

Pictured Rocks National Lakeshore: Visitor Use Study

Fall 2000

Submitted to

Pictured Rocks National Lakeshore

by

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DEFINITIONS

Mean	A measure of the center of the data set. Popularly known as the arithmetic <i>average</i> ; the sum of the observations in the set divided by the number of observations. Means have a leveling effect. They tell nothing about variations or extreme values that may act to skew the data.
Median	The number in the data set where one-half of the numbers are at or below it and one-half above it. It is often a better statistic than the mean when the population is skewed by extreme values. An indicator of a population skewed by extreme values is a large difference between the mean and median.
Mailback Questionnaire	Survey sent to a sample of visitors after their initial contact during the onsite interview process at Pictured Rocks National Lakeshore.
N (Number)	Number of respondents. Total numbers may vary from table to table because not all visitors who responded to the onsite interview or mailback questionnaire answered every question.
Nonrespondent	Individual selected to receive a mailback survey but did not return it.
Onsite Survey	Questionnaire completed by visitors contacted at various locations in Pictured Rocks National Lakeshore. Onsite respondents had the opportunity to indicate whether they were willing or unwilling to fill out a mailback questionnaire about their experiences at the Lakeshore.
Percent	Percentage; proportion of; or ratio.
Respondents	Individual visitors (18 years of age or older) who answered the onsite survey or the mailback questionnaire.
Total Sample	Total number of respondents (total N).

EXECUTIVE SUMMARY

During the fall of 2000, the Cooperative Park Studies Program (CPSP) at the University of Minnesota conducted the third phase of a three-part project to gather information about visitors to Pictured Rocks National Lakeshore (NL). The study sought to provide information to managers about visitors' perceptions of Pictured Rocks NL, including information about (1) conflicts between different user types, (2) experiences and benefits from using the area, (3) management in the area, and (4) satisfaction with their trips. This study provides the information needed by managers at Pictured Rocks NL to institute specific strategies and actions to resolve visitor conflicts and related issues. Results will also aid long-range planning related to visitor management of the Lakeshore. The second phase of the study examines fall use.

Data about fall users at Pictured Rocks NL were gathered with an onsite survey and mailback questionnaire. Initial visitor contacts were made at the time of the onsite survey, which was administered at 11 locations at the Lakeshore. A total of 135 visitors completed the onsite survey, two of whom were international visitors. Of the 111 visitors who indicated a willingness to complete a mailback questionnaire, all but the international study participants were mailed a questionnaire. Of the 109 questionnaires mailed, 76 percent were returned.

Data were analyzed for all onsite surveys completed by visitors at various sites within the Lakeshore. Of the 135 visitors who completed the onsite survey, 35 percent were first-time visitors to Pictured Rocks NL. Overall, onsite respondents were traveling with family and friends and 56 percent were traveling in groups of two people. Another 24 percent were traveling in groups of four people.

When asked about their plans for visiting the Lakeshore, nearly half of all onsite respondents reported that visiting Pictured Rocks NL was the primary purpose of their visit to the area. About one-third indicated that visiting the Lakeshore was one of several important things they planned to do during their visit to the area.

The majority of onsite respondents stayed overnight on or near the Lakeshore during their trip. Of those staying in the area, 41 percent stayed at a local motel or hotel and 38 percent stayed at a vehicle accessible campground.

More onsite respondents were male than female with men outnumbering women 65 to 35 percent. The average age of respondents was 45.

Nearly three-quarters of onsite respondents reported having a permanent residence in Michigan and 25 percent were visiting from other states. Two onsite respondents were visiting from Poland.

Respondents (individuals who returned a mailback questionnaire), and nonrespondents (individuals who did not return a mailback questionnaire) were evaluated using selected variables from the onsite survey to determine nonresponse bias. Overall, respondents and nonrespondents were more similar than different. However, respondents were significantly older than nonrespondents.

Visitor data were analyzed for all mailback questionnaires completed and returned by visitors. Results indicate that respondents most frequently entered the Lakeshore either at Grand Marais, on the eastern boundary, or near Munising, on the western boundary.

Nearly a third of all respondents were first-time visitors to Picture Rocks NL. The mean number of visits to the Lakeshore (eight visits) is greater than the median number of visits (three visits) because the mean number of trips was skewed by a few respondents who reported visiting the Lakeshore many times. Respondents most frequently traveled in groups of either two or four people. Most groups were traveling with family and friends. Slightly more than half of all respondents reported that visiting the Lakeshore was the primary purpose of their visit to the area.

A total of 89 percent of all respondents stayed overnight in the area during their trip to Pictured Rocks NL. Forty-four percent stayed at vehicle accessible campsites and 39 percent stayed at a local motel or hotel. While visiting the Lakeshore, respondents participated in a variety of activities. The most popular activities were viewing fall colors, sightseeing by automobile, and day hiking.

Overall, respondents had an average age of 46. Nearly all respondents identified themselves as white and not Hispanic or Latino. Respondents came from nine states, with 74 percent reporting a permanent mailing address in Michigan. A total of 95 percent of respondents had a post post-high school education and three-quarters noted an annual household income of at least \$40,000.

An understanding of visitors' motives for visiting a recreation resource is important to helping managers provide opportunities for visitors to attain the experiences they desire. To obtain a clearer awareness of visitors' motives for visiting Pictured Rocks NL, respondents were asked to look over a list of 27 possible experiences they may have had while visiting the Lakeshore and rate how important each experience was to them. Respondents rated experiencing nature, enjoying the scenery of Pictured Rocks, being close to nature, getting away from the usual demands of life, and having a wilderness experience as important to very important.

Natural areas provide a myriad of opportunities for visitors to gain psychological and physiological benefits. In fact, the opportunity to reap such benefits is one of the most valuable contributions recreational lands make to improving the well-being of visitors as well as the society in which we live. Whether benefits are personal, societal, economic, or environmental, the positive impact of both onsite and offsite benefits are an important consideration when developing management plans that effectively serve visitors, surrounding communities, and the environment. To ascertain the benefits derived from respondents' visits to Pictured Rocks NL, study participants were asked to rate how well they were able to attain the experiences that were important or very important to them. Overall, nearly all experiences respondents had rated as either important or very important were at least moderately attained, indicating that respondents benefitted from their trips to the Lakeshore. The most highly attained experiences were to do something with my family, to be with members of my group, to use my own equipment, to enjoy the scenery of Pictured Rocks, and to experience nature.

It is important to recognize that different types of visitors may have different perceptions of crowding and that their perceptions are often based on the types of experiences they seek. As

recreational use of natural areas increases, crowding has the potential to impede the attainment of visitors' desired experiences, particularly for visitors seeking solitude. Perceptions of feeling crowded can lead to changes in visitor behavior and use patterns. For example, visitors may choose to recreate at a site during seasons when use is not as intense. For some visitors, crowding may interfere with their recreational goals to the point where they select alternative sites to pursue their desired experiences. Displacement becomes problematic when suitable substitutes are difficult to find or are simply unavailable. To determine sites of potential crowding at Pictured Rocks NL, study participants were asked to evaluate the acceptability of their encounters at nine locations within the Lakeshore. Using a 7-point scale (1=very unacceptable, 7=very acceptable), respondents rated the acceptability of encounters with people or watercraft for each location they had visited. For the total sample, acceptability ratings ranged from 5.7 for backcountry campsites to 6.4 for interior lakes.

Problems visitors experience during their visits can diminish the quality of their experiences and hinder the attainment of benefits they may otherwise have gained. To assess the existence of potential problems at Pictured Rocks NL, respondents evaluated 35 possible situations they may have experienced on their most recent trip to the Lakeshore. Overall, study participants encountered few problems during their visit. The most problematic situations reported by respondents were litter on inland lakes, people being inconsiderate, and personal watercraft disturbing their backcountry experience.

The new management plan at Pictured Rocks NL will be instrumental in shaping visitor experience opportunities for years to come. An understanding of visitors' management preferences can aid the development of a management plan that protects the resource and provides quality recreational opportunities. Respondents' level of support or opposition for specific actions at the Lakeshore was determined by examining their responses to 29 possible management actions. More than two-thirds of all respondents supported or strongly supported restricting personal watercraft use to designated areas only, establishing "off-limit" zones to protect sensitive resources, and establishing part of Pictured Rocks as wilderness.

Visitor feedback regarding satisfaction with their experiences and their ideas regarding services or activities that they would like to see offered or prohibited at the Lakeshore is important to evaluating how well visitors perceive their needs are being met. Additionally, this information can help determine visitors' satisfaction with their visits and how well they were able to attain their desired experiences and receive the associated benefits. Respondents had the opportunity to express their satisfaction with the quality of eight different services provided at the Lakeshore. Most respondents reported they were satisfied or somewhat satisfied with the overall quality of services at the Lakeshore.

Study participants were asked to provide comments concerning activities or services that *should be offered* at Pictured Rocks NL. Respondents expressed a desire for more natural and cultural history interpretation. Respondents also were asked to comment on activities or services that *should be prohibited* at the Lakeshore. Respondents expressed opposition to hunting, mountain biking, and the use of personal watercraft and other motorized recreational vehicles. Study participants also were asked to evaluate a list of ten statements about their most recent trip to the Lakeshore and to indicate the extent to which they agreed or disagreed with each

statement. All respondents agreed or strongly agreed that they enjoyed their time at Pictured Rocks NL and were satisfied with their trip to Pictured Rocks NL. More than 90 percent reported enjoying the natural quiet and thought the area and its surroundings were in good condition.

Forty-four percent of respondents provided additional written comments about their visit to Pictured Rocks NL or suggestions about managing the Lakeshore.

A key factor in understanding fall visitors hinges on the motives, or desired experiences, sought by users of the Lakeshore. Overall, study participants placed a high importance on nature, scenery, getting away from the usual demands of life, and having a wilderness experience. Respondents' answers to questions regarding specific management actions reflect their motives for visiting Pictured Rocks NL. For example, support for restricting snowmobile and personal watercraft use to designated areas demonstrates respondents' support for management actions that could help them attain their desired experiences.

The majority of respondents indicated substantial support for curtailing snowmobile and personal watercraft use. A total of 78 percent of respondents indicated support or strong support for restricting snowmobile use to designated areas and 72 percent supported or strongly supported restricting personal watercraft use to designated areas. Interestingly, support for restricting personal watercraft use was stronger than for prohibiting the activity. Verbatim suggestions offered by respondents regarding activities that should be prohibited at Pictured Rocks NL frequently specified restricting or banning personal watercraft and other motorized vehicles.

Given the impact of motorized recreational activity on visitors' experiences, general support for restricting snowmobiles and personal watercraft use, and the availability of opportunities for snowmobile and personal watercraft use in the area, consideration should be given to the appropriateness of these activities at Pictured Rocks NL. Management actions, such as limiting motorized vehicle use to specific zones or temporally restricting use may help managers provide fall visitors with opportunities for satisfying recreational experiences at the Lakeshore.

Providing a variety of opportunities for more natural history information to visitors may be particularly welcomed by fall users who indicated support for this management action. Since many visitors stay overnight in local motels, hotels, and campgrounds, such places may also serve as sites to disseminate information about the area.

Growing numbers of recreationists, along with the evolution of new outdoor recreation equipment, will continue to challenge managers and planners as they seek to protect biophysical resources while providing opportunities for quality visitor experiences. Study results show that respondents reported few problems and were generally satisfied with their experiences and the condition of the surroundings at Pictured Rocks NL. However, to ensure that current levels of satisfaction are maintained for generations of future visitors, close attention should be given to developing a management plan that safeguards the Lakeshore's unique natural resources and provides opportunities for visitors to reap the many benefits of outdoor recreation.

BACKGROUND

Pictured Rocks National Lakeshore (NL), the nation's first National Lakeshore, was authorized in 1966 to preserve the shoreline, cliffs, beaches, and dunes adjacent to Lake Superior. The 73,228 acre site, located along Lake Superior on the northern upper peninsula of Michigan, attracts more than 400,000 visitors each year. During all seasons, the Lakeshore offers visitors many recreational opportunities. Hiking, camping, backpacking, fishing, hunting, snowmobiling, cross-country skiing, and snowshoeing are among the popular activities enjoyed by visitors. Boating, canoeing, and kayaking attract water enthusiasts to the shore of Lake Superior as well as inland lakes within Pictured Rocks NL.

