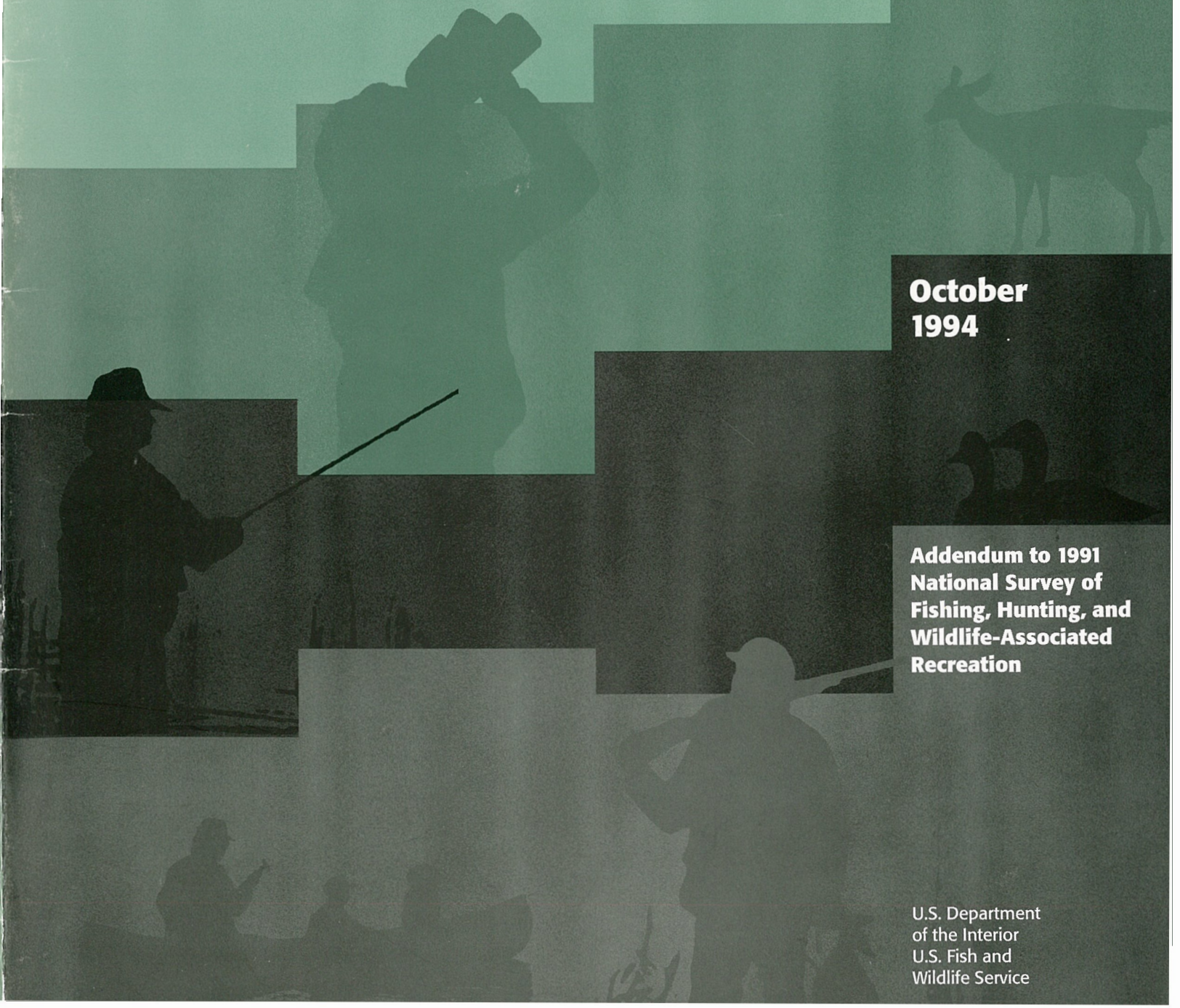
1980–1990 Fishing, Hunting, and Wildlife-Associated Recreation Trends

Report 91-2

State and Regional Trends



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Addendum to 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation

U.S. Department of the Interior
U.S. Fish and Wildlife Service

1980–1990 Fishing, Hunting, and Wildlife-Associated Recreation Trends

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This report is part of a series designed to supplement the national and state reports of the 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

We wish to thank the State natural resource agencies for their reviews and helpful comments.

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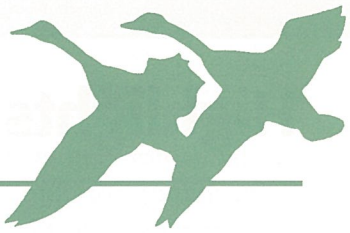
Introduction



This report provides state trend information on the number of anglers, hunters, and nonconsumptive wildlife-related recreation participants from 1980 to 1990. Nonconsumptive participants are those persons who observed, fed, or photographed wildlife. They engaged in those activities with the primary purpose of enjoying wildlife-related recreation.

Trend information is important to many natural resource managers and others interested in wildlife. The U.S. Fish and Wildlife Service's series of National Surveys of Fishing, Hunting, and Wildlife-Associated Recreation (FHWAR) has been a source of information on wildlife-related recreation since 1955 (see Table 1). Changes in the methodology of the detailed phase of the 1991 FHWAR Survey make the data collected in that phase incomparable with that of past FHWAR Surveys. However, the methodology of the screening phases of those surveys remained the same. The trend information presented here is based on the screening phases of those surveys which cover the years 1980, 1985 and 1990. The screening phase collects socioeconomic data and general information on participation in wildlife-related recreation for the purpose of selecting the stratified sample for the detailed interviews. Data from the detailed interviews are used to estimate levels of participation for the survey year. The screening phases provide good measures of the *relative* differences in activity between survey years. It is the percent differences in participation over time that are presented here (see Tables 2 through 7), not absolute numbers. See the section on methodology for further information.

