenue	\$202,049
Federal Tax Revenue	\$234,131

total industrial output. Jobs include both full and part-time jobs, with a job defined as one person working for at least part of the calendar year. Job income consists of both employee compensation and proprietor income.

Federal and State Taxes

Federal and State tax revenue are derived from waterfowl hunting-related recreational spending. In 2011, \$202 million in State tax revenue and \$234 million in Federal tax revenue were generated.

Summary

This report has presented information on the participation and expenditure patterns of approximately 1.5 million waterfowl hunters. Compared to all hunters, waterfowl hunters tend to be younger, have higher educational achievements, and are more affluent. The majority (75 percent) of waterfowl hunters live in the South and Midwest.

Trip-related and equipment-related expenditures associated with waterfowl hunting generated over \$3.0 billion in total economic output in 2011. This impact was dispersed across local, state, and national economies.



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Appendix A

Table A-1 shows the number of people that participated in waterfowl hunting and the number of waterfowl hunting days by state. Due to small sample sizes, statistics are not reportable for all states. For example, Texas has the largest number of waterfowl hunters in 2006 but is not reportable in 2011 due to small sample sizes. Of those States with reportable information, the 3 States with the most waterfowl hunters were California (128,000 hunters), Louisiana (97,000 hunters), and Arkansas (87,000 hunters).

The economic impact of a given level of expenditures depends, in part, on the degree of self-sufficiency of the area under consideration. An area with a high degree of self-sufficiency (out-of-area imports are comparatively small) will generally have a higher level of impacts associated with a given level of expenditures than an area with significantly higher imports (i.e., a comparatively lower level of self-sufficiency). Thus, the economic impacts of a given level of expenditures will generally be less for rural and other less economically integrated areas compared with other, more economically diverse areas or regions. The impacts in each State are only those impacts that occur within the State, and a State's multiplier is typically smaller than the multiplier for the United States.

Table A-2 shows the economic impacts of trip-related and equipment-related waterfowl hunting expenditures by state in 2011. Due to small sample sizes, the economic impacts are not depicted for all States. Arkansas, California, and Louisiana generated the largest amount of total output at \$385 million, \$271 million, and \$138 million, respectively.

Table A-1. Number of Waterfowl Hunters and Hunting Days: 2011
(Population 16 years of age and older. Numbers in thousands.)

State	Number of Hunters			Number of Days		
	Waterfowl	Ducks	Geese	Waterfowl	Ducks	Geese
Arkansas	87	87	–	1,942	1,664	–
California	128	128	68	1,838	1,831	1,438
Delaware	7	–	–	73	–	–
Kansas	34	33	–	213	198	–
Louisiana	97	97	–	981	981	–
Maryland	29	–	–	137	–	–
Missouri	37	37	–	422	263	–
Nebraska	23	–	22	245	–	240
New Jersey	16	–	–	–	–	–
Rhode Island	7	–	7	46	45	–
South Dakota	52	40	51	318	251	–

Note: All estimates are based on samples sizes of 10–29. A hyphen (–) denotes sample sizes that are too small to report reliably (9 or less). States not listed have sample sizes too small to report reliably for any category (9 or less). These sample size criteria are consistent with the “2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.”

Table A-2. Economic Impact of Waterfowl Hunting – State and National Totals: 2011
(Dollar values are in thousands.)

State	Trip & Equipment Expenditures	Total Output	Job Income	Jobs	State Tax Revenue	Federal Tax Revenue
United States	\$1,362,542	\$3,041,425	\$955,679	27,348	\$202,049	\$234,131
Arkansas	\$259,960	\$384,567	\$127,542	5,104	\$28,680	\$29,422
California	\$142,566	\$270,616	\$99,966	3,151	\$19,942	\$23,028
Delaware	\$4,548	\$6,523	\$2,139	57	\$536	\$530
Kansas	\$5,559	\$8,007	\$2,835	70	\$533	\$626
Louisiana	\$86,411	\$137,738	\$47,773	1,409	\$9,952	\$9,915
Maryland	\$9,203	\$14,194	\$4,886	168	\$1,135	\$1,229
South Dakota	\$33,893	\$46,133	\$14,912	453	\$3,313	\$3,527

Note: States not listed have sample sizes too small to report reliably (9 or less). All estimates are based on samples sizes of 10–29. These sample size criteria are consistent with the “2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.”

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