New federal laws, revisions of laws and National Park Service (NPS) policies, and changes in the nature and number of some types of recreational use at Pictured Rocks NL have led to the need for an update of their current General Management Plan (GMP), which has been guiding the management and development of the Lakeshore since 1981. Pictured Rocks NL has been experiencing a trend of increased recreational use—particularly sea kayaking, personal watercraft use, and cross-country skiing. Such changes in recreation patterns have led to increased reports of user conflicts at the Lakeshore. However, there are no comprehensive data about conflicts occurring on the lakeshore or between user groups. It is suspected that motorized use and foot use, both along the shoreline and in the interior, are the sources of user conflicts. A greater understanding regarding perceptions of conflict among and between backcountry and frontcountry users will help managers develop potential strategies for reducing or eliminating conflicts. In addition, the updated GMP may address potential upgrades of the primitive access road as well as the designation of some areas of the Lakeshore as wilderness. Either of these actions could potentially change visitor use patterns and affect interactions between user groups.

During the fall of 2000, the Cooperative Park Studies Program (CPSP) at the University of Minnesota, in conjunction with the NPS and Pictured Rocks NL staff, administered a visitor study to users visiting the Lakeshore. This study was the third phase of a three-part research effort to identify characteristics of visits to the Lakeshore, sociodemographic attributes of visitors, problems encountered by visitors, visitor opinions about selected management actions, and visitor perceptions of conflicts encountered while recreating at Pictured Rocks NL.

This third phase of the three-part visitor use study focuses on fall use at Pictured Rocks NL. The first phase of the investigation focused on winter use and examined snowmobilers and cross-country skiers or snowshoers. The second phase examined summer visitation and examined differences between frontcountry and backcountry users. The results of these investigations will provide some of the information and guidance necessary to institute specific management strategies and actions to resolve visitor conflicts and related issues. Results will also aid long-range planning related to visitor management in the park.

STUDY METHODS

The study period for the third phase of the project was from September 30 through October 8, 2000. The sample frame and study process consisted of two parts: (1) an onsite survey (Appendix A) and (2) a mailback questionnaire (Appendix B). The onsite survey addressed the number of visits to the Lakeshore, group size, group type, plans for visiting the area, overnight lodging, and whether the visitor would be willing to complete a mailback questionnaire about their experiences at Pictured Rocks NL. The mailback questionnaire addressed the importance of specific experiences to visitors and to what extent they were achieved, activities in which visitors participated, potential crowding at specific locations, possible problems encountered, degree of support or opposition to potential management actions, service quality and satisfaction, as well as selected demographic information.

Sampling days and times were based on park staff's estimation of visitor use patterns at the Lakeshore and availability of staff to assist in the data collection process. A total of 135 onsite surveys were obtained from visitors, 18 years of age or older, at 11 locations within Pictured Rocks NL (Table 1). Two of the study participants were visiting from Poland. Of the visitors who completed the onsite interview, 111 indicated they were willing to complete a mailback questionnaire. Of the visitors who indicated a willingness to complete a mailback questionnaire, all but the two international visitors were sent a copy soon after the initial contact. A total 84 questionnaires (76 percent) were returned.

The sample of visitors may not be representative of all visitors to the Lakeshore. Although an attempt was made to include hunters in the study sample, they were not readily approachable while they were engaged in hunting activities. Therefore, an accurate representation of hunters as a segment of the total visitor population at the Lakeshore during the study period may be low.

Table 1. Interview locations at Pictured Rocks NL.

Location	N	Percent
Sable Falls	25	18.5
Miners Falls	20	14.8
Twelve Mile Beach Campground	17	12.6
Log Slide	15	11.1
Hurricane River parking area	14	10.4
Chapel parking area	13	9.6
Miners Castle	11	8.1
Grand Sable Visitor Center	8	5.9
Munising Falls	5	3.7
Little Beaver Lake launch	5	3.7
Hurricane River Campground	2	1.5
Total	135	100.0

Follow up procedures were employed to obtain the highest possible response rates. Two weeks after the initial mailback questionnaire and cover letter (Appendix C) were sent, a reminder letter (Appendix D) and replacement questionnaire were mailed to the potential respondent. A second reminder letter (Appendix E) and questionnaire were sent two weeks after the first reminder.

The completed survey forms were commercially keypunched and the data set was uploaded to a personal computer for analysis. Data were analyzed using the Statistical Program for the Social Sciences (SPSS/PC+). Basic descriptive statistics and frequency distributions were computed for selected variables.

The sample size for the study was adequate and the response rates acceptable for this type of study. It should be acknowledged, however, that the survey results represent only visitors who visited during the time frame of the fall study and cannot be extended to other times of the year or other years. That is, survey results should be thought of as pertaining to respondents visiting the Lakeshore during the study period. Nonetheless, study results are sufficient to support an informed dialogue among interested parties about future management of Pictured Rocks NL.

SELECTED STUDY RESULTS

A. Onsite Survey Respondents

A total of 135 onsite surveys were obtained from visitors at various locations within Pictured Rocks NL. More than one-third (35 percent) of those visitors who completed an onsite survey were visiting the Lakeshore for the first time (Table A.1). The mean number of visits for onsite respondents was seven and the median number of visits for onsite respondents was two. The average number of visits was greater than the median number because a few onsite respondents reported visiting the Lakeshore many times.

More than half (56 percent) of onsite respondents were traveling in groups of two people (Table A.2). Nearly another quarter (24 percent) were traveling in groups of four people. Most groups (88 percent) consisted of family and friends traveling together (Table A.3).

For nearly half of all onsite respondents (48 percent), visiting Pictured Rocks NL was the primary purpose of their visit to the area (Table A.4). For more than one-third of respondents (39 percent), visiting the Lakeshore was one of several important things they planned to do during their visit to the area.

The majority of onsite respondents (86 percent) reported staying overnight on or near the Lakeshore during their trip. Of those staying in the area, 41 percent stayed at a local motel or hotel and 38 percent stayed at a vehicle accessible campground (Table A.5).

More onsite respondents were male (65 percent) than female (35 percent) (Table A.6). Respondents' average age was 46 and nearly half (45 percent) were between 41 and 55 years old (Table A.7).

Nearly three-quarters of onsite respondents reported having a permanent residence in Michigan (Table A.8) and a quarter were visiting from other states. Two onsite respondents (2 percent) were visiting from Poland.

Table A.1. Number of visits to Pictured Rocks NL.

Number of visits	N	%
1 (this visit)	46	35.1
2	23	17.6
3	11	8.4
4	9	6.9
5-10	21	16.0
11-20	7	5.3
21 or more	14	10.7
Total	131	100.0

Source: Fall onsite survey, question 1.

Mean = 7.2 visits Median = 2 visits

Table A.2. Number of people per group.

Number of people per group	N	%
1	10	7.4
2	75	55.6
3	9	6.7
4	32	23.7
5	3	2.2
6	2	1.5
7 or more	4	3.0
Total	135	100.0

Source: Fall onsite survey, question 2.

Mean = 2.8 people Median = 2 people

Table A.3. Type of group.

Group type	N	%
Family and friends	113	88.3
Alone	10	7.8
Tour	3	2.3
Business	1	0.8
Church	1	0.8
Total	128	100.0

Source: Fall onsite survey, question 3.

Table A.4. Respondents plan for visiting Pictured Rocks NL.

Plan for visiting Pictured Rocks NL	N	%
The primary purpose of my visit to the area	64	48.1
One of several important things I planned to do during my visit to the area	52	39.1
Something I decided to do <i>after</i> arriving in the area	17	12.8
Total	133	100.0

Source: Fall onsite survey, question 4.

Table A.5. For respondents staying overnight at or near the Lakeshore, response to: "On this trip, where will you or did you stay overnight while visiting Pictured Rocks National Lakeshore?"

Accommodations	N	%*	%**
At a local motel/hotel	48	39.0	41.4
At vehicle accessible campsite	44	35.8	37.9
At a backcountry campground	14	11.4	12.1
At a local lodge	7	5.7	6.0
At my cabin	5	4.1	4.3
At home	3	2.4	2.6
With friends who live in the area	2	1.6	1.7
Total	123	100.0	--

Source: Fall onsite survey, question 5.

* Percentage based on number of *responses*. Respondents could give more than one response.

** Percentage based on number of *respondents* (N=116).

Table A.6. Gender of respondents at Pictured Rocks NL.

Gender	N	%
Male	88	65.2
Female	47	34.8
Total	135	100.0

Source: Fall onsite survey, question 6.

Table A.7. Age of respondents at Pictured Rocks NL.

Age	N	%
18-20	5	3.7
21-25	6	4.5
26-30	12	9.0
31-35	14	10.4
36-40	9	6.7
41-45	21	15.7
46-50	23	17.2
51-55	16	11.9
56-60	10	7.5
61-65	11	8.2
66 or older	7	5.2
Total	134	100.0

Source: Fall onsite survey, question 7.

Mean = 44.7 years Median = 45.5 years

Table A.8. Place of permanent residence as determined by zip code.

Place of permanent residence	N	%
Michigan - local (Iron Mountain and Gaylord zip code regions)	23	17.2
Michigan - nonlocal (other zip code regions in the state)	75	56.0
Other states	34	25.4
Other country (Poland)	2	1.5
Total	134	100.0

Source: Fall onsite survey.

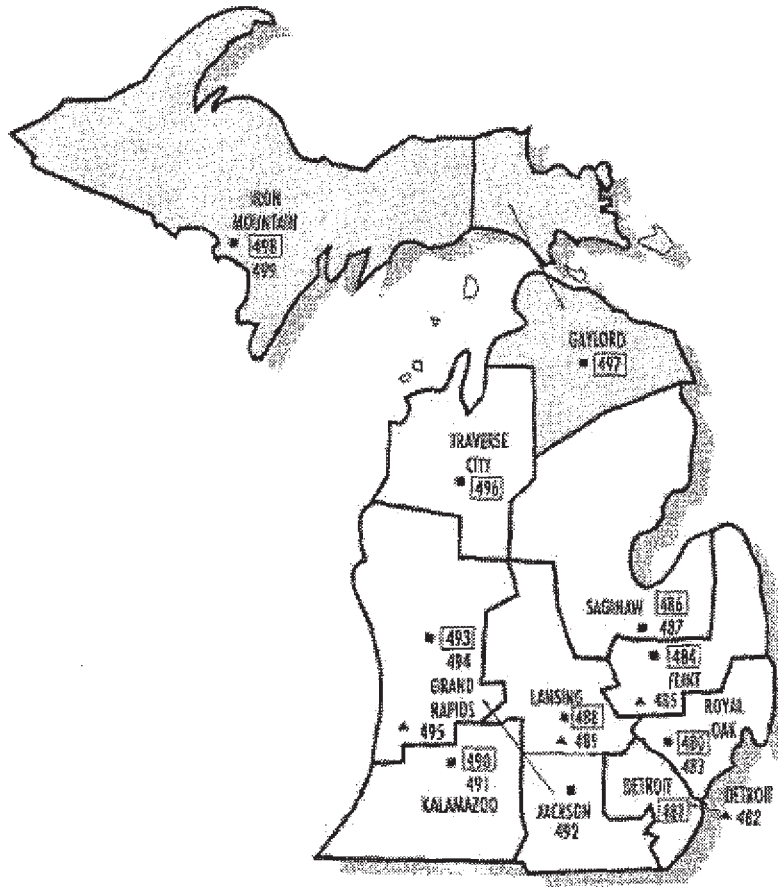


Figure A.1. Map depicting three-digit zip code regions in Michigan with local zip codes shaded.

B. Comparison of Respondents and Nonrespondents

Selected variables from the onsite survey were examined to determine whether statistically significant differences exist between *respondents*, those individuals who returned a mailback questionnaire, and *nonrespondents*, those individuals who did not. Overall, respondents and nonrespondents were more similar than different. However, respondents were significantly older than nonrespondents.

Half of all respondents were contacted at three locations within Pictured Rocks NL: Miners Falls, Sable Falls, and Twelve Mile Beach Campground (Table B.1). Nearly one-third (30 percent) of nonrespondents were contacted at Sable Falls, a frontcountry site that is easily accessed by paved roads on the east end of the Lakeshore.

More nonrespondents (42 percent) than respondents (31 percent) were visiting Pictured Rocks NL for the first time (Table B.2). The mean number of visits for both subgroups is higher than the median number of visits because a few individuals reported visiting the Lakeshore many times.

The mean group size for respondents and nonrespondents was 3 people (Table B.3). The majority of both respondents and nonrespondents were traveling with family and friends (Table B.4).

Plans for visiting Pictured Rocks NL were similar for both respondents and nonrespondents. For about half of all respondents (51 percent) and nonrespondents (52 percent), visiting the Lakeshore was the primary purpose of their visit to the area (Table B.5).

In regard to gender, differences between respondents and nonrespondents were not significant (Table B.6). However, respondents were significantly older (46 years) than nonrespondents (38 years) (Table B.7).

State of permanent residence, as determined by zip codes provided by visitors completing the onsite survey, were similar for respondents and nonrespondents. Seventy-four percent of both respondents and nonrespondents reported having a permanent address in Michigan (Table B.8). Figure A.1 depicts the 3-digit zip code areas in Michigan.

