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Projections of Future Participation and Needs in Outdoor Recreation for North Dakota

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Preface

This report presents projected participation levels in selected outdoor recreation activities for North Dakota residents. It is the fifth study to collect data on recreation participation rates for North Dakota's State Comprehensive Outdoor Recreation Plan.

The authors wish to extend their appreciation to the numerous individuals who helped make completion of this study possible. Special recognition is given to Tim Mueller, Dorothy Streyle, and Karen Assel of the North Dakota Parks and Recreation Department for their assistance throughout the study.

Several individuals at North Dakota State University assisted with the many mailings and analysis of returns. They were Lee Danielson, Randy Johnson, Steve Spilde, Mitch Elliott, and Sonia Vculek. Our appreciation is also extended to Harvey and Sharon Vreugdenhil for their prompt assistance in computerizing the returns; and to Jackie Grossman and Cindy Danielson for their dedication in typing several drafts of this manuscript.

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Highlights

This study estimates present and future participation in 30 outdoor recreation activities by North Dakota residents. Information on levels of recreation participation were obtained by surveying 10,000 North Dakota households. Two different questionnaires were used in the mail surveys--one for summer and fall recreation activities and one for winter and spring activities. The overall usable response rate was 30.3 percent.

Participation rates obtained via the surveys were used to project regional and statewide participation in the 30 outdoor activities for the years 1985, 1990, 1995, and 2000. Projection results were then compared to results from earlier North Dakota recreation studies.

Fishing was the activity considered most important by a majority of the survey respondents. Camping and hunting were also listed frequently as important activities.

Results from the participation projections indicated that bicycling, hiking/walking, pool swimming, and fishing have the highest total days of participation. When compared to earlier studies, participation in fishing, powerboating, canoeing, sailing, beach swimming, and ice fishing appears to be increasing while participation in iceskating and snowmobiling is decreasing.

Future needs for recreation facilities were also identified and prioritized for each state planning region. From a statewide perspective, high priority needs include boat ramps/access, campsites, fishing and hunting opportunities, swimming opportunities, and multipurpose recreation trails.

PROJECTIONS OF FUTURE PARTICIPATION AND NEEDS IN OUTDOOR RECREATION FOR NORTH DAKOTA

Randall S. Anderson and Jay A. Leitch*

Introduction

North Dakota has a great diversity of high quality outdoor recreation opportunities available for resident and nonresident participants. In addition to being important to an area's quality of life, these recreation opportunities have become increasingly recognized as a vital component in North Dakota's economy.

North Dakota published its first State Comprehensive Outdoor Recreation Plan (SCORP) in 1966. Since that initial planning process, updated plans have been published in 1970, 1975, and 1980. The purpose of these SCORPs was to provide a comprehensive planning framework to meet the future recreation needs of the general public. In addition, the SCORPs fulfilled a federal requirement for participation in the Land and Water Conservation Program. This federal program has allowed North Dakota to significantly expand its role in the development and administration of the state's recreation resources.

As a part of the Land and Water Conservation Program, each participating state must submit a revised recreation plan at five-year intervals. These plans must be developed on the basis of public input and should provide all segments of the population an opportunity to express their recreation concerns.

This study is a key component in the 1985 SCORP process. Through a mail survey of 10,000 North Dakota households, residents were given the opportunity to indicate their participation in recreation activities and their preferences for future recreation developments. The input obtained from these households helps insure that future recreation management will continue to meet the changing needs of the general public.

Demand for Outdoor Recreation

A major goal in recreation planning is to assure that present and planned future facilities will coincide with the needs and desires of future recreationists. To accomplish this task, information is needed on the amount, kind, and distribution of recreation participation occurring in the planning area. The three primary objectives of this section are (1) to estimate the present patterns of participation in specified outdoor recreation activities by North Dakota residents, (2) to project future participation in outdoor recreation activities by North Dakota residents, and (3) to identify any trends in recreation participation by comparing current results with estimates obtained in earlier studies.

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Participation Survey

This study estimates recreation participation using a cross-sectional seasonal participation approach and a mail questionnaire. Projected participation in summer and fall activities was based on a survey conducted in December 1984 designed to capture participation rates from May 1, 1984 through November 30, 1984. A similar survey was conducted in April 1985 to capture winter and spring participation from December 1, 1984 through April 30, 1985. The current participation rates obtained from the surveys were then combined with demographic projections to estimate future participation rates for the period 1985 through 2000 in five-year increments for each of the state's planning regions (Figure 1) and the state as a whole.

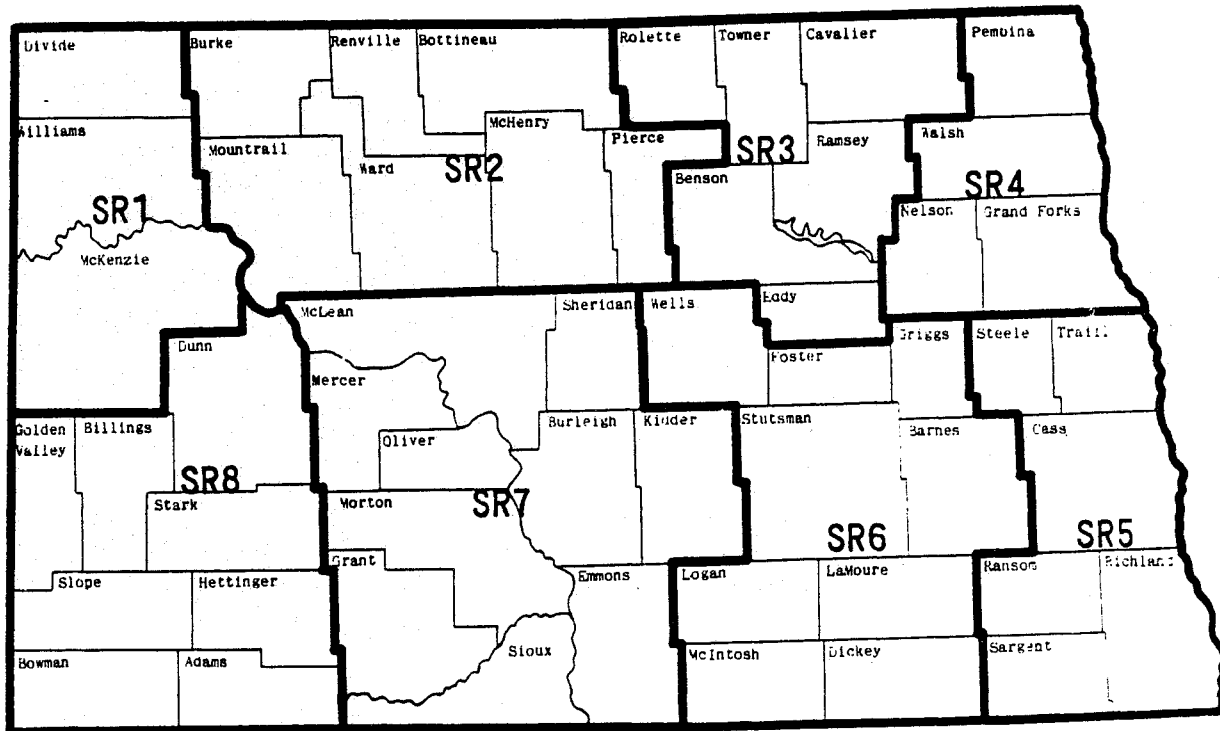


Figure 1. North Dakota State Planning Regions.

Sampling Procedure

A random sample of 10,000 households in North Dakota was surveyed to obtain information on who participates in recreation activities, how often, and where.¹ Questionnaires were sent to 6,000 households in the summer/fall

¹Given the nature and diversity of the data, sample size could not be rigorously calculated. Rather, the number of questionnaires was based on an expected return rate of 25 percent spread throughout the eight regions.

activity survey and to 4,000 households in the winter/spring survey. Households were randomly selected from lists of motor vehicle registrants in North Dakota. Although this sample included only individuals 16 years of age and older, respondents were asked to provide data on all family members currently residing in the household.

Questionnaire Design and Data Collection

Two questionnaires similar to those used in two previous North Dakota surveys (i.e., Phillips et al. 1975 and Mittleider et al. 1980) were developed to collect information on outdoor recreation participation. The seasonal questionnaires were essentially the same format--one for summer and fall activities and one for winter and spring activities (Appendix A). The questionnaires were designed to obtain information on the frequency and location of each household member's participation in a variety of outdoor recreation activities. Respondents were asked to only report participation which occurred in North Dakota during specified time periods.

There were 30 different outdoor recreation activities addressed in the surveys. The activities examined were upland game hunting, waterfowl hunting, big game hunting, nongame hunting, fishing, powerboating/waterskiing, canoeing, sailing, camping, picnicking, beach swimming, outdoor pool swimming, bicycling, three-wheeling, hiking/walking, jogging, horseback riding, golf, tennis, baseball/softball, soccer, visiting historical places/sightseeing, cross-country skiing, downhill skiing, hockey, ice fishing, ice skating, sledding, snowmobiling, and trapping.

Both summer/fall (SFQ) and winter/spring (WSQ) questionnaires were designed to obtain information on a selected set of socioeconomic variables for each household. The socioeconomic variables included age and sex of each household member, residence, employment status, occupation, marital status, education, total family income, and number of days of paid vacation for the head of the household. The questionnaires also asked about the household's most important recreation activity and the household's preference for new recreational developments.

A cover letter and self-addressed return envelope accompanied each questionnaire. The initial mailing of the SFQ was on November 27, 1984. Three weeks later, a second SFQ was sent to all the households who had not responded to the first mailing. A total of 2,186 SFQs were returned (36.4 percent response rate). Of those returned, a total of 1,808 were usable (30.1 percent usable response rate). The other returned SFQs were not included in the analyses because they were not deliverable, people elected not to participate in the study, or the questionnaire was only partially completed.

The first mailing of the WSQ was on April 15, 1985, and was also followed up in three weeks. A total of 1,411 WSQs were returned (35.3 percent response rate), of which 1,218 were usable (30.4 percent usable response rate).

Method of Projecting Participation

Previous studies of recreation in North Dakota have used several approaches to project participation. A statistical approach developed by Phillips et al. (1975) was used to project participation for the 1975 North Dakota SCORP. The statistical approach uses socioeconomic variables to explain and predict participation. This approach assumes that the relationship between socioeconomic variables and participation rates will be invariant with respect to time. Therefore, the change in participation rates and the number of days of participation in each outdoor recreation activity can be projected by the change in the socioeconomic variables. The six socioeconomic variables used in the study were age, education, occupation, vacation days, income, and residence.

The statistical approach and the same socioeconomic variables were also used to project participation for the 1980 SCORP (Mittleider et al. 1980). In addition, an alternative "age/sex cohort" method was used to project future recreation participation. The underlying assumption of the age/sex cohort method is that a person's age and sex can be used to explain participation and number of days of participation in outdoor recreation activities. An additional assumption is that the relationship between age/sex and the participation rate or number of days will be the same over time. Therefore, changes in participation rates and number of days of participation in each outdoor recreation activity can be projected by shifts in the population from one age category to another and by changes in the size of the population.

Participation projections in this study were made using the age/sex cohort approach. This method was selected for three basic reasons: (1) both age and sex are important factors in explaining recreation behavior, (2) projections of age/sex cohorts appear to be quite reliable, and (3) this method is simpler and less costly to use than the statistical method.

Survey Results of Recreation Participation

Selected socio-demographic characteristics of households who responded to the surveys are presented in Table 1. The average age of the head of household was 43.7 years, and the average household size was 2.9 individuals.

Fishing was the activity considered most important by a majority of the households (Table 2). Camping, hunting, hiking/walking, and golf were also listed as important activities.

The relative importance of specific outdoor activities to an area is often difficult to assess since alternate activities are usually available. However, when households were asked what they would do if their most important recreational activity were not available in North Dakota, over 60 percent of the respondents indicated that they would travel out-of-state to pursue their activity (Table 3). Nineteen percent of the households indicated they would replace their most important activity with another outdoor activity. Some households felt so strongly about their recreation activities that they would move out-of-state if they were unable to participate in North Dakota.

Individual survey results were aggregated by region and for the state to estimate participation in each of the 30 outdoor recreation activities.

TABLE 1. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE STUDY SAMPLE (n=3026)

Characteristics		Frequency	Percent
Gender of Head of Household	Male	2685	88.7
	Female	341	11.3
Age of Head of Household	<u>Years</u>		
	<= 19	17	0.6
	20-44	1427	47.2
	45-64	1085	35.8
	65 >	497	16.4
	Mean = 43.7 years		
Education Level of Head of Household	<u>Years</u>		
	<= 8	328	10.8
	9-12	991	32.8
	13-14	651	21.5
	15-16	511	16.9
	17 >	285	9.4
	No Data	260	8.6
	Mean = 13.1 years		
Marital Status of Head of Household	Married	2274	75.1
	Single	510	16.9
	No Data	242	8.0
Household Size	<u>People</u>		
	1	497	16.4
	2	921	30.4
	3	504	16.7
	4	649	21.5
	5	313	10.3
	6	121	4.0
	7	12	0.4
	8	5	0.2
	9	4	0.1
	Mean = 2.9 people		
Location of Residence	City over 50,000	453	15.0
	City 2,500-50,000	1086	35.9
	Community under 2,500	661	21.9
	Farm or Ranch	455	15.0
	Rural Nonfarm	279	9.2
	No Data	92	3.0
Employment Status of Head of Household	Employed Full Time	2119	70.0
	Employed Part Time	228	7.5
	Unemployed	105	3.5
	Retired	512	16.9
	No Data	62	2.1
Total Family Income	Less than \$10,000	354	11.7
	\$10,000-\$14,999	352	11.6
	\$15,000-\$19,999	372	12.3
	\$20,000-\$29,999	615	20.3
	\$30,000-\$39,999	442	14.6
	\$40,000 and Over	550	18.2
	No Data	341	11.3

TABLE 2. RECREATIONAL ACTIVITY CONSIDERED MOST IMPORTANT BY RESPONDING HOUSEHOLDS (n=2467)

Activity	Percentage of Households
Fishing	22.0
Camping	20.6
Hunting	9.5
Hiking/Walking	9.2
Golf	5.1
Bicycling	4.5
Baseball/Softball	3.6
Picnicking	3.6
Powerboating	3.6
Swimming	3.4
Yardwork/Gardening	2.6
Visiting	2.1
Other Activities	<u>10.2</u>
Total	100.0

TABLE 3. HOUSEHOLD'S RESPONSE TO THE QUESTION OF WHAT THEY WOULD DO WITH ANY ADDITIONAL TIME AND/OR MONEY IF THEY WERE UNABLE TO PURSUE THEIR MOST IMPORTANT RECREATIONAL ACTIVITY IN NORTH DAKOTA (n=863)

Response	Percent
Travel out-of-state	61.7
Replace with another outdoor activity	18.9
Replace with an indoor activity/stay home	9.2
Pay debts or save the money	5.6
Work more	1.3
Spend it on household/personal goods	2.0
Move out-of-state	<u>1.3</u>
Total	100.0

Table 4 shows the proportion of survey respondents who participated in each of the activities. For example, 19.3 percent of the respondents who resided in SR1² hunted upland game in 1984-85. Table 5 shows the mean number of days of participation for those respondents who participated in each activity in

²SR1 - State Planning Region 1. See Figure 1, page 3.