Highlights

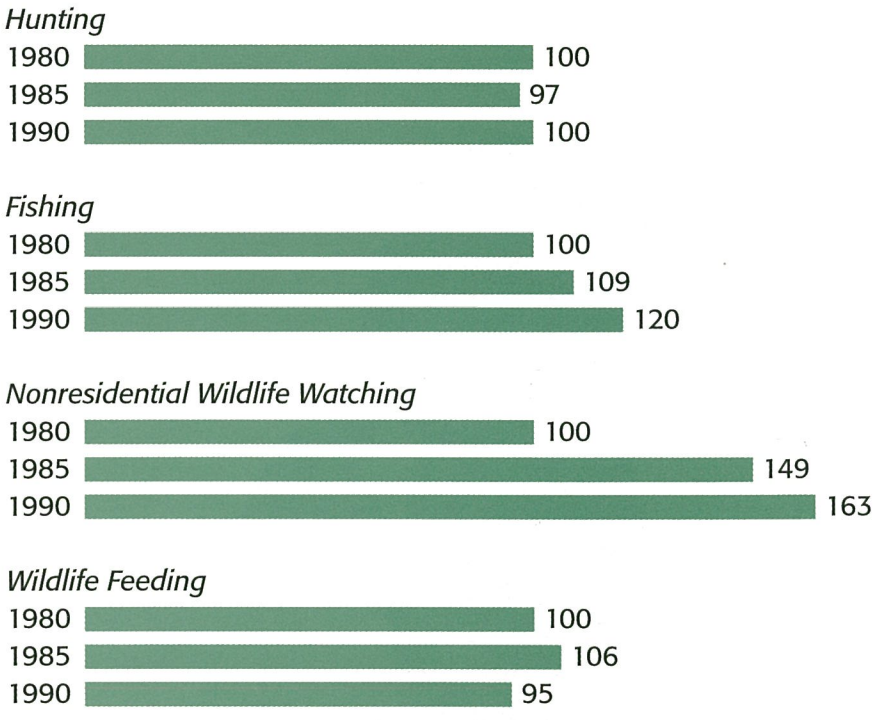
Between 1980 and 1990 the number of Americans 6 years old and older who hunted and/or fished in the U.S. increased 17 percent, with the number of anglers increasing 20 percent and the number of hunters holding steady. Nonresidential nonconsumptive recreational activity, i.e., feeding, observing, or photographing wildlife while on trips at least one mile from home, increased 63 percent in the same time period. Feeding wildlife around the home, the single largest nonconsumptive activity when measured by the amount of participants, declined by 5 percent.

At the regional level, the East North Central states (Wisconsin, Indiana, Illinois, Michigan, and Ohio) experienced the biggest increase in the number of residents who hunted, while the number of residents of the West South Central states (Texas, Oklahoma, Arkansas and Louisiana) provided the biggest increase in fishing in the United States. The East South Central states (Alabama, Mississippi, Tennessee, and Kentucky) had the biggest increase in the number of residents who went on trips for the primary purpose of feeding, photographing, or observing wildlife. Finally, the Middle Atlantic states (New Jersey, New

GRAPH 1.

National Trends

(Index of Trends, 1980=100)



York, and Pennsylvania) had the largest decrease in the number of residents who fed wildlife around their homes.

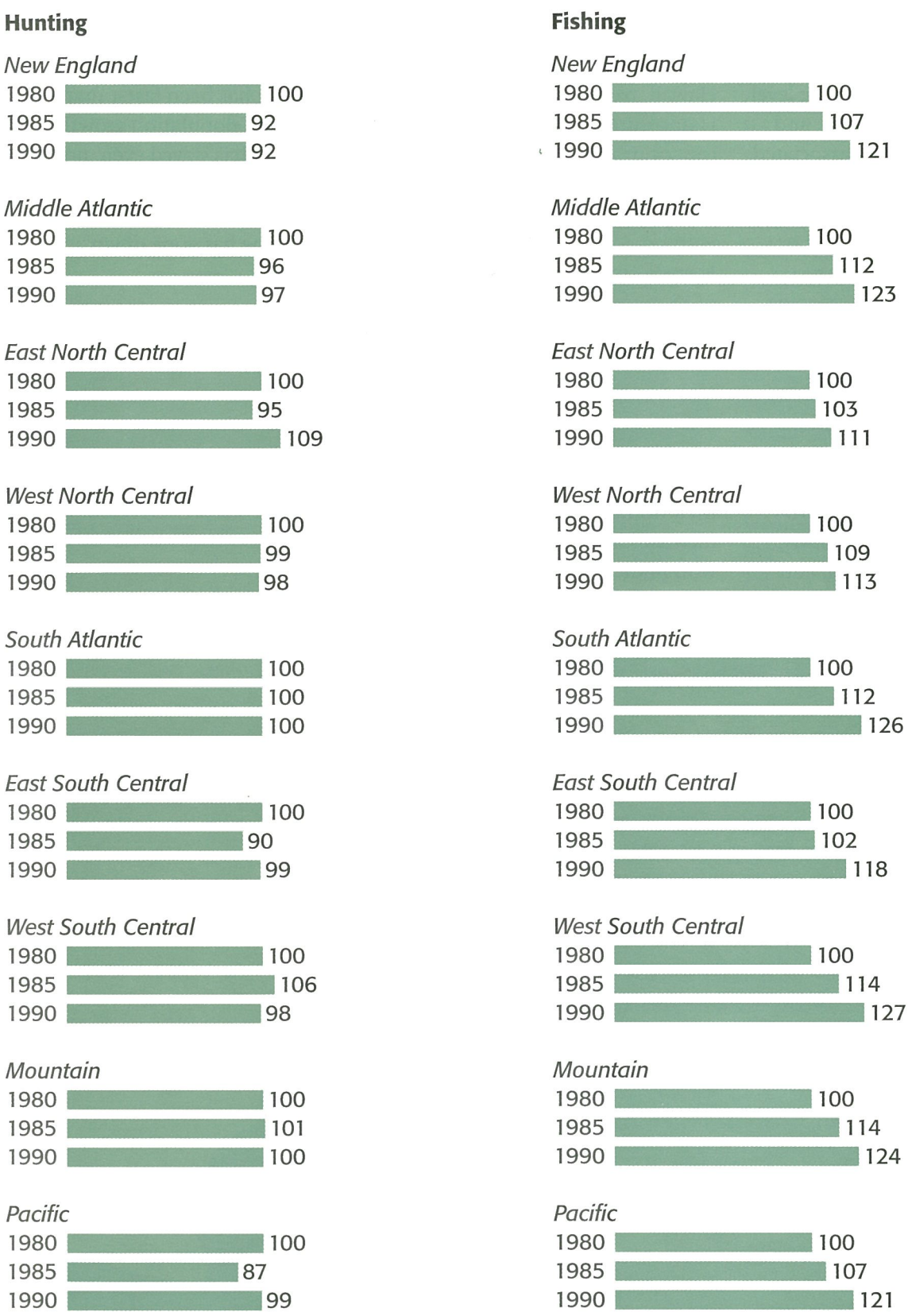
There was wide variation in the level of change in hunting, fishing, and nonconsumptive wildlife-associated recreation at the state level. Alaska, New Mexico and Rhode Island experienced increases of 25 percent or more in the number of state residents who hunted. Alaska, Nevada, and New Hampshire underwent increases of 45 percent or more in the number of state residents who fished. Conversely, Alabama, Maine, Oklahoma, and Virginia underwent declines of 18 percent or more in the number of state residents who hunted, and Idaho, Iowa, Kansas, North Dakota, West Virginia, and Wyoming experienced no change in the number of state residents who fished from 1980 to 1990.