Table B.1. Location of onsite survey, by respondents and nonrespondents.

Onsite survey location	Respondents		Nonrespondents	
	N	%	N	%
Miners Falls	15	17.9	1	3.7
Sable Falls	14	16.7	8	29.6
Twelve Mile Beach Campground	13	15.5	4	14.8
Chapel parking area	10	11.9	2	7.4
Hurricane parking lot	10	11.9	1	3.7
Log Slide	8	9.5	2	7.4
Miners Castle	7	8.3	3	11.1
Grand Sable Visitor Center	3	3.6	1	3.7
Munising Falls	2	2.4	0	0
Hurricane River Campground	2	2.4	0	0
Little Beaver Lake launch	0	0	5	18.5
Total	84	100.0	27	100.0

Source: Fall onsite survey.

Table B.2. Number of visits to Pictured Rocks NL, by respondents and nonrespondents.

Number of visits	Respondents		Nonrespondents	
	N	%	N	%
1 (this visit)	25	30.5	11	42.3
2	15	18.3	3	11.5
3	5	6.1	4	15.4
4	7	8.5	1	3.8
5-10	16	19.5	3	11.5
11-20	5	6.1	0	0
21 or more	9	11.0	4	15.4
Total	82	100.0	26	100.0

Source: Fall onsite survey, question 1.

Respondents:	Mean = 8.2 visits	Median = 3 visits
Nonrespondents:	Mean = 6.3 visits	Median = 2 visits

Table B.3. Mean and median number of people per group, by respondents and nonrespondents.

Respondents			Nonrespondents		
N	Mean	Median	N	Mean	Median
84	2.7	2	27	3.2	3

Source: Fall onsite survey, question 2.

Table B.4. Type of group, by respondents and nonrespondents.

Group type	Respondents		Nonrespondents	
	N	%	N	%
Family and friends	73	86.9	22	81.5
Alone	10	11.9	5	18.5
Business	1	1.2	0	0
Total	84	100.0	27	100.0

Source: Fall onsite survey, question 3.

Table B.5. Respondents plan for visiting Pictured Rocks NL, by respondents and nonrespondents.

Plan for visiting Pictured Rocks NL	Respondents*		Nonrespondents*	
	N	%	N	%
The primary purpose of my visit to the area	42	51.2	14	51.9
One of several important things I planned to do during my visit to the area	32	39.0	7	25.9
Something I decided to do <u>after</u> arriving in the area	8	9.8	6	22.2
Total	82	100.0	27	100.0

Source: Fall onsite survey, question 4.

Table B.6. Gender of study participants at Pictured Rocks NL, by respondents and nonrespondents.

Gender	Respondents		Nonrespondents	
	N	%	N	%
Male	56	66.7	17	63.0
Female	28	33.3	10	37.0
Total	84	100.0	27	100.0

Source: Fall onsite survey, question 6.

Table B.7. Mean and median age, by respondents and nonrespondents.

N	Respondents		N	Nonrespondents	
	Mean*	Median		Mean*	Median
84	45.9	46	26	38.4	35.5

Source: Fall onsite survey, question 7.

* Mean ages for respondents and nonrespondents are significantly different at the $p < .05$ level.

Table B.8. Place of permanent residence as determined by zip codes, by respondents and nonrespondents.

Place of permanent residence	Respondents		Nonrespondents	
	N	%	N	%
Michigan - local (Iron Mountain and Gaylord zip code regions)	12	14.3	6	22.2
Michigan - nonlocal (other zip code regions in the state)	50	59.5	14	51.9
Other states	22	26.2	7	25.9
Total	84	100.0	27	100.0

Source: Fall onsite survey.

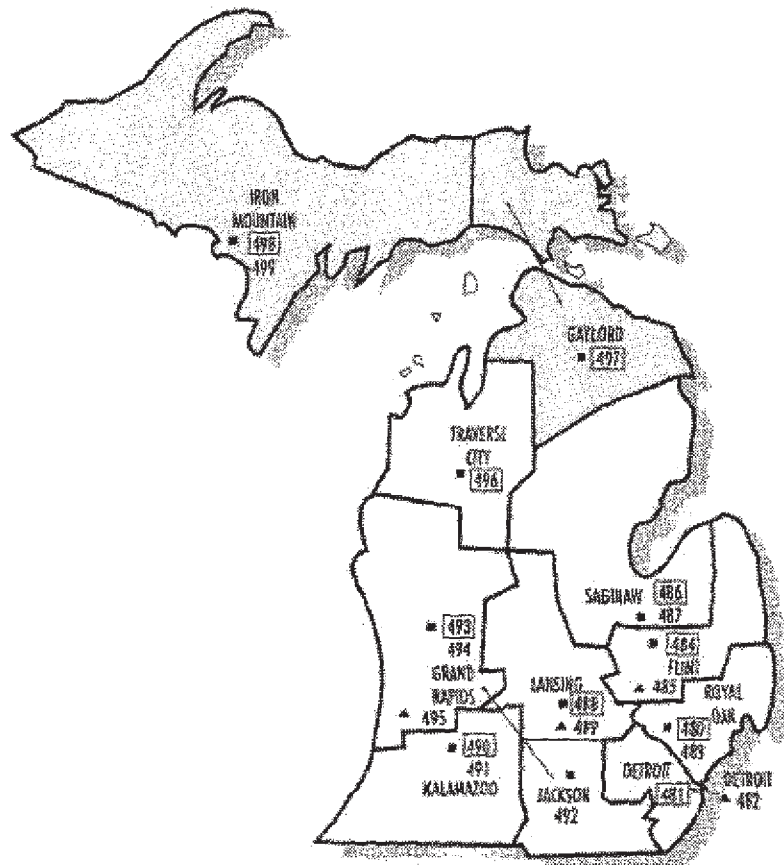


Figure B.1. Map depicting three-digit zip code regions in Michigan with local zip codes shaded.

C. Trip Characteristics

Visitor data were analyzed for all mailback questionnaires completed and returned by visitors. Half of the respondents' initial contact and request to complete the onsite survey occurred at three sites within Pictured Rocks NL: Miners Falls, Sable Falls, and Twelve Mile Beach Campground (Table C.1).

Respondents most frequently entered the Lakeshore either at Grand Marais (48 percent), on the eastern boundary, or at Munising (39 percent), on the western boundary (Table C.2).

Nearly one-third all respondents (31 percent) were visiting Pictured Rocks NL for the first time (Table C.2). The mean number of visits (8 visits) is somewhat greater than the median score (3 visits) because a few respondents reported visiting the Lakeshore many times.

Respondents most frequently traveled in groups of either two (61 percent) or four (21 percent) people. (Table C.4) and the majority (92 percent) were traveling with family and friends (Table C.5).

For 51 percent of respondents, visiting Pictured Rocks NL was the primary purpose of their visit to the area (Table C.6). Another 39 percent of respondents reported that visiting the Lakeshore was one of several important things they planned to do during their visit to the area.

A total of 89 percent of all respondents stayed overnight in the area while visiting Pictured Rocks NL. Of those who did stay overnight, 44 percent stayed at a local motel or hotel (Table C.7). More than one-third of the respondents (39 percent) reported staying at a vehicle accessible campsite during their visit.

Visitors participated in a variety of activities while visiting Pictured Rocks NL. Respondents most frequently reported engaging in viewing fall colors (90 percent), sightseeing by automobile (80 percent), and day hiking (77 percent), wildlife watching (48 percent), visiting geological sites (48 percent), and visiting historic sites (44 percent) (Table C.7). Bird watching (35 percent) and camping at vehicle accessible campgrounds (31 percent) also were popular activities.

Table C.1. Location of onsite survey.

Onsite survey location	N	%
Miners Falls	15	17.9
Sable Falls	14	16.7
Twelve Mile Beach Campground	13	15.5
Chapel parking area	10	11.9
Hurricane River parking lot	10	11.9
Log Slide	8	9.5
Miners Castle	7	8.3
Grand Sable Visitor Center	3	3.6
Hurricane River Campground	2	2.4
Munising Falls	2	2.4
Total	84	100.0

Source: Fall onsite survey.

Table C.2. Entry point into Pictured Rocks NL on most recent trip.

Entry point	N	%
Grand Marais	32	47.8
Munising	26	38.8
Melstrand	1	1.5
H-13	1	1.5
Other	7	10.4
Total	67	100.0

Source: Fall mailback survey, question 2.

Table C.3. Number of visits to Pictured Rocks NL.

Number of visits	N	%
1 (this visit)	25	30.5
2	15	18.3
3	5	6.1
4	7	8.5
5-10	16	19.5
11-20	5	6.1
21 or more	9	11.0
Total	82	100.0

Source: Fall onsite survey, question 1.

Mean = 8.2 visits Median = 3 visits

Table C.4. Number of people per group.

Number of people per group	N	%
1	5	6.0
2	51	60.7
3	5	6.0
4	18	21.4
5	3	3.6
6	0	0
7 or more	2	2.4
Total	84	100.0

Source: Fall onsite survey, question 2.

Mean = 2.7 people Median = 2 people

Table C.5. Type of group.

Group type	N	%
Family and friends	73	92.4
Alone	5	6.3
Business	1	1.3
Total	79	100.0

Source: Fall onsite survey, question 3.

Table C.6. Respondents plan for visiting Pictured Rocks NL.

Plan for visiting Pictured Rocks NL	N	%
The primary purpose of my visit to the area	42	51.2
One of several important things I planned to do during my visit to the area	32	39.0
Something I decided to do <u>after</u> arriving in the area	8	9.8
Total	82	100.0

Source: Fall onsite survey, question 4.

Table C.7. For respondents staying overnight at or near the Lakeshore, response to: "On this trip, where will you or did you stay overnight while visiting Pictured Rocks National Lakeshore?"

Accommodations	N	%*	%**
At a local motel/hotel	33	40.7	44.0
At a vehicle accessible campsite	29	35.8	38.7
At a backcountry campground	9	11.1	12.0
At my cabin	4	4.9	5.3
At a local lodge	3	3.7	4.0
At home	2	2.5	2.7
With friends who live in the area	1	1.2	1.3
Total	81	100.0	--

Source: Fall onsite survey, question 5.

* Percentage based on number of *responses*. Respondents could give more than one response.

** Percentage based on number of *respondents*.

Table C.8. Activities in which respondents participated during their most recent trip to Pictured Rocks NL.

Activity	N	%*	%**
Viewing fall colors	75	17.2	90.4
Sightseeing by automobile	66	15.1	79.5
Day hiking	64	14.7	77.1
Wildlife watching	40	9.2	48.2
Visiting geological sites	40	9.2	48.2
Visiting historic sites	36	8.3	43.4
Bird watching	29	6.7	34.9
Camping at vehicle accessible campgrounds	26	6.0	31.3
Hiking the North Country Trail	11	2.5	13.3
Tour boat ride	11	2.5	13.3
Backpacking in the backcountry	7	1.6	8.4
Fishing	7	1.6	8.4
Canoeing	5	1.1	6.0
Bicycling	4	0.9	4.8
Recreational vehicle touring	3	0.7	3.6
Viewing waterfalls	3	0.7	3.6
Hunting	2	0.5	2.4
Motor boating	2	0.5	2.4
Kayaking	2	0.5	2.4
Other***	2	0.5	2.4
Total	435	100	--

Source: Fall mailback survey, question 1.

* Percentage based on number of *responses*. Respondents could give more than one response.

** Percentage based on number of *respondents* (N=83).

*** Other activities include: annual exercise at Log Slide (1) and R & R (1).

D. Visitor Characteristics

Demographic data were gathered to determine characteristics of visitors. Approximately half of all respondents were male (55 percent) and about half were female (45 percent) (Table D.1).

More than half of all respondents (54 percent) were between the ages of 41 and 55 (Table D.2). Both the mean and median age of respondents was 46 years.

The majority of study participants (95 percent) had a post-high school education (Table D.3). A total of 62 percent had at least a college degree.

Three-quarters of all respondents had an annual household income in 1999 (before taxes) of at least \$40,000 (Table D.4). A total of 43 percent had an annual household income of \$65,000 or more.

Regarding race or ethnicity, most respondents (95 percent) identified themselves as white (Table D.5).

Respondents came from nine states with 74 percent reporting a permanent mailing address in Michigan (Table D.6). Of those providing a Michigan address, 19 percent were respondents with a zip code from either the Gaylord or Iron Mountain region of the state (Table D.7). Figure D.1 depicts the 3-digit zip code regions in Michigan.

Table D.1. Gender of respondents at Pictured Rocks NL.

Gender	N	%
Male	46	55.4
Female	37	44.6
Total	83	100.0

Source: Fall mailback survey, question 11.

Table D.2. Age of respondents at Pictured Rocks NL.