TABLE 4. PERCENTAGE OF RESPONDENTS PARTICIPATING IN OUTDOOR RECREATION ACTIVITIES, BY REGION AND FOR THE STATE, 1984-85

Activity	Region								STATE
	SR1	SR2	SR3	SR4	SR5	SR5	SR7	SR8	
Upland Game Hunting	19.3	17.9	14.6	9.1	12.3	17.3	21.4	26.8	16.5
Waterfowl Hunting	9.2	15.7	16.7	10.1	8.0	14.9	12.2	5.3	11.5
Big Game Hunting	17.2	15.7	19.1	10.8	12.7	18.2	13.5	13.1	14.3
Nongame Hunting	7.1	9.8	10.0	4.3	4.9	10.7	7.3	9.7	7.4
Fishing	43.7	45.7	42.1	29.6	22.1	42.3	50.0	44.2	38.2
Powerboating/Waterskiing	27.7	23.0	24.2	13.3	6.9	23.1	27.1	18.1	18.9
Canoeing	5.0	5.6	5.8	4.7	3.0	6.3	8.8	5.6	5.6
Sailing	1.3	1.2	3.0	0.4	1.3	0.9	2.9	0.3	1.5
Camping	32.4	38.2	29.7	24.7	17.6	33.2	45.8	45.8	32.3
Picnicking	37.4	42.2	43.9	37.3	27.5	49.9	49.6	42.7	40.7
Beach Swimming	33.2	38.2	29.4	21.5	13.3	32.4	37.7	38.9	28.7
Pool Swimming	24.0	23.0	23.3	23.6	30.4	27.5	28.7	29.6	27.0
Bicycling	18.1	24.1	24.2	28.4	40.3	28.3	31.0	27.1	30.2
Three-Wheeling	5.5	7.3	9.7	4.2	4.8	7.6	6.4	10.6	6.4
Hiking/Walking	27.3	28.5	28.2	23.4	27.2	29.9	33.2	29.3	28.6
Jogging	4.6	7.8	9.7	7.1	8.2	7.2	8.4	8.1	7.8
Horseback Riding	3.4	7.7	9.4	6.2	5.7	6.9	10.7	12.8	7.8
Golf	13.5	13.5	11.8	12.1	14.8	13.0	11.3	5.6	12.5
Tennis	1.7	7.2	6.4	6.9	8.9	5.3	8.3	3.7	7.0
Baseball/Softball	13.9	13.5	8.8	11.6	13.5	12.3	13.1	16.2	12.9
Soccer	0.0	1.2	0.6	0.6	2.3	1.2	3.5	0.0	1.7
Visiting Historical Places	26.5	31.2	31.2	25.4	22.1	31.5	40.1	48.0	31.0
Cross-Country Skiing	3.2	6.3	5.0	6.5	7.1	4.4	4.0	3.2	5.2
Downhill Skiing	2.4	5.6	2.9	1.6	0.9	2.2	1.2	0.7	1.8
Hockey	1.6	1.9	5.9	8.9	3.1	2.2	1.9	0.4	3.3
Ice Fishing	16.5	17.9	27.2	5.9	5.7	21.2	13.2	11.1	13.3
Ice Skating	11.0	9.3	9.2	12.8	10.0	13.1	10.9	7.9	10.9
Sledding	14.2	13.4	9.6	14.4	10.6	13.3	19.2	12.5	14.2
Snowmobiling	5.5	13.4	17.2	12.2	7.4	14.7	9.3	16.1	11.4
Trapping	0.8	1.1	5.0	1.0	1.0	2.4	1.2	2.5	1.7

TABLE 5. AVERAGE NUMBER OF DAYS OF PARTICIPATION PER PARTICIPANT BY REGION AND FOR THE STATE, 1984-85

Activity	Region								STATE
	SR1	SR2	SR3	SR4	SR5	SR6	SR7	SR8	
Upland Game Hunting	7.3	6.3	7.1	6.2	5.9	9.1	6.9	6.9	6.9
Waterfowl Hunting	4.6	7.9	8.9	7.0	7.3	8.8	6.2	2.6	7.3
Big Game Hunting	6.1	4.3	5.6	7.1	4.9	5.6	5.0	4.9	5.3
Nongame Hunting	7.1	7.7	9.2	5.7	8.0	9.6	6.5	14.6	8.3
Fishing	10.5	10.6	11.3	9.0	7.8	9.5	11.3	9.6	10.1
Powerboating/Waterskiing	8.4	14.4	14.4	6.1	3.6	6.2	9.3	8.9	9.2
Canoeing	2.8	6.0	3.5	5.7	3.6	2.3	3.9	1.9	3.9
Sailing	4.7	10.6	3.2	3.3	2.1	3.0	4.4	5.0	4.3
Camping	10.9	9.3	8.2	6.9	5.7	7.8	8.2	8.7	8.1
Picnicking	4.7	5.4	4.5	5.2	4.8	4.9	5.7	6.0	5.2
Beach Swimming	7.6	9.4	5.8	6.7	4.2	7.6	8.7	8.2	7.7
Pool Swimming	9.6	11.1	13.9	12.5	17.3	12.7	14.8	13.2	14.1
Bicycling	24.7	31.9	22.0	22.7	26.4	25.7	25.4	33.9	26.4
Three-Wheeling	28.5	19.4	11.9	14.6	23.5	14.8	12.0	17.4	16.9
Hiking/Walking	21.3	22.5	27.3	20.4	26.8	23.9	24.5	33.2	24.8
Jogging	42.2	27.3	24.6	32.6	26.4	31.5	31.9	33.9	29.8
Horseback Riding	16.8	7.3	10.1	5.8	6.3	13.5	11.9	13.4	10.0
Golf	16.4	15.3	23.6	16.5	15.7	14.9	14.6	21.8	16.1
Tennis	15.5	7.8	11.4	7.6	11.6	10.9	10.2	4.8	10.0
Baseball/Softball	21.9	21.1	25.5	16.1	20.1	17.8	22.1	21.0	20.3
Soccer	0.0	13.1	3.5	9.0	16.2	12.1	11.8	0.0	13.0
Visiting Historical Places	4.8	3.5	3.4	4.7	3.3	3.0	3.7	3.5	3.6
Cross-Country Skiing	3.5	4.4	7.8	4.9	4.7	3.6	4.3	4.1	4.6
Downhill Skiing	1.3	5.0	2.6	1.9	2.3	4.9	1.5	3.0	3.3
Hockey	34.5	31.4	14.4	22.7	20.8	9.2	15.8	1.0	19.3
Ice Fishing	9.7	5.3	9.1	4.1	10.9	8.1	7.5	3.5	7.6
Ice Skating	11.5	4.6	10.8	13.2	7.9	8.2	6.0	5.0	8.2
Sledding	4.8	6.7	6.5	5.2	7.8	7.5	6.8	8.1	6.8
Snowmobiling	10.1	9.9	16.9	14.5	4.4	7.4	7.4	6.6	9.2
Trapping	21.0	3.0	8.4	14.8	23.4	25.4	22.6	45.4	21.7

1984-85. For example, those respondents from SR1 who went upland game hunting spent 7.3 days participating in that activity during the year.

Many North Dakota residents participated in recreation activities outside of North Dakota. Almost 20 percent of all responding households indicated they fished in out-of-state areas during the 1984-85 study period (Table 6). Sightseeing, camping, and swimming were other popular out-of-state activities.

Projection Results

Participation in 30 recreation activities was projected for the target years (1984-85, 1990, 1995, and 2000) for residents in each region and the state. Projections were made using the age/sex cohort method and were based on available population estimates (Table 7). North Dakota's population is projected to increase from 701,000 in 1985 to over 800,000 by the year 2000. The largest population increases are expected in Regions 5 and 7.

Participation projections are displayed two ways: odd numbered tables in Appendix B indicate the number of participants by region of residence, and the even numbered tables indicate total days of participation by each region's residents. Tables 8 and 9 are representative of those found in Appendix B. For example, there would be an estimated 6,635 participants (Table 8) and 48,555 days of upland game hunting (Table 9) by residents of Region 1 in 1985.

Table 10 is an example of the data found in Appendix C indicating total days of participation occurring in each region and the state (i.e., regardless of the participant's region of residence). For example, it was projected that in 1990, there will be 18,002 days of waterfowl hunting in Region 1 (Table 10). This will increase to approximately 20,215 days by the year 2000.

Ranking of Participation

In order to estimate the relative importance of each activity, the total number of days of participation in 1985 (Appendix B) was divided by the population for each region and the state. The resulting annual per capita days of participation were then ranked by order of popularity (Table 11). For example, residents of SR1 are projected to participate in a total of 172,032 days of bicycling in 1985 (Appendix Table B-2). With a population of 35,039 persons (Table 7), the annual per capita days of participation in bicycling in SR1 is 4.91 (172,032 days/35,039 persons). If it is assumed that activities with high per capita participation are more popular than those activities with lower per capita participation, then bicycling is the second most popular activity in SR1 (Table 11). This ranking procedure was used because it gives some indication of an activity's popularity by taking into account the total number of participants, total days of participation, and regional population differences.

TABLE 6. PERCENTAGE OF HOUSEHOLDS PARTICIPATING IN OUT-OF-STATE ACTIVITIES, BY ACTIVITY

Activity	Percent
Fishing	19.2
Visiting Historical Places/Sightseeing	18.6
Camping	16.7
Beach Swimming	14.5
Powerboating/Waterskiing	11.2
Picnicking	9.2
Hiking/Walking	8.8
Downhill Skiing	8.7
Golf	6.2
Outdoor Pool Swimming	5.2
Ice Fishing	5.2
Canoeing	4.6
Cross-Country Skiing	2.9
Sailing	2.3
Snowmobiling	2.3
Bicycling	1.9
Big Game Hunting	1.9
Upland Game Hunting	1.7
Jogging	1.6
Horseback Riding	1.3
Baseball/Softball	1.3
Tennis	0.9
Hockey	0.8
Three-Wheeling	0.8
Ice Skating	0.5
Sledding	0.4
Soccer	0.2
Nongame Hunting	0.2
Trapping	0.1

TABLE 7. POPULATION PROJECTIONS FOR NORTH DAKOTA AND STATE PLANNING REGIONS, 1985, 1990, 1995, AND 2000

State Planning Region	Year			
	1985	1990	1995	2000
	----- projected population -----			
Region 1	35,039	36,935	37,454	37,370
Region 2	102,906	108,452	113,334	116,164
Region 3	51,406	54,289	57,193	59,009
Region 4	103,434	110,869	116,005	117,948
Region 5	142,706	154,633	162,662	168,955
Region 6	77,851	81,307	84,522	86,259
Region 7	142,079	150,044	159,695	167,505
Region 8	45,860	47,078	47,596	47,425
North Dakota	701,281	743,607	778,461	800,635

SOURCE: Rathge et al. 1985.

TABLE 8. PROJECTED NUMBER OF PARTICIPANTS FROM REGION 1, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participants -----			
Upland Game Hunting	6,635	6,966	7,018	6,999
Waterfowl Hunting	3,092	3,234	3,260	3,279
Big Game Hunting	5,743	6,022	6,097	6,175
Nongame Hunting	2,626	2,785	2,813	2,765
Fishing	14,600	15,370	15,637	15,762
Powerboating	9,491	9,970	10,113	10,219
Canoeing	1,966	2,084	2,109	2,085

TABLE 9. PROJECTED TOTAL DAYS OF PARTICIPATION BY RESIDENTS FROM REGION 1, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	48,555	51,054	51,525	51,412
Waterfowl Hunting	15,149	15,742	15,631	15,427
Big Game Hunting	34,420	35,912	36,206	36,812
Nongame Hunting	17,122	18,047	18,284	18,316
Fishing	146,840	153,810	156,480	158,839
Powerboating	78,433	82,350	83,703	84,936
Canoeing	5,822	6,182	6,244	6,142

TABLE 10. PROJECTED NUMBER OF DAYS OF PARTICIPATION OCCURRING IN REGION 1, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	55,334	58,894	61,550	63,487
Waterfowl Hunting	17,162	18,002	18,923	20,215
Big Game Hunting	46,887	49,631	51,964	54,899
Nongame Hunting	20,511	21,677	22,911	24,418
Fishing	141,211	148,927	156,028	162,371
Powerboating	74,427	78,835	83,147	87,303
Canoeing	5,342	5,744	5,973	6,004

TABLE 11. RANKING OF OUTDOOR RECREATION ACTIVITIES BASED ON ANNUAL PER CAPITA DAYS OF PARTICIPATION BY POPULATION IN EACH REGION AND FOR THE STATE, 1985

Activity	Regions									
	SR1	SR2	SR3	SR4	SR5	SR6	SR7	SR8	State	
Hiking/Walking	1 (5.80)	2 (6.17)	1 (8.34)	2 (4.56)	2 (7.44)	1 (7.33)	1 (7.99)	1 (10.32)	2 (7.10)	
Bicycling	2 (4.91)	1 (7.89)	2 (5.54)	1 (7.00)	1 (10.58)	2 (7.05)	2 (7.79)	2 (9.11)	1 (7.95)	
Fishing	3 (4.19)	3 (4.55)	3 (4.23)	5 (2.76)	7 (1.69)	3 (3.68)	3 (5.57)	3 (3.94)	4 (3.73)	
Baseball/Softball	4 (3.48)	7 (2.88)	10 (2.13)	6 (2.26)	4 (2.75)	9 (2.00)	7 (2.92)	7 (3.18)	5 (2.67)	
Camping	5 (3.19)	5 (3.41)	8 (2.44)	9 (1.83)	11 (1.02)	5 (2.43)	5 (3.74)	6 (3.76)	6 (2.59)	
Beach Swimming	6 (2.77)	4 (3.56)	13 (1.73)	13 (1.59)	20 (0.58)	6 (2.34)	6 (3.22)	8 (3.00)	8 (2.25)	
Pool Swimming	7 (2.62)	8 (2.69)	4 (3.90)	3 (3.15)	3 (5.13)	4 (3.40)	4 (4.25)	4 (3.90)	3 (3.81)	
Powerboating/ Waterskiing	8 (2.24)	6 (3.22)	5 (3.34)	15 (0.90)	27 (0.26)	13 (1.34)	10 (2.45)	5 (3.90)	11 (1.76)	
Jogging	9 (2.22)	11 (2.01)	11 (2.12)	4 (2.79)	5 (2.32)	8 (2.11)	9 (2.67)	9 (2.65)	7 (2.39)	
Golf	10 (1.94)	10 (2.21)	7 (2.50)	10 (1.77)	6 (2.18)	10 (1.98)	11 (1.68)	17 (1.20)	10 (1.95)	
Picnicking	11 (1.79)	9 (2.26)	12 (1.99)	8 (2.05)	8 (1.36)	7 (2.32)	8 (2.83)	10 (2.51)	9 (2.14)	
Three-Wheeling	12 (1.65)	12 (1.42)	15 (1.18)	19 (0.67)	9 (1.16)	17 (1.04)	18 (0.74)	13 (1.68)	14 (1.09)	
Ice Fishing	13 (1.52)	17 (0.93)	9 (2.31)	26 (0.23)	16 (0.67)	11 (1.56)	16 (0.96)	22 (0.40)	18 (0.95)	
Upland Game Hunting	14 (1.39)	16 (1.03)	21 (0.86)	20 (0.64)	15 (0.71)	12 (1.40)	13 (1.43)	14 (1.63)	15 (1.08)	
Ice Skating	15 (1.26)	24 (0.45)	16 (1.17)	12 (1.69)	13 (0.89)	15 (1.10)	21 (0.69)	21 (0.44)	17 (0.95)	
Visiting Historical Places	16 (1.22)	15 (1.07)	18 (1.05)	14 (1.18)	14 (0.72)	21 (0.90)	12 (1.48)	12 (1.70)	13 (1.13)	
Big Game Hunting	17 (0.98)	21 (0.62)	20 (0.90)	16 (0.81)	18 (0.61)	20 (0.91)	22 (0.67)	20 (0.58)	21 (0.72)	
Hockey	18 (0.74)	19 (0.69)	19 (0.98)	7 (2.08)	17 (0.66)	25 (0.20)	26 (0.33)	29 (0.00)	22 (0.74)	
Horseback Riding	19 (0.67)	22 (0.55)	17 (1.17)	22 (0.41)	22 (0.39)	22 (0.86)	15 (1.29)	11 (1.76)	19 (0.81)	
Sledding	20 (0.60)	18 (0.92)	23 (0.70)	18 (0.78)	12 (0.94)	18 (1.01)	14 (1.43)	19 (1.11)	16 (1.00)	
Nongame Hunting	21 (0.49)	20 (0.68)	22 (0.81)	25 (0.28)	21 (0.39)	19 (0.94)	23 (0.48)	16 (1.35)	24 (0.59)	
Snowmobiling	22 (0.45)	13 (1.41)	6 (3.08)	11 (1.77)	25 (0.35)	16 (1.08)	20 (0.72)	18 (1.17)	12 (1.13)	
Waterfowl Hunting	23 (0.43)	14 (1.17)	14 (1.25)	17 (0.79)	19 (0.58)	14 (1.18)	19 (0.73)	25 (0.12)	20 (0.81)	
Tennis	24 (0.32)	23 (0.51)	24 (0.67)	21 (0.60)	10 (1.09)	24 (0.52)	17 (0.85)	23 (0.17)	23 (0.69)	
Trapping	25 (0.28)	30 (0.08)	25 (0.43)	27 (0.17)	26 (0.29)	23 (0.55)	27 (0.26)	15 (1.36)	25 (0.34)	
Canoeing	26 (0.17)	25 (0.31)	27 (0.20)	24 (0.29)	28 (0.11)	27 (0.14)	25 (0.34)	26 (0.11)	27 (0.23)	
Cross-Country Skiing	27 (0.11)	27 (0.29)	26 (0.41)	23 (0.31)	24 (0.35)	26 (0.15)	28 (0.17)	24 (0.14)	26 (0.25)	
Sailing	28 (0.07)	29 (0.11)	28 (0.10)	30 (0.01)	29 (0.03)	30 (0.03)	29 (0.12)	27 (0.01)	30 (0.06)	
Downhill Skiing	29 (0.03)	26 (0.30)	29 (0.08)	29 (0.03)	30 (0.02)	29 (0.10)	30 (0.02)	28 (0.02)	29 (0.08)	
Soccer	30 (0.00)	28 (0.18)	30 (0.02)	28 (0.05)	23 (0.37)	28 (0.13)	24 (0.42)	30 (0.00)	28 (0.21)	

Participation Comparisons

The relative accuracy of survey results can be judged by comparing estimates of participation with existing data bases. Participation in some recreation activities, such as hunting and fishing, requires a license. Likewise, snowmobile and boat owners are required to register their vehicles. License sales and RV registrations are thus an indication of participation in these activities.

