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The Glacier National Park

Visitor Use Study

The Glacier National Park

Visitor Use Study

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Research Report 36

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Preface

This report documents the characteristics, preferences, motivations and expectations of visitors to Glacier National Park. The report provides an increased knowledge about what Park visitors seek, and how they might react to shifts in its management. Thus, the information contained herein can provide a basis for developing new direction needed to meet the mandate for protection of resources within the Park. While Park managers and scientists may find some comfort in visitor evaluations of management's performance, the report also identifies potential issues and challenges; in a sense, it suggests some areas that will need monitoring. We have organized the report around major visitor response categories. To ease reading, data tables are located at the end of each chapter.

The research upon which this report is based was funded under a cooperative agreement with the Cooperative Park Studies Unit, located on the University of Montana campus. While a number of people reviewed earlier drafts, the authors remain solely responsible for its content. The preparation of this report involved many people: Robin Miller, Jim Richards, Neal Christenson, Maria Haverhals, and Micky Osborn. A thank you goes out to both Jim Tilmant and Cindy Nielson, for their input and guidance. Collection of data was made possible in large part by the kind assistance of many Park personnel. Of course the report could not have been completed without the gracious cooperation of hundreds of Park visitors. Their willingness to invest the time in completing the mail-return questionnaire will eventually be returned through better experiences.

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Chapter 1

Introduction and Purpose

In northwest Montana and southwest Alberta lies an area that has been spoken of in such terms as "the backbone of the world" or "the crown of the continent". The 2,000 square miles of land lying astride the Continental Divide and spanning the United States/Canada international boundary, is a region of outstanding scenic beauty, rich biologic diversity, and unique recreational opportunities. Responding to both the qualities of this area and to the realities of human settlement, portions of this ecosystem were officially designated as National Parks in the late 19th and early 20th Centuries. Today, Waterton/Glacier International Peace Park (WGIPP) is a symbol of international cooperation in the preservation of natural resources. The importance of this symbol is witnessed by the millions of visitors enjoying the area each year.

The 1932 designation of WGIPP combined Waterton Lakes National Park in Canada (established 1895) with Glacier National Park in the United States (established 1910). Today, this union symbolizes a growing recognition that the larger ecosystem transcends international boundaries. Beyond the National Park core, this ecosystem includes surrounding designated wilderness, national forest lands, the Blood Indian Reservation in Canada, the Blackfeet Reservation in the United States, and privately owned lands.

By setting aside these lands as National Parks, Canada and the United States signified their intent to provide for both public enjoyment of the area as well as protection for the natural environment. As the authorizing legislation states, Glacier National Park was set aside as "*a public park or pleasure ground for the benefit and enjoyment of the people of the United States . . . in a state of nature so far as is consistent with the purposes of this act, and for the care and protection of the fish and game within the boundaries thereof*".¹ The twin focus of public use and resource protection provides a challenging mandate for Glacier National Park, and for the National Park system as a whole. In response to this mandate, the National Parks and Recreation Act of 1978 (Public Law 95-625) directed units of the National Park System to produce timely revisions of their General Management Plans (GMP). Within these plans, the Park Service was directed to consider the issues of visitor use and

¹ 36 Stat. 354 of May 11, 1910.

associated impacts.² Thus, questions concerning the nature of public use in National Parks, the potential impacts of that use, and the expectations and attitudes of visitors, became crucial to the planning process for Glacier National Park.

In 1990, a "Statement for Management" was developed as part of this planning process. The document stated that the management objective for visitor use is to *"provide the facilities and services needed for visitors to experience the beauty of, and to understand, the natural and cultural processes of Glacier National Park"*.³ To meet this objective while ensuring adequate protection and preservation of park resources, *"an effective long-range management strategy that is based on an improved understanding of the park visitor obtained by doing research on visitor demographics and preferences"*⁴ was developed. The focus was to determine if visitor needs and preferences were addressed by Park facilities and programs.

With the assistance of personnel from the Institute for Tourism and Recreation Research at The University of Montana, Park planners and administrators identified a specific need for information on visitor expectations, motivations, and preferences. Park planners also determined that they would benefit from information about how certain resource, social, and managerial settings facilitate the realization of visitors' desired experiences. Two issues were seen as fundamental to this understanding. First, to what extent are visitor expectations of services and facilities congruent with the Park's mission? Second, do visitor motivations influence expectations, as well as visitor behavior? In addition to these general questions, Park planners were interested in determining if seasonal differences existed for the issues studied.