No state experienced a decrease in the number of residents taking trips for the primary purpose of observing, photographing, or feeding wildlife. Alabama, Alaska, Florida, Hawaii, Nebraska, Nevada, and New Hampshire had increases of 125 percent or more in the number of state residents who went on trips to observe, photograph, or feed wildlife. Alaska, Florida, Maine, Nevada, and Vermont saw increases of 15 percent or more in the number of residents who fed wildlife around the home. Connecticut, Kentucky, New Jersey, New York, West Virginia, and Wyoming had decreases of 15 percent or more in the number of residents who fed wildlife around their homes. Every state saw marked increases in the number of residents who photographed and/or closely observed wildlife around their homes.

Fishing, nonresidential nonconsumptive activity, and residential activity such as photographing and observing wildlife have all increased over the decade of the 1980's. This increase has been faster than the rate of overall population growth. Hunting has stayed even, not keeping pace with overall population growth, and wildlife feeding around the home has gone down.

GRAPH 2.

Regional Trends *(See Appendix A for the list of states in each region.)*



GRAPH 2 CONTINUED.

Nonresidential Wildlife Watching

New England
1980 100
1985 158
1990 181

Middle Atlantic
1980 100
1985 141
1990 140

East North Central
1980 100
1985 150
1990 151

West North Central
1980 100
1985 155
1990 167

South Atlantic
1980 100
1985 146
1990 187

East South Central
1980 100
1985 158
1990 208

West South Central
1980 100
1985 156
1990 161

Mountain
1980 100
1985 164
1990 176

Pacific
1980 100
1985 139
1990 156

Residential Wildlife Feeding

New England
1980 100
1985 105
1990 95

Middle Atlantic
1980 100
1985 101
1990 87

East North Central
1980 100
1985 104
1990 94

West North Central
1980 100
1985 106
1990 104

South Atlantic
1980 100
1985 106
1990 98

East South Central
1980 100
1985 104
1990 96

West South Central
1980 100
1985 112
1990 99

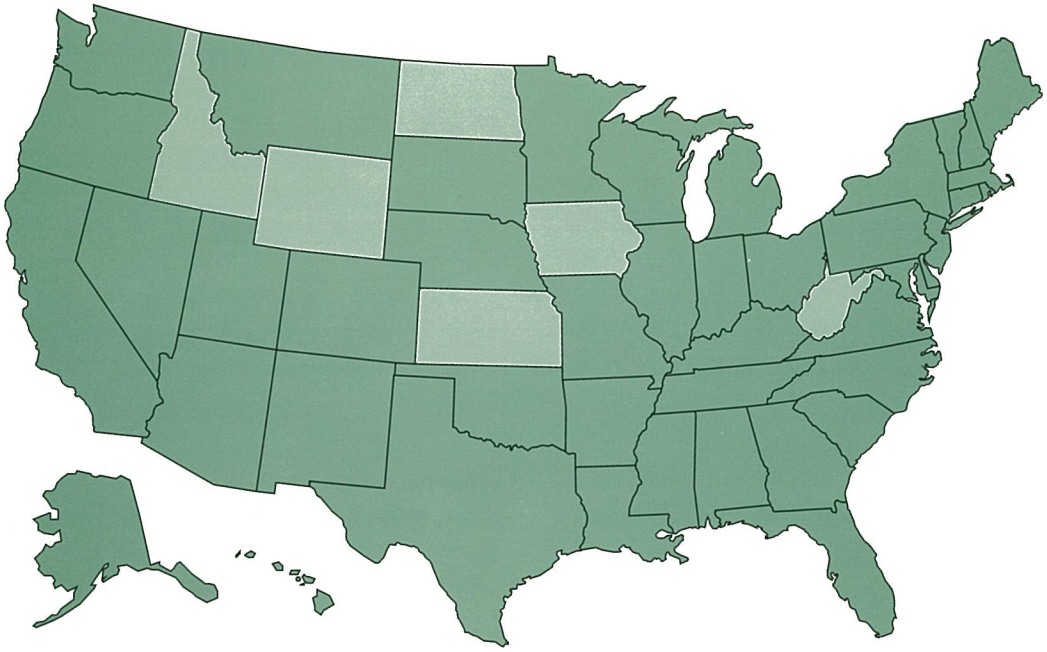
Mountain
1980 100
1985 123
1990 103

Pacific
1980 100
1985 108
1990 94

GRAPH 3.

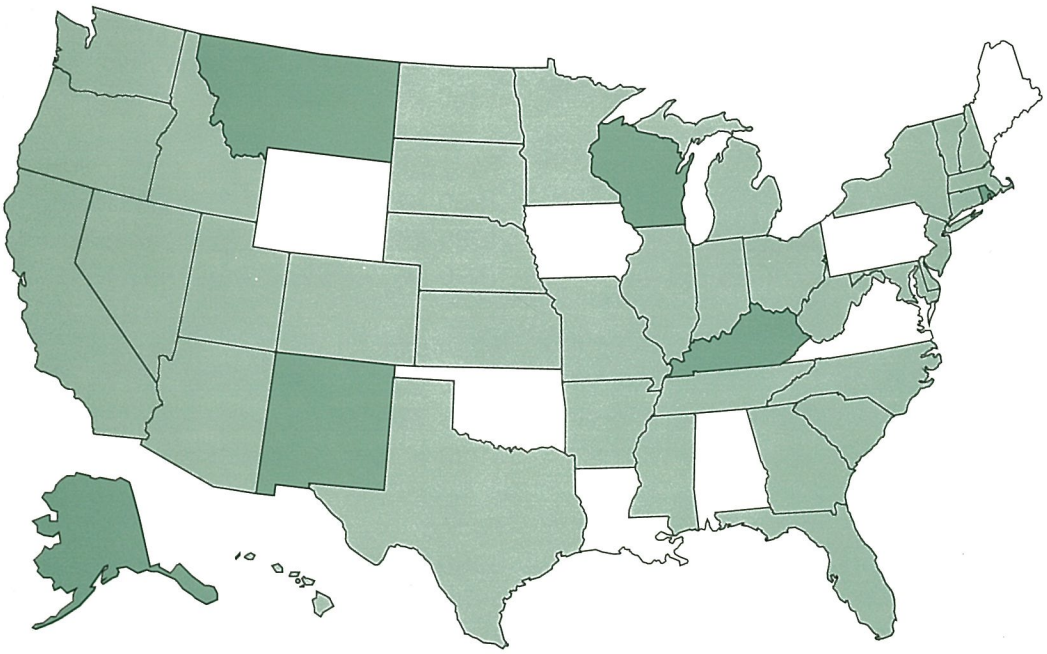
State Trends in Fishing: 1980–1990

These states have experienced increases in fishing among state residents from 1980–1990
These states have experienced no change in fishing among state residents from 1980–1990
These states have experienced decreases in fishing among state residents from 1980–1990



State Trends in Hunting: 1980–1990

These states have experienced increases in hunting among state residents from 1980–1990
These states have experienced no change in hunting among state residents from 1980–1990
These states have experienced decreases in hunting among state residents from 1980–1990