Age	N	%
18-25	5	6.0
26-30	7	8.4
31-35	5	6.0
36-40	6	7.2
41-45	13	15.7
46-50	21	25.3
51-55	11	13.3
56-60	3	3.6
61-65	8	9.6
66 or older	4	4.8
Total	83	100.0

Source: Fall mailback survey, question 12.

Mean = 46.1 years Median = 46 years

Table D.3. Educational level of respondents at Pictured Rocks NL.

Educational level	N	%
High school graduate or GED	5	6.1
Some college, business or trade school	26	31.7
College graduate	30	36.6
Some graduate school	7	8.5
Masters, doctoral or professional degree	14	17.1
Total	82	100.0

Source: Fall mailback survey, question 14.

Table D.4. Total household income of respondents (before taxes) in 1999.

Income level	Total sample	
	N	%
Less than \$15,000	2	2.7
\$15,000 to \$24,999	4	5.3
\$25,000 to \$39,999	13	17.3
\$40,000 to \$64,999	24	32.0
\$65,000 or more	32	42.7
Total	75	100.0

Source: Fall mailback survey, question 15.

Table D.5. Race or ethnicity reported by respondents to Pictured Rocks NL.

Race or ethnicity	N	%
White	76	95.0
Asian	2	2.5
American Indian	1	1.3
American Indian and white	1	1.3
Total	80	100.0

Source: Fall mailback survey, question 16.

Table D.6. Residence of respondents by state.

State	N	%
Michigan	62	73.8
Wisconsin	11	13.1
Illinois	3	3.6
Ohio	3	3.6
Kentucky	1	1.2
Minnesota	1	1.2
South Carolina	1	1.2
Texas	1	1.2
Washington	1	1.2
Total	84	100.0

Source: Fall onsite survey.

Table D.7.

Zip code region	3-digit zip code prefix		%
Royal Oak		9	14.5
	493-495	7	
Saginaw	486-487		11.3
Gaylord		6	9.7
	498-499	6	
Kalamazoo	490		9.7
Detroit		5	8.1
	488-489	5	
Traverse City	496		8.1
Flint		4	6.4
	492	2	
Total	--		100.0

Source

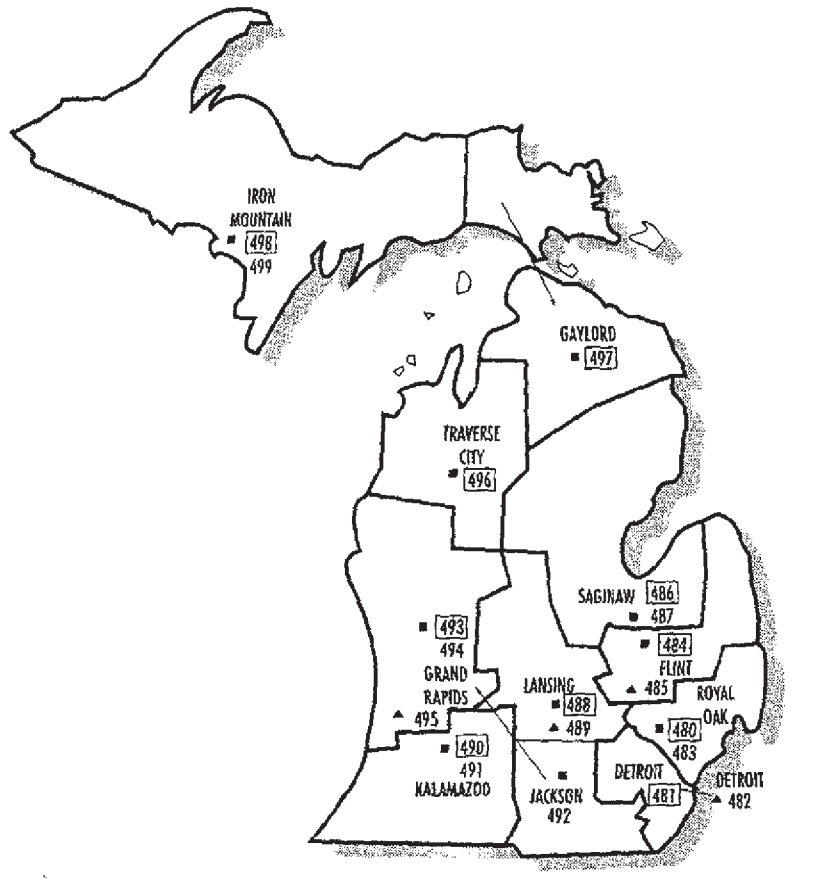


Figure D.1. Map depicting three-digit zip code regions in Michigan

E. Visitor Motives

An understanding of visitors' motives for visiting a recreation resource is important to helping managers provide opportunities for visitors to attain the experiences they desire. To obtain a clearer awareness of visitors' motives for visiting Pictured Rocks NL, respondents were asked to look over a list of 27 different possible experiences that visitors may have while visiting Pictured Rocks NL and to indicate, along a 5-point scale (1=very unimportant, 2= unimportant, 3=neither unimportant nor important, 4=important, 5=very important), how important each experience was to them. More than 90 percent of all respondents rated the following experiences as important or very important: to experience nature, to enjoy the scenery of Pictured Rocks, and to be close to nature (Table E.1). For more than three-quarters of respondents, getting away from the usual demands of life and having a wilderness experience were important or very important. The experience of enjoying hunting received the lowest importance rating (1.9) followed by the experience of meeting new people (2.1).

Table E.1. *Importance* of experiences sought by respondents on their most recent visit to Pictured Rocks NL.

Experience*	N	Percent of respondents by response category**		
		2	4	5
To experience nature		1.3	27.8	
To enjoy the scenery of Pictured Rocks		0	25.3	
To be close to nature		0	43.6	
To get away from the usual demands of life		5.0	36.3	
To have a wilderness experience		3.9	41.6	
To do something with my family		5.0	27.5	
To relax physically		2.5	34.2	
To experience new and different things		5.1	46.2	
To get exercise		2.5	47.5	
To experience solitude		10.1	38.0	
To be away from other people		3.8	35.4	
To learn about the natural history of the area		3.8	46.3	
To feel healthier		5.0	41.3	
To be on my own		11.7	33.8	
To be with members of my group		9.6	23.3	
To be with people who enjoy the same things	78	12.8	23.1	24.4
	80	10.0	46.3	20.0
	78	6.4	32.1	16.7
	79	5.1	35.4	11.4
sketching, painting, taking photographs		3.2	11.3	28.8
To use my own equipment		3.1	12.0	33.3
To have thrills and excitement		3.0	15.0	8.8
To challenge myself		2.8	14.8	18.5
To test my skills and abilities		2.8	15.2	19.0
To share my skill and knowledge with others		2.5	22.8	7.6
To meet new people		2.1	24.4	3.8
To enjoy hunting		1.9	19.0	5.1

Source

* Rank ordered by total sample mean scores.

important, 4 = important, 5 = very important.

F. Visitor Benefits

Natural areas provide a myriad of opportunities for visitors to gain psychological and physiological benefits. In fact, the opportunity to reap such benefits is one of the most valuable contributions recreational lands make to improving the well-being of visitors as well as the society in which we live. Whether benefits are personal, societal, economic, or environmental, the positive impact of both onsite and offsite benefits are an important consideration when developing management plans that effectively serve visitors, surrounding communities, and the environment.

To ascertain the benefits respondents derived from their visits to Pictured Rocks NL, they were asked to rate, along a 4-point scale (1=did not attain, 2=somewhat attained, 3=moderately attained, and 4=totally attained), how well they were able to attain the experiences they desired. For the total sample, nearly all experiences respondents had rated as either important or very important were at least moderately attained, indicating that respondents benefitted from their trips to the Lakeshore (Table F.1). Experiences receiving the highest attainment ratings were to do something with my family (3.9) to be with members of my group (3.8), to use my own equipment (3.8), to enjoy the scenery of Pictured Rocks (3.8), and to experience nature (3.8). The lowest attainment ratings, less than moderately attained, were reported for enjoying hunting (2.0) and learning about the cultural history of the area (2.9).

Table F.1. *Attainment* of experiences sought by respondents on their most recent visit to Pictured Rocks NL for study participants who reported the importance of specific experiences as *important* or *very important*.

Experience*	N	Mean	Percent of respondents by response category**			
			1	2	3	4
To do something with my family	49	3.9	2.0	0	8.2	89.8
To be with members of my group	35	3.8	0	2.9	11.4	85.7
To use my own equipment	29	3.8	0	3.4	17.2	79.3
To enjoy the scenery of Pictured Rocks	64	3.8	0	3.1	18.8	78.1
To experience nature	67	3.8	0	0	25.4	74.6
To be with people who enjoy the same things I do	32	3.7	0	0	31.3	68.8
To be close to nature	64	3.6	0	3.1	32.8	64.1
To get away from the usual demands of life	53	3.5	0	11.3	24.5	64.2
To be creative by doing something such as sketching, painting, taking photographs	30	3.5	3.3	6.7	30.0	60.0
To challenge myself	17	3.5	0	11.8	29.4	58.8
To get exercise	48	3.5	0	10.4	33.3	56.3
To think about my personal values	28	3.5	0	7.1	39.3	53.6
To meet new people	4	3.5	0	0	50.0	50.0
To have thrills and excitement	11	3.5	0	0	54.5	45.5
To relax physically	43	3.4	0	11.6	39.5	48.8
To test my skills and abilities	18	3.3	0	16.7	33.3	50.0
To have a wilderness experience	54	3.3	0	18.5	31.5	50.0
To be on my own	38	3.3	5.3	13.2	31.6	50.0
To participate in recreational activities	37	3.3	2.7	5.4	48.6	43.2
To experience new and different things	47	3.3	0	8.5	51.1	40.4
To share my skill and knowledge with others	9	3.2	0	22.2	33.3	44.4
To be away from other people	42	3.1	4.8	11.9	47.6	35.7
To feel healthier	40	3.1	0	25.0	40.0	35.0
To experience solitude	45	3.1	2.2	20.0	44.4	33.3
To learn about the natural history of the area	44	3.1	2.3	18.2	47.7	31.8
To learn about the cultural history of the area	34	2.9	8.8	26.5	32.4	32.4
To enjoy hunting	5	2.0	40.0	40.0	0	20.0

Source: Fall mailback survey, question 3.

* Rank ordered by total sample mean scores.

** Responses based on a 4-point scale: 1 = did not attain, 2 = somewhat attained, 3 = moderately attained, 4 = totally attained.

G. Crowding at Specific Locations

It is important to recognize that different types of visitors may have different perceptions of crowding and that their perceptions are often based on the types of experiences they seek. As recreational use of natural areas increases, crowding has the potential to impede the attainment of visitors' desired experiences, particularly for visitors seeking solitude. Perceptions of feeling crowded can lead to changes in visitor behavior and use patterns. For example, visitors may choose to recreate at a site during seasons when use is not as intense. For some visitors, crowding may interfere with their recreational goals to the point where they select alternative sites to pursue their desired experiences. Displacement becomes problematic when suitable substitutes are difficult to find or are simply unavailable.

To determine sites of potential crowding at Pictured Rocks NL, study participants were asked to evaluate the acceptability of their encounters at nine locations within the Lakeshore. Using a 7-point scale (1=very unacceptable, 7=very acceptable), respondents rated the acceptability of encounters with people or watercraft for each location they had visited. Acceptability ratings ranged from 5.7 for backcountry campsites to 6.4 for interior lakes (Table G.1).

Respondents were asked to provide the reasons they found their encounters with other visitors unacceptable (as indicated by a rating of 3 or less on a 7-point scale). Study participants could report, where appropriate, the number of people, number of watercraft, or something else as an explanation for an unacceptable encounter. Few respondents offered reasons for low acceptability ratings (Table G.2).

Table G.1. Acceptability of respondents' encounters at various locations during their visit to Pictured Rocks NL.

Location	Percent of respondents by response category*									
	N**	Mean	Very unacceptable				Very acceptable			
			1	2	3	4	5	6	7	
On interior lakes	24	6.4	0	0	0	4.2	4.2	37.5	54.2	
While visiting historic sites	50	6.3	0	0	2.0	2.0	16.0	28.0	52.0	
While on trails	69	6.2	0	0	1.4	5.8	8.7	37.7	46.4	
On Lake Superior shoreline and beaches	75	6.1	0	1.3	2.7	1.3	21.3	25.3	48.0	
At trailheads	57	6.1	0	0	3.5	5.3	14.0	36.8	40.4	
At boat landings	15	6.0	0	0	0	6.7	26.7	26.7	40.0	
At vehicle accessible campgrounds	46	5.9	2.2	0	0	8.7	23.9	28.3	37.0	
On Lake Superior	36	5.8	0	0	5.6	5.6	27.8	22.2	38.9	
At backcountry campsites	19	5.7	0	0	10.5	10.5	21.1	15.8	42.1	

Source: Fall mailback survey, question 4.