Within this planning context, three major questions emerged. First, what are the demographic and socioeconomic characteristics of those who visit the Park?⁵ Second, what expectations, attitudes, perceptions, and preferences do visitors bring with them to their Park visit? Third, how satisfied are visitors with their Park experience?

² National Environmental Policy Act, 1969 and NPS Guidelines

³ Glacier National Park (1990). "Statement for Management".

⁴ Ibid.

⁵ While the Pulse Survey (Littlejohn, M., 1991. "Visitor Services Project: Glacier National Park. Report 35, March 1991) identified some of these characteristics, it was conducted only for a one week period in the summer. The need for seasonal comparisons required the inclusion of this information in the present study.

The specific goals and study design were developed with the preceding questions in mind.

Visitor motivations for, and expectations of, engaging in recreational activities have been the subject of a richly diverse body of research over the last two decades (for example, see: Clark and Stankey, 1979; Driver and Brown, 1975 and 1978; Fazio, 1986; Haas, Driver, and Brown, 1981; Knopf, 1983; Kuhl, 1986; McLaughlin and Paradise, 1980; Young and Kent, 1985). From this work, it became clear that visitor experience opportunities are based primarily on three factors: (1) the resource setting (characteristics of the landscape, extent of modification, and access), (2) the social setting (the number and behavior of other visitors), and (3) the managerial setting (the extent and type of on-site and off-site management presence and activity). How the Park manages the resource, social, and managerial settings will influence the opportunities offered to visitors. The development of a philosophy for managing the settings must in turn be responsive to the attitudes and motivations of the visitors, yet constrained by legislative mandates for preservation.

Studies of Glacier National Park visitors conducted in the past have focused upon specific issues, activities, or seasons, the priority being studies examining visitor interactions with wildlife (particularly grizzly bears).⁶ Visitor impacts on other park resources has also been examined. Particular seasons or activities were a concern in past studies as well.

The present study is an attempt to examine visitor characteristics in a more comprehensive manner and to detect specific seasonal variations. The discussion focuses upon four areas. First, Chapter 2 examines the methodology used in the study. Next, Chapter 3 offers an exploration of visitor demographics and general trip characteristics. Chapter 4 contains an analysis of visitor expectations and preferences. Finally, Chapter 5 presents a discussion of visitor perception of Park facilities and conditions.

⁶ See Martin, S.R., (1988). "Social Science in Glacier National Park: An Assessment". Unpublished report, Glacier National Park.

Chapter 2

Methodology

The study plan called for sampling to occur over a period of twelve months from November 1992 through October 1993, allowing for the examination of seasonal differences.¹ Visitors were queried about demographic information, characteristics of their visit, expectations, and preferences for and satisfactions with facilities and conditions in the Park.

Population

The population for this study includes all adult visitors to Glacier National Park (age 18 and over) between November 1, 1992 and October 31, 1993. The population was stratified by season of use: winter, spring, summer, and fall. Seasons were identified in a manner consistent with the weather and access realities rather than seasons of the calendar year. Winter season included the months of November through March, spring (April and May), summer (June through August), and fall (September and October). The estimated total visitation during the study was 2,140,198 visits. Table 1 shows the distribution of visits across the months sampled.

Sampling Plan

The method of contacting visitors was tailored to accommodate visitation patterns, weather, and traffic management at the entrance areas. During the winter and spring seasons, visitors were sampled as they entered the West Glacier entrance to the Park. During the summer season, visitors were contacted at the Two Medicine, West Glacier, Many Glacier, and Saint Mary

¹The study plan and survey instrument were developed in compliance with regulation 16 U.S.C. 1a - 17, authorizing the collection of this information by a federal agency. In accordance with the requirements of the Office of Management and Budget (OMB), the survey instrument and all related materials were submitted to OMB for approval on August 18, 1992. Approval was granted in November 1992. A notice of regulatory compliance was printed on the back cover of the questionnaire (see Appendix A).

entrance areas. Fall visitors were contacted as they exited the Park from the West Glacier and Saint Mary areas.

The variation in sampling method reflects changes in access to the Park over the year. Because of snow accumulation, winter and spring access is generally available only at the West Entrance. The summer season provides the widest possible access to the Park. To obtain a representative sample for this season, sampling was conducted at each of the major entrances. Fall is a transition time in the Park. Access in the early part of this season resembles that of summer, while later in the fall access again becomes restricted. For part of this season, the Going to the Sun road and some facilities are open. As a result, West Glacier and Saint Mary became the only viable options for sampling as fall access to other areas becomes limited.