A comparison was made between hunting and fishing license sales and the participation estimates developed from the survey data (Table 12). In all instances, survey participation estimates are greater than actual license sales. Several factors may contribute to this situation. A major problem in using license sales or registrations is that they do not indicate absolute levels of recreation participation. For example, a survey of snowmobile use revealed that only 40 to 50 percent of the snowmobiles in North Dakota were registered (Thompson 1974). In addition, some participants are not required to purchase licenses, depending on their age (e.g., fishing).

TABLE 12. COMPARISON OF ESTIMATED NUMBERS OF RESIDENT HUNTERS AND ANGLERS IN NORTH DAKOTA, 1984-85

Activity	Licensed Participants ^a	Survey Results
Big Game Hunting	72,264 ^b	95,630
Upland Game Hunting	56,834	111,836
Waterfowl Hunting	45,814	77,769
Fishing	151,128	265,834

^a1984 resident license sales from Arlen Harmoning, North Dakota Game and Fish Department, Bismarck, North Dakota.

^bIncludes all big game license sales and gratis landowner permits.

Another factor contributing to discrepancies between participation and license figures is the presence of nonresponse bias in some mail surveys (i.e., individuals responding to the survey participate in more recreation activities than those who did not return the questionnaire). Response bias between respondents to the first and second mailings was checked for five variables in this study--upland game hunting, waterfowl hunting, big game hunting, canoeing, and fishing. A significant difference ($\alpha = 0.05$) was identified between mean participation rates reported by first and second mailing respondents (i.e., first mailing respondents had significantly higher participation rates than respondents to the second mailing). It can therefore be inferred that the remaining sample population, who did not respond to the

survey, participate even less than the respondents. The result is an overestimation of the total population's participation.³

No attempt was made to mitigate the effect of nonresponse bias in this study for several reasons. First, previous studies of recreation participation in North Dakota have not corrected for potential nonresponse bias. Therefore, comparisons between results of this study and earlier studies would be most meaningful if underlying assumptions are kept consistent. Second, this survey addresses only recreation participation of North Dakota residents. Nonresident visitors also have an important impact on the state's recreational resources. The "high" participation figures for resident recreationists can thus indirectly address some of the demands of out-of-state visitors.

As mentioned earlier, one reason for replicating study methodologies is so that changes in recreation participation over time can be identified. A comparison was made between the results of this study and results of two earlier North Dakota recreation studies (Phillips et al. 1975 and Mittleider et al. 1980). Participation rates in the current study are almost all higher than the participation rates in 1978 (Table 13). The only activities in which the percentage participating declined during this time period were waterfowl hunting, skating, and snowmobiling.

In comparison to the 1973 rates, however, current participation has declined in 13 activities (Table 13). The largest decreases were in horseback riding, visiting historical places, skating, and snowmobiling. Most participation increases were in water-based activities like fishing, powerboating, canoeing, sailing, and beach swimming.

Analysis of Outdoor Recreation Needs

Participation estimates outlined in the previous section are a major component in the evaluation of North Dakota's outdoor recreation system. These estimates help identify trends in levels of participation. After this recreation "demand" has been identified, the next important step is to determine whether additional land and/or water areas and facilities are needed to meet the demand.⁴

This section identifies and prioritizes the needs for recreation facilities in each state planning region using three different approaches. One approach was to use input obtained from a series of public SCORP workshops held in each planning region during March and April 1985. Workshop participants were asked to (1) identify any outdoor recreation needs which

³These are several publications which address the problem of nonresponse bias in mail surveys of recreation participation (e.g., Kerestes 1984; Kerestes and Leitch 1983).

⁴Because the provision of outdoor recreation is a public good, there is no market clearing price at which equilibrium is reached. Instead, the demand is estimated and public policy dictates supply. Demand(s) and need(s) are used synonymously in this report.

TABLE 13. COMPARISON OF PARTICIPATION IN OUTDOOR RECREATION ACTIVITIES, 1973, 1978, AND 1985, NORTH DAKOTA

Activity	Percentage Participating			Mean Days of Participation		
	1973 ^a	1978 ^b	1985	1973 ^a	1978 ^b	1985
Upland Game						
Hunting	16.5	12.9	16.5	5.7	5.9	6.9
Waterfowl Hunting	14.5	13.0	11.5	6.9	7.4	7.3
Big Game Hunting	13.0	8.6	14.3	4.1	4.4	5.3
Nongame Hunting	9.7	6.1	7.4	7.6	7.9	8.3
Fishing	36.0	27.4	38.2	7.7	6.6	10.1
Powerboating	16.3	12.2	18.9	7.2	8.0	9.2
Canoeing	3.7	1.0	6.6	4.1	4.4	3.9
Sailing	1.1	0.8	1.5	2.7	8.3	4.3
Camping	31.5	19.6	32.3	7.9	5.9	8.1
Picnicking	67.8	28.3	40.7	4.6	3.6	5.2
Beach Swimming	20.2	13.0	28.7	6.2	6.6	7.7
Pool Swimming	32.9	13.7	27.0	17.1	12.9	14.1
Bicycling	35.3	12.3	30.2	28.4	24.5	26.4
Hiking/Walking	12.3	1.2	28.6	5.6	11.4	24.8
Jogging	N.A.	4.1	7.8	N.A.	27.1	29.8
Horseback Riding	12.6	2.3	7.8	10.7	9.8	10.0
Golf	12.9	8.8	12.5	15.1	15.3	16.1
Tennis	9.1	4.4	7.0	10.6	11.3	10.0
Baseball/Softball	16.6	10.1	12.9	13.6	10.9	20.3
Soccer	N.A.	0.3	1.7	N.A.	17.9	13.0
Visiting Historical Places	44.6	15.0	31.0	2.7	2.4	3.6
Cross-Country Skiing	N.A.	4.3	5.2	N.A.	6.8	4.6
Downhill Skiing	N.A.	3.2	1.8	N.A.	4.4	3.3
Hockey	2.2	1.8	3.3	24.9	16.0	19.3
Ice Fishing	11.5	8.2	13.3	6.8	5.8	7.6
Skating	18.7	12.0	10.9	11.4	8.7	8.2
Sledding	17.0	13.7	14.2	8.6	7.2	6.8
Snowmobiling	23.8	15.7	11.4	9.7	11.4	9.2

N.A. = Not Available

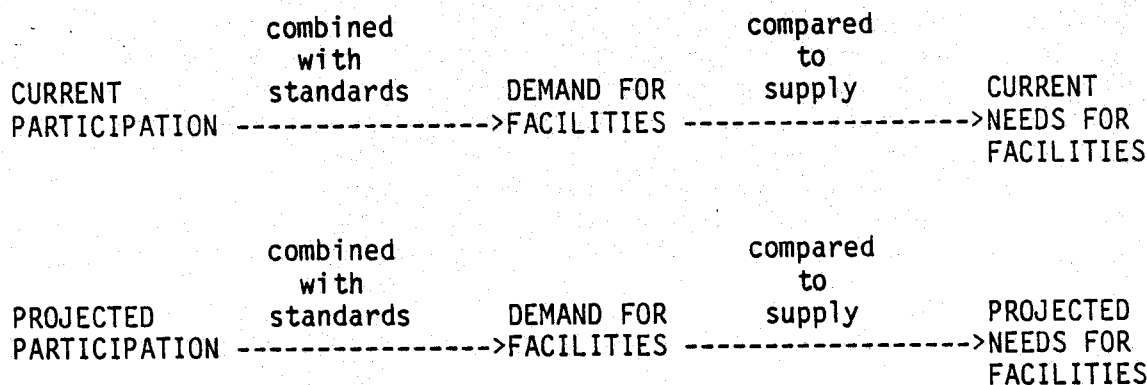
^aPhillips et al. 1975.

^bMittleider et al. 1980.

were currently not being met in their region, and (2) identify trends/impacts which would affect future outdoor recreation in North Dakota. The five most important needs identified in these workshops are considered high priority regional needs.

A second method of identifying recreation needs utilized data from the mail survey of 10,000 North Dakota households. Households were asked to list those recreation activities they would like to see developed or expanded in the future. The five activities listed most often by survey respondents are also considered high priority regional needs. The next five most frequently listed activities (6-10) are considered medium priority regional needs.

The third approach used in this needs analysis is outlined below. This is similar to the method used in the 1975 North Dakota SCORP (North Dakota State Outdoor Recreation Agency 1976).



Current and projected participation are expressed in total numbers of participation days occurring in each region and the state (Appendix C). Participation days were converted into facility demands by applying various standards and/or guidelines similar to those used in the 1975 SCORP. This conversion involved three steps:

1. The percentage of participation occurring on certain peak days (usually Saturdays and Sundays) was estimated.
2. A ratio was established to compare holiday participation to non-holiday participation. It was assumed if holiday demand (usually the heaviest) was met, the non-holiday demand would also be met.
3. Space standards (the amount of space or number of facilities each person or party requires) were applied.

These factors were then entered into the following equation to estimate demand:

$$\text{Demand} = \frac{\text{Activity Days} \times \text{Percentage of Participation Occurring on Peak Days} \times \text{Ratio of Holiday Use to Non-Holiday Use}}{\text{Peak Days} \times \text{Persons per Party} \times \text{Turnover (parties/day)}}$$

The following example illustrates this conversion technique:

1985 Camping Demand for Region 1

Activity days	= 111,455 (Appendix Table C-1)
Unit of measure	= 1 campsite
Percentage of camping done on peak days	= 60%
Ratio of holiday use to non-holiday use is 1.2/1.0	= 1.2
Peak days (33 non-holiday weekend days @1.0; and 6 holidays @1.2)	= 40.2
Persons per party	= 4

$$1985 \text{ demand} = \frac{111,455 \times 0.60 \times 1.2}{40.2 \times 4 \times 1} = 499 \text{ campsites}$$

After the demand has been calculated, it can be compared to the supply inventory⁵ to estimate facility needs. Regional needs identified using this approach (which had not been identified using one of the other methods) were considered low priority regional needs.

The standards, calculations, and results from this technique are presented in Appendix D. Not all activities are included in this portion of the needs analysis. For some activities, it is not meaningful to measure needs by applying rigid standards. While hunting, visiting historical places, and sightseeing rely on the careful management of certain resources, participation in these activities cannot always be easily translated into facility and land needs. In addition, due to the linearity assumptions of some standards used, some needs may have been overestimated. For example, much of the participation in snowmobiling, three-wheeling, hiking/walking, horseback riding, and bicycling probably occurred on existing trails, roads, or open areas without the use of any specific recreation facilities.

⁵Existing supply: From the current inventory of North Dakota outdoor recreation facilities provided by the North Dakota State Parks and Recreation Department and from the 1980 SCORP inventory (North Dakota State Parks and Recreation Department 1981).

Therefore, future participation in these activities is not entirely dependent upon the development of new man-made facilities.

Regional needs and priorities identified on the following pages represent an integration of results from the three approaches described above. From a statewide perspective, high priority needs include boat ramps/access, campsites, fishing and hunting opportunities, swimming opportunities, and multipurpose trails for walking, jogging, and bicycling. Medium priority needs include cross-country skiing trails, picnic areas, playgrounds/city parks, and downhill skiing facilities.

Summary

Two mail surveys of North Dakota households were conducted to collect information on household's participation in outdoor recreation activities and their preferences for future recreation developments. One survey addressed summer and fall recreation activities; the second survey was designed to capture participation rates for winter and spring activities. Questionnaires were sent to a random sample of 10,000 households. The overall usable response rate (after two mailings) was 30.3 percent.

The participation rates obtained via the surveys were then used to project regional and statewide participation in 30 outdoor activities for the years 1985, 1990, 1995, and 2000. Participation projections were made using the age/sex cohort approach which uses changes in the age and sex distribution of the population to project changes in participation.

Information obtained via the questionnaires indicate that outdoor recreation is considered very important to many North Dakota residents. For example, over 60 percent of the respondents indicated they would travel out-of-state if their most important recreational activity was not available in North Dakota.

Fishing was the activity considered most important by a majority of households. Camping and hunting were also listed as important activities. The activities with the highest total days of participation are bicycling, hiking/walking, pool swimming, and fishing.

In comparison to results obtained in earlier recreation studies, current participation in water-based activities (i.e., fishing, powerboating, canoeing, sailing, beach swimming, and ice fishing) appears to be increasing. Not only is there a larger percentage of the population participating, but in some cases, the mean days of participation are also increasing. Activities showing a general decline in participation include ice skating, snowmobiling, and waterfowl hunting.

In addition to estimating current and future levels of participation, future recreation needs were also identified and prioritized for each state planning region. Consistent with the increase in water-related activities, high priority regional needs include boat ramps/access, and hunting/fishing opportunities. Other high priority needs include campsites and multipurpose recreation trails.

REGION 1

HIGH PRIORITY REGIONAL NEEDS

- Preservation of inland lakes
- Boat access to Lake Sakakawea and inland lakes
- Marked trails
- RV and tent campsites
- Handicapped access
- Fishing opportunities
- Picnic areas
- Swimming opportunities

MEDIUM PRIORITY REGIONAL NEEDS

- Bicycle trails
- Cross-country ski trails
- Downhill ski areas
- Golf courses
- Hunting opportunities

LOWER PRIORITY REGIONAL NEEDS

- Baseball/softball fields
- Playgrounds/city parks
- Canoeing opportunities
- Equestrian trails
- Snowmobile trails

REGION 2

HIGH PRIORITY REGIONAL NEEDS

- Handicapped access
- Public access to lakes and development of boat ramps
- Small town recreation needs including shelters, playground equipment, skating rinks, softball facilities, picnic areas
- Upgrade water quality on lakes and rivers
- Acquisition of local park and recreation areas in rural and urban communities
- Campsites
- Fishing opportunities
- Hunting opportunities
- Swimming opportunities

MEDIUM PRIORITY REGIONAL NEEDS

- Bicycle trails
- Cross-country ski trails
- Downhill ski areas
- Hiking/walking trails
- Equestrian trails

LOWER PRIORITY REGIONAL NEEDS

- Baseball/softball fields
- Snowmobiling/ATV trails
- Golf courses
- Hockey rinks

REGION 3

HIGH PRIORITY REGIONAL NEEDS

- Year-round access to Devils Lake
- Maintenance and renovation of existing facilities
- Multipurpose trails for jogging, biking, walking, etc.
- Indoor and/or outdoor swimming pool facilities
- Protection of unique natural areas
- Campsites
- Fishing opportunities

MEDIUM PRIORITY REGIONAL NEEDS

- Cross-country ski trails
- Equestrian trails
- Hunting opportunities
- Picnic areas
- Playgrounds/city parks

LOWER PRIORITY REGIONAL NEEDS

- Golf courses
- Hockey rinks
- Snowmobile trails
- Canoeing opportunities
- Downhill ski areas

REGION 4

HIGH PRIORITY REGIONAL NEEDS

- Nature/multipurpose trails for walking, jogging, bicycling, etc.
- Campsite development in communities and along lakes and rivers
- Improve water-based recreation on the Red River; provide canoeing and boating facilities
- ATV trails near population centers
- Increase development of cultural recreation activities and/or programs
- Fishing opportunities
- Hunting opportunities

MEDIUM PRIORITY REGIONAL NEEDS

- Cross-country ski trails
- Picnic areas
- Playgrounds/city parks

LOWER PRIORITY REGIONAL NEEDS

- Golf courses
- Hockey rinks
- Baseball/softball fields
- Public shooting ranges
- Handicapped access
- Snowmobile trails
- Equestrian trails

REGION 5

HIGH PRIORITY REGIONAL NEEDS

- Development of access and facilities on the Red River
- Recreation facility development in rural and small communities including picnic areas, playground equipment, etc.
- Increase promotion of existing recreation facilities/programs
- Baseball/softball fields
- Campsites
- Renovate, upgrade, and maintain existing facilities
- Fishing opportunities
- Multipurpose trails for walking, jogging, bicycling, etc.
- Hunting opportunities
- Swimming opportunities

MEDIUM PRIORITY REGIONAL NEEDS

- Cross-country ski trails
- Equestrian trails
- Picnic areas
- Handicapped access

LOWER PRIORITY REGIONAL NEEDS

- Golf courses
- Snowmobile trails
- Soccer fields
- Ice skating rinks

REGION 6

HIGH PRIORITY REGIONAL NEEDS

- Renovate and update existing facilities
- Development of additional motorized and nonmotorized trails
- Handicapped access
- Development of recreation activities for senior citizens
- Matching funds for small communities
- Campsites
- Fishing opportunities
- Hunting opportunities
- Swimming opportunities

