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FUTURE FRESHWATER SPORTFISHING TRENDS IN NEW YORK STATE

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INTRODUCTION

Increased participation in New York state sportfishing over the past 20 years is due in part to the successful rehabilitation of New York's Great Lakes and inland freshwater sportfishery resources. By 1985, 1.1 million anglers fished 21.7 million days and spent \$427 million in trip-related expenditures in New York state. Twenty-nine percent of the angler days of effort were in the Great Lakes waters of New York state and 71 percent of the angler days were spent in freshwater inland waters of the state. Trip-related expenditures are important economic contributions for the recreation and tourism industry within the state, especially in waterfront communities.

In 1985, 85 percent of those angler days of fishing were accounted for by residents who fished in New York state. The close proximity of the majority of 1985 anglers to the fishery resource is further illustrated by the fact that the average one-way distance traveled per trip for resident anglers was 30 miles for trips to Great Lakes waters and 20.7 miles for trips to inland freshwater locations.

The aging of the population in the nation and the Great Lakes states has been predicted to produce a 16 percent increase in travel and tourism volume in the United States by the year 2000. However, since participation in angling generally declines for older age groups, the overall demand for fishing may decrease by the year 2000. Thus, different trends may be experienced in tourism and sportfishing demand in New York State by the year 2000.

The implications of an aging New York state population and subsequent changes in participation and total resident angler demand are assessed in this paper. The intent of this paper is to estimate future freshwater sportfishing demand to the year 2010 based on age cohort analysis.

METHODS

The data used in this paper were collected in the 1985 National Survey of Fishing, Hunting, and Wildlife Associated Recreation, and included information on the number of days fished in each state during 1985, and the distribution of anglers according to age, race, gender, and state of residence. The New York state area included fishing in inland waters and the New York state waters of the Great Lakes by boat, from shore, or in any connecting bodies of water or tributaries of the state. Only the freshwater fishing days by state residents, which represented 85 percent of the total effort, were used for this analysis.

Anglers were characterized by three demographic categories of white males (77%), white females (19%), and all nonwhites (4%), since these categories represented sufficient 1985 data for an analysis of angler days of effort and they conformed to the available census data. The angler data were segmented into six age cohorts: 16-24, 25-34, 35-44, 45-54, 55-64, and 65 or more.

The three steps to calculate the demand projections involved:

1. Calculation of the 1985 per capita participation rates for each demographic category and age cohort in the state.
2. Determination of the resident population age structures for 1985, 1990, 1995, 2000, and 2010, segmented by each demographic category and age cohort.
3. Calculation of the total demand for each year by multiplying the per capita participation rates by the population of each demographic category and age cohort and summing the results.

This methodology is based on two assumptions: (1) the proportion of the population that fishes in New York state each year will remain approximately the same,

and (2) the age cohort and demographic category per capita participation rates remain stable over time.

RESULTS AND DISCUSSION

The New York state fishing demand projections for the year 2010 are based on the anglers who fished in and lived in the state in 1985. These resident anglers contributed 85 percent of the total New York state freshwater angler days at that time.

The 1985 distribution of the 21.7 million days of fishing in New York state by state resident anglers varied considerably among the age cohorts (Table 1). The greatest participation was by age cohorts 25-34 and 35-44 and the smallest participation was from age cohorts 55-64 and 65 or more (Table 1). Similarly, the per capita participation rates are smaller for the 55-64 and 65 or more age cohorts compared to the younger age cohorts, with the greatest per capita participation from the 35-44 age cohort (Table 2).

Table 1. The 1985 distribution of freshwater fishing by New York state residents by age cohort.

Age Cohort	Total Days	Percent Days
15-24	3,694,141	17.0%
25-34	5,305,445	24.4
35-44	6,751,392	31.1
45-54	2,444,424	11.3
55-64	1,239,969	5.7
65 +	2,271,529	10.5
TOTAL	21,706,899	100.0%

Total demand is a function of cohort size and per capita participation. The projected demand structure for 1985 through 2010 shifts toward an increasing contribution by older age cohorts (Table 3). The demand structure is a function of an aging population and per capita participation by each age cohort. The decreasing per capita participation by older age cohorts tends to decrease their total fishing demand in 2010 (Table 4), even though they are increasing dramatically in population size as compared to younger age cohorts. The 2010 population projections used in this age cohort analysis were considered to be conservative estimates of the aging shifts; higher estimates have been produced by other studies. Thus, the aging population structure may actually produce a more dramatic effect on the contribution of each age

Table 2. The 1985 population age structure and per capita fishing participation rates for New York state residents by age cohort.

Age Cohort	Population Age Structure	Per Capita Fishing Days/Year
15-24	5,988,628	0.62
25-34	6,239,058	0.85
35-44	4,820,228	1.40
45-54	3,513,856	0.70
55-64	3,315,858	0.37
65 +	4,582,800	0.50
TOTAL	28,460,454	0.76

cohort (i.e., older age cohorts may produce fewer total angler days of demand).