Visitors were contacted as they entered the Park in their vehicles. A mail-return questionnaire was given to participants at that time. One person from each group was asked to provide his or her name and address on a "visitor registration form" (Appendix B) in order to conduct follow-up mailing (see mailing procedures below). Visitors were instructed that only the person volunteering their name and address should complete the survey and that their responses should reflect the current visit.

Sampling occurred during a randomly selected three-day block per month during the study period. During the winter and fall seasons, a restriction was placed upon the days selected to include a Friday through Sunday or a Saturday through Monday block. These days were chosen to take advantage of maximum visitation during the off season periods, while still sampling one weekday. The sampling plan was altered to accommodate exceptionally inclement weather that made sampling impossible at some scheduled times. Toward the end of the winter season, extra days of sampling were used to compensate for days lost due to weather. This was also done to increase the sample size for this stratum (see Appendix C for the Sampling Plan).

Survey Instrument

A mail-return questionnaire was designed to obtain information about five general topics: 1) visitor demographic and socioeconomic characteristics; 2) accommodation preferences and visitor experience levels; 3) motivations, preferences and expectations about Park facilities; 4) the extent to which visitors observed, were influenced by, and accepted or rejected certain attributes of the natural, managerial, and social settings of the Park; 5) areas visited within the Park. In addition to this information, the survey administrator noted survey number, the number of people in the vehicle, and the mode of travel (e.g. private vehicle, recreational

vehicle, motorcycle, etc.) on the "visitor registration form". The questionnaire is shown in Appendix D, and the accompanying cover letter is in Appendix E.

Mailing Procedures

The information from the visitor registration form was entered into a database. As mail-return questionnaires were returned, the appropriate survey number was marked "returned"; for these respondents no further contact was made. Approximately one week after each monthly sampling, a reminder post card was sent to people whose questionnaires had not yet been received (see follow-up post card in Appendix F). Approximately two weeks after the follow-up post card, a replacement questionnaire and cover letter (Appendix G) was sent to visitors who had still not responded. The replacement questionnaire had the same survey number originally assigned to that visitor. Using the same survey number allowed for further response checks and precluded the possibility of a non-response bias test.

The procedure for administering the questionnaire was based on Dillman's (1978) process, but did not include the recommended procedure of sending a second mail-return questionnaire by registered mail. Apart from this, the survey design and mailing procedure was administered to conform with Dillman's recommendations.

Data Coding and Analysis

Responses were coded and entered into a microcomputer database as questionnaires were returned. The rules for coding are outlined in Appendix H. Coded data from this database was translated into SPSS/Windows for analysis. The subsequent analysis uses season of visitation as the independent variable.

Non-response Bias

The mail-return procedure resulted in a return of 1,803 usable questionnaires. This represents a response rate of 75%. Summer visitors responded to the questionnaire at a higher rate than for those in the other seasons (see Table 2). While the differences are not large, it was hypothesized that one factor contributing to the differences in response rate was the seasonal difference in the proportion of Montana residents visiting the park. It was thought that Montanans would be less likely to respond to the questionnaire, and they are present as visitors in larger proportions during the winter. Analysis of response rates by residence did not support this hypothesis.

The study plan anticipated an overall response rate for this type of study to be 80% because similar studies in National Parks have

achieved this level of response. The response rate of 75% for the current study raises the issue of a possible non-response bias. Some recent research suggests response rates of this level should not raise much concern in homogeneous populations (Dolsen and Machlis, 1991; Becker and Iliff, 1983). Nonetheless, a non-response bias check was performed to determine if any significant differences exist between those who responded and those who did not. A mail-return post card was sent to all non-respondents with usable addresses (see Appendix I). Eight questions, taken from the original questionnaire, were included in this instrument. The possible bias was analyzed by testing for significant differences in responses between respondents to the original questionnaires and respondents to the non-response bias questionnaire. The results of this analysis showed no significant bias from non-respondents (Appendix J).