* Responses based on a 7-point scale: 1 = very unacceptable and 7 = very acceptable.

** Number of respondents; the table does not include study participants who reported "don't recall."

Table G.2. Respondents reasons for rating the acceptability of their encounters as unacceptable.

Location	N	Number of people	Number of watercraft	Something else
On interior lakes	0	0	0	0
While visiting historic sites	1	1	0	0
While on trails	1	0	0	0
On Lake Superior shoreline and beaches	3	1	0	2
At trailheads	2	1	0	1
At boat landings	0	0	0	0
At vehicle accessible campgrounds	1	1	0	0
On Lake Superior	2	1	0	1
At backcountry campsites	2	1	0	1

Source: Fall mailback survey, question 4.

H. Possible Problems Experienced by Respondents

Problems visitors experience during their visits can diminish the quality of their experiences and hinder the attainment of benefits they may otherwise have gained. To assess the existence of potential problems at Pictured Rocks NL, respondents evaluated 35 possible situations they may have experienced on their most recent trip to the Lakeshore. Study participants used a 5-point scale (1=no problem, 2=slight problem, 3=moderate problem, 4=serious problem, 5=very serious problem) to rate each situation. All potential problems received ratings of less than 2, indicating that respondents experienced very few problems during their visit (Table H.1). The most problematic situation, insufficient navigational aids for backcountry, received a score of 1.6. Respondents gave a mean rating of 1.4 for litter on inland lakes, people being inconsiderate, and personal watercraft disturbing their backcountry experience.

Table H.1. Respondents evaluation of problems they may have encountered on their most recent trip to Pictured Rocks NL.

Problem*	N	Mean	Percent of respondents by response category**				
			1	2	3	4	5
Insufficient trail navigational aids for backcountry	53	1.6	67.9	17.0	9.4	3.8	0
Litter on inland lakes	56	1.4	71.4	21.4	3.6	0	3.6
People being inconsiderate	79	1.4	79.7	12.7	1.3	5.1	1.3
Personal watercraft disturbing my backcountry experience	48	1.4	83.3	4.2	8.3	2.1	2.1
Lack of available information for trip planning	75	1.3	77.3	13.3	8.0	1.3	0
Too many personal watercraft on Lake Superior shoreline	61	1.3	82.0	13.1	3.3	0	1.6
Too many commercial tour boats on Lake Superior shoreline	63	1.3	82.5	11.1	3.2	1.6	1.6
Confusion about rules and regulations	72	1.3	83.3	9.7	4.2	2.8	0
Too many personal watercraft at beaches on Lake Superior	61	1.3	83.6	6.6	6.6	1.6	1.6
Noise from airplanes	72	1.3	86.1	8.3	0	5.6	0
Motorized watercraft on Lake Superior disturbing my backcountry experience	54	1.2	87.0	9.3	1.9	1.9	0
Too many motorized boats on Lake Superior shoreline	63	1.2	87.3	7.9	3.2	1.6	0
Too many watercraft at beaches on inland lakes	41	1.2	87.8	7.3	2.4	2.4	0
Not enough National Park Service rule enforcement	69	1.2	88.4	5.8	2.9	1.4	1.4
Too many watercraft at beaches on Lake Superior	61	1.2	88.5	6.6	3.3	1.6	0
Too much noise on Lake Superior shoreline	78	1.2	88.5	6.4	3.8	1.3	0
Campsites damaged by previous visitors	53	1.2	88.7	7.5	1.9	0	1.9
Motorized watercraft on inland lakes disturbing my backcountry experience	48	1.2	89.6	4.2	4.2	2.1	0
Unsafe operation of snowmobiles in the backcountry	23	1.2	91.3	4.3	0	0	4.3
Too many hunters in backcountry	48	1.2	91.7	6.3	0	0	2.1
Encounters with personal watercraft operators	40	1.2	92.5	0	5.0	0	2.5
Encounters with hunters	42	1.2	92.9	2.4	2.4	0	2.4
Encounters with snowmobiles	25	1.2	96.0	0	0	0	4.0

Problem*	N	Mean	Percent of respondents by response category**				
			1	2	3	4	5
Encounters with cross-country skiers	25	1.2	96.0	0	0	0	4.0
Encounters with snowshoers	25	1.2	96.0	0	0	0	4.0
Too much National Park Service rule enforcement	67	1.1	92.5	1.5	6.0	0	0
Insufficient navigational aids on Lake Superior	29	1.1	93.1	3.4	0	3.4	0
People drinking alcoholic beverages	68	1.1	94.1	4.4	1.5	0	0
Encounters with hikers	75	1.1	94.7	1.3	2.7	0	1.3
Someone occupying my reserved campsite	55	1.1	96.4	1.8	0	0	1.8
Too many nonmotorized watercraft on Lake Superior shoreline	59	1.1	96.6	1.7	1.7	0	0
Snowmobiles disturbing my backcountry experience	32	1.1	96.9	0	0	3.1	0
Encounters with boaters	44	1.1	97.7	0	0	0	2.3
Damage or loss to personal property	74	1.0	98.6	0	0	1.4	0
Too many snowmobiles in the backcountry	23	1.0	100.0	0	0	0	0

Source: Fall mailback survey, question 5.

* Rank ordered by sample mean score.

** Responses based on a 5-point scale: 1 = no problem, 2 = slight problem, 3 = moderate problem, 4 = serious problem, 5 = very serious problem.

I. Management Actions

The new management plan at Pictured Rocks NL will be instrumental in shaping visitor experience opportunities for years to come. An understanding of visitors' management preferences can aid the development of a management plan that protects the resource and provides quality recreational opportunities. Respondents' level of support or opposition for 29 specific actions at Pictured Rocks NL was determined by examining their responses as rated on a 5-point scale (1=strongly oppose, 2=oppose, 3=neither oppose nor support, 4=support, 5=strongly support). More than three-quarters of all respondents supported or strongly supported restricting snowmobile use to designated areas only and providing visitors with natural history information about the area (Table I.1). More than two-thirds indicated support or strong support for restricting personal watercraft use to designated areas only, establishing "off-limit" zones to protect sensitive resources, and establishing a part of Pictured Rocks as wilderness. Study participants' responses regarding horseback riding or mountain biking on trails were mixed. A total of 45 percent of respondents opposed or strongly opposed allowing horseback riding on trails while 30 percent supported or strongly supported the potential management action. Similarly, 51 percent of respondents opposed or strongly opposed allowing mountain biking on trails while 32 percent supported or strongly supported the action. Respondents' verbatim responses regarding other aspects of management appear in Appendix G.

Table I.1. Respondents' support or opposition regarding possible management actions at Pictured Rocks NL.

Management Action*	N	Mean	Percent of respondents by response category**				
			1	2	3	4	5
Restrict snowmobile use to designated areas only	83	4.0	3.6	4.8	13.3	41.0	37.3
Provide visitors with natural history information about the area	82	4.0	0	2.4	12.2	69.5	15.9
Restrict personal watercraft use to designated areas only	83	3.9	6.0	6.0	15.7	33.7	38.6
Establish "off-limit" zones to protect sensitive resources	82	3.8	7.3	6.1	15.9	40.2	30.5
Establish a part of Pictured Rocks as wilderness	82	3.8	6.1	11.0	13.4	35.4	34.1
Restrict further development and expansion of Pictured Rocks	79	3.7	3.8	10.1	21.5	39.2	25.3
Provide more information to visitors about appropriate behavior	83	3.7	1.2	2.4	37.3	41.0	18.1
Limit number of personal watercraft in Pictured Rocks at any one time	83	3.6	4.8	9.6	33.7	22.9	28.9
Limit number of snowmobilers allowed in Pictured Rocks at any one time	83	3.6	6.0	9.6	28.9	32.5	22.9
Aggressively enforce existing rules and regulations	83	3.6	6.0	8.4	22.9	48.2	14.5
Limit number of motorized watercraft in Pictured Rocks at any one time	82	3.5	4.9	13.4	30.5	31.7	19.5
Limit the number of boats allowed on inland lakes	83	3.4	3.6	14.5	32.5	33.7	15.7
Provide more park rangers to educate visitors about appropriate behavior	82	3.4	6.1	6.1	39.0	37.8	11.0
Restrict activities in backcountry to provide specific uses at specific places	81	3.3	7.4	18.5	30.9	27.2	16.0
Restrict activities along Pictured Rocks shoreline to provide specific uses at specific places	80	3.3	7.5	18.8	25.0	33.8	15.0
Restrict cross-country ski use to designated areas only	81	3.3	11.1	12.3	32.1	29.6	14.8
Prohibit drinking alcoholic beverages in Pictured Rocks	83	3.2	13.3	19.3	26.5	14.5	26.5
Provide more backcountry campsites	82	3.2	3.7	12.2	46.3	32.9	4.9
Prohibit personal watercraft in the area	82	3.1	13.4	18.3	31.7	14.6	22.0
Require visitors to learn about appropriate behavior in backcountry	81	3.1	12.3	12.3	32.1	37.0	6.2
Improve public access to Lake Superior	82	3.1	3.7	28.0	30.5	32.9	4.9
Prohibit motorized watercraft in the area	81	3.0	9.9	21.0	39.5	16.0	13.6
Limit number of people <i>per group</i> allowed in area	81	2.9	8.6	25.9	33.3	27.2	4.9
Restrict number of people in Pictured Rocks at any one time	82	2.8	13.4	26.8	34.1	22.0	3.7
Allow mountain biking on trails	81	2.7	21.0	29.6	17.3	24.7	7.4
Limit number of nonmotorized watercraft in Pictured Rocks at any one time	82	2.7	14.6	29.3	37.8	12.2	6.1
Allow horseback riding on trails	81	2.7	21.0	23.5	25.9	24.7	4.9
Limit number of cross-country skiers allowed in Pictured Rocks at any one time	82	2.7	13.4	24.4	41.5	18.3	2.4
Limit number of hikers allowed in Pictured Rocks at any one time	81	2.6	17.3	29.6	33.3	17.3	2.5

Source: Fall mailback survey, question 6.

* Rank ordered by total sample mean scores.

** Responses based on a 5-point scale: 1 = strongly oppose, 2 = oppose, 3 = neither support nor oppose, 4 = support, 5 = strongly support.

J. Service Quality and Visitor Satisfaction

Visitor feedback regarding satisfaction with their experiences and their ideas regarding services or activities that they would like to see offered or prohibited at the Lakeshore is important to evaluating how well visitors perceive their needs are being met. Additionally, this information can help determine visitors' satisfaction with their visits and how well they were able to attain their desired experiences and receive the associated benefits.

Respondents expressed their satisfaction with the quality of services provided at Pictured Rocks NL by rating eight services along a 5-point scale (1=dissatisfied, 2=somewhat satisfied, 3=neither dissatisfied nor satisfied, 4=somewhat satisfied, 5=satisfied). Study participants who responded "did not use" or "don't know" were excluded from the sample. Seventy-four percent of all respondents reported they were satisfied (the highest possible rating) with the overall quality of services at Pictured Rocks NL (Table J.1). Respondents indicated a degree of ambivalence concerning the availability of park ranger-led activities. Although 30 percent were satisfied or somewhat satisfied with the availability of activities, 61 percent were neither dissatisfied nor satisfied.

In question eight of the mailback questionnaire, study participants were asked, "Are there activities or services that you think should be offered at Pictured Rocks National Lakeshore that currently are not offered?" Sixteen percent of all respondents offered comments (Table J.2). Respondents suggested a variety of activities and services including opportunities for more interpretation of natural and cultural history. Respondents' verbatim responses to question eight appear in Appendix H.

In question nine of the mailback questionnaire, study participants were asked, "Are there activities or services that you think should be prohibited at Pictured Rocks National Lakeshore?" A total of 38 percent of all respondents offered comments (Table J.3). Of those who offered comments, more than half expressed support for prohibiting the use of motorized recreational vehicles such as personal watercraft, snowmobiles, and all terrain vehicles. Additionally, some respondents suggested prohibiting hunting and mountain biking. Respondents' verbatim responses to question nine appear in Appendix I.

Study participants were asked to evaluate a list of ten statements along a 5-point scale (1=strongly disagree, 2= disagree, 3=neither disagree nor agree, 4=agree, 5=strongly agree) about their most recent trip to Pictured Rocks NL and to indicate the extent to which they agreed or disagreed with each statement. All respondents agreed or strongly agreed that they enjoyed their time at Pictured Rocks NL and that they were satisfied with their trip to Pictured Rocks NL. (Table J.4). More than 90 percent reported enjoying the natural quiet and thought the area and its surroundings were in good condition. At least 90 percent of respondents disagreed or strongly disagreed with the statement that they did not have the kind of experience they were looking for and that the trip was not worth the money it cost.