MEDIUM PRIORITY REGIONAL NEEDS

- Boat ramps/access
- Cross-country ski trails
- Playgrounds/city parks
- Snowmobile trails

LOWER PRIORITY REGIONAL NEEDS

- Ice skating rinks
- Golf courses
- Baseball/softball fields
- Tennis courts

REGION 7

HIGH PRIORITY REGIONAL NEEDS

- Public education to help prevent vandalism
- Access to and facilities for Missouri River and surrounding lakes
- Development of youth programs including softball, playground equipment, basketball, tennis, etc.
- Access to and facilities for primitive and developed recreation areas
- Bicycle trails
- Fishing opportunities

MEDIUM PRIORITY REGIONAL NEEDS

- Cross-country ski trails
- Downhill ski areas
- Hiking/walking trails
- Hunting opportunities
- Playgrounds/city parks
- Handicapped access
- Snowmobile/ATV trails

LOWER PRIORITY REGIONAL NEEDS

- Baseball/softball fields
- Golf courses
- Equestrian trails
- Picnic areas

REGION 8

HIGH PRIORITY REGIONAL NEEDS

- All season multipurpose trails for snowmobiles, bicycling, hiking, walking, ATVs, etc.
- Maintenance of existing facilities
- Utilization of public land for recreation interests
- Development of water-based recreation facilities and areas
- Campsites
- Fishing opportunities

MEDIUM PRIORITY REGIONAL NEEDS

- Cross-country ski trails
- Downhill ski areas
- Hunting opportunities
- Playgrounds/city parks
- Handicapped access

LOWER PRIORITY REGIONAL NEEDS

- Baseball/softball fields
- Golf courses
- Equestrian trails
- Picnic areas

APPENDIX A

COVER LETTERS AND
QUESTIONNAIRES

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MORRILL HALL
P.O. BOX 5636

TELEPHONE 701-237-7441

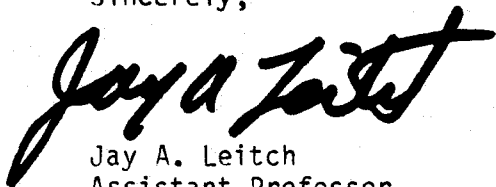
Dear Recreationist:

The North Dakota Parks and Recreation Department in cooperation with the Department of Agricultural Economics at North Dakota State University is conducting a study to determine the present and future adequacy of diversified outdoor recreation opportunities and experiences for North Dakota's residents. As a primary component of the Statewide Comprehensive Outdoor Recreation Plan, the study will also serve to point to the need for continuance of federal fund assistance for outdoor recreation in this state.

A major part of the study effort involves the selection of a number of families who are asked to complete the attached questionnaire. To insure that an adequate representation of the state's citizens are involved, both recreation participants and nonparticipants are asked to respond. Please complete the questionnaire at your earliest convenience--right now, if you can--and return it in the stamped, self-addressed envelope. The information you provide will be kept strictly confidential and used only to develop overall statistics.

Your cooperation in this survey is essential to ensure the optimum use of this state's recreational resources. Thank you for your assistance.

Sincerely,



Jay A. Leitch
Assistant Professor

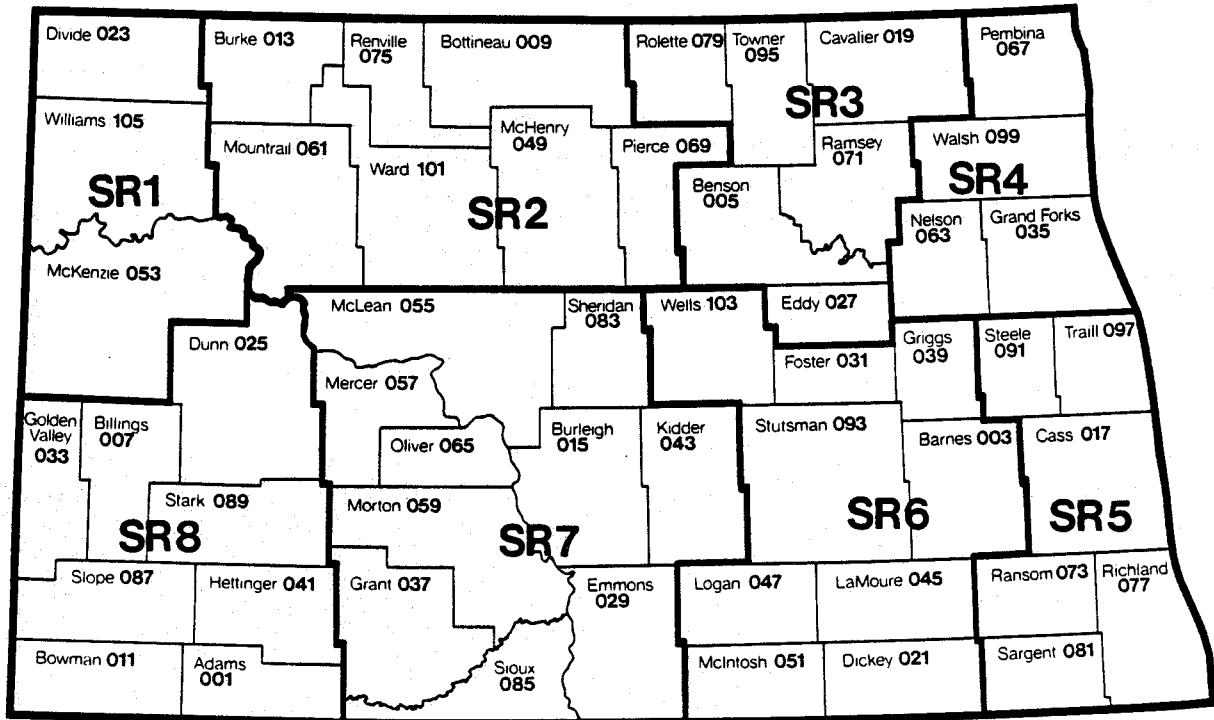


Doug Eiken, Director
Parks & Recreation Department

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NORTH DAKOTA OUTDOOR RECREATION SURVEY

A. On the map below, place an "X" on the county in which you live.



NORTH DAKOTA STATE PLANNING REGIONS

B. **SUMMER/FALL ACTIVITIES:** Under the section entitled household members, give the age and the sex of all members now residing in your household, starting with the head of the household as No. 1. Then, for the period May 1-November 30, 1984, provide an estimate of the number of days each household member participated in the activities listed and in which regions in North Dakota (from the map above) the activities occurred. Place a checkmark (✓) in the last column if any household member participated in any of the activities outside of North Dakota. Each day an activity is pursued, even if for only an hour, is considered a day.

EXAMPLE: The household is composed of a man (35 years old), his wife (32 years old) and son (10 years old). The family went camping at Medora, Region 8, for 3 days. On another trip, the family went camping to Devils Lake, Region 3, for 2 days. While there, the father and son fished both days. The family also camped out-of-state one weekend. These activities are reported below.

EXAMPLE

HOUSEHOLD MEMBERS

		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6+	OUT-OF-STATE ACTIVITY ✓
AGE		35	32	10				
SEX		(M)	F	(F)	(M)	F	M	
ACTIVITY	REGION	NUMBER OF ACTIVITY DAYS, MAY 1-NOVEMBER 30, 1984						
CAMPING	8	3	3	3				✓
	3	2	2	2				
FISHING	3	2		2				

C. What is your family's MOST IMPORTANT OUTDOOR recreation activity?

If your MOST IMPORTANT recreation activity was not available in North Dakota, what would you do with the additional time and money?

D. If new recreation areas were developed in North Dakota, or if present recreation areas were expanded, list those activities your household would most like to see developed or expanded.

E. **DEMOGRAPHIC INFORMATION:** The following information is needed to project recreation activity on a statewide basis. The information you provide will be aggregated for statistical purposes, assuring the confidentiality of your response. This is a very important part of the survey and your cooperation will be greatly appreciated.

1. What is your county of permanent residence? _____

2. Which of the following best describes the location of your residence?

- | | |
|---|--|
| <input type="checkbox"/> city over 50,000 | <input type="checkbox"/> farm or ranch |
| <input type="checkbox"/> city between 2,500 and 50,000 | <input type="checkbox"/> rural nonfarm |
| <input type="checkbox"/> community under 2,500 population | |

3. What is the employment status of the head of the household?

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> employed full time | <input type="checkbox"/> unemployed |
| <input type="checkbox"/> employed part time | <input type="checkbox"/> retired |

4. What is the primary occupation of each employed household member? Please list the number assigned each household member in section B beside the occupation most nearly describing his/her work.

- | | | |
|--|---|--|
| <input type="checkbox"/> professional (doctor, dentist, teacher, etc.) | <input type="checkbox"/> farmer, rancher | <input type="checkbox"/> housewife |
| <input type="checkbox"/> executive, manager, public official | <input type="checkbox"/> sales | <input type="checkbox"/> armed forces |
| <input type="checkbox"/> craftsman (carpenter, etc.) | <input type="checkbox"/> laborer | <input type="checkbox"/> student |
| <input type="checkbox"/> clerk, secretary | <input type="checkbox"/> truck, bus driver, other operative | <input type="checkbox"/> other (specify) |
| | <input type="checkbox"/> services | _____ |
| | | _____ |

5. Does the head of household receive an annual paid vacation? Yes No
If yes, how many paid vacation days per year? _____ If head of household is self-employed, how many vacation days are taken per year? _____

6. What is the marital status of head of household?
 married single

7. What is the highest year of education the head of household has completed?

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>	<u>21</u>	<u>22</u>
Grade School								High School				University, Business or Trade School				Graduate School					

8. INCOME: Please check the income category that includes your total family income before taxes and deductions (gross income).

<input type="checkbox"/> less than \$10,000	<input type="checkbox"/> \$20,000 - \$29,999
<input type="checkbox"/> \$10,000 - \$14,999	<input type="checkbox"/> \$30,000 - \$39,999
<input type="checkbox"/> \$15,000 - \$19,999	<input type="checkbox"/> \$40,000 and over

G. Do you have any suggestions or comments on how outdoor recreation can be improved in North Dakota?

Thank you!

North Dakota State University
OF AGRICULTURE AND APPLIED SCIENCE
FARGO, NORTH DAKOTA 58105

AGRICULTURAL ECONOMICS
MORRILL HALL
P.O. BOX 5636

TELEPHONE 701-237-7441

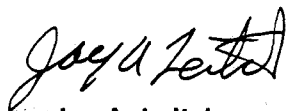
Dear North Dakota Resident:

The North Dakota Parks and Recreation Department in cooperation with the Department of Agricultural Economics at North Dakota State University is conducting a study to determine the present and future adequacy of outdoor recreation opportunities and experiences for North Dakota's residents. As a primary component of the Statewide Comprehensive Outdoor Recreation Plan, the study will also serve to point to the need for continuance of federal fund assistance for outdoor recreation in this state.

A major part of the study effort involves the selection of a number of families who are asked to complete the attached questionnaire. To insure that an adequate representation of the state's citizens are involved, **both recreation participants and nonparticipants are asked to respond**. Please complete the questionnaire at your earliest convenience—right now, if you can—and return it in the stamped, self-addressed envelope. The information you provide will be kept strictly confidential and used only to develop overall statistics.

Your cooperation in this survey is essential to ensure the optimum use of this state's recreational resources. Thank you for your assistance.

Sincerely,



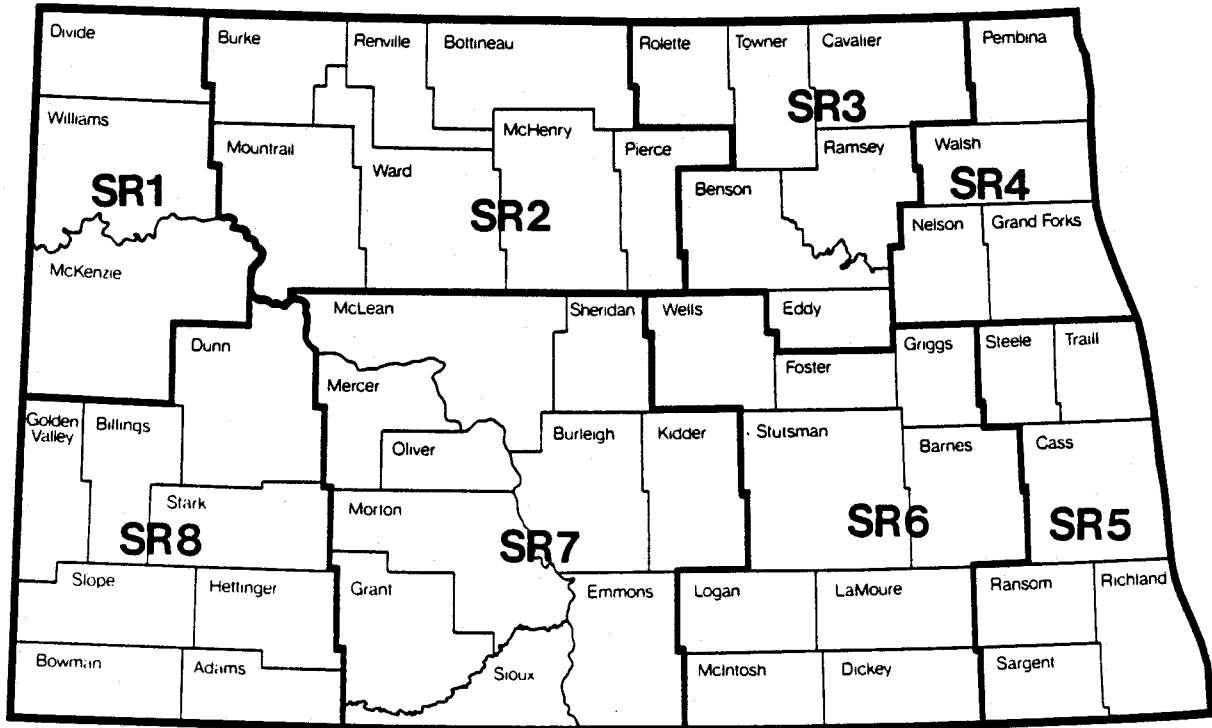
Jay A. Leitch
Assistant Professor



Doug Eiken, Director
Parks & Recreation Department

NORTH DAKOTA OUTDOOR RECREATION SURVEY

A. On the map below, place an "X" on the county in which you live.



NORTH DAKOTA STATE PLANNING REGIONS

NOTE: The following example is provided as a guide for completing the next two pages of the questionnaire.

EXAMPLE: The household is composed of a man (35 years old), his wife (32 years old) and son (10 years old). The family went cross-country skiing at Bottineau, Region 2, for 3 days. The family also went cross-country skiing out-of-state one weekend. On another trip, the father and son went ice fishing at Devils Lake, Region 3, for 2 days. These activities are reported below.

EXAMPLE

HOUSEHOLD MEMBERS

		No. 1	No. 2	No. 3	No. 4	No. 5	No. 6+	OUT-OF-STATE ACTIVITY ✓
AGE		35	32	10				
SEX		(M) F	M (F)	(M) F	M F	M F		
ACTIVITY	REGION	NUMBER OF ACTIVITY DAYS DEC 1, 1984 - APRIL 30, 1985						
CROSS-COUNTRY SKIING	2	3	3	3				✓
ICE FISHING	3	2		2				

HOUSEHOLD MEMBERS

ACTIVITY	REGION	HOUSEHOLD MEMBERS										OUT-OF-STATE ACTIVITY ✓	
		No. 1		No. 2		No. 3		No. 4		No. 5			No. 6+
		AGE	SEX	AGE	SEX	AGE	SEX	AGE	SEX	AGE	SEX		
		M	F	M	F	M	F	M	F	M	F		
		NUMBER OF ACTIVITY DAYS, DEC 1, 1984 - APRIL 30, 1985											
6. HOCKEY	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
7. HORSEBACK RIDING	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
8. ICE FISHING	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
9. ICE SKATING	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
10. JOGGING	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
11. NONGAME HUNTING (coyote, fox, etc.)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
12. SLEDDING	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
13. SNOWMOBILING	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
14. THREE-WHEELING	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
15. TRAPPING	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	
16. OTHER (explain)	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	

C. What is your family's MOST IMPORTANT OUTDOOR recreation activity?

If your MOST IMPORTANT recreation activity were not available in North Dakota, what would you do with the additional time and money?

D. If new recreation areas were developed in North Dakota, or if present recreation areas were expanded, list those activities your household would most like to see developed or expanded.

_____	_____
_____	_____
_____	_____
_____	_____

E. **DEMOGRAPHIC INFORMATION:** The following information is needed to project recreation activity on a statewide basis. The information you provide will be aggregated for statistical purposes, assuring the confidentiality of your response. This is a very important part of the survey and your cooperation will be greatly appreciated.