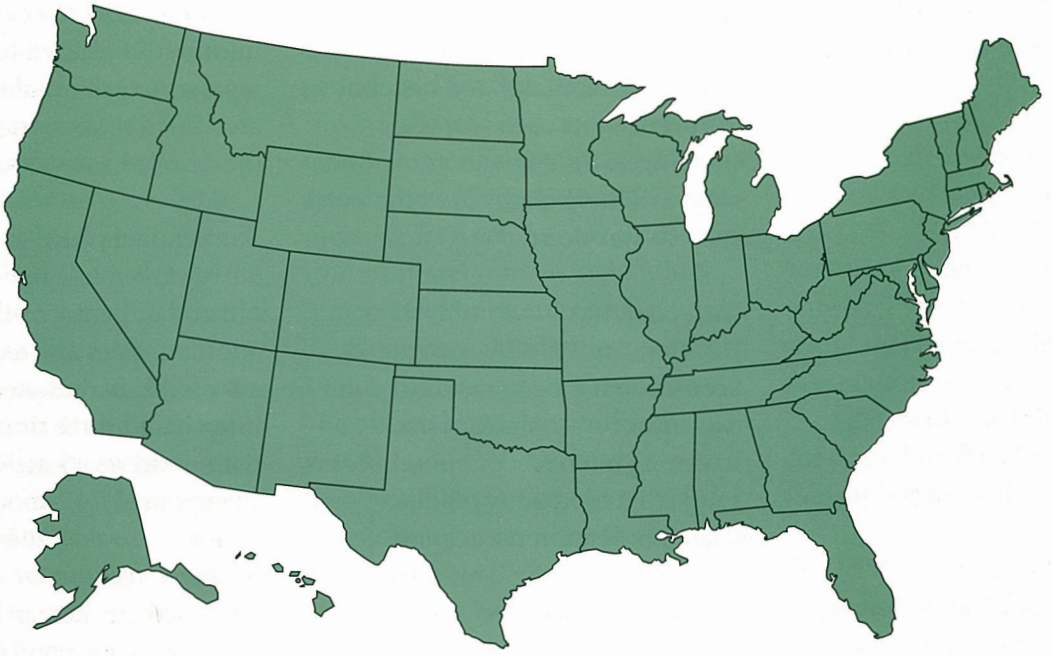
GRAPH 3 CONTINUED.

State Trends in Nonresidential Nonconsumptive Activity: 1980–1990

These states have experienced increases in nonresidential nonconsumptive activity among state residents from 1980–1990

These states have experienced no change in nonresidential nonconsumptive activity among state residents from 1980–1990

These states have experienced decreases in nonresidential nonconsumptive activity among state residents from 1980–1990

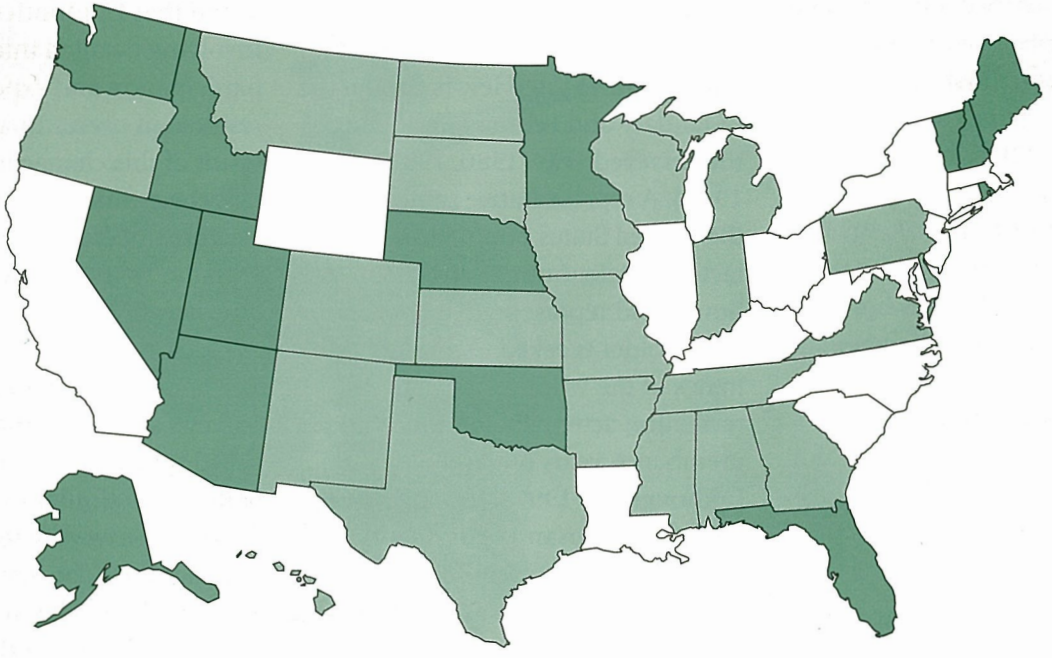


State Trends in Residential Wildlife Feeding: 1980–1990

These states have experienced increases in residential wildlife feeding among state residents from 1980–1990

These states have experienced no change in residential wildlife feeding among state residents from 1980–1990

These states have experienced decreases in residential wildlife feeding among state residents from 1980–1990



Methodology

Over the past decade, the FHWAR Survey has undergone a number of changes in order to improve its accuracy and better meet the needs of its users. An understanding of the changes in methodology will help clarify how the trend analysis was done.

Each National Survey of Fishing, Hunting and Wildlife-Associated Recreation has been conducted in two consecutive phases. First, a screening interview of households is conducted to identify wildlife-related recreation participants 6 years old and older. This screening survey is used to select sportsmen and wildlife watchers to be included in the second phase. In the second phase an interview or interviews are conducted to collect detailed information on participation and expenditures for persons 16 years old and older.

The screening interview is conducted in January and February following the surveyed year (1980, 1985, 1990). A representative sample of the United States population is contacted by telephone or in-person. A household representative 18 years old or older is asked to provide estimates of the wildlife-associated recreation activity of all household members 6 years old and older (although the 1991 screening survey included a subsample of interviews in which each household member 16 years old and older was interviewed personally). The demographic characteristics of the household members are also obtained in the screening survey. The screening interview information is used to construct a representative sample of wildlife-associated recreation participants for the detailed survey that follows.

The detailed phase of the 1991 Survey asked respondents 16 years old and older to recall their recreation activities and expenditures over a 4-month period. Respondents were interviewed three times in 1991 to get their entire year's activity. Previous surveys used a 12-month recall period, i.e., asked them at the end of the survey year to recall their entire year's activity. Research on recall bias (*Investigation of Possible Recall/ Reference Period Bias in National Surveys of Fishing, Hunting and Wildlife-Associated Recreation*, Westat, Inc. under contract to the U.S. Department of the Interior, 1989) found that 12-month recall periods involving detailed information on participation and expenditures resulted in overestimations. As a result of this change in methodology, the estimates from previous surveys are not directly comparable with the 1991 FHWAR Survey estimates.