Table 1 Monthly visitation estimates (November 1, 1992 through October 31, 1993)

	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
No of visits	12,410	5,500	7,080	9,402	14,808	26,675	113,148
% of total	0.6%	0.3%	0.3%	0.4%	0.7%	1.2%	5.3%

Table 1 (continued) Monthly visitation estimates (November 1, 1992 through October 31, 1993)

	Jun.	Jul.	Aug.	Sep.	Oct.	Total
No of visits	340,288	626,668	624,559	288,356	71,304	2,140,198
% of total	15.9%	29.3%	29.2%	13.5%	3.3%	100.0%

Table 2 Number and rate of response to the questionnaire by season

	Winter	Spring	Summer	Fall	Totals
Visitors sampled	593	607	601	602	2403
Visitors responding	427	443	479	454	1803
Response rate	72.0%	73.0%	79.7%	75.4%	75.0%

Chapter 3

Visitor and Trip Characteristics

This chapter describes visitor characteristics and general information regarding the nature of visitors' trips. Demographic information, the amount of visitor experience, travel patterns, average length of stay, lodging facilities used, number of entries during the visit, average group size, and mode of travel is discussed. Analysis of visitor and trip characteristics helps reveal who visitors are and how they organize their visit to the Park.

Statistical analysis for these variables focuses on testing for seasonal differences. In each case, the null hypothesis is that no difference exists between distributions of responses by season. This hypothesis is rejected when statistical significance of differences are equal to or less than .05 ($\alpha \leq .05$). This significance level suggests that in 95% of the cases the differences being observed can be attributed to actual seasonal differences, rather than chance.

Demographic Characteristics

Significant seasonal differences in the age of respondents were observed. Summer and fall respondents reported the highest average ages (47 and 48 years respectively), winter the lowest (42 years) and with spring visitors falling in the middle at 45 years. These differences in average age were significant ($\alpha \leq .001$).

Along with the fluctuating average age of respondents, there appears to be some difference in the representation of males and females among survey respondents. The percentage of female respondents remained fairly constant during winter, spring and fall (38.8%, 39.5%, and 39.1% respectively) but increased in the summer season (47.5%).

The level of education achieved by respondents did not differ among seasons. Respondents in all four seasons indicated that the average level of education was 15 years (Table 3).

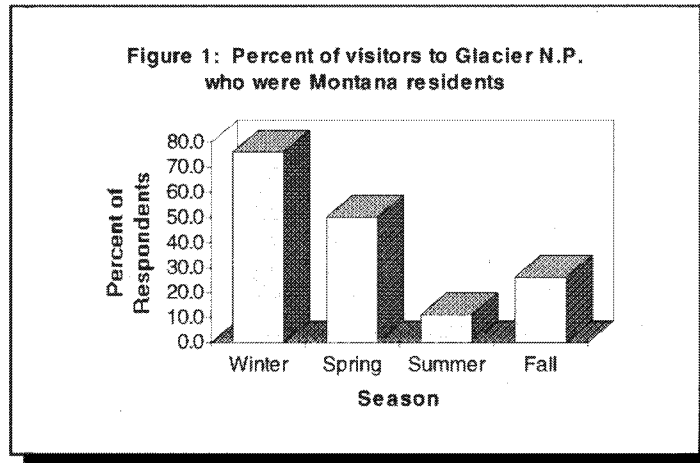
The spring and summer seasons showed a slightly higher percentage of respondents who indicated that they or members of their party had special physical needs. Overall, the percentage of respondents with special physical needs is estimated to be 7%. During the spring season, 10.1% of respondents reported special physical needs, and in summer the percentage was 7.9%. These percentages represented a significant increase over winter (5.8%) and fall (5.3%). Differences among seasons were significant at $\alpha \leq .03$.

Mobility was the most common physical disability listed by respondents. In all four seasons, this characteristic accounted for

more than 50% of the physical needs listed by respondents (Table 4). No other single condition represented more than 8% of the subsample.

For all seasons, Montana residents comprised the largest group of visitors. However, significant difference in place of residence was observed by season ($\alpha < .001$). As Figure 1 shows, there is a sharp decline in the

percentage of Montana visitors from winter to summer (76.1% to 11.1% respectively). The proportion of Montana visitors begins to increase again in the fall. As expected, respondents were more likely to have traveled greater distances to visit GNP as the seasons progressed from



winter through summer. With the exception of the summer season, visitors from outside Montana tended to be from regions which are relatively near GNP such as Washington, California or Canada.

In the fall, the proportion of Canadian respondents showed an increase over other seasons. Canadians represented 13.3% of fall respondents. This is compared with 1.4% for winter, 7.7% in spring, and 6.9% in summer. Of the Canadian respondents visiting during the fall, 75% were from the Province of Alberta.

A plurality of respondents (more than 30% of respondents from each season) were classified in terms of occupation as "professional/technical". The greatest seasonal fluctuation was noted in the percentage of respondents classified as "retired" (Table 6). Specifically, 24.0% of summer respondents were retired compared with 10.9% for winter. Other occupational categories did not exhibit such pronounced seasonal differences.