1. What is your county of permanent residence? _____

2. Which of the following best describes the location of your residence?

- | | |
|---|--|
| <input type="checkbox"/> city over 50,000 | <input type="checkbox"/> farm or ranch |
| <input type="checkbox"/> city between 2,500 and 50,000 | <input type="checkbox"/> rural nonfarm |
| <input type="checkbox"/> community under 2,500 population | |

3. What is the employment status of the head of the household?

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> employed full time | <input type="checkbox"/> unemployed |
| <input type="checkbox"/> employed part time | <input type="checkbox"/> retired |

4. What is the primary occupation of each employed household member? Please list the number assigned each household member in section B beside the occupation most nearly describing his/her work.

- | | | |
|--|---|--|
| <input type="checkbox"/> professional (doctor, dentist, teacher, etc.) | <input type="checkbox"/> farmer, rancher | <input type="checkbox"/> housewife |
| <input type="checkbox"/> executive, manager, public official | <input type="checkbox"/> sales | <input type="checkbox"/> armed forces |
| <input type="checkbox"/> craftsman (carpenter, etc.) | <input type="checkbox"/> laborer | <input type="checkbox"/> student |
| <input type="checkbox"/> clerk, secretary | <input type="checkbox"/> truck, bus driver, other operative | <input type="checkbox"/> other (specify) |
| | <input type="checkbox"/> services | _____ |
| | | _____ |

5. Does the head of household receive an annual paid vacation? Yes No
If yes, how many paid vacation days per year? _____ If head of household is self-employed, how many vacation days are taken per year? _____

6. What is the marital status of head of household?
 married single

7. What is the highest year of education the head of household has completed?

<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>19</u>	<u>20</u>
Grade School								High School				University, Business or Trade School				Graduate School			

8. INCOME: Please check the income category that includes your total income before taxes and deductions (gross income).

<input type="checkbox"/> less than \$10,000	<input type="checkbox"/> \$20,000 - \$29,999
<input type="checkbox"/> \$10,000 - \$14,999	<input type="checkbox"/> \$30,000 - \$39,999
<input type="checkbox"/> \$15,000 - \$19,999	<input type="checkbox"/> \$40,000 and over

G. Do you have any suggestions or comments on how outdoor recreation can be improved in North Dakota?

Thank you!

APPENDIX B

PROJECTED NUMBER OF PARTICIPANTS
AND TOTAL DAYS OF PARTICIPATION, BY REGION
OF RESIDENCE, 1985, 1990, 1995, AND 2000

APPENDIX TABLE B-1. PROJECTED NUMBER OF PARTICIPANTS FROM REGION 1, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participants -----			
Upland Game Hunting	6,635	6,966	7,018	6,999
Waterfowl Hunting	3,092	3,234	3,260	3,279
Big Game Hunting	5,743	6,022	6,097	6,175
Nongame Hunting	2,626	2,785	2,813	2,765
Fishing	14,600	15,370	15,637	15,762
Powerboating/Waterskiing	9,491	9,970	10,113	10,219
Canoeing	1,966	2,084	2,109	2,085
Sailing	496	526	530	520
Camping	10,489	11,015	11,234	11,431
Picnicking	13,093	13,806	14,022	14,043
Beach Swimming	12,559	13,369	13,610	13,454
Pool Swimming	9,667	10,378	10,601	10,352
Bicycling	6,865	7,323	7,475	7,389
Three-Wheeling	2,068	2,209	2,249	2,207
Hiking/Walking	9,742	10,279	10,447	10,483
Jogging	1,782	1,896	1,921	1,888
Horseback Riding	1,360	1,445	1,456	1,423
Golf	4,461	4,640	4,653	4,689
Tennis	692	730	724	702
Baseball/Softball	5,594	5,944	5,989	5,846
Soccer	0	0	0	0
Visiting Historical Places	9,407	9,920	10,051	10,028
Cross-Country Skiing	1,139	1,175	1,178	1,217
Downhill Skiing	685	720	720	693
Hockey	667	706	685	685
Ice Fishing	5,543	5,806	5,885	5,964
Ice Skating	3,867	4,065	4,102	4,115
Sledding	5,105	5,501	5,670	5,571
Snowmobiling	1,486	1,580	1,636	1,665
Trapping	464	484	473	458

APPENDIX TABLE B-2. PROJECTED TOTAL DAYS OF PARTICIPATION BY RESIDENTS FROM REGION 1, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	48,555	51,054	51,525	51,412
Waterfowl Hunting	15,149	15,742	15,631	15,427
Big Game Hunting	34,420	35,912	36,206	36,812
Nongame Hunting	17,122	18,047	18,284	18,316
Fishing	146,840	153,810	156,480	158,839
Powerboating/Waterskiing	78,433	82,350	83,703	84,936
Canoeing	5,822	6,182	6,244	6,142
Sailing	2,457	2,581	2,554	2,486
Camping	111,852	116,841	118,843	121,185
Picnicking	62,837	66,200	67,057	66,833
Beach Swimming	97,158	103,601	105,424	103,825
Pool Swimming	91,954	99,035	101,595	99,188
Bicycling	172,032	186,128	192,216	187,560
Three-Wheeling	57,649	62,492	64,593	62,906
Hiking/Walking	203,270	213,510	215,910	215,457
Jogging	77,954	83,441	84,691	82,286
Horseback Riding	23,428	24,625	24,510	24,109
Golf	67,964	69,871	69,873	71,452
Tennis	11,156	11,673	11,462	11,108
Baseball/Softball	121,936	129,198	129,635	126,563
Soccer	0	0	0	0
Visiting Historical Places	42,639	44,893	45,750	46,341
Cross-Country Skiing	3,823	3,969	3,990	4,097
Downhill Skiing	888	942	952	919
Hockey	25,748	27,113	26,872	26,055
Ice Fishing	53,092	55,828	56,580	57,081
Ice Skating	44,257	46,998	47,606	46,948
Sledding	20,986	22,796	23,692	23,184
Snowmobiling	15,876	17,087	17,634	17,436
Trapping	9,745	10,164	9,933	9,624

APPENDIX TABLE B-3. PROJECTED NUMBER OF PARTICIPANTS FROM REGION 2, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participants -----			
Upland Game Hunting	17,322	18,355	19,197	19,772
Waterfowl Hunting	15,141	16,010	16,759	17,299
Big Game Hunting	14,898	15,779	16,522	17,142
Nongame Hunting	9,366	9,936	10,396	10,734
Fishing	46,231	48,927	51,141	52,327
Powerboating/Waterskiing	23,064	24,453	25,588	26,167
Canoeing	5,401	5,715	6,003	6,235
Sailing	1,061	1,117	1,198	1,297
Camping	38,182	40,388	42,295	43,470
Picnicking	43,030	45,575	47,722	48,771
Beach Swimming	39,249	41,721	43,680	44,333
Pool Swimming	24,478	26,155	27,412	27,386
Bicycling	24,597	26,191	27,539	27,978
Three-Wheeling	7,483	7,974	8,336	8,429
Hiking/Walking	28,773	30,382	31,749	32,654
Jogging	7,963	8,467	8,815	8,953
Horseback Riding	8,057	8,593	8,984	9,026
Golf	13,736	14,500	15,111	15,445
Tennis	7,300	7,769	8,145	8,268
Baseball/Softball	14,219	15,124	15,771	15,872
Soccer	1,374	1,475	1,568	1,553
Visiting Historical Places	31,581	33,391	34,991	35,932
Cross-Country Skiing	6,617	7,021	7,346	7,441
Downhill Skiing	6,120	6,538	6,833	6,847
Hockey	2,108	2,257	2,381	2,365
Ice Fishing	18,368	19,287	20,038	20,383
Ice Skating	9,718	10,370	10,933	11,005
Sledding	14,275	15,232	15,983	15,886
Snowmobiling	14,310	15,196	15,874	16,103
Trapping	1,024	1,047	1,075	1,118

APPENDIX TABLE B-4. PROJECTED TOTAL DAYS OF PARTICIPATION BY RESIDENTS FROM REGION 2, BY ACTIVITY, 1985, 1990, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	106,445	112,721	118,167	122,535
Waterfowl Hunting	120,054	126,364	131,829	136,474
Big Game Hunting	64,219	68,021	70,931	73,317
Nongame Hunting	70,110	74,314	78,111	81,269
Fishing	468,256	494,332	518,909	539,095
Powerboating/Waterskiing	331,723	350,884	367,646	376,810
Canoeing	32,157	34,019	35,699	37,155
Sailing	10,756	11,276	12,224	13,496
Camping	350,362	370,524	388,562	401,276
Picnicking	233,026	246,802	257,863	263,258
Beach Swimming	366,647	388,288	407,272	415,555
Pool Swimming	276,530	296,129	312,323	310,576
Bicycling	812,316	868,413	917,057	918,978
Three-Wheeling	145,695	155,236	161,931	163,654
Hiking/Walking	635,323	666,555	695,652	722,603
Jogging	206,825	219,254	228,106	234,876
Horseback Riding	56,508	59,985	62,145	63,246
Golf	226,894	235,882	241,613	244,532
Tennis	52,698	55,832	59,208	61,702
Baseball/Softball	296,191	315,397	329,913	333,465
Soccer	18,072	19,410	20,636	20,440
Visiting Historical Places	110,240	116,646	122,060	125,479
Cross-Country Skiing	29,395	31,184	32,437	33,089
Downhill Skiing	30,548	32,713	34,492	34,317
Hockey	70,708	75,930	80,676	79,937
Ice Fishing	95,292	99,911	103,091	104,785
Ice Skating	46,217	49,417	52,325	52,435
Sledding	94,581	101,158	106,467	105,784
Snowmobiling	145,059	154,356	160,381	160,889
Trapping	8,298	8,350	8,549	8,912

APPENDIX TABLE B-5. PROJECTED NUMBER OF PARTICIPANTS FROM REGION 3, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participants -----			
Upland Game Hunting	6,325	6,802	7,162	7,514
Waterfowl Hunting	7,381	7,965	8,372	8,730
Big Game Hunting	8,322	8,894	9,418	9,874
Nongame Hunting	4,564	4,954	5,264	5,501
Fishing	20,550	21,787	22,981	23,800
Powerboating/Waterskiing	12,446	13,522	14,390	14,969
Canoeing	3,250	3,570	3,831	3,972
Sailing	1,523	1,646	1,756	1,832
Camping	15,479	16,497	17,457	18,058
Picnicking	22,823	24,485	25,968	26,886
Beach Swimming	16,112	17,517	18,846	19,554
Pool Swimming	13,708	14,746	16,059	16,636
Bicycling	12,947	14,092	15,088	15,672
Three-Wheeling	5,172	5,617	6,024	6,238
Hiking/Walking	14,688	15,704	16,494	17,018
Jogging	4,888	5,320	5,691	5,929
Horseback Riding	5,531	6,021	6,511	6,742
Golf	5,708	6,017	6,251	6,442
Tennis	3,324	3,608	3,860	4,018
Baseball/Softball	4,276	4,720	5,031	5,242
Soccer	324	348	388	402
Visiting Historical Places	16,353	17,350	18,329	18,908
Cross-Country Skiing	2,754	3,011	3,236	3,366
Downhill Skiing	1,627	1,786	1,917	1,987
Hockey	3,510	3,743	4,037	4,147
Ice Fishing	13,228	14,147	15,004	15,658
Ice Skating	5,410	5,888	6,406	6,630
Sledding	5,416	5,857	6,345	6,574
Snowmobiling	9,052	9,820	10,546	10,986
Trapping	2,751	3,034	3,259	3,394

APPENDIX TABLE B-6. PROJECTED TOTAL DAYS OF PARTICIPATION BY RESIDENTS FROM REGION 3, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	44,353	47,357	50,088	52,550
Waterfowl Hunting	63,986	69,181	72,670	76,129
Big Game Hunting	46,400	49,880	52,688	55,251
Nongame Hunting	41,515	45,867	48,322	50,491
Fishing	217,550	230,885	241,241	250,188
Powerboating/Waterskiing	171,908	187,700	198,871	207,566
Canoeing	10,203	11,357	12,024	12,520
Sailing	4,906	5,352	5,694	5,942
Camping	125,291	133,962	141,638	146,392
Picnicking	102,380	111,189	118,261	122,809
Beach Swimming	88,984	97,277	103,997	108,180
Pool Swimming	200,390	215,056	236,281	244,217
Bicycling	284,841	309,934	333,714	346,667
Three-Wheeling	60,851	66,257	72,053	74,821
Hiking/Walking	428,752	448,931	463,444	470,777
Jogging	108,933	118,258	125,895	131,677
Horseback Riding	60,089	65,210	70,899	73,244
Golf	128,724	132,198	135,452	138,147
Tennis	34,511	37,266	39,776	41,557
Baseball/Softball	109,491	120,585	129,140	134,503
Soccer	1,132	1,219	1,358	1,408
Visiting Historical Places	53,834	57,102	60,737	62,826
Cross-Country Skiing	21,042	23,448	24,843	25,931
Downhill Skiing	4,126	4,539	4,856	5,036
Hockey	50,421	54,457	59,934	62,123
Ice Fishing	118,811	128,029	134,191	139,986
Ice Skating	60,231	65,211	71,709	74,266
Sledding	36,185	39,393	42,822	44,392
Snowmobiling	158,504	174,117	186,979	194,730
Trapping	22,042	24,501	25,988	27,099

APPENDIX TABLE B-7. PROJECTED NUMBER OF PARTICIPANTS FROM REGION 4, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participants -----			
Upland Game Hunting	10,327	11,013	11,410	11,518
Waterfowl Hunting	11,393	12,156	12,588	12,655
Big Game Hunting	11,973	12,732	13,195	13,425
Nongame Hunting	5,018	5,326	5,489	5,515
Fishing	31,810	34,173	35,633	35,882
Powerboating/Waterskiing	15,405	16,670	17,269	16,935
Canoeing	5,455	5,878	6,094	6,050
Sailing	273	281	304	344
Camping	26,763	28,820	30,015	30,046
Picnicking	39,497	42,573	44,467	44,782
Beach Swimming	24,388	26,466	27,508	27,050
Pool Swimming	26,695	29,119	30,306	29,628
Bicycling	31,352	33,867	35,228	35,063
Three-Wheeling	4,931	5,335	5,532	5,398
Hiking/Walking	24,054	25,818	27,004	27,467
Jogging	8,345	8,927	9,206	9,148
Horseback Riding	7,062	7,687	7,996	7,829
Golf	12,451	13,319	13,922	14,215
Tennis	7,895	8,507	8,819	8,742
Baseball/Softball	13,942	15,040	15,529	15,237
Soccer	630	696	727	701
Visiting Historical Places	26,188	28,101	29,390	29,801
Cross-Country Skiing	6,656	7,082	7,393	7,663
Downhill Skiing	1,850	1,997	2,058	2,016
Hockey	9,651	10,461	10,903	10,795
Ice Fishing	5,906	6,335	6,669	6,939
Ice Skating	13,322	14,515	15,189	15,036
Sledding	15,610	17,039	17,735	17,272
Snowmobiling	12,576	13,641	14,303	14,362
Trapping	1,195	1,284	1,320	1,282

APPENDIX TABLE B-8. PROJECTED TOTAL DAYS OF PARTICIPATION BY RESIDENTS FROM REGION 4, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	66,286	70,850	73,267	73,334
Waterfowl Hunting	81,954	87,906	91,111	90,979
Big Game Hunting	83,241	88,993	92,712	94,298
Nongame Hunting	28,614	30,534	31,527	31,507
Fishing	285,202	306,428	319,907	323,487
Powerboating/Waterskiing	92,659	100,274	103,932	102,177
Canoeing	30,042	32,450	33,773	33,723
Sailing	820	854	947	1,121
Camping	189,271	204,394	212,565	211,644
Picnicking	212,326	229,159	238,640	238,626
Beach Swimming	164,312	178,888	185,863	181,606
Pool Swimming	326,021	357,178	373,449	365,032
Bicycling	723,598	783,913	814,626	801,679
Three-Wheeling	69,397	76,731	80,436	77,313
Hiking/Walking	471,500	501,675	525,912	545,383
Jogging	288,205	306,609	314,020	310,794
Horseback Riding	41,960	45,349	46,961	46,292
Golf	183,319	195,761	207,213	218,121
Tennis	61,896	66,496	68,696	67,922
Baseball/Softball	233,617	251,730	259,085	252,242
Soccer	5,588	6,227	6,547	6,244
Visiting Historical Places	122,123	130,638	136,659	139,920
Cross-Country Skiing	31,697	33,812	35,546	37,017
Downhill Skiing	3,445	3,726	3,844	3,764
Hockey	214,877	234,156	245,262	243,129
Ice Fishing	23,960	25,514	26,874	28,396
Ice Skating	174,617	190,816	199,871	197,298
Sledding	80,929	88,652	92,468	89,796
Snowmobiling	183,016	198,325	207,577	208,458
Trapping	17,168	18,654	19,307	18,664