The methodology used for the 1991 Survey's screening phase, which collected information on 1990 participation, was similar to that used for the other Surveys' screening phases, making those data comparable for trend analysis. All screening phases used a 12-month recall period and

collected information for household members 6 years of age and older. The total screening sample for each Survey consisted of over 100,000 households in the U.S. drawn from expired Current Population Survey samples by the U.S. Bureau of the Census. In the 1991 FHWAR Survey about 2,600 households per state were contacted on average. Of these roughly 16 percent were found to be vacant or otherwise not eligible for this Survey. Of the remaining households roughly 5.5 percent could not be interviewed because the occupants were not at home after repeated calls or were unavailable for some other reason. Overall, about 102,800 completed household interviews were obtained for a national response rate of 95 percent. The 1980 and 1985 Surveys had similar sample sizes (116,000 and 102,700, respectively) and response rates (95 percent and 93 percent, respectively).

It should be noted that the screening phase of the 1991 Survey covers a different survey year compared to the detailed interview phase. The 1980 and 1985 FHWAR screening surveys covered the years 1980 and 1985, while the 1991 screening survey covered the year 1990. The annual recall period used for the 1980 and 1985 Surveys allowed respondents to be screened into the detailed phases of the surveys after the 1980 and 1985 survey years were over, while the 1991 trimester interviews required respondents to be screened into the detailed phase during the first part of 1991 before their activity took place. The respondents selected for the detailed phase of the Survey were then asked about their activities and expenditures every 4 months.

It is important to note that these Surveys measure the activity of every fifth year only. The intervening years' activity was not surveyed. If the Survey years are unusual for economic or weather or other reasons, these trend data will not give the true trend in wildlife-associated recreation.

Information for each state is available for the Survey years 1980, 1985, and 1990 only. The 1955-1970 Surveys obtained national-level data only, and the 1975 Survey used a sampling procedure by a private firm that makes comparison of its state-level data with the following Surveys conducted by the U.S. Bureau of the Census impractical.

The 1990 estimates from the screening phase of the 1991 Survey should **not** be compared with the 1991 estimates from the detailed interview phase because of the different recall periods used in the two surveys. The 1980,1985, and 1991 screening surveys were not intended for use as measures of a particular year's recreation, but only to select a sample for the more in-depth and reliable second (detailed) survey. Refer to the published report *1991 National Survey of Fishing, Hunting and Wildlife-Associated Recreation* for the most recent estimates of participation and expenditures. These estimates are based on the detailed survey interviews which are more accurate indicators of the absolute number of participants.

Tables

Guide to Tables 1–7

The following trend information is provided to show a comparison of the relative levels of activity in wildlife-related recreation from 1955 to 1990 nationally and from 1980 to 1990 by state.

Table 1 gives the trend for people 12 years old and older. All other percent change tables cover Americans 6 years old and older. The age category of 12 years old and older is used here because prior to 1975 the Survey collected and reported data on individuals 12 years old and older. The current Survey collects data on individuals 6 years old and older.

The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation began collecting state data that can be compared in 1980. The trend estimates of this report are based on data from the screening phases covering the activity of participants 6 years old and older rather that the detailed phases of the 1980, 1985, and 1991 FHWAR Survey. This procedure was necessary because there was a significant change in the methodology used in the detailed phase of the 1991 Survey. The methodology used in the screening phases of the three surveys was similar; therefore, the data are comparable. However, the screening phase estimates are not as accurate a measure of a year's activity as those from the detailed phases of the Surveys. Refer to the Survey year's published reports for estimates of that year's activity.

Trend information is illustrated with tables giving percent changes (see Tables 1-7) and also with tables giving indices of change (see Appendix) using 1980 as the base year.

The absolute numbers of participation are not presented, due to the above described changes in methodology. The percent change measure of trends is an important means of gauging the ongoing American interest in wildlife-related recreation.

TABLE 1.

Percent Change in Fishing and Hunting Participation in the U.S.: 1955-1990

(Population 12 years old and older)

	Total Population	Anglers	Hunters
1955-1960	9	22	24
1960-1965	7	11	–7
1965-1970	6	17	6
1970-1975	6	25	19
1975-1980	5	2	–2
1980-1985	4	8	–2
1985-1990	5	11	2
1955-1990	51	141	42

Small percentage changes, those up to 3 percent, are not statistically significant.

TABLE 2.

Hunting Trend — Percent Change In Number Of Hunters By State Of Residence: 1980-1990

	1980-1990	1980-1985	1985-1990
U.S., total	0*	−3	3
Alabama	−18	−16	−3*
Alaska	34	21	11*
Arizona	−10*	10*	−19
Arkansas	−3*	−4*	1*
California	−3*	−11*	8*
Colorado	−4*	0*	−4*
Connecticut	0*	−17*	21*
Delaware	−3*	−14*	13*
Florida	18*	−12*	34
Georgia	−7*	6*	−12*
Hawaii	18*	−14*	37*
Idaho	1*	−13	16
Illinois	8*	−5*	14*
Indiana	8*	−4*	12*
Iowa	−14	−25	15
Kansas	−2*	−5*	3*
Kentucky	23	1*	22
Louisiana	−15	2*	−16
Maine	−24	−20	−4*
Maryland	−7*	−3*	−4*
Massachusetts	−1*	4*	−5*
Michigan	7*	−6*	14
Minnesota	−4*	1*	−4*
Mississippi	−1*	4*	−5*
Missouri	13*	22	−7*
Montana	13	0*	13
Nebraska	−13*	−12*	−1*
Nevada	15*	−9*	27
New Hampshire	5*	8*	−3*
New Jersey	−2*	−8*	6*
New Mexico	25	15*	9*
New York	11*	−5*	17*
North Carolina	13*	5*	7*
North Dakota	10*	17	−6*
Ohio	5*	−10*	16
Oklahoma	−18	−7*	−12*
Oregon	−5*	−9*	4*
Pennsylvania	−12	−3*	−10*
Rhode Island	39	17*	19*
South Carolina	0*	0*	0*
South Dakota	−10*	−9*	−1*
Tennessee	−3*	−22	24
Texas	7*	14	−6*
Utah	−3*	5*	−7*
Vermont	−11*	−7*	−4*
Virginia	−18	2*	−19
Washington	−1*	−26	34
West Virginia	5*	1*	4*
Wisconsin	16	0*	15
Wyoming	−16	−1*	−16

*Not statistically different from zero at the 10% level. This means that for 90 percent of all possible samples, the estimate for the number of hunters for one survey year is not different from the estimate for the other survey year.

TABLE 3.