The total annual demand is projected to gradually increase from 21.1 million days of freshwater fishing by New York state resident anglers in 1980 to 24.0 million days by 2000 and then decline to 23.9 million days by 2010 (Table 5). The same trend is projected for New York's Great Lakes and inland waters. The average annual percent increase will decline over time due to the impact of the aging population (Table 5). Similar projections have been made for all eight Great Lakes states and fishing is expected to increase marginally through 2010 for resident fishing throughout all Great Lakes waters.

Table 3. The projected fishing demand structure for New York state residents in 1985 and 2010 by age cohort.

Age Cohort	Projected Fishing Demand Structure	
	1985	2010
15-24	17.0%	14.2%
24-34	24.4	18.5
35-44	31.1	30.2
45-54	11.3	17.9
55-64	5.7	7.6
65 +	10.5	11.7
TOTAL	100.0%	100.0%

Table 4. The population age structure for New York State residents in 1985 and 2010 by age cohort.

Age Cohort	Resident Population Age Structure	
	1985	2010
15-24	21.0%	16.8%
25-34	21.9	15.9
35-44	16.9	15.8
45-54	12.3	18.5
55-64	11.7	15.0
65 +	16.1	18.0
TOTAL	100.0%	100.0%

This is a cautiously optimistic scenario since more recent demographic studies have reported the possibility that the Great Lakes coastal population may decrease in total numbers by 2010. Although it is not clear how such changes would affect the population within each age cohort, it is estimated that total demand would decrease to some extent for New York's Great Lakes fishing.

Because the age structure of the population is often closely correlated with fishing and outdoor recreation participation and age data are readily available, age cohort analysis is a useful but limited tool for examining future recreation trends. Age is only one factor that influences recreation participation. The combination of income and the cost of participation, available leisure time, and the quality and quantity of the recreation resource base also affect participation and offer the potential for using more complex projection methods.

In 1985, 29 percent of New York's resident freshwater fishing took place in Great Lakes waters. Because the production of salmonids is now at peak levels for most of the Great Lakes, any increased participation focused only on harvesting fish, or any setbacks in fish populations (e.g., sea lamprey increases, forage fish decline) or public perceptions of the fishery (e.g., toxic contaminants in fish) will be translated into a decline in the average individual catch rate. These factors could have a dampening effect on future growth in participation in New York's Great Lakes waters.

A projected decline in overall resident fishing license sales in New York state is another indication that these demand projections for New York state freshwater fishing by residents may be overly optimistic.

As Connelly and Brown (1989) note: "Since the major influencing factor for long-term projections is the 18-44 age population segment, which is expected to decline through 1995, the [regression] model would predict a slight general decline (3% to 4%) in sales by 1995." The relationship between total state fishing license sales and freshwater angling participation is estimated to be close.

Table 5. Projected total demand for freshwater fishing by New York state residents and percent average annual demand change for 1985 through 2010.

Year	Annual Total Demand (Millions)	Year Period	Percent Annual Demand Change
1980	21.1	N.A.	N.A.
1985	21.7	1980-85	0.53%
1990	22.8	1985-90	1.03
1995	23.6	1990-95	0.65
2000	24.0	1995-00	0.36
2010	23.9	2000-10	-0.05

CONCLUSIONS

In summary, these projections suggest that because of an aging New York state population, resident demand for freshwater angling will increase only marginally through 2000 and then decline slightly by 2010. These angler demand projections are *relatively* optimistic and highlight the observation that an aging state population will result in changes in angler participation and little growth, at best, in total demand.

The application of this methodology raises some questions about the need for changing marketing strategies to support continued sportfishery-related participation and economic contributions to waterfront communities. Changes in the age structure and subsequent changes in angler participation and total angler demand in New York state suggest the need for expanding the target markets (e.g., women, families, nonwhite people), the geographic market area (e.g., out-of-state anglers), and the marketing strategies (e.g., emphasize recruiting urban and rural youth) for New York freshwater angling. Additional marketing information will be necessary to determine the angling opportunities sought by these markets and their motivations for participation.

The sportfishing industry makes important economic contributions to waterfront communities and regional economies within the state. Therefore, assessing socioeconomic trends such as changing age structures will help maintain economic stability by anticipating changes in angler demand. In addition, these assessments suggest proactive modifications and improvements to the sportfishing marketing strategies and programs.

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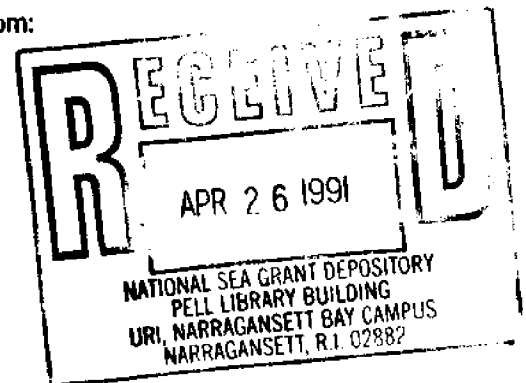
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December 1990



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This publication is issued to further Cooperative Extension work mandated by acts of Congress. It was produced by the New York Sea Grant Extension Program with the cooperation of the U.S. Department of Agriculture, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Cornell Cooperative Extension, New York State College of Agriculture and Life Sciences, New York State College of Human Ecology, and New York State College of Veterinary Medicine, at Cornell University, and the State University of New York. New York Sea Grant Extension offers equal employment and program opportunities.