The demographic data paints a picture of a visitor population characterized by a cycle of increasing diversity as one progresses from winter through the seasons. This generalization is particularly true for the characteristics of gender, place of residence, and the presence of physical impairments. Summer respondents had a higher representation of females, traveled to the Park from a wider variety of locations, and were somewhat more likely to have physical impairments that would influence their ability to appreciate the Park.

The previous generalization is less accurate in the areas of age and occupational status. Regarding occupation, even though there are

shifts in the percentage of retired persons, the overall profile of professions was fairly constant; the most frequently listed professions for all seasons were "professional/technical" and "retired". This finding is consistent with the differences in age of respondents: the highest average age of study respondents was during the summer, which also recorded the highest proportion of respondents being retired.

In contrast, winter respondents tended to be younger, employed in professional or technical positions, Montana residents, and were less likely to report physical disabilities. The spring season shared characteristics of both winter and summer and may be characterized by increasing diversity. Fall is also a transition season and represents a general shift away from the diversity of summer back to the more homogeneous local characteristics of winter.

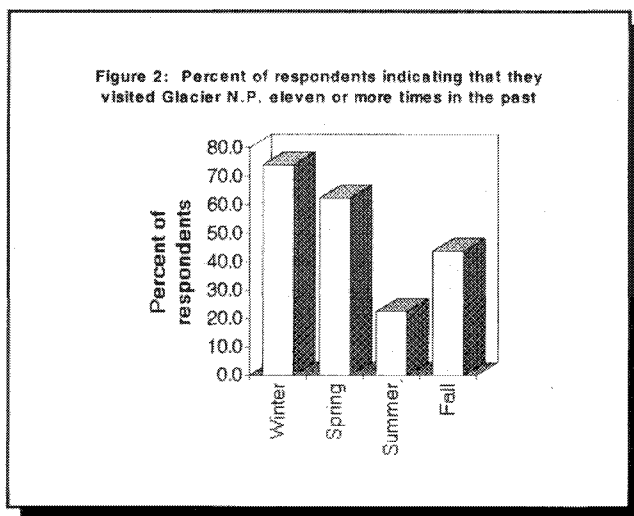
Level of Experience

Levels of previous experience in the Park exhibited seasonal variations similar to those found in the general demographic information. The percentage of first time summer visitors (59.5%) was significantly different ($\alpha < .001$) from that of winter (13.9%), spring (34.7%) or fall (45.2%).

The same general pattern can be observed in respondents' levels of previous experience with National Parks as a whole. Although the vast majority of respondents had previous experiences with National Parks regardless of the season in which they were sampled, summer visitors were more likely to be visiting a National Park for the first time than were winter respondents. Less than 1% of winter respondents were visiting a National Park for the first time, while for the seasons of spring, summer, and fall the estimates were 3.0%, 4.0%, and 2.7% respectively. While this difference is

significant ($\alpha < .02$), the very small proportions involved in these estimations require that conclusions about meaningful differences be made with some caution.

A more specific measure of respondent's level of experience was obtained by asking about the previous number of visits for those who were experienced visitors. As Figure 2 indicates, respondents with high levels of previous



experience are more likely to be seen in GNP during the winter or spring. Summer respondents tend to have lower levels of experience than respondents during other seasons.

Places Visited in the Park

Identifying places visited can help provide a better understanding of use patterns within the Park. Respondents were presented with a map of the Park and asked to mark selected sites they visited. By examining visitor responses, an analysis of seasonal variation in places visited was possible. Table 8 summarizes this seasonal comparison.

Some of the visitation patterns displayed in Table 8 are due to seasonal variations in access. For example, Logan Pass is closed throughout the winter season; thus, only the small proportion of visitors would be expected to visit it because access is only by cross-country skiing over a long distance. Summer was the only season offering full access to all sites. During spring and fall, some of these sites were open part of the season. For this reason, seasonal differences in visitation can not necessarily be attributed to visitor preferences for visiting different sites.

Given the opportunity, most visitors went to Logan Pass (83.1% in summer, 84.7% in fall) and St. Mary (80.6% in summer, 62.3% in fall). A large proportion of the respondents visited Apgar, Lake, McDonald Lodge, Rising Sun, St. Mary and Many Glacier. The least visited site for all four seasons was the North Fork Road.