APPENDIX TABLE B-9. PROJECTED NUMBER OF PARTICIPANTS FROM REGION 5, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participants -----			
Upland Game Hunting	17,607	19,006	19,815	20,491
Waterfowl Hunting	11,603	12,520	13,009	13,390
Big Game Hunting	17,777	19,145	20,048	21,065
Nongame Hunting	7,038	7,623	7,926	8,140
Fishing	31,210	34,028	35,685	36,558
Powerboating/Waterskiing	10,243	11,165	11,627	11,817
Canoeing	4,403	4,790	4,976	5,064
Sailing	1,920	2,105	2,204	2,242
Camping	25,424	27,661	28,948	29,678
Picnicking	39,484	43,029	45,192	46,532
Beach Swimming	19,466	21,464	22,444	22,496
Pool Swimming	43,994	48,717	51,022	50,812
Bicycling	59,111	64,875	67,890	68,664
Three-Wheeling	6,833	7,542	7,896	7,916
Hiking/Walking	39,605	42,988	45,053	46,534
Jogging	12,420	13,529	14,058	14,244
Horseback Riding	8,402	9,205	9,619	9,709
Golf	20,858	22,498	23,552	24,536
Tennis	13,462	14,725	15,279	15,318
Baseball/Softball	20,194	22,166	23,034	22,953
Soccer	3,245	3,619	3,794	3,741
Visiting Historical Places	31,698	34,401	36,118	37,431
Cross-Country Skiing	10,127	10,985	11,545	12,053
Downhill Skiing	1,230	1,339	1,421	1,498
Hockey	4,758	5,245	5,483	5,504
Ice Fishing	8,019	8,690	9,144	9,532
Ice Skating	16,199	17,979	18,832	18,634
Sledding	17,494	19,367	20,210	20,013
Snowmobiling	11,376	12,464	13,006	13,122
Trapping	1,573	1,736	1,809	1,780

APPENDIX TABLE B-10. PROJECTED TOTAL DAYS OF PARTICIPATION BY RESIDENTS FROM REGION 5, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	101,766	109,795	114,646	119,230
Waterfowl Hunting	83,119	89,563	93,303	96,595
Big Game Hunting	87,545	94,197	98,385	102,985
Nongame Hunting	55,681	60,272	62,779	64,756
Fishing	241,604	262,662	275,632	284,869
Powerboating/Waterskiing	37,279	40,586	42,171	42,817
Canoeing	16,266	17,669	18,216	18,323
Sailing	4,410	4,796	4,961	5,007
Camping	145,818	158,274	165,495	169,408
Picnicking	193,337	210,575	220,449	225,671
Beach Swimming	82,665	90,832	94,604	94,802
Pool Swimming	731,675	816,882	861,101	855,616
Bicycling	1,509,832	1,672,826	1,760,159	1,767,623
Three-Wheeling	165,075	182,662	190,696	189,181
Hiking/Walking	1,061,559	1,144,510	1,201,534	1,252,742
Jogging	330,834	357,796	371,179	380,297
Horseback Riding	54,904	60,304	62,699	62,490
Golf	311,305	332,704	351,989	378,438
Tennis	155,084	170,438	176,968	175,918
Baseball/Softball	392,745	433,989	452,376	448,565
Soccer	52,152	57,961	60,622	59,978
Visiting Historical Places	103,330	112,030	117,545	121,645
Cross-Country Skiing	50,507	55,032	57,488	58,898
Downhill Skiing	2,702	2,959	3,167	3,354
Hockey	94,465	105,766	111,226	109,758
Ice Fishing	95,819	105,560	110,886	111,812
Ice Skating	126,584	141,117	148,107	146,174
Sledding	133,451	149,366	157,049	154,343
Snowmobiling	49,716	54,586	57,062	57,562
Trapping	40,798	44,882	46,491	45,948

APPENDIX TABLE B-11. PROJECTED NUMBER OF PARTICIPANTS FROM REGION 6, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participants -----			
Upland Game Hunting	12,306	12,986	13,527	13,936
Waterfowl Hunting	10,817	11,425	11,892	12,200
Big Game Hunting	12,643	13,348	13,858	14,378
Nongame Hunting	7,579	8,096	8,485	8,711
Fishing	31,595	33,161	34,566	35,401
Powerboating/Waterskiing	16,762	17,977	18,910	19,370
Canoeing	4,525	4,865	5,125	5,251
Sailing	877	934	990	1,014
Camping	24,676	26,145	27,396	28,038
Picnicking	37,570	39,481	41,151	42,108
Beach Swimming	23,854	25,645	27,213	27,735
Pool Swimming	20,711	22,316	23,753	24,110
Bicycling	20,953	22,329	23,492	24,001
Three-Wheeling	5,582	5,966	6,299	6,415
Hiking/Walking	22,652	23,800	24,802	25,422
Jogging	5,219	5,632	5,937	6,075
Horseback Riding	4,994	5,351	5,645	5,794
Golf	9,345	9,899	10,318	10,648
Tennis	3,800	4,125	4,341	4,444
Baseball/Softball	8,893	9,524	10,049	10,254
Soccer	867	935	1,001	1,013
Visiting Historical Places	23,742	25,056	26,156	26,768
Cross-Country Skiing	3,324	3,537	3,705	3,823
Downhill Skiing	1,605	1,681	1,764	1,831
Hockey	1,699	1,837	1,958	1,988
Ice Fishing	15,525	16,343	17,080	17,636
Ice Skating	10,245	10,996	11,748	11,904
Sledding	10,440	11,231	12,029	12,163
Snowmobiling	11,239	12,002	12,707	13,003
Trapping	1,814	1,945	2,043	2,101

APPENDIX TABLE B-12. PROJECTED TOTAL DAYS OF PARTICIPATION BY RESIDENTS FROM REGION 6, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	109,108	115,828	121,044	124,989
Waterfowl Hunting	91,772	97,598	101,973	105,013
Big Game Hunting	70,817	75,107	78,005	80,709
Nongame Hunting	72,751	78,493	82,301	84,313
Fishing	286,212	300,281	313,233	323,030
Powerboating/Waterskiing	103,960	111,534	117,446	120,365
Canoeing	10,503	11,270	11,813	12,134
Sailing	2,649	2,851	3,029	3,086
Camping	189,129	200,661	210,321	216,582
Picnicking	180,194	190,779	199,488	204,311
Beach Swimming	182,475	196,381	208,864	212,423
Pool Swimming	264,899	284,067	303,234	307,328
Bicycling	549,120	585,069	619,289	627,085
Three-Wheeling	80,654	85,806	90,543	92,766
Hiking/Walking	570,475	591,936	613,379	626,674
Jogging	164,494	176,690	186,660	191,056
Horseback Riding	66,998	71,576	75,465	77,479
Golf	154,090	161,676	166,824	169,792
Tennis	40,555	43,213	45,530	46,882
Baseball/Softball	155,428	166,741	175,903	179,819
Soccer	10,336	11,129	11,953	12,075
Visiting Historical Places	69,964	73,355	76,269	78,434
Cross-Country Skiing	11,998	12,816	13,374	13,850
Downhill Skiing	7,852	8,237	8,603	8,966
Hockey	15,344	16,586	17,714	17,965
Ice Fishing	121,108	125,595	130,679	136,046
Ice Skating	85,659	91,992	98,814	99,671
Sledding	78,421	84,335	90,487	91,373
Snowmobiling	84,393	90,358	96,210	97,915
Trapping	42,621	44,537	46,261	48,504

APPENDIX TABLE B-13. PROJECTED NUMBER OF PARTICIPANTS FROM REGION 7, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participants -----			
Upland Game Hunting	30,286	32,056	33,884	35,553
Waterfowl Hunting	17,240	18,246	19,297	20,231
Big Game Hunting	18,788	19,930	21,030	22,259
Nongame Hunting	10,277	10,897	11,494	12,035
Fishing	70,394	74,391	79,039	82,962
Powerboating/Waterskiing	38,682	40,962	43,406	45,355
Canoeing	12,535	13,277	14,006	14,446
Sailing	4,157	4,402	4,659	4,865
Camping	64,951	68,703	72,786	75,718
Picnicking	69,585	73,575	78,142	81,699
Beach Swimming	53,125	56,246	59,440	61,287
Pool Swimming	40,773	43,094	45,634	46,582
Bicycling	43,726	46,233	48,953	50,498
Three-Wheeling	8,971	9,498	10,058	10,416
Hiking/Walking	46,457	49,067	52,287	55,324
Jogging	11,894	12,612	13,281	13,717
Horseback Riding	15,336	16,247	17,141	17,607
Golf	16,034	16,967	17,954	18,816
Tennis	11,862	12,550	13,240	13,523
Baseball/Softball	18,565	19,678	20,737	21,375
Soccer	4,982	5,265	5,575	5,709
Visiting Historical Places	56,169	59,276	63,147	66,367
Cross-Country Skiing	5,580	5,918	6,243	6,583
Downhill Skiing	1,825	1,941	2,014	2,071
Hockey	2,773	2,933	3,097	3,169
Ice Fishing	18,674	19,745	20,829	21,710
Ice Skating	16,437	17,392	18,372	18,703
Sledding	29,091	30,755	32,529	33,134
Snowmobiling	13,514	14,331	15,078	15,509
Trapping	1,642	1,756	1,818	1,894

APPENDIX TABLE B-14. PROJECTED TOTAL DAYS OF PARTICIPATION BY RESIDENTS FROM REGION 7, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	203,281	215,180	227,579	240,170
Waterfowl Hunting	104,276	110,395	117,239	124,437
Big Game Hunting	94,824	100,532	106,103	111,705
Nongame Hunting	67,632	71,830	75,387	78,635
Fishing	790,787	832,374	888,538	944,558
Powerboating/Waterskiing	348,103	367,880	393,068	419,010
Canoeing	48,926	51,785	54,718	56,956
Sailing	17,574	18,549	19,821	20,957
Camping	530,931	560,877	595,775	624,935
Picnicking	401,475	424,586	499,915	468,714
Beach Swimming	457,110	483,629	512,765	532,634
Pool Swimming	603,890	636,350	676,504	686,058
Bicycling	1,106,396	1,164,847	1,242,181	1,279,045
Three-Wheeling	105,538	111,059	119,340	126,126
Hiking/Walking	1,134,438	1,194,668	1,281,527	1,373,159
Jogging	379,426	401,603	424,086	439,472
Horseback Riding	182,928	193,295	204,566	209,384
Golf	238,095	251,379	266,702	281,808
Tennis	120,277	127,043	134,585	137,147
Baseball/Softball	414,523	439,583	462,253	474,040
Soccer	59,191	62,369	66,342	67,308
Visiting Historical Places	209,655	221,118	235,492	247,161
Cross-Country Skiing	23,539	24,963	26,364	27,663
Downhill Skiing	2,700	2,855	2,963	3,043
Hockey	46,841	49,323	52,457	53,061
Ice Fishing	136,819	144,422	151,874	158,224
Ice Skating	97,844	103,284	109,515	111,193
Sledding	202,566	213,335	226,937	229,524
Snowmobiling	101,697	107,399	113,298	115,735
Trapping	37,288	39,885	40,971	42,158

APPENDIX TABLE B-15. PROJECTED NUMBER OF PARTICIPANTS FROM REGION 8, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participants -----			
Upland Game Hunting	11,028	11,456	11,563	11,447
Waterfowl Hunting	2,092	2,155	2,175	2,204
Big Game Hunting	5,486	5,676	5,633	5,586
Nongame Hunting	3,937	4,074	4,068	4,020
Fishing	19,444	20,064	20,283	20,192
Powerboating/Waterskiing	7,917	8,242	8,322	8,192
Canoeing	2,587	2,657	2,658	2,613
Sailing	130	136	133	129
Camping	20,486	21,145	21,409	21,286
Picnicking	19,510	20,015	20,224	20,115
Beach Swimming	17,152	17,834	18,146	17,900
Pool Swimming	13,284	13,811	14,178	13,911
Bicycling	12,149	12,568	12,854	12,750
Three-Wheeling	4,683	4,838	4,864	4,761
Hiking/Walking	13,648	13,928	14,024	14,011
Jogging	3,420	3,515	3,524	3,473
Horseback Riding	5,728	5,904	5,952	5,888
Golf	2,423	2,478	2,453	2,457
Tennis	1,659	1,713	1,701	1,697
Baseball/Softball	7,139	7,427	7,546	7,429
Soccer	0	0	0	0
Visiting Historical Places	21,953	22,957	22,864	22,704
Cross-Country Skiing	1,435	1,516	1,511	1,492
Downhill Skiing	306	320	327	322
Hockey	144	153	152	152
Ice Fishing	5,129	5,280	5,354	5,334
Ice Skating	3,725	3,877	3,975	3,902
Sledding	6,359	6,646	6,893	6,735
Snowmobiling	7,643	7,937	8,114	8,036
Trapping	1,314	1,369	1,429	1,414

APPENDIX TABLE B-16. PROJECTED TOTAL DAYS OF PARTICIPATION BY RESIDENTS FROM REGION 8, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	74,698	77,524	77,928	77,033
Waterfowl Hunting	5,407	5,541	5,592	5,743
Big Game Hunting	26,500	27,276	27,118	27,311
Nongame Hunting	61,900	62,966	62,374	60,354
Fishing	180,436	186,286	187,969	188,000
Powerboating/Waterskiing	70,217	73,220	73,857	72,726
Canoeing	5,099	5,218	5,199	5,116
Sailing	651	679	663	646
Camping	172,364	177,588	179,642	179,451
Picnicking	115,171	118,400	119,569	118,675
Beach Swimming	137,571	143,510	145,889	143,661
Pool Swimming	178,802	186,199	193,180	188,680
Bicycling	417,571	434,550	447,760	439,458
Three-Wheeling	76,840	79,554	79,996	78,182
Hiking/Walking	473,248	475,922	473,526	472,501
Jogging	121,525	122,509	121,607	119,838
Horseback Riding	80,529	81,173	81,047	80,033
Golf	55,011	55,553	54,835	55,000
Tennis	7,561	7,823	7,698	7,608
Baseball/Softball	145,695	151,936	154,353	151,765
Soccer	0	0	0	0
Visiting Historical Places	77,831	80,295	80,953	80,176
Cross-Country Skiing	6,319	6,650	6,704	6,586
Downhill Skiing	918	961	980	965
Hockey	144	153	152	152
Ice Fishing	18,321	18,892	19,257	19,064
Ice Skating	20,110	20,971	21,792	21,302
Sledding	50,887	52,927	55,174	53,788
Snowmobiling	53,795	56,223	57,668	56,607
Trapping	62,350	65,224	68,314	67,078

APPENDIX TABLE B-17. PROJECTED NUMBER OF PARTICIPANTS FROM NORTH DAKOTA, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participants -----			
Upland Game Hunting	111,836	118,640	123,576	127,230
Waterfowl Hunting	77,769	83,711	87,352	89,988
Big Game Hunting	95,630	101,526	105,801	109,904
Nongame Hunting	50,405	53,691	55,935	57,421
Fishing	265,834	281,901	294,965	302,884
Powerboating/Waterskiing	134,010	142,961	149,625	153,024
Canoeing	40,122	42,836	44,802	45,716
Sailing	10,437	11,147	11,774	12,243
Camping	226,450	240,314	251,540	257,725
Picnicking	284,592	302,539	316,888	324,936
Beach Swimming	205,905	220,262	230,887	233,809
Pool Swimming	193,310	211,336	218,965	219,417
Bicycling	211,700	227,478	238,519	242,015
Three-Wheeling	45,723	48,979	51,258	51,780
Hiking/Walking	119,619	211,966	221,860	228,913
Jogging	55,931	59,898	62,433	63,427
Horseback Riding	56,470	60,453	63,304	64,018
Golf	85,016	90,318	94,214	97,248
Tennis	49,994	53,727	56,109	56,712
Baseball/Softball	92,822	99,623	203,309	104,208
Soccer	11,422	12,338	13,053	13,119
Visiting Historical Places	217,091	230,452	241,046	247,939
Cross-Country Skiing	37,632	40,245	42,157	42,146
Downhill Skiing	15,248	16,322	17,054	17,265
Hockey	25,310	27,335	28,696	28,805
Ice Fishing	90,392	95,633	100,003	103,156
Ice Skating	78,923	85,082	89,557	89,929
Sledding	103,790	111,628	117,394	117,348
Snowmobiling	81,196	86,971	91,264	92,786
Trapping	11,777	12,655	13,226	13,441