Table J.1. Response to: "On your most recent trip, how satisfied were you with the quality of services provided for you at Pictured Rocks National Lakeshore?"

Service Quality*	N**	Mean	Percent of respondents by response category***				
			1	2	3	4	5
Overall quality of services at Pictured Rocks National Lakeshore	78	4.6	0	1.3	9.0	15.4	74.4
Maintenance of facilities at Pictured Rocks National Lakeshore	78	4.5	0	5.1	10.3	14.1	70.5
Availability of visitor information publications	69	4.3	2.9	8.7	7.2	14.5	66.7
Access to exhibits and other educational materials	67	4.2	0	7.5	20.9	14.9	56.7
Quality of Pictured Rocks trail maps	70	4.1	1.4	14.3	8.6	20.0	55.7
Response of National Park Service Employees to your needs	43	3.9	4.7	7.0	30.2	7.0	51.2
Usefulness of National Lakeshore website	21	3.9	0	19.0	19.0	19.0	42.9
Availability of park ranger-led activities	33	3.4	0	9.1	60.6	9.1	21.2

Source: Fall mailback survey, question 7.

**Rank ordered by total sample mean scores.

**The table does not include respondents who reported "did not use/don't know."

*** Responses based on a 5-point scale: 1 = dissatisfied, 2 = somewhat dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = somewhat satisfied, 5 = satisfied.

Table J.2. Response to: "Are there any activities or services that you think should be offered at Pictured Rocks National Lakeshore that currently are not offered?"

Comments	N	%
No	71	84.5
Yes	13	15.5
Total	84	100.0

Source: Fall mailback survey, question 8.

Table J.3. Response to: "Are there activities or services that you think should be prohibited at Pictured Rocks National Lakeshore?"

Comments	N	%
No	52	61.9
Yes	32	38.1
Total	84	100.0

Source: Fall mailback survey, question 9.

Table J.4. Response to: "To what extent to you 'agree' or 'disagree' with the following statement about your most recent trip to Pictured Rocks National Lakeshore?"

Trip experience*	N	Mean	Percent of respondents by response category**				
			1	2	3	4	5
I enjoyed my time at Pictured Rocks	83	4.6	0	0	0	37.3	62.7
Overall, I was satisfied with this trip to Pictured Rocks	82	4.6	0	0	0	43.9	56.1
I enjoyed the natural quiet	82	4.4	0	3.7	1.2	43.9	51.2
I thought the area and its surroundings were in good condition	81	4.3	0	2.5	6.2	51.9	39.5
The park staff were helpful	80	3.7	0	6.3	33.8	46.3	13.8
I enjoyed the interpretive programs	73	3.2	4.1	0	76.7	12.3	6.8
I avoided my favorite parts of Pictured Rocks because there were too many visitors	80	1.8	37.5	46.3	13.8	2.5	0
The conflicts I experienced with other visitors greatly reduced the quality of my visit	80	1.8	47.5	31.3	17.5	3.8	0
The trip was not worth the money it cost	81	1.6	58.0	32.1	3.7	2.5	3.7
I did not have the kind of experience I was looking for	81	1.6	46.9	45.7	4.9	2.5	0

Source: Fall mailback survey, question 10.

* Rank ordered by total sample mean scores.

** Responses based on a 5-point scale: 1 = strongly disagree, 2 = disagree, 3 = neither disagree nor agree, 4 = agree, 5 = strongly agree

K. Open-ended Responses to Question 17

Study participants were asked to offer comments about their visit to Pictured Rocks NL or suggestions about managing the Lakeshore. A total of 44 percent offered comments (Table K.1). Respondents' verbatim comments are contained in Appendix J.

Table K.1. Response to: "Any other comments about your visit to Pictured Rocks National Lakeshore or suggestions about managing the Lakeshore are welcomed. Please use the space below or on the back of this page to write your comments."

Comments	N	%
No	47	56.0
Yes	37	44.0
Total	84	100.0

Source: Fall mailback survey, question 17.

DISCUSSION AND RECOMMENDATIONS

Findings of the third phase of the three-part visitor study at Pictured Rocks NL allow managers, planners, and others to understand the characteristics and perspectives of fall visitors better. In addition to providing basic demographic information, the study gives insight into visitor motives, benefits derived from experiences at the Lakeshore, perceptions of crowding, degree of support for specific management actions, potential problems, and general visitor satisfaction. Without such information, decisions affecting future management of the Lakeshore would be based primarily on speculation of visitor experiences and opinions.

A key factor in understanding fall visitors hinges on the motives, or desired experiences, sought by users of the Lakeshore. Overall, study participants placed a high importance on nature, scenery, getting away from the usual demands of life, and having a wilderness experience. Respondents' answers to questions regarding specific management actions reflect their motives for visiting Pictured Rocks NL. For example, support for restricting snowmobile and personal watercraft use to designated areas demonstrates respondents' support for management actions that could help them attain their desired experiences.

The majority of respondents indicated substantial support for curtailing snowmobile and personal watercraft use. A total of 78 percent of respondents indicated support or strong support for restricting snowmobile use to designated areas and 72 percent supported or strongly supported restricting personal watercraft use to designated areas. Interestingly, support for restricting personal watercraft use was stronger than for prohibiting the activity. Verbatim suggestions offered by respondents regarding activities that should be prohibited at Pictured Rocks NL frequently specified restricting or banning personal watercraft and other motorized vehicles.

Given the impact of motorized recreational activity on visitors' experiences, general support for restricting snowmobiles and personal watercraft use, and the availability of opportunities for snowmobile and personal watercraft use in the area, consideration should be given to the appropriateness of these activities at Pictured Rocks NL. Management actions, such as limiting motorized vehicle use to specific zones or temporally restricting use may help managers provide fall visitors with opportunities for satisfying recreational experiences at the Lakeshore.

Providing a variety of opportunities for more natural history information to visitors may be particularly welcomed by fall users who indicated support for this management action. Since many visitors stay overnight in local motels, hotels, and campgrounds, such places may also serve as sites to disseminate information about the area.

Growing numbers of recreationists, along with the evolution of new outdoor recreation equipment, will continue to challenge managers and planners as they seek to protect biophysical resources while providing opportunities for quality visitor experiences. Study results show that respondents reported few problems and were generally satisfied with their experiences and the condition of the surroundings at Pictured Rocks NL. However, to ensure that current levels of satisfaction are maintained for generations of future visitors, close attention should be given to developing a management plan that safeguards the Lakeshore's unique natural resources and provides opportunities for visitors to reap the many benefits of outdoor recreation.

APPENDIX A

Onsite Survey

Pictured Rocks National Lakeshore FALL Visitor Survey

Date: _____

Location: _____

Identification #: _____

Thank you for visiting Pictured Rocks National Lakeshore! Your willingness to complete this form is appreciated. Your feedback will provide us with important information and will be used to enhance visitor services and improve resources management in the area.

Name (please print): _____

Permanent mailing address: _____

City: _____ State: _____ ZIP Code: _____

Phone Number: () _____

1. Approximately how many times (*ever*) have you visited Pictured Rocks National Lakeshore?

_____ Total number of visits (*including this visit*)

2. On this trip, how many people, including yourself, are traveling with you?

_____ Total number of people

3. On this trip, what type of group are you traveling with? (*check one*)

___ Alone ___ Family and friends ___ Business ___ Tour ___ Other (specify):

4. Visiting Pictured Rocks was (*check one*)

___ The primary purpose of my visit to the area
___ One of several important things I planned to do during my visit to the area
___ Something I decided to do after arriving in the area.

5. On this trip, where will you or did you stay overnight while visiting Pictured Rocks National Lakeshore? (*check all that apply*)

___ I am not staying overnight in the area (*go to Question 6*)

___ At a backcountry campground
___ At a vehicle accessible campsite
___ At a local lodge
___ At a local motel/hotel
___ With friends who live in the area
___ At my cabin
___ At home

6. What is your gender? ___ Female ___ Male

7. What is your age? _____ years

8. We would like to know more about your visit to Pictured Rocks National Lakeshore. Would you be willing to fill out a mailback questionnaire about your experience while visiting Pictured Rocks? Your involvement is voluntary. Completing the questionnaire will take about 15 minutes and the results will be completely confidential.

___ Yes, I am willing to complete a mailback questionnaire.

___ No

Thank You !

APPENDIX B

Mailback Questionnaire

Questionnaire # _____

Date Contacted in the Lakeshore _____



**Pictured Rocks
National Lakeshore**

Visitor Survey

FALL 2000

Dear Visitor,

Thank you for agreeing to share your opinions about your most recent visit to Pictured Rocks National Lakeshore. This study is being conducted as a joint effort between the University of Minnesota and the National Park Service. Pictured Rocks National Lakeshore is presently in the process of preparing a new General Management Plan. Your feedback will provide us with important information and will be used to improve resources management and enhance visitor services in the best possible way for all visitors. For more information about Pictured Rocks, and to view updates on park policies and the progress of the General Management Plan, please visit the National Lakeshore web site at <www.nps.gov/piro/> or contact our office at (906) 387-3700.

Sincerely,

Grant A. Peterson
Superintendent

About your visit to Pictured Rocks National Lakeshore

1. Please look at the list below. Place a check by each activity you participated in during your most recent trip to Pictured Rocks National Lakeshore. *(check all that apply)*

- Day hiking
- Hiking the North Country Trail
- Camping at vehicle accessible campsites
- Backpacking in the back-country
- Fishing
- Hunting
- Tour boat ride
- Motor boating
- Using a personal watercraft
- Sailing
- Canoeing
- Kayaking

- Sightseeing by automobile
- Recreational Vehicle touring
- Bicycling
- Visiting historic sites
- Visiting geological sites
- Bird watching
- Wildlife watching
- Viewing fall colors
- Snowmobiling
- Cross-country skiing
- Snowshoeing
- Scenic airplane tour
- Other (specify): _____

2. On your most recent trip, where did you enter Pictured Rocks National Lakeshore?

Place entered: _____

3. Below is a list of possible experiences visitors may have while visiting Pictured Rocks National Lakeshore. Please look over the list of possible experiences. After you have looked over the list, indicate how important each experience was to you on your most recent visit to the park. For each experience for which you circled a 4 or 5 please indicate how much you were able to attain each of them.

Experience	Very Unimportant	Unimportant	Neither Unimportant Nor Important	Important	Very Important	Did not Attain	Somewhat Attained	Moderately Attained	Totally Attained
To be on my own	1	2	3	4	5	1	2	3	4
To use my own equipment	1	2	3	4	5	1	2	3	4
To have a wilderness experience	1	2	3	4	5	1	2	3	4
To experience nature	1	2	3	4	5	1	2	3	4
To do something with my family	1	2	3	4	5	1	2	3	4
To be with members of my group	1	2	3	4	5	1	2	3	4
To be with people who enjoy same things I do	1	2	3	4	5	1	2	3	4
To meet new people	1	2	3	4	5	1	2	3	4
To participate in recreational activities	1	2	3	4	5	1	2	3	4
To learn about the cultural history of the area	1	2	3	4	5	1	2	3	4
To learn about the natural history of the area	1	2	3	4	5	1	2	3	4
To experience new and different things	1	2	3	4	5	1	2	3	4
To test my skills and abilities	1	2	3	4	5	1	2	3	4
To enjoy the scenery of Pictured Rocks	1	2	3	4	5	1	2	3	4
To think about my personal values	1	2	3	4	5	1	2	3	4
To be close to nature	1	2	3	4	5	1	2	3	4
To be creative by doing something such as sketching, painting, taking photographs	1	2	3	4	5	1	2	3	4
To get exercise	1	2	3	4	5	1	2	3	4
To be away from other people	1	2	3	4	5	1	2	3	4
To relax physically	1	2	3	4	5	1	2	3	4
To experience solitude	1	2	3	4	5	1	2	3	4
To get away from the usual demands of life	1	2	3	4	5	1	2	3	4
To have thrills and excitement	1	2	3	4	5	1	2	3	4
To share my skill and knowledge with others	1	2	3	4	5	1	2	3	4
To enjoy hunting	1	2	3	4	5	1	2	3	4
To challenge myself	1	2	3	4	5	1	2	3	4
To feel healthier	1	2	3	4	5	1	2	3	4

Other (please describe) _____

4. We would like to know how you felt about encountering people and watercraft at various locations during your most recent visit to Pictured Rocks National Lakeshore. Complete columns A and B for each location you visited in Pictured Rocks. If you don't recall the encounters, circle "0" in column A. If you did not visit the location, circle "no" in the second column, and go to the next location.