Fishing Trend — Percent Change In Number Of Anglers By State Of Residence: 1980-1990

	1980-1990	1980-1985	1985-1990
U.S., total	20	9	10
Alabama	10	−4*	15
Alaska	55	30	20
Arizona	42	28	11
Arkansas	17	3*	14
California	18	7	11
Colorado	16	17	−1*
Connecticut	12	2*	9
Delaware	30	3*	27
Florida	38	16	19
Georgia	14	5*	9
Hawaii	31	1*	30
Idaho	6*	1*	5*
Illinois	14	5*	9
Indiana	13	4*	8
Iowa	4*	1*	3*
Kansas	5*	−6*	12
Kentucky	12	2*	11
Louisiana	20	17	2*
Maine	28	7*	20
Maryland	17	14	3*
Massachusetts	16	4*	12
Michigan	14	5*	9
Minnesota	10	10	0*
Mississippi	24	12	10
Missouri	20	16	4*
Montana	13	6*	6*
Nebraska	30	19	10
Nevada	61	17	38
New Hampshire	47	22	21
New Jersey	32	23	7
New Mexico	31	10	18
New York	18	5*	13
North Carolina	26	15	9
North Dakota	5*	14	−8
Ohio	8	2*	6*
Oklahoma	14	10	4*
Oregon	14	6*	8
Pennsylvania	24	14	8
Rhode Island	31	14	15
South Carolina	27	5*	22
South Dakota	17	7*	9*
Tennessee	28	3*	25
Texas	35	15	18
Utah	28	10	16
Vermont	26	10	14
Virginia	29	16	12
Washington	31	9	20
West Virginia	6*	5*	1*
Wisconsin	7	−2*	9
Wyoming	1*	7*	−6*

*Not statistically different from zero at the 10% level. This means that for 90 percent of all possible samples, the estimate for the number of anglers for one survey year is not different from the estimate for the other survey year.

TABLE 4.

Nonresidential Nonconsumptive Trend — Percent Change In Number Of Participants By State Of Residence: 1980-1990

	1980-1990	1980-1985	1985-1990
U.S., total	63	49	10
Alabama	158	74	48
Alaska	125	114	5*
Arizona	77	90	−7*
Arkansas	86	49	25
California	51	33	13
Colorado	50	37	10
Connecticut	56	77	−12
Delaware	49	36	9*
Florida	131	41	64
Georgia	98	65	20
Hawaii	127	42	60
Idaho	116	62	33
Illinois	49	42	5*
Indiana	50	30	15
Iowa	52	61	−6*
Kansas	89	53	24
Kentucky	111	71	24
Louisiana	42	27	11*
Maine	123	59	40
Maryland	76	65	7*
Massachusetts	77	49	19
Michigan	57	54	2*
Minnesota	74	52	14
Mississippi	122	23	80
Missouri	44	31	10*
Montana	61	44	12
Nebraska	127	90	20
Nevada	164	75	51
New Hampshire	129	74	32
New Jersey	57	53	3*
New Mexico	77	51	17
New York	42	41	1*
North Carolina	48	32	13*
North Dakota	53	74	−12
Ohio	53	57	−2*
Oklahoma	62	41	15
Oregon	50	33	13
Pennsylvania	30	35	−4*
Rhode Island	83	45	26
South Carolina	53	58	−3*
South Dakota	71	132	−26
Tennessee	80	54	17
Texas	61	67	−4*
Utah	104	107	−1*
Vermont	74	43	22
Virginia	67	45	15
Washington	71	58	8*
West Virginia	55	25	25
Wisconsin	46	60	−9
Wyoming	29	75	−27

*Not statistically different from zero at the 10% level. This means that for 90 percent of all possible samples, the estimate for the number of nonresidential participants for one survey year is not different from the estimate for the other survey year.

TABLE 5.

Residential Wildlife Feeding Trend — Percent Change By State Of Residence: 1980-1990

	1980-1990	1980-1985	1985-1990
U.S., total	−5	6	−10
Alabama	0*	0*	−1*
Alaska	19	55	−23
Arizona	12	29	−13
Arkansas	−4*	8	−10
California	−11	6	−16
Colorado	−5*	24	−24
Connecticut	−15	−1*	−14
Delaware	−2*	−1*	−1*
Florida	16	10	6*
Georgia	−1*	14	−13
Hawaii	−8*	1*	−9*
Idaho	12	17	−4*
Illinois	−9	1*	−10
Indiana	−4	4	−8
Iowa	2*	4*	−2*
Kansas	−3*	5	−7
Kentucky	−15	1*	−16
Louisiana	−8	12	−18
Maine	20	11	8
Maryland	−12	7	−18
Massachusetts	−11	5	−15
Michigan	1*	7	−6
Minnesota	10	11	−1*
Mississippi	−7	8	−14
Missouri	1*	2*	−1*
Montana	−9*	23	−26
Nebraska	13	9	4*
Nevada	22	20	2*
New Hampshire	11	14	−3*
New Jersey	−18	−2*	−16
New Mexico	−4*	9	−11
New York	−18	1*	−20
North Carolina	−6	0*	−5
North Dakota	0*	18	−16
Ohio	−12	1*	−13
Oklahoma	6	5	1*
Oregon	−5	8	−13
Pennsylvania	−3*	2*	−5
Rhode Island	6	6	0*
South Carolina	−5	−5	0*
South Dakota	−2*	18	−17
Tennessee	3*	9	−5
Texas	−1*	15	−14
Utah	7*	22	−13
Vermont	15	13	2*
Virginia	1*	9	−8
Washington	11	15	−3*
West Virginia	−35	−6	−31
Wisconsin	3*	14	−10
Wyoming	−19	33	−39

*Not statistically different from zero at the 10% level. This means that for 90 percent of all possible samples, the estimate for the number of wildlife feeders for one survey year is not different from the estimate for the other survey year.

TABLE 6.

Residential Wildlife Observing Trend — Percent Change In Number Of Observers By State Of Residence: 1980-1990

	1980-1990	1980-1985	1985-1990
U.S., total	91	41	35
Alabama	138	39	71
Alaska	192	111	38
Arizona	132	66	40
Arkansas	112	39	52
California	65	36	22
Colorado	99	54	29
Connecticut	41	36	4*
Delaware	85	18	57
Florida	156	55	65
Georgia	142	69	43
Hawaii	107	27	63
Idaho	126	61	40
Illinois	106	57	31
Indiana	90	45	31
Iowa	73	25	38
Kansas	105	50	37
Kentucky	146	76	40
Louisiana	54	25	23
Maine	115	49	44
Maryland	81	34	35
Massachusetts	72	59	8
Michigan	98	38	43
Minnesota	97	33	49
Mississippi	115	30	65
Missouri	84	14	61
Montana	113	62	31
Nebraska	125	63	39
Nevada	246	83	89
New Hampshire	104	66	24
New Jersey	91	57	22
New Mexico	75	15	52
New York	39	7*	30
North Carolina	97	12	76
North Dakota	72	43	21
Ohio	62	31	24
Oklahoma	108	56	33
Oregon	82	40	30
Pennsylvania	78	38	29
Rhode Island	65	22	35
South Carolina	92	9*	75
South Dakota	89	65	15
Tennessee	144	45	68
Texas	87	50	25
Utah	178	106	35
Vermont	112	51	41
Virginia	103	45	40
Washington	149	59	57
West Virginia	122	43	55
Wisconsin	74	58	10
Wyoming	91	123	−14

*Not statistically different from zero at the 10% level. This means that for 90 percent of all possible samples, the estimate for the number of residential wildlife observers for one survey year is not different from the estimate for the other survey year.