APPENDIX TABLE B-18. PROJECTED TOTAL DAYS OF PARTICIPATION BY NORTH DAKOTA RESIDENTS, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	754,492	800,309	834,244	861,253
Waterfowl Hunting	565,717	602,290	629,348	650,797
Big Game Hunting	507,966	539,918	562,148	582,388
Nongame Hunting	415,325	442,323	459,085	469,641
Fishing	2,616,887	2,767,058	2,901,909	3,012,166
Powerboating/Waterskiing	1,234,282	1,314,428	1,380,694	1,426,407
Canoeing	159,018	169,950	177,686	182,069
Sailing	44,223	46,938	49,893	52,741
Camping	1,815,018	1,923,121	2,012,841	2,070,873
Picnicking	1,500,746	1,597,690	1,721,242	1,708,897
Beach Swimming	1,576,922	1,682,406	1,764,678	1,792,686
Pool Swimming	2,674,161	2,890,896	3,057,667	3,056,695
Bicycling	5,575,706	6,005,580	6,327,002	6,368,095
Three-Wheeling	761,699	819,797	859,588	864,949
Hiking/Walking	4,978,565	5,237,707	5,470,884	5,679,296
Jogging	1,678,196	1,786,160	1,856,244	1,890,296
Horseback Riding	567,344	601,517	628,292	636,277
Golf	1,365,402	1,435,024	1,494,501	1,557,290
Tennis	483,738	519,784	543,923	549,844
Baseball/Softball	1,869,626	2,009,159	2,092,658	2,100,962
Soccer	146,471	158,315	167,458	167,453
Visiting Historical Places	789,616	836,077	875,465	901,982
Cross-Country Skiing	178,320	191,874	200,746	207,131
Downhill Skiing	52,379	56,932	59,857	60,364
Hockey	518,548	563,484	594,293	592,180
Ice Fishing	663,222	703,751	733,432	755,394
Ice Skating	665,519	709,806	749,739	749,287
Sledding	698,006	751,962	795,096	792,184
Snowmobiling	792,056	852,998	976,809	909,332
Trapping	240,310	256,197	265,814	267,987

APPENDIX C

TOTAL NUMBER OF DAYS OF PARTICIPATION
OCCURRING BY REGION, BY ACTIVITY,
1985, 1990, 1995, AND 2000

APPENDIX TABLE C-1. PROJECTED TOTAL DAYS OF PARTICIPATION OCCURRING IN REGION 1, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	55,334	58,894	61,550	63,487
Waterfowl Hunting	17,162	18,002	18,923	20,215
Big Game Hunting	46,887	49,631	51,964	54,899
Nongame Hunting	20,511	21,677	22,911	24,418
Fishing	141,211	148,927	156,028	162,371
Powerboating/Waterskiing	74,427	78,835	83,147	87,303
Canoeing	5,342	5,744	5,973	6,004
Sailing	0	0	0	0
Camping	111,455	117,077	122,816	128,417
Picnicking	51,061	53,977	56,186	57,659
Beach Swimming	64,541	69,371	72,667	73,310
Pool Swimming	82,267	88,873	93,671	93,142
Bicycling	151,655	163,429	172,704	171,621
Three-Wheeling	48,355	52,321	55,485	55,130
Hiking/Walking	194,342	204,127	212,643	219,033
Jogging	68,360	73,646	76,989	76,692
Horseback Riding	20,599	22,095	22,734	22,980
Golf	56,789	58,608	61,496	66,185
Tennis	7,724	8,274	8,482	8,512
Baseball/Softball	91,568	98,373	101,953	102,510
Soccer	7,004	7,513	7,683	7,784
Visiting Historical Places	46,722	49,401	52,192	54,468
Cross-Country Skiing	853	889	935	1,021
Downhill Skiing	0	0	0	0
Hockey	15,381	16,532	17,126	17,127
Ice Fishing	48,552	51,240	53,263	54,488
Ice Skating	14,116	15,280	16,242	16,234
Sledding	11,565	12,518	13,329	13,323
Snowmobiling	8,834	9,596	10,258	10,157
Trapping	0	0	0	0

APPENDIX TABLE C-2. PROJECTED TOTAL DAYS OF PARTICIPATION OCCURRING IN REGION 2, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	110,782	118,003	123,144	127,303
Waterfowl Hunting	126,354	134,145	139,650	144,097
Big Game Hunting	61,511	65,498	68,204	70,537
Nongame Hunting	66,792	71,256	74,447	76,686
Fishing	373,372	396,194	415,260	432,663
Powerboating/Waterskiing	225,747	240,721	253,819	262,082
Canoeing	27,203	28,938	30,246	31,463
Sailing	12,599	13,201	14,091	15,395
Camping	289,686	307,744	322,387	334,160
Picnicking	175,537	187,283	195,953	200,155
Beach Swimming	284,037	304,667	319,817	324,624
Pool Swimming	242,811	262,660	277,969	276,020
Bicycling	557,148	600,454	634,402	639,102
Three-Wheeling	132,491	142,575	148,694	149,629
Hiking/Walking	504,236	534,345	558,845	582,646
Jogging	151,768	162,148	168,587	172,511
Horseback Riding	50,831	54,341	56,073	57,075
Golf	208,010	219,440	226,118	230,065
Tennis	52,377	55,714	58,973	61,489
Baseball/Softball	285,412	306,608	320,608	324,055
Soccer	14,986	16,278	17,399	17,226
Visiting Historical Places	69,054	73,634	77,080	78,955
Cross-Country Skiing	32,134	34,187	35,915	37,266
Downhill Skiing	21,295	22,971	24,172	24,130
Hockey	59,346	63,934	68,221	69,003
Ice Fishing	40,223	42,534	44,251	45,506
Ice Skating	68,096	73,233	77,592	77,932
Sledding	54,944	59,251	62,559	62,372
Snowmobiling	94,340	101,104	105,195	106,033
Trapping	4,231	4,288	4,414	4,604

APPENDIX TABLE C-3. PROJECTED TOTAL DAYS OF PARTICIPATION OCCURRING IN REGION 3, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	40,421	42,962	45,048	46,911
Waterfowl Hunting	92,371	98,053	102,122	106,328
Big Game Hunting	55,032	58,128	60,913	64,599
Nongame Hunting	39,919	42,630	43,947	44,730
Fishing	310,312	327,668	342,454	357,171
Powerboating/Waterskiing	185,354	198,374	206,474	210,724
Canoeing	10,330	11,075	11,435	11,598
Sailing	4,962	5,270	5,469	5,583
Camping	175,770	187,721	196,250	200,654
Picnicking	119,894	128,292	133,955	136,371
Beach Swimming	127,157	136,736	143,184	144,179
Pool Swimming	145,132	156,834	166,390	166,160
Bicycling	256,076	275,296	288,699	292,075
Three-Wheeling	50,545	54,471	57,220	57,293
Hiking/Walking	389,520	408,732	422,349	429,903
Jogging	138,658	147,568	154,130	160,363
Horseback Riding	45,538	49,037	51,420	51,578
Golf	121,195	126,428	131,727	137,261
Tennis	30,551	32,618	34,182	35,250
Baseball/Softball	107,709	115,941	120,992	121,351
Soccer	887	964	1,030	1,020
Visiting Historical Places	60,435	63,812	67,343	70,893
Cross-Country Skiing	19,811	21,286	22,060	22,477
Downhill Skiing	9,135	9,742	10,175	10,550
Hockey	38,554	41,775	44,315	43,985
Ice Fishing	167,827	177,506	185,751	195,158
Ice Skating	49,853	53,942	57,088	56,794
Sledding	50,842	54,871	57,720	57,572
Snowmobiling	145,914	156,974	163,663	164,948
Trapping	21,959	23,568	24,286	24,352

APPENDIX TABLE C-4. PROJECTED TOTAL DAYS OF PARTICIPATION OCCURRING IN REGION 4, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	29,149	31,032	32,444	33,510
Waterfowl Hunting	39,446	42,289	44,372	45,072
Big Game Hunting	42,455	45,377	47,502	48,755
Nongame Hunting	16,651	17,770	18,470	18,928
Fishing	130,871	139,397	145,763	149,304
Powerboating/Waterskiing	38,198	40,853	42,838	43,661
Canoeing	20,918	22,390	23,420	24,026
Sailing	520	528	584	708
Camping	108,259	115,618	121,078	123,697
Picnicking	149,469	159,707	167,367	171,595
Beach Swimming	91,477	98,346	103,049	104,166
Pool Swimming	307,327	331,022	349,645	351,504
Bicycling	625,634	670,369	702,313	709,563
Three-Wheeling	54,014	58,396	61,972	61,715
Hiking/Walking	395,146	415,170	434,431	457,956
Jogging	238,995	255,982	263,769	266,774
Horseback Riding	34,519	37,056	38,580	38,851
Golf	175,472	184,099	193,827	206,689
Tennis	46,197	49,503	51,738	52,495
Baseball/Softball	172,283	185,297	192,516	192,667
Soccer	4,788	5,189	5,525	5,469
Visiting Historical Places	51,163	54,287	56,596	58,502
Cross-Country Skiing	15,976	16,939	17,540	18,328
Downhill Skiing	2,777	2,969	3,051	3,069
Hockey	182,294	196,098	206,380	208,363
Ice Fishing	5,121	5,396	5,661	6,067
Ice Skating	139,145	149,655	157,826	159,256
Sledding	66,430	71,730	75,565	75,354
Snowmobiling	178,736	191,682	201,526	205,351
Trapping	18,745	20,188	21,034	20,998

APPENDIX TABLE C-5. PROJECTED TOTAL DAYS OF PARTICIPATION OCCURRING IN REGION 5, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	78,901	83,941	87,421	90,249
Waterfowl Hunting	56,875	60,715	63,215	64,799
Big Game Hunting	61,750	65,742	68,377	70,680
Nongame Hunting	52,553	56,076	58,429	60,059
Fishing	176,344	188,373	196,901	199,657
Powerboating/Waterskiing	19,680	21,171	21,920	22,027
Canoeing	11,093	11,916	12,387	12,495
Sailing	3,799	4,073	4,217	4,285
Camping	51,152	54,501	56,870	57,756
Picnicking	177,203	189,096	197,507	200,643
Beach Swimming	70,906	76,459	80,013	79,865
Pool Swimming	794,630	857,229	906,002	906,291
Bicycling	1,670,072	1,796,021	1,892,547	1,905,534
Three-Wheeling	202,652	217,005	228,431	232,912
Hiking/Walking	1,127,511	1,191,256	1,242,840	1,280,547
Jogging	300,710	321,242	333,477	341,882
Horseback Riding	51,237	55,202	57,532	57,589
Golf	353,401	370,460	387,968	409,002
Tennis	162,115	174,457	182,054	182,038
Baseball/Softball	437,579	471,516	493,848	493,291
Soccer	53,758	58,151	61,381	61,121
Visiting Historical Places	62,468	66,203	69,174	71,311
Cross-Country Skiing	49,163	52,555	54,879	56,240
Downhill Skiing	2,106	2,237	2,394	2,538
Hockey	135,921	146,510	153,215	152,932
Ice Fishing	70,453	75,679	79,693	80,119
Ice Skating	113,649	122,602	129,164	128,680
Sledding	115,550	124,852	131,883	130,953
Snowmobiling	55,068	58,798	61,245	63,054
Trapping	32,475	34,954	36,466	36,326

APPENDIX TABLE C-6. PROJECTED TOTAL DAYS OF PARTICIPATION OCCURRING IN REGION 6, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	119,312	127,086	132,376	136,351
Waterfowl Hunting	112,201	119,229	123,964	127,967
Big Game Hunting	98,666	104,661	108,470	112,294
Nongame Hunting	89,890	96,047	99,259	100,957
Fishing	369,880	393,218	412,866	428,783
Powerboating/Waterskiing	137,992	147,742	154,394	157,345
Canoeing	20,205	21,627	22,438	22,763
Sailing	3,880	4,170	4,332	4,372
Camping	223,844	239,759	251,056	255,597
Picnicking	217,959	232,149	243,028	249,598
Beach Swimming	240,244	258,738	271,196	272,188
Pool Swimming	320,535	345,923	365,496	364,876
Bicycling	680,342	729,685	767,655	772,158
Three-Wheeling	93,532	100,156	105,201	107,208
Hiking/Walking	648,225	685,944	718,803	742,381
Jogging	233,073	250,121	260,338	263,644
Horseback Riding	75,482	81,049	84,420	85,117
Golf	173,422	183,477	188,693	191,897
Tennis	46,253	49,496	51,992	53,307
Baseball/Softball	209,909	224,939	234,227	237,122
Soccer	13,634	14,760	15,655	15,561
Visiting Historical Places	53,382	56,741	59,101	60,795
Cross-Country Skiing	16,117	17,141	17,775	18,157
Downhill Skiing	4,482	4,715	4,938	5,012
Hockey	19,927	21,577	22,813	22,711
Ice Fishing	151,742	160,750	169,218	176,784
Ice Skating	122,722	132,716	140,639	139,505
Sledding	118,367	127,871	135,334	134,336
Snowmobiling	122,116	131,474	138,771	139,634
Trapping	52,176	55,507	57,834	60,144

APPENDIX TABLE C-7. PROJECTED TOTAL DAYS OF PARTICIPATION OCCURRING IN REGION 7, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	234,458	248,856	258,995	267,570
Waterfowl Hunting	116,787	123,831	128,704	132,865
Big Game Hunting	84,307	89,787	93,267	95,401
Nongame Hunting	77,650	82,982	85,969	87,485
Fishing	941,169	992,639	1,037,562	1,076,580
Powerboating/Waterskiing	472,115	501,816	524,794	542,859
Canoeing	55,144	58,914	61,438	62,682
Sailing	13,631	14,453	15,262	15,899
Camping	636,076	676,891	707,926	726,524
Picnicking	483,183	515,738	538,459	548,690
Beach Swimming	560,275	599,549	627,936	639,475
Pool Swimming	662,874	715,637	755,455	752,439
Bicycling	1,098,553	1,179,087	1,243,170	1,255,265
Three-Wheeling	138,570	148,037	156,416	161,186
Hiking/Walking	1,253,438	1,320,795	1,384,638	1,447,672
Jogging	399,603	428,037	447,379	454,163
Horseback Riding	200,387	215,336	226,156	227,775
Golf	233,859	246,164	255,812	263,948
Tennis	118,501	127,689	134,182	134,128
Baseball/Softball	417,538	448,691	467,727	470,822
Soccer	56,318	60,804	64,168	63,946
Visiting Historical Places	235,157	250,099	261,542	267,637
Cross-Country Skiing	26,910	28,668	29,861	30,687
Downhill Skiing	1,565	1,661	1,714	1,786
Hockey	47,497	51,440	54,524	54,238
Ice Fishing	178,462	188,918	194,634	197,764
Ice Skating	127,267	137,165	144,237	144,398
Sledding	246,900	266,903	281,911	280,331
Snowmobiling	125,578	134,510	140,262	140,411
Trapping	66,745	70,922	72,862	75,106

APPENDIX TABLE C-8. PROJECTED TOTAL DAYS OF PARTICIPATION OCCURRING IN REGION 8, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	96,400	102,636	106,590	108,723
Waterfowl Hunting	5,909	6,251	6,541	6,856
Big Game Hunting	58,718	62,275	64,614	67,174
Nongame Hunting	64,103	67,645	69,564	69,558
Fishing	151,385	161,101	168,665	173,718
Powerboating/Waterskiing	41,619	44,718	46,295	46,426
Canoeing	5,140	5,406	5,631	5,835
Sailing	4,365	4,699	4,944	5,013
Camping	209,458	221,797	231,661	239,019
Picnicking	130,553	138,978	145,190	148,552
Beach Swimming	113,285	121,840	127,218	127,845
Pool Swimming	166,678	179,956	190,142	189,451
Bicycling	426,057	459,636	485,195	484,892
Three-Wheeling	62,877	67,055	69,399	69,687
Hiking/Walking	465,201	485,888	504,214	520,058
Jogging	118,632	124,654	128,756	131,444
Horseback Riding	78,929	82,890	86,050	87,888
Golf	44,865	46,770	48,195	49,849
Tennis	30,453	32,643	33,473	33,986
Baseball/Softball	152,479	163,971	170,998	171,931
Soccer	3,497	3,765	3,960	3,957
Visiting Historical Places	202,929	215,428	225,463	232,029
Cross-Country Skiing	7,966	8,572	8,870	8,928
Downhill Skiing	1,276	1,376	1,439	1,442
Hockey	0	0	0	0
Ice Fishing	22,514	24,035	25,276	25,797
Ice Skating	28,036	30,238	31,772	31,661
Sledding	59,730	64,613	68,549	67,833
Snowmobiling	61,505	66,293	69,437	69,500
Trapping	65,572	70,903	75,398	75,432

APPENDIX TABLE C-9. PROJECTED TOTAL DAYS OF PARTICIPATION OCCURRING IN NORTH DAKOTA, BY ACTIVITY, 1985, 1990, 1995, AND 2000