LOCATION	Did you visit the location? <i>(circle one)</i>	COLUMN A								COLUMN B
		In general, how acceptable were the encounters you had with people and watercraft during your visit?								If you circled 1, 2, or 3 in Column A, what made you feel this way?
		Very Unacceptable					Very Acceptable		don't recall	
On Lake Superior	yes no <i>(go to next location)</i>	1	2	3	4	5	6	7	0	____ number of people ____ number of watercraft ____ something else (specify):
On Lake Superior shoreline & beaches	yes no <i>(go to next location)</i>	1	2	3	4	5	6	7	0	____ number people ____ number of watercraft ____ something else (specify):
At boat landings	yes no <i>(go to next location)</i>	1	2	3	4	5	6	7	0	____ number of people ____ number of watercraft ____ something else (specify):
On interior lakes	yes no <i>(go to next location)</i>	1	2	3	4	5	6	7	0	____ number of people ____ number of watercraft ____ something else (specify):
At vehicle accessible campgrounds	yes no <i>(go to next location)</i>	1	2	3	4	5	6	7	0	____ number of people ____ something else (specify):
At backcountry campsites	yes no <i>(go to next location)</i>	1	2	3	4	5	6	7	0	____ number of people ____ something else (specify):
While on trails	yes no <i>(go to next location)</i>	1	2	3	4	5	6	7	0	____ number of people ____ something else (specify):
At trailheads	yes no <i>(go to next location)</i>	1	2	3	4	5	6	7	0	____ number of people ____ something else (specify):
While visiting historic sites	yes no <i>(go to next location)</i>	1	2	3	4	5	6	7	0	____ number of people ____ something else (specify):
Other (specify):		1	2	3	4	5	6	7	0	____ number of people ____ something else (specify):

Situations Experienced at Pictured Rocks National Lakeshore

5. This question concerns possible situations you may have experienced on your most recent trip to Pictured Rocks National Lakeshore. Please evaluate each situation below. (Circle one number that best describes how much of a problem, if any, you found each to be)

Situation	No Problem	Slight Problem	Moderate Problem	Serious Problem	Very Serious Problem	Do Not Know
Lack of available information for trip planning	1	2	3	4	5	6
Someone occupying my reserved campsite	1	2	3	4	5	6
Insufficient navigational aids on Lake Superior	1	2	3	4	5	6
Insufficient trail navigational aids for backcountry	1	2	3	4	5	6
Campsites damaged by previous visitors	1	2	3	4	5	6
Litter on inland lake banks	1	2	3	4	5	6
People being inconsiderate	1	2	3	4	5	6
Too much noise on Lake Superior shoreline	1	2	3	4	5	6
Too many hunters in backcountry	1	2	3	4	5	6
Too many nonmotorized watercraft on Lake Superior shoreline	1	2	3	4	5	6
Too many commercial tour boats on Lake Superior shoreline	1	2	3	4	5	6
Too many personal watercraft on Lake Superior shoreline	1	2	3	4	5	6
Too many motorized boats on Lake Superior shoreline	1	2	3	4	5	6
Too many watercraft at beaches on Lake Superior	1	2	3	4	5	6
Too many personal watercraft at beaches on Lake Superior	1	2	3	4	5	6
Too many watercraft at beaches on inland lakes	1	2	3	4	5	6
Too many snowmobiles in the backcountry	1	2	3	4	5	6
Unsafe operation of snowmobiles in the backcountry	1	2	3	4	5	6
Encounters with boaters	1	2	3	4	5	6
Encounters with personal watercraft operators	1	2	3	4	5	6
Encounters with hunters	1	2	3	4	5	6
Encounters with hikers	1	2	3	4	5	6
Encounters with snowmobilers	1	2	3	4	5	6
Encounters with cross-country skiers	1	2	3	4	5	6
Encounters with snowshoers	1	2	3	4	5	6
People drinking alcoholic beverages	1	2	3	4	5	6
Damage or loss to personal property	1	2	3	4	5	6
Noise from airplanes	1	2	3	4	5	6
Snowmobiles disturbing my backcountry experience	1	2	3	4	5	6
Personal watercraft disturbing my backcountry experience	1	2	3	4	5	6
Motorized watercraft on Lake Superior disturbing my backcountry experience	1	2	3	4	5	6
Motorized watercraft on inland lakes disturbing my backcountry experience	1	2	3	4	5	6
Confusion about rules and regulations	1	2	3	4	5	6
Not enough National Park Service rule enforcement	1	2	3	4	5	6
Too much National Park Service rule enforcement	1	2	3	4	5	6
Other things (please specify): _____						

Potential Management Actions

6. Given the conditions at Pictured Rocks National Lakeshore, to what extent do you 'oppose' or 'support' each of the following management actions? (circle one number for each action)

Management Actions	Strongly Oppose	Oppose	Neither oppose nor support	Support	Strongly Support
Restrict activities along Pictured Rocks shoreline to provide specific uses at specific places	1	2	3	4	5
Restrict activities in backcountry to provide specific uses at specific places	1	2	3	4	5
Establish "off-limit" zones to protect sensitive resources	1	2	3	4	5
Establish a part of Pictured Rocks as wilderness	1	2	3	4	5
Restrict personal watercraft use to designated areas only	1	2	3	4	5
Restrict snowmobile use to designated areas only	1	2	3	4	5
Restrict cross-country ski use to designated areas only	1	2	3	4	5
Restrict number of people in Pictured Rocks at any one time	1	2	3	4	5
Limit the number of boats allowed on inland lakes	1	2	3	4	5
Limit number of motorized watercraft in Pictured Rocks at any one time	1	2	3	4	5
Limit number of non-motorized watercraft in Pictured Rocks at any one time	1	2	3	4	5
Limit number of personal watercraft in Pictured Rocks at any one time	1	2	3	4	5
Limit the number of snowmobilers allowed in Pictured Rocks at any one time	1	2	3	4	5
Limit the number of cross-country skiers allowed in Pictured Rocks at any one time	1	2	3	4	5
Limit number of hikers allowed in Pictured Rocks at any one time	1	2	3	4	5
Limit number of people <i>per group</i> allowed in the area	1	2	3	4	5
Improve public access to Lake Superior	1	2	3	4	5
Restrict further development and expansion of Pictured Rocks	1	2	3	4	5
Provide more backcountry campsites	1	2	3	4	5
Provide more information to visitors about appropriate behavior	1	2	3	4	5
Provide more park rangers to educate visitors about appropriate behavior	1	2	3	4	5
Require visitors to learn about appropriate behavior in backcountry (e.g., watch a short video presentation)	1	2	3	4	5
Aggressively enforce existing rules and regulations	1	2	3	4	5
Provide visitors with natural history information about the area	1	2	3	4	5
Prohibit motorized watercraft in the area	1	2	3	4	5
Prohibit personal watercraft in the area	1	2	3	4	5
Allow mountain biking on trails	1	2	3	4	5
Allow horseback riding on trails	1	2	3	4	5
Prohibit drinking alcoholic beverages in Pictured Rocks	1	2	3	4	5
Other things (please specify) _____					

Service Quality and Visitor Satisfaction

7. On your most recent trip, how satisfied were you with the quality of services provided for you at Pictured Rocks National Lakeshore? (circle one number for each item)

Service Quality	Dissatisfied	Somewhat Dissatisfied	Neither Dissatisfied nor satisfied	Somewhat Satisfied	Satisfied	Did not use/do not know
Usefulness of National Lakeshore website	1	2	3	4	5	6
Availability of visitor information publications	1	2	3	4	5	6
Quality of Pictured Rocks trail maps	1	2	3	4	5	6
Access to exhibits and other educational materials	1	2	3	4	5	6
Maintenance of facilities at Pictured Rocks National Lakeshore	1	2	3	4	5	6
Availability of park ranger-led activities	1	2	3	4	5	6
Response of National Park Service employees to your needs	1	2	3	4	5	6
Overall quality of services at Pictured Rocks National Lakeshore	1	2	3	4	5	6

8. Are there activities or services that you think should be offered at Pictured Rocks National Lakeshore that currently are not offered? _____

9. Are there activities or services that you think should be prohibited at Pictured Rocks National Lakeshore?

10. To what extent do you 'disagree' or 'agree' with the following statement about your most recent trip to Pictured Rocks National Lakeshore? (circle one number for each item)

Trip Experience	Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly Agree
I enjoyed my time at Pictured Rocks	1	2	3	4	5
I did not have the kind of experience I was looking for	1	2	3	4	5
The trip was not worth the money it cost	1	2	3	4	5
I thought the area and its surroundings were in good condition	1	2	3	4	5
I avoided my favorite parts of Pictured Rocks because there were too many visitors	1	2	3	4	5
The park staff were helpful	1	2	3	4	5
I enjoyed the natural quiet	1	2	3	4	5
The conflicts I experienced with other visitors greatly reduced the quality of my visit	1	2	3	4	5
I enjoyed the interpretive programs	1	2	3	4	5
Overall, I was satisfied with this trip to Pictured Rocks	1	2	3	4	5

About You

11. What is your gender? Female Male
12. What is your age? _____ years
13. What is the ZIP code of your permanent residence? _____
14. What is the highest level of education you have completed? (check one)
- 8th grade or less
 - Some high school
 - High school graduate or GED
 - Some college, business or trade school
 - College graduate
 - Some graduate school
 - Masters, doctoral or professional degree
15. What was your total household income (before taxes) last year?
- Less than \$15,000
 - \$15,000 to \$24,999
 - \$25,000 to \$39,999
 - \$40,000 to \$64,999
 - \$65,000 or more
16. In what category would you place yourself (*check all that apply*)?
- Hispanic or Latino
 - Not Hispanic or Latino
 - American Indian or Alaska Native
 - Asian
 - Black or African American
 - Native Hawaiian or other Pacific Islander
 - White
17. Any other comments about your visit to Pictured Rocks National Lakeshore or suggestions about managing the Lakeshore are welcomed. Please use the space below to write your comments.

Thank you for your help!

If you want more information about this study, contact the University of Minnesota Cooperative Park Studies Program,
115 Green Hall, 1530 Cleveland Avenue North, St. Paul, MN 55108-1027, 612-624-3699.

16 U.S.C. 1a-7 authorizes collection of this information. This information will be used by the National Park Service, the Department of the Interior, and Pictured Rocks National Lakeshore to improve resources management and visitor services. Response to this request is voluntary. No action may be taken against you for refusing to supply the information requested. The information you provide will be anonymous. Please do not put your name or that of any member of your group on the questionnaire. Data collected through visitor surveys may be disclosed to the Department of Justice when relevant to litigation, or to appropriate Federal, State, local or foreign agencies responsible for investigating or prosecuting a violation of law. Public reporting burden for this form is estimated to average 15 minutes per respondent. Direct comments regarding the burden estimate or any other aspect of this form to the Office of Information and Regulatory Affairs of OMB, Attention Desk Officer for the Interior Department, Paperwork Reduction Project 1024-0224 (NPS99-026), and to the Information Collection Clearance Officer, WASO APC, Accountability and Audits Team, National Park Service, 1849 C Street, N.W., Washington, D.C. 20240. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

APPENDIX C

Cover Letter

[Date] , 2000

Dear Pictured Rocks National Lakeshore Visitor,

We need your help! The National Park Service is currently gathering data about types of use at Pictured Rocks National Lakeshore to help them as they develop a new general management plan. What they learn from this data will be used to better provide for your needs. During your visit to Pictured Rocks this winter you agreed to participate in a survey. Your opinions, as a visitor to Pictured Rocks, will provide valuable information about what resource management and visitor use issues need to be addressed in the management plan for Pictured Rocks.

Enclosed is the questionnaire we said we'd send you soon after your visit. Please complete and return this questionnaire in the pre-paid, self-addressed envelope provided as soon as possible.

Your participation is important and it will take less than 15 minutes of your time to fill out the questionnaire. This is your opportunity to offer your opinions and comments about your experience at Pictured Rocks National Lakeshore and how the area should be managed. Of course, this survey is *voluntary and your confidentiality will be maintained*.

If you have any questions about the questionnaire, please feel free to contact us at the address shown on the letterhead, by phone, or by email.

Thank you for your help!

Sincerely,

Dorothy H. Anderson, Ph.D.
Professor
(612) 624-2721
danderso@forestry.umn.edu

E. B. James
Research Assistant
(612) 624-4280
jame0136@tc.umn.edu

APPENDIX D

First Reminder Letter

[Date], 2000

Dear Pictured Rocks National Lakeshore Visitor,

Two weeks ago you received a questionnaire from the University of Minnesota asking you to offer your comments concerning your experiences in and opinions about Pictured Rocks National Lakeshore.