TABLE 7.

Residential Wildlife Photographing Trend — Percent Change In Number Of Photographers By State Of Residence: 1980-1990

	1980-1990	1980-1985	1985-1990
U.S., total	110	40	50
Alabama	213	51	108
Alaska	230	85	78
Arizona	161	72	52
Arkansas	144	41	73
California	84	35	36
Colorado	88	55	22
Connecticut	65	42	16
Delaware	138	38	73
Florida	194	60	84
Georgia	176	63	70
Hawaii	97	19*	65
Idaho	141	41	71
Illinois	97	55	27
Indiana	124	52	47
Iowa	91	23	56
Kansas	80	22	48
Kentucky	96	32	48
Louisiana	113	33	60
Maine	160	45	79
Maryland	98	33	48
Massachusetts	89	24	53
Michigan	108	41	48
Minnesota	92	44	33
Mississippi	209	82	70
Missouri	79	45	23
Montana	78	10*	62
Nebraska	111	33	59
Nevada	227	76	86
New Hampshire	177	93	44
New Jersey	126	49	51
New Mexico	155	48	72
New York	78	20	48
North Carolina	122	33	67
North Dakota	27	30	−2*
Ohio	72	41	22
Oklahoma	107	27	63
Oregon	66	14*	46
Pennsylvania	159	54	68
Rhode Island	130	43	61
South Carolina	66	9*	53
South Dakota	69	72	−1*
Tennessee	141	48	63
Texas	111	50	40
Utah	144	53	59
Vermont	133	50	55
Virginia	146	24	98
Washington	112	21	76
West Virginia	150	55	62
Wisconsin	80	28	40
Wyoming	59	36	16*

*Not statistically different from zero at the 10% level. This means that for 90 percent of all possible samples, the estimate for the number of wildlife photographers for one survey year is not different from the estimate for the other survey year.

Appendix

This appendix contains a list of states in regional Census Divisions and index tables for hunting, fishing, nonresidential nonconsumptive, residential wildlife feeding, observing, and photographing. The estimates of participation from the screening surveys were converted to indices to simplify comparisons among the wildlife-related recreation activities. With 1980 indexed at 100, for example, the number of persons participating in hunting in Alabama decreased to an index number of 84 in 1985, a loss of 16 percent in hunting participation. To calculate the percent change between two survey years, divide the later year's index number by the earlier year's index number, subtract 1 from the quotient, and multiply the result by 100. For example, to get the percent change in hunters for Alabama from 1985 to 1990, dividing 82 by 84 yields 0.98, subtracting 1 yields −0.02, and multiplying by 100 we arrive at a 2 percent decrease in resident hunters in Alabama from 1985 to 1990. Small percentage changes are usually not statistically significant. See Tables 1–7.

TABLE A.

Regional Census Divisions

East North Central:	Illinois, Indiana, Michigan, Ohio, Wisconsin
East South Central:	Alabama, Kentucky, Mississippi, Tennessee
Middle Atlantic:	New Jersey, New York, Pennsylvania
Mountain:	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming
New England:	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Pacific:	Alaska, California, Hawaii, Oregon, Washington
South Atlantic:	Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia
West North Central:	Kansas, Iowa, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
West South Central:	Arkansas, Louisiana, Oklahoma, Texas

TABLE B.

Trends In Fishing And Hunting: 1955–1990

(Index of participation, 1955=100)

	Total Population	Anglers	Hunters
1955	100	100	100
1960	109	122	124
1965	117	136	115
1970	124	159	122
1975	131	198	145
1980	138	201	142
1985	144	218	139
1990	151	241	142

The base year for this analysis is 1955. Population estimates for the succeeding years are relative to 1955. For example, there was an increase of 51 percent in the number of U.S. residents from 1955 to 1990. To calculate the percent change between two Survey years, divide the later year's index number by the earlier year's index number, subtract 1 from the quotient, and multiply the result by 100. For example, to get the percent change in anglers from 1985 to 1990, dividing 241 by 218 yields 1.11, subtracting 1 yields 0.11, and multiplying by 100 we arrive at a 11 percent increase in anglers from 1985 to 1990. Small percentage changes, those up to 3 percent, are not statistically significant.

TABLE C.

Hunting Trend – Index Of Hunters By State Of Residence

	1980	1985	1990
U.S., total	100	97	100
Alabama	100	84	82
Alaska	100	121	134
Arizona	100	110	90
Arkansas	100	96	97
California	100	89	97
Colorado	100	100	96
Connecticut	100	83	100
Delaware	100	86	97
Florida	100	88	118
Georgia	100	106	93
Hawaii	100	86	118
Idaho	100	87	101
Illinois	100	95	108
Indiana	100	96	108
Iowa	100	75	86
Kansas	100	95	98
Kentucky	100	101	123
Louisiana	100	102	85
Maine	100	80	76
Maryland	100	97	93
Massachusetts	100	104	99
Michigan	100	94	107
Minnesota	100	101	96
Mississippi	100	104	99
Missouri	100	122	113
Montana	100	100	113
Nebraska	100	88	87
Nevada	100	91	115
New Hampshire	100	108	105
New Jersey	100	92	98
New Mexico	100	115	125
New York	100	95	111
North Carolina	100	105	113
North Dakota	100	117	110
Ohio	100	90	105
Oklahoma	100	93	82
Oregon	100	91	95
Pennsylvania	100	97	88
Rhode Island	100	117	139
South Carolina	100	100	100
South Dakota	100	91	90
Tennessee	100	78	97
Texas	100	114	107
Utah	100	105	97
Vermont	100	93	89
Virginia	100	102	82
Washington	100	74	99
West Virginia	100	101	105
Wisconsin	100	100	116
Wyoming	100	99	84

TABLE D.

Fishing Trend – Index Of Anglers By State Of Residence

	1980	1985	1990
U.S., total	100	109	120
Alabama	100	96	110
Alaska	100	130	155
Arizona	100	128	142
Arkansas	100	103	117
California	100	107	118
Colorado	100	117	116
Connecticut	100	102	112
Delaware	100	103	130
Florida	100	116	138
Georgia	100	105	114
Hawaii	100	101	131
Idaho	100	101	106
Illinois	100	105	114
Indiana	100	104	113
Iowa	100	101	104
Kansas	100	94	105
Kentucky	100	102	112
Louisiana	100	117	120
Maine	100	107	128
Maryland	100	114	117
Massachusetts	100	104	116
Michigan	100	105	114
Minnesota	100	110	110
Mississippi	100	112	124
Missouri	100	116	120
Montana	100	106	113
Nebraska	100	119	130
Nevada	100	117	161
New Hampshire	100	122	147
New Jersey	100	123	132
New Mexico	100	110	131
New York	100	105	118
North Carolina	100	115	126
North Dakota	100	114	105
Ohio	100	102	108
Oklahoma	100	110	114
Oregon	100	106	114
Pennsylvania	100	114	124
Rhode Island	100	114	131
South Carolina	100	105	127
South Dakota	100	107	117
Tennessee	100	103	128
Texas	100	115	135
Utah	100	110	128
Vermont	100	110	126
Virginia	100	116	129
Washington	100	109	131
West Virginia	100	105	106
Wisconsin	100	98	107
Wyoming	100	107	101

TABLE E.