Activity	Year			
	1985	1990	1995	2000
	----- participation days -----			
Upland Game Hunting	764,757	813,410	847,568	874,104
Waterfowl Hunting	567,105	602,515	608,568	648,199
Big Game Hunting	509,326	541,099	563,311	584,339
Nongame Hunting	428,069	456,083	472,996	482,821
Fishing	2,594,544	2,747,517	2,875,499	2,980,247
Powerboating/Waterskiing	1,195,132	1,274,230	1,333,681	1,372,427
Canoeing	155,375	166,010	172,968	176,884
Sailing	43,756	46,394	48,899	51,255
Camping	1,805,700	1,921,108	2,010,044	2,065,824
Picnicking	1,504,859	1,605,220	1,677,645	1,713,263
Beach Swimming	1,551,922	1,665,706	1,745,080	1,765,652
Pool Swimming	2,722,254	2,938,134	3,104,770	3,099,883
Bicycling	5,465,537	5,873,977	6,186,685	6,230,210
Three-Wheeling	783,036	840,016	882,818	894,760
Hiking/Walking	4,977,619	5,246,257	5,478,763	5,680,196
Jogging	1,649,799	1,763,398	1,833,425	1,867,473
Horseback Riding	557,522	597,006	622,965	628,853
Golf	1,367,013	1,435,446	1,493,836	1,554,896
Tennis	494,171	530,394	555,076	561,205
Baseball/Softball	1,874,477	2,015,336	2,102,869	2,113,749
Soccer	154,872	167,424	176,801	176,084
Visiting Historical Places	781,310	829,605	868,491	894,590
Cross-Country Skiing	168,930	180,237	187,835	193,104
Downhill Skiing	42,636	45,671	47,883	48,527
Hockey	498,920	537,866	566,594	568,359
Ice Fishing	684,894	726,058	781,717	781,683
Ice Skating	662,884	714,831	754,560	754,460
Sledding	724,328	782,609	826,850	822,074
Snowmobiling	792,091	850,431	890,357	899,088
Trapping	261,903	280,330	292,294	296,962

APPENDIX D

CALCULATIONS USED IN ESTIMATING THE DEMAND AND NEEDS
FOR RECREATION FACILITIES BY REGION, BY ACTIVITY,
1985, 1990, 1995, AND 2000

BASEBALL/SOFTBALL
(number of diamonds)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	30	32	33	33	63	0	0	0	0
2	93	100	105	106	158	0	0	0	0
3	35	38	39	40	88	0	0	0	0
4	56	60	63	63	102	0	0	0	0
5	143	154	161	161	197	0	0	0	0
6	68	73	76	77	142	0	0	0	0
7	136	146	153	154	121	15	25	32	33
8	50	53	56	56	59	0	0	0	0
Total	611	656	686	690	930	15	25	32	33

¹Unit of measure = one diamond

Percentage of activity done on peak days = 50%

Ratio of holiday use to Saturday and Sunday use is 1.2/1.0 = 1.2

Peak days (42 Saturdays and Sundays @1.0; 3 holidays @1.2) = 46

Persons per field = 20

Turnover rate = 2

$$\text{Demand} = \frac{\text{activity days} \times 0.50 \times 1.2}{46 \times 20 \times 2} = \text{diamonds required}$$

²Baseball and softball fields (1985 SCORP inventory).

BICYCLING
(miles of trail)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	10	10	11	11	0	10	10	11	11
2	35	38	40	40	4	31	34	36	36
3	16	17	18	18	16	0	1	2	2
4	39	42	44	44	4	35	38	40	40
5	104	112	118	119	25	79	87	93	94
6	43	46	48	48	13	30	33	35	35
7	69	74	78	78	19	50	55	59	59
8	27	29	30	30	0	27	29	30	30
Total	343	368	387	388	81	262	287	306	307

¹Unit of measure = one mile of trail
 Percentage of bicycling done on peak days = 75%
 Peak days = 40
 Persons per lineal mile of trail = 25
 Turnover rate = 12

$$\text{Demand} = \frac{\text{activity days} \times 0.75}{40 \times 25 \times 12} = \text{miles of trail required}$$

²Miles of bicycle trail (1985 SCORP inventory).

CAMPING
(number of campsites)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	502	527	552	578	266	236	261	286	312
2	1,304	1,385	1,451	1,504	837	467	548	614	667
3	791	845	883	903	588	203	257	295	315
4	487	520	545	557	635	0	0	0	0
5	230	245	256	260	646	0	0	0	0
6	1,007	1,079	1,130	1,150	1,288	0	0	0	0
7	2,862	3,046	3,186	3,269	1,577	1,285	1,469	1,609	1,692
8	943	998	1,042	1,076	1,090	0	0	0	0
Total	8,126	8,645	9,045	9,297	6,927	2,191	2,535	2,804	2,986

¹Unit of measure = one campsite

Percentage of camping done on peak days = 60%

Ratio of holiday use to nonholiday use is 1.2/1.0 = 1.2

Peak days (33 nonholiday weekend days @1.0; and 6 holidays @ 1.2) = 40.2

Persons per party = 4

Demand = $\frac{\text{activity days} \times 0.60 \times 1.2}{40.2 \times 4}$ = campsites required

²Tent, trailer, and group sites (1985 SCORP inventory).

FISHING
(water acres)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	5,208	5,492	5,754	5,988	74,691	0	0	0	0
2	13,770	14,611	15,315	15,956	84,673	0	0	0	0
3	11,444	12,084	12,630	13,172	44,355	0	0	0	0
4	4,826	5,141	5,376	5,506	1,366	3,460	3,775	4,010	4,140
5	6,503	6,947	7,262	7,363	3,646	2,857	3,301	3,616	3,717
6	13,641	14,502	15,226	15,813	16,473	0	0	0	0
7	34,710	36,608	38,265	39,704	172,187	0	0	0	0
8	5,583	5,941	6,220	6,407	32,843	0	0	0	0
Total	95,685	101,326	106,048	109,909	430,234	6,317	7,076	7,626	7,857

¹Unit of measure = fishing water acres
 Percentage of fishing done on peak days = 30%
 Ratio of holiday use to nonholiday use is 1.3/1.0 = 1.3
 Peak days (23 Sundays @1; and 4 holidays @1.3) = 28.2
 Acres per boat = 10
 Persons per boat = 2.5
 Turnover rate = 1.5

$$\text{Demand} = \frac{\text{activity days} \times 0.30 \times 10 \times 1.3}{28.2 \times 2.5 \times 1.5} = \text{fishing water acres required}$$

²Fishing water acres (1980 SCORP inventory).

GOLF
(number of courses)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	5	6	6	6	8	0	0	0	0
2	20	21	21	22	20	0	1	1	2
3	12	12	13	13	11	1	1	2	2
4	17	17	18	20	13	4	4	5	7
5	34	35	37	39	21	13	14	16	18
6	16	17	18	18	16	0	1	2	2
7	22	23	24	25	18	4	5	6	7
8	4	4	5	5	9	0	0	0	0
Total	130	135	142	148	116	22	26	32	38

¹Unit of measure = one 9- or 18-hole golf course
 Percentage of golfing done on peak days = 70%
 Peak days = 39
 Persons per party = 3
 Turnover rate = 7

$$\text{Demand} = \frac{\text{activity days} \times 0.70}{39 \times 3 \times 7 \times 9} = \text{golf courses required}$$

²Number of 9- and 18-hole courses (1985 SCORP inventory).

HIKING/WALKING
(miles of trail)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	55	58	60	62	36	19	22	24	26
2	143	151	159	166	80	63	71	79	86
3	111	116	120	122	26	86	91	95	97
4	112	118	123	130	48	61	70	75	82
5	320	338	353	364	48	272	290	305	316
6	184	195	204	211	46	139	150	159	166
7	356	375	393	411	53	303	322	340	358
8	130	138	143	148	76	54	62	67	72
Total	1,411	1,489	1,555	1,614	412	997	1,078	1,144	1,203

¹Unit of measure = one mile of trail

Percentage of hiking and walking done on peak days = 75%

Peak days = 33

Number of hikers or walkers per mile of trail = 20

Turnover rate = 4

Demand = $\frac{\text{activity days} \times 0.75}{33 \times 4 \times 20}$ = miles of trail required

²Miles of hiking and walking trails (1985 SCORP inventory).

HORSEBACK RIDING
(miles of trail)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	3	3	3	3	0	3	3	3	3
2	7	8	8	8	10	0	0	0	0
3	7	7	7	7	22	0	0	0	0
4	5	5	5	6	9	0	0	0	0
5	7	8	8	8	0	7	8	8	8
6	11	12	12	12	13	0	0	0	0
7	28	31	32	32	2	26	29	30	30
8	11	12	12	12	86	0	0	0	0
Total	79	86	87	88	141	36	40	41	41

¹Unit of measure = one mile of trail
 Percentage of horseback riding done on peak days = 75%
 Peak days = 33
 Persons per lineal mile of trail = 20
 Turnover rate = 8

$$\text{Demand} = \frac{\text{activity days} \times 0.75}{33 \times 8 \times 20} = \text{miles of trail required}$$

²Miles of horse trails (1985 SCORP inventory).

ICE HOCKEY
(number of rinks)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	2	3	3	3	3	0	0	0	0
2	9	10	11	11	8	1	2	3	3
3	6	6	7	7	6	0	0	1	1
4	28	30	32	32	15	13	15	17	17
5	21	23	24	24	23	0	0	1	1
6	3	3	4	4	9	0	0	0	0
7	7	8	8	8	10	0	0	0	0
8	0	0	0	0	0	0	0	0	0
Total	76	83	89	89	74	14	17	22	22

¹Unit of measure = number of rinks
 Percentage of hockey played on peak days = 50%
 Peak days = 36
 Persons per rink = 36
 Turnover rate = 2.5

$$\text{Demand} = \frac{\text{activity days} \times 0.50}{36 \times 36 \times 2.5} = \text{hockey rinks required}$$

²Number of hockey rinks (1985 SCORP inventory).

ICE SKATING
(number of rinks)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1.	2	2	2	2	11	0	0	0	0
2	9	10	10	10	22	0	0	0	0
3	7	7	8	8	12	0	0	0	0
4	19	20	21	21	30	0	0	0	0
5	15	16	17	17	61	0	0	0	0
6	16	18	19	19	12	4	6	7	7
7	17	18	19	19	35	0	0	0	0
8	4	3	4	4	13	0	0	0	0
Total	89	94	100	100	196	4	6	7	7

¹Unit of measure = number of rinks
 Percentage of ice skating done on peak days = 70%
 Peak days = 30
 Persons per rink = 70
 Turnover rate = 2.5

$$\text{Demand} = \frac{\text{activity days} \times 0.70}{30 \times 70 \times 2.5} = \text{rinks required}$$

²Number of ice skating rinks (1985 SCORP inventory).

POOL SWIMMING
(number of pools)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	2	2	2	2	6	0	0	0	0
2	6	6	7	7	18	0	0	0	0
3	4	4	4	4	12	0	0	0	0
4	7	8	8	8	21	0	0	0	0
5	19	21	22	22	24	0	0	0	0
6	8	8	9	9	21	0	0	0	0
7	16	17	18	18	23	0	0	0	0
8	4	4	5	5	12	0	0	0	0
Total	66	70	75	75	137	0	0	0	0

¹Unit of measure = one pool
 Percentage of pool swimming done on peak days = 60%
 Peak days = 25
 Persons per party = 2
 Turnover rate = 2.5
 Square foot of pool per person = 27
 Average pool size = 5,380 square feet

$$\text{Demand} = \frac{\text{activity days} \times 0.60 \times 27}{25 \times 2.5 \times 2} = \text{square feet required}$$

$$\text{Square feet required} \div 5,380 = \text{pools required}$$

²Number of indoor and outdoor pools (1985 SCORP inventory).

POWERBOATING/WATERSKIING
(water acres)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	11,857	12,559	13,246	13,909	66,247	0	0	0	0
2	35,965	38,350	40,437	41,753	96,226	0	0	0	0
3	29,529	31,603	32,894	33,571	44,139	0	0	0	0
4	6,085	6,508	6,825	6,956	1,290	4,795	5,218	5,535	5,666
5	3,135	3,373	3,492	3,509	2,640	495	733	852	869
6	21,984	23,537	24,597	25,067	14,173	7,811	9,364	10,424	10,894
7	75,214	79,946	83,607	86,485	169,736	0	0	0	0
8	6,630	7,124	7,375	7,396	32,147	0	0	0	0
Total	190,399	203,000	212,473	218,646	426,598	13,101	15,315	16,811	17,429

¹Unit of measure = boating water acres

Percentage of power-boating done on peak days = 75%

Ratio of holiday use to nonholiday Saturday and Sunday use is 1.3/1.0 = 1.3

Peak days (33 nonholidays, Saturdays and Sundays @1.0, and 6 holidays @1.3) = 40.8

Acres per boat = 20

Persons per boat = 3

$$\text{Demand} = \frac{\text{activity days} \times 0.75 \times 1.3 \times 20}{40.8 \times 3} = \text{water acres required}$$

²Waterskiing/powerboating acres (1980 SCORP inventory).

SAILING
(water acres)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	0	0	0	0	66,247	0	0	0	0
2	470	493	526	574	96,226	0	0	0	0
3	185	197	204	208	44,139	0	0	0	0
4	19	20	22	26	1,290	0	0	0	0
5	141	152	157	160	2,640	0	0	0	0
6	145	156	162	163	14,173	0	0	0	0
7	508	539	569	593	169,736	0	0	0	0
8	163	175	184	187	32,147	0	0	0	0
Total	1,631	1,732	1,824	1,911	426,598	0	0	0	0

¹Unit of measure = boating water acres

Percentage of sailing done on peak days = 75%

Ratio of holiday use to nonholiday Saturday and Sundays 1.2/1.0 = 1.2

Peak days (33 nonholiday Saturdays and Sundays @1.0, and 6 holidays @1.2 = 40.2

Acres per boat = 5

Persons per boat = 3

$$\text{Demand} = \frac{\text{activity days} \times 0.75 \times 5 \times 1.2}{40.2 \times 3} = \text{water acres required}$$

²Powerboating/waterskiing water acres (1980 SCORP inventory).

SNOWMOBILING
(miles of trail)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	6	7	7	7	22	0	0	0	0
2	68	73	76	77	74	0	0	2	3
3	106	114	119	120	37	69	77	82	83
4	130	139	146	149	27	103	112	119	122
5	40	43	44	46	19	21	24	25	27
6	89	95	101	101	35	54	60	66	66
7	91	98	102	102	24	67	74	78	78
8	45	48	50	50	13	32	35	37	37
Total	575	617	645	652	250	346	382	409	416

¹Unit of measure = one mile of trail
 Percentage of snowmobiling done on peak days = 65%
 Peak days = 28
 Days per mile of trail = 16
 Turnover rate = 2

$$\text{Demand} = \frac{\text{activity days} \times 0.65}{28 \times 16 \times 2} = \text{miles of trails required}$$

²Miles of snowmobile trails (1985 SCORP inventory).

SOCCKER
(number of fields)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	0	0	0	0	2	0	0	0	0
2	1	2	2	2	8	0	0	0	0
3	0	0	0	0	3	0	0	0	0
4	0	0	0	0	6	0	0	0	0
5	5	5	6	6	20	0	0	0	0
6	1	1	1	1	7	0	0	0	0
7	5	6	6	6	31	0	0	0	0
8	0	0	0	0	0	0	0	0	0
Total	12	14	15	15	77	0	0	0	0

¹Unit of measure = one soccer field
 Percentage of soccer done on peak days = 50%
 Peak days = 46
 Persons per field = 30
 Turnover rate = 4

$$\text{Demand} = \frac{\text{activity days} \times 0.50}{46 \times 30 \times 4} = \text{fields required}$$

²Number of soccer fields (1985 SCORP inventory).

TENNIS
(number of tennis courts)

Region	Demand ¹				Supply ²	Needs			
	1985	1990	1995	2000		1985	1990	1995	2000
1	4	4	4	4	69	0	0	0	0
2	26	27	29	30	93	0	0	0	0
3	15	16	17	17	39	0	0	0	0
4	22	24	25	26	67	0	0	0	0
5	79	85	88	88	102	0	0	0	0
6	23	24	25	26	63	0	0	0	0
7	58	62	65	65	91	0	0	0	0
8	15	16	16	17	43	0	0	0	0
Total	242	258	269	273	567	0	0	0	0

¹Unit of measure = one tennis court
 Percentage of tennis done on peak days = 35%
 Peak days = 60
 Persons per party = 3
 Turnover rate = 4

$$\text{Demand} = \frac{\text{activity days} \times 0.35}{60 \times 3 \times 4} = \text{courts required}$$

²Number of tennis courts (1985 SCORP inventory).