So far we have not received your completed questionnaire. Because we've contacted a small number of visitors for this study, we need to receive as many completed questionnaires as possible. Your input is extremely important. In the event that you did not receive the first questionnaire or no longer have it, another questionnaire is enclosed. Please complete and mail this questionnaire at your earliest convenience. It will not take more than 15 minutes of your time.

This is an opportunity for you to offer your opinions and comments about resource management and visitor services at the lakeshore. Of course, this survey is *voluntary and your confidentiality will be maintained*.

If you have any questions, please feel free to contact me at the address shown on the letterhead or by phone.

Thank you for your help!

Sincerely,

Dorothy H. Anderson, Ph.D.
Professor
(612) 624-2721
danderso@forestry.umn.edu

E. B. James
Research Assistant
(612) 624-4280
jame0136@tc.umn.edu

APPENDIX E

Second Reminder Letter

[Date] , 2000

Dear Pictured Rocks National Lakeshore Visitor,

Two weeks ago you received a second questionnaire from the University of Minnesota asking you to offer your opinions and comments concerning your experiences in and opinions about Pictured Rocks National Lakeshore.

We still have not received your completed questionnaire. Because we've contacted a small number of visitors for this study, we need to receive as many completed questionnaires as possible. Your input is extremely important. In the event that you no longer have a questionnaire, another is enclosed. Please complete and mail this questionnaire at your earliest convenience. It will not take more than 15 minutes of your time.

This is an opportunity for you to offer your opinions and comments about resource management and visitor services at the lakeshore. Of course, this survey is *voluntary and your confidentiality will be maintained*.

We really appreciate you taking time out of your busy schedule to respond to this questionnaire.

If you have any questions, please feel free to contact me at the address shown on the letterhead or by phone.

Thank you for your help!

Sincerely,

Dorothy H. Anderson, Ph.D.
Professor
(612) 624-2721
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Research Assistant
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APPENDIX F

Problems Experienced - Verbatim Responses to Question 5

In question five of the mailback questionnaire, study participants were asked to rate possible problems they may have experienced during their most recent trip to Pictured Rocks NL. In addition, study participants were given the opportunity to specify any other things relevant to their experiences at the Lakeshore. Respondents' verbatim responses to this question appear here.

We were there in late fall so no watercraft or snowmobiles were present.

Not real friendly park staff at some visitor centers.

Our visit was Sept. 30–Oct 1, Therefore warm weather problems like noisy motorboats or jet skis & cold weather problems like snowmobiles did not apply.

Need better trail direction markings through vehicle/camping area. Hard to find trailhead sometimes!

Full campsites with many noisy people were a problem. We drove in 3 miles on a twisty narrow road only to find everything full at 9:00 at night. A notice at the entrance would be helpful when the campground is full.

Internet was helpful to find out about the dunes in Grand Marais, or I would have had to do some searching for info at tourist office

Hikers should be kept off shoreline at all times

Time at which we visited (Oct. 1) not conducive to water craft, snowmobiles, or hunters, x-c skiers

Multiple ranger trips through campground always distract me from the beautiful natural surroundings.

Campers with chainsaws & loud music should be banished.

APPENDIX G

Management - Verbatim Responses to Question 6

In question six of the mailback questionnaire, study participants were asked to indicate their level of opposition or support for a series of management actions at Pictured Rocks NL. In addition, study participants were given the opportunity to specify any other things relevant to the management of the Lakeshore. Respondents' verbatim responses to this question appear here.

Re: "Restrict further development and expansion of Pictured Rocks"

Does this mean expand the park by acquiring more land? I would support this kind of expansion. OR Does it mean develop by adding things like gift shops or convenience stores? I would oppose this kind of development.

We saw a group of people walking around drinking beer, while I do drink myself, I thought it was inappropriate while families are out on a "Sunday" afternoon ride. Just my opinion

Allow rock picking!

Provide more groomed cross country ski trails

It is a fine line to walk with regards to enforcing rules and proper behavior. But probably better to err on the side of allowing hikers to self-police. If only because their being there implies that they have a respect for nature. Maybe encourage hikers to ask others to stop with whatever improper acts they may be doing. But to feel policed by rangers would severely take away from my enjoyment personally.

If people can not respect the solitude of others, boot them out.

My visit was in Oct specifically to avoid crowds. Peacefulness, serenity & non-commercialism are of the utmost importance.

APPENDIX H

Activities or Services that should be offered - Verbatim Responses to Question 8

In question eight of the mailback questionnaire, study participants were asked, "Are there activities or services that you think should be offered at Pictured Rocks National Lakeshore that currently are not offered?" Respondents' verbatim responses to this question appear here.

Accessible routes to lighthouse

Free firewood

More maps of the area

Water fountains, need more, improve

More for the handicapped

More rangers

Backpack permits should be available in G.M. also.

Museum of history of the area

Possibly horse activities

Ranger-led hikes

Mountain biking

Additional programs/exhibitions regarding cultural & natural history

Showers at developed campgrounds and a common shelter area

APPENDIX I

Activities or Services that should be Prohibited - Verbatim Responses to Question 9

In question nine of the mailback questionnaire, study participants were asked, "Are there activities or services that you think should be prohibited at Pictured Rocks National Lakeshore?" Respondents' verbatim responses to this question appear here.

Snowmobiling, PWCs, large motorized boats on inland lakes!

Do not allow personal motorized watercraft in park or near park.

Snowmobiles & personal watercrafts/hunting

Snowmobilers & personal watercraft

No personal watercraft or dirt bikes & ATVs

No hunting with guns—too many people around. Bow & arrow OK—hunter is much less likely to mistake hikers for game since he has to be close to take his shot.

In general, restrict motorized activity

Motorized watercraft & snowmobiles should be limited

Personal watercraft—snowmobiles—noise ruins quiet wilderness

Motorized watercraft should be prohibited or very limited.

Loud music/one bad experience w/loud camper (we know you can't control this) in morning.

ORV use

No mountain bikes

Personal watercraft, limit # of snowmobiles

Snowmobiles

Most motorized activities—

Snowmobiles & personal watercraft

Hunting & mountain biking

Motorized stuff is not compatible w/ natural habitat.

No, the Lakeshore serves many people with different activities. This seems to be working fine.

Anything that would damage the beauty & wilderness of this park

No jet skis by rocks

prohibit personal watercraft

Hunting

drinking, horseback riding & bicycling

--no except don't improve the roads

Generators

Off trail ORV or motorcycle use

Snowmobiling

Limited motorized boats, vehicles in the park

Any activities that would harm the environment

Keep it natural! No souvenir shops, etc.

APPENDIX J

Open-ended Responses to Question 17

In question 17 of the mailback questionnaire, study participants had an opportunity to respond to the statement, "Any other comments about your visit to Pictured Rocks National Lakeshore or suggestions about managing the Lakeshore are welcomed." Respondents' verbatim responses to this statement appear here.

Maintain the main road - possible "hard" surface.

Shorter trails, showers, supplies.

My brothers and I travel every year to the same area (same weekend) to be together and relax. Always have a great time and find new things to do and see each year - Thanks for the experience.

I would come again and again.

It was difficult to find information especially since we arrived in the evening. We also found after driving for 20 min. on a twisting, narrow road that the campsite we entered was full so we ended up staying at a state forest campground. It would be helpful to know when the campgrounds are full before entering (at least when they are a ways off the main road). Overall we had a great time as there were very few people.

I love it just the way it is - Don't make it so easily accessible that it becomes crowded and loses its wilderness feel.

I am highly disappointed with how the observation deck for the LOG SLIDE has been moved. From the new sight the view of the real log slide is totally gone. How sad.

I am legally blind and I loved how all or almost all information tables/slabs were mostly done in large print. My husband has been to PRNL several times. This, my first time, was wonderful? Thank you? Keep up the great work!

I welcome more wilderness & prohibitions against motorized vehicles/watercraft off-road. However, not knowing the PRNL acreage I doubt one would be consistent with classifications. Possibilities of entering wilderness via hiking, x-c skiing or canoeing are still eluding my family & I. "On your most recent trip" not inclusive enough

Thank you for your efforts! Please protect the beauty of this area.

We enjoyed our ride along H-058. I think when we hit the dirt road we were confused if we were on the right road—maybe a sign there saying "dirt road (etc.) Next 30 miles" or something would have been nice. Since we had my mom & kids along—the ride seemed a little too long because we had to go slow on the bumpy gravel roads. I may not have taken them back there if I was aware of conditions, & knew it would take so long to get through. Although, we did enjoy the scenery & made stops along the way. Also—was saddened my mom (who has sore feet quickly), needed a break & no benches were nearby. (At the dunes) She ended up going to sit in the car. I know you don't want to disturb natural beauty—but maybe you could have a "rustic" trail for the more fit, & then a user friendly trail for the elderly/not so fit to the same sites. Maybe a viewing deck near falls at the top, so they don't have to climb so many stairs too. I am sure decks could be strategically placed back from the falls, where viewers down below would not necessarily see them. We did not visit miners castle & that end of park this trip.

Beautiful fall colors, maybe some fall color tours.

Signs requesting QUIET with an expansion of how much more enjoyable the experience on the trails is when it's quiet might help. Or "Sh-h-h-h. LISTEN TO THE WOODS."

I think some of these questions were too subjective in nature to get a true recording of questionie's viewpoint (i.e. "Restrict" or "Aggressive" how restrictive? how aggressive?)

It's a beautiful place and we are so looking forward to coming back again. Thank you!

We visited at the end of September. There were very few people in the park where we were camped & saw only a few people while hiking.

Please don't change anything. I liked the solar powered water system at 12 mile beach. I like Pictured Rocks for the following reasons:

- 1.) No paved road
- 2.) Limited development
- 3.) Large spaces at 12 Mile Beach Campground.
- 4.) Great beach
- 5.) Clean outhouses
- 6.) Quiet (very quiet in Oct.)

I support keeping the Pictured Rocks Nat'l Lakeshore accessible for a multitude of uses, including hiking, boating, camping, hunting, fishing and sightseeing. Any activity like ATV riding, mountain biking, etc. that will damage trails and beaches should be prohibited.

We will return!!!

- Pictured Rock is beautiful.
- I (we) accidentally walked about on an erosion control area because there was no visible sign from the trail we came from, Sorry.
- Two things can ruin an outdoor experience. Too big of a crowd and feeling like your being watched. From what I can tell you are doing a good job of avoiding these things. Keep it up and thank you.

I very much enjoy hiking, usually go w/ 1 or 2 others and are looking for solitude i.e. less people is best for me.

For the most part, everything was nice during our visit. A better scheme for backcountry permits needs to be developed. Better day-hike loops would also be helpful. The staff were helpful and the overall condition of the park was good, although there are too many "warning" signs placed at areas of scenic beauty. Chapel Rock, for example.

We went on our fall color trip we had a wonderful time. The area was quiet & beautiful we had a great time. The park ranger who we were talking with was helpful, very knowledgeable. Great experience.

Visitor center was particularly appreciated.

A beautiful part of the country; very well maintained

Mountain bike trails would be greatly appreciated!

We stayed in our motorhome for 1 night at the Munising city campground. It was quite inadequate. Electric hook up was poor and the showers a nuisance (used a quarter meter) & needed renovation. We visited the Castle about 43 years ago. We were saddened to see the erosion that had taken place. On our 1st visit we climbed on the rocks. It was easy to see the reason for limiting viewing from the viewing deck.

No commercial development, but I welcome any development to help the public visit natural beauty of our state.

It was beautiful—my first visit to Pictured Rocks—but not to upnorth.

My family has been visiting Pictured Rocks for almost 15 years. We camp in the park at least twice a year. We enjoy the solitude and hope the park can be managed in such a way to preserve it environmentally and keep it accessible. Please don't pave the roads to & through the park! We missed the campfire programs @ Twelve Mile Beach this summer.

Please don't pave H58 (access road) from Melstrand. Access to 12 Mile Beach & Hurricane River should be limited (at best).

Our visit this year was really nice with the fall colors and all kinds of weather. The rangers were very friendly and informative. Overall a great vacation in a very beautiful and quiet (except for the wind & lake) we will be back

I equate increased management and restrictions with increased surveillance and a degraded wilderness experience. More rangers = more fees = more monitoring of visitors who mostly do not need it and don't want it. PR Lakeshore has been one of my favorite places for 20 years. Expanding visible authority and enforcement always reduces my enjoyment, especially when I am trying to leave civilization behind for a few short days.

Please do a better job marking the hiking trails.

I very much enjoyed it... and there should be more parks like this one.

At Miner's Castle I thought when I was there 50 years ago we could venture closer, not confined to a look-out point. But wherever we went—I noticed very little litter or none at all. People were very friendly.

Pictured Rocks was a "side-trip" as I was camping in the area. Enjoyable as I only had to deal with a "handful" of people. All things are best in moderation. This survey may have had totally different responses had I visited during another time of year.