Nonresidential Nonconsumptive Trend – Index Of Participants By State Of Residence

	1980	1985	1990
U.S., total	100	149	163
Alabama	100	174	258
Alaska	100	214	225
Arizona	100	190	177
Arkansas	100	149	186
California	100	133	151
Colorado	100	137	150
Connecticut	100	177	156
Delaware	100	136	149
Florida	100	141	231
Georgia	100	165	198
Hawaii	100	142	227
Idaho	100	162	216
Illinois	100	142	149
Indiana	100	130	150
Iowa	100	161	152
Kansas	100	153	189
Kentucky	100	171	211
Louisiana	100	127	142
Maine	100	159	223
Maryland	100	165	176
Massachusetts	100	149	177
Michigan	100	154	157
Minnesota	100	152	174
Mississippi	100	123	222
Missouri	100	131	144
Montana	100	144	161
Nebraska	100	190	227
Nevada	100	175	264
New Hampshire	100	174	229
New Jersey	100	153	157
New Mexico	100	151	177
New York	100	141	142
North Carolina	100	132	148
North Dakota	100	174	153
Ohio	100	157	153
Oklahoma	100	141	162
Oregon	100	133	150
Pennsylvania	100	135	130
Rhode Island	100	145	183
South Carolina	100	158	153
South Dakota	100	232	171
Tennessee	100	154	180
Texas	100	167	161
Utah	100	207	204
Vermont	100	143	174
Virginia	100	145	167
Washington	100	158	171
West Virginia	100	125	155
Wisconsin	100	160	146
Wyoming	100	175	129

TABLE F.

Residential Wildlife Feeding Trend – Index Of Participants By State Of Residence

	1980	1985	1990
U.S., total	100	106	95
Alabama	100	100	100
Alaska	100	155	119
Arizona	100	129	112
Arkansas	100	108	96
California	100	106	89
Colorado	100	124	95
Connecticut	100	99	85
Delaware	100	99	98
Florida	100	110	116
Georgia	100	114	99
Hawaii	100	101	92
Idaho	100	117	112
Illinois	100	101	91
Indiana	100	104	96
Iowa	100	104	102
Kansas	100	105	97
Kentucky	100	101	85
Louisiana	100	112	92
Maine	100	111	120
Maryland	100	107	88
Massachusetts	100	105	89
Michigan	100	107	101
Minnesota	100	111	110
Mississippi	100	108	93
Missouri	100	102	101
Montana	100	123	91
Nebraska	100	109	113
Nevada	100	120	122
New Hampshire	100	114	111
New Jersey	100	98	82
New Mexico	100	109	96
New York	100	101	82
North Carolina	100	100	94
North Dakota	100	118	100
Ohio	100	101	88
Oklahoma	100	105	106
Oregon	100	108	95
Pennsylvania	100	102	97
Rhode Island	100	106	106
South Carolina	100	95	95
South Dakota	100	118	98
Tennessee	100	109	103
Texas	100	115	99
Utah	100	122	107
Vermont	100	113	115
Virginia	100	109	101
Washington	100	115	111
West Virginia	100	94	65
Wisconsin	100	114	103
Wyoming	100	133	81

TABLE G.

Residential Wildlife Observing Trend – Index Of Participants By State Of Residence

	1980	1985	1990
U.S., total	100	141	190
Alabama	100	139	238
Alaska	100	211	292
Arizona	100	166	232
Arkansas	100	139	212
California	100	136	165
Colorado	100	154	199
Connecticut	100	136	141
Delaware	100	118	185
Florida	100	155	256
Georgia	100	169	242
Hawaii	100	127	207
Idaho	100	161	226
Illinois	100	157	206
Indiana	100	145	190
Iowa	100	125	173
Kansas	100	150	205
Kentucky	100	176	246
Louisiana	100	125	154
Maine	100	149	215
Maryland	100	134	181
Massachusetts	100	159	172
Michigan	100	138	198
Minnesota	100	133	197
Mississippi	100	130	215
Missouri	100	114	184
Montana	100	162	213
Nebraska	100	163	225
Nevada	100	183	346
New Hampshire	100	166	204
New Jersey	100	157	191
New Mexico	100	115	175
New York	100	107	139
North Carolina	100	112	197
North Dakota	100	143	172
Ohio	100	131	162
Oklahoma	100	156	208
Oregon	100	140	182
Pennsylvania	100	138	178
Rhode Island	100	122	165
South Carolina	100	109	192
South Dakota	100	165	189
Tennessee	100	145	244
Texas	100	150	187
Utah	100	206	278
Vermont	100	151	212
Virginia	100	145	203
Washington	100	159	249
West Virginia	100	143	222
Wisconsin	100	158	174
Wyoming	100	223	191

TABLE H.

Residential Wildlife Photographing Trend – Index Of Participants By State Of Residence

	1980	1985	1990
U.S., total	100	140	209
Alabama	100	151	313
Alaska	100	185	330
Arizona	100	172	261
Arkansas	100	141	244
California	100	135	184
Colorado	100	155	188
Connecticut	100	142	165
Delaware	100	138	238
Florida	100	160	294
Georgia	100	163	276
Hawaii	100	119	197
Idaho	100	141	241
Illinois	100	155	197
Indiana	100	152	224
Iowa	100	123	191
Kansas	100	122	180
Kentucky	100	132	196
Louisiana	100	133	213
Maine	100	145	260
Maryland	100	133	198
Massachusetts	100	124	189
Michigan	100	141	208
Minnesota	100	144	192
Mississippi	100	182	309
Missouri	100	145	179
Montana	100	110	178
Nebraska	100	133	211
Nevada	100	176	327
New Hampshire	100	193	277
New Jersey	100	149	226
New Mexico	100	148	255
New York	100	120	178
North Carolina	100	133	222
North Dakota	100	130	127
Ohio	100	141	172
Oklahoma	100	127	207
Oregon	100	114	166
Pennsylvania	100	154	259
Rhode Island	100	143	230
South Carolina	100	109	166
South Dakota	100	172	169
Tennessee	100	148	241
Texas	100	150	211
Utah	100	153	244
Vermont	100	150	233
Virginia	100	124	246
Washington	100	121	212
West Virginia	100	155	250
Wisconsin	100	128	180
Wyoming	100	136	159