Littlejohn (1991) also asked study respondents about sites they visited. Littlejohn's study was conducted only for one week in the summer, yet can provide a comparison for the current study. Table 9 displays this comparison. Although the percentages for visitation to many of the individual sites are quite different between the two studies, the overall travel patterns were very similar. Littlejohn writes,

... most visitors went to Logan Pass (80%) and St. Mary (68%). Many visited Rising Sun (56%), Lake McDonald Lodge (55%), and Apgar (55%). The least visited site was the North Fork Road (11%).

A nearly identical pattern was observed in the present study. This congruence between the two studies lends some weight to the conclusions regarding where visitors will go, given practical access.

A similar agreement can be observed between the 1991 and 1993 studies concerning where respondents entered GNP. The West Glacier and St. Mary entrances were the most active in both studies during the summer season (Table 10). The Littlejohn study observed little or no variation in the use of other entrances. However, the

present study indicates more diversity in use of other entrances.

Park exits used by visitors were also compared with those reported in the Littlejohn study. As Table 11 indicates, West Glacier and St. Mary are the two primary exits for visitors in both studies. The current study observed a greater diversity of sites used to exit the Park. This difference notwithstanding, both the 1990 and 1993 studies indicate that West Glacier and St. Mary were the major sites for initial and final contact with visitors.

Length of Stay

Another useful statistic for describing the characteristics of visitors to GNP is the average number of nights spent there. Respondents from the summer sample indicated that their average length of stay was four nights. A one-way analysis of variance shows that the number of nights spent during the summer season is significantly greater than for that of any other season ($\alpha \leq 0.01$). Winter respondents reported the lowest average length of stay (1 night). Fall and spring respondents reported an average of 2 nights during their visit to GNP.

Lodging Facilities Used

Lodging choices reflected the seasonal availability of these facilities in and around the Park. In the spring, summer, and fall, respondents tended to use front-country campsites inside the Park, and hotels or motels outside the Park (Table 12). Use of motel or hotel facilities within the Park was the facility of choice for summer and fall respondents. The number of nights respondents indicated spending with family or friends who live outside the park showed little evidence of significant seasonal variation ($\alpha \leq .07$).

Number of Entries Into the Park During a Visit

Respondents indicated they found reason to enter and exit the Park more than once during their stay. Significant seasonal differences were observed for this characteristic ($\alpha \leq .001$). Winter respondents made the least number of entries (1.7), summer visitors had the highest (4.6). Respondents in the spring and fall seasons were indistinguishable from each other in this regard (2.2 and 2.4 respectively).

These observations suggest that summer visitors, and to a lesser degree those visiting in the spring and fall, will contact Park personnel at entrance stations more than once. Winter visitors, in contrast, were more likely to have only one opportunity for this contact.

Average Group Size

The average group size for all respondents, regardless of season, was 2.5 people. An examination of group size by season suggests that, although the differences are small, they showed statistical significance ($\alpha \leq 0.01$). In particular, fall respondents travel in smaller groups (2.3 members) than those in winter, spring, or summer (2.5, 2.5, and 2.7 members respectively)

Mode of Travel

Mode of transportation is an important descriptive characteristic of Park visitors. Of particular interest is the percentage of respondents who traveled in a recreational vehicle (R.V.) as compared to other modes of transportation (Table 13). Significant seasonal differences were observed in this area ($\alpha \leq 0.01$). Summer respondents were more likely to be traveling in an R.V. (13.1%) than for visitors in winter, spring, or fall (0%, 1.1%, and 2.4% respectively). Visitors traveling in motor coaches on tours were not included in the study, so this mode of transportation is not reflected in the data.

Table 3 Percentage of respondents indicating that they attained specific education level (arranged by season).

Years of education	Winter	Spring	Summer	Fall
8 yrs. or less	7.3	8.4	7.3	4.6
9 through 11 yrs.	1.6	2.0	1.9	3.1
12 yrs.	16.2	16.3	14.0	17.4
13 through 15 yrs.	23.0	27.8	19.8	24.2
16 yrs.	21.3	19.0	20.3	18.5
17 or more yrs.	30.7	26.5	36.7	32.2

Table 4 Type of special physical needs for respondents or members of their party (in percent, arranged by season)

Physical need category	Winter	Spring	Summer	Fall
Mobility	60.0	72.7	57.6	59.1
Arthritis	20.1		6.1	
Hearing impaired	6.7			4.5
Heart disease		11.1	9.1	4.5
Asthma		5.6	9.1	9.1
Age	13.3	5.6	6.1	9.1
Developmentally disabled		2.8		4.5
Sight		2.8	6.1	
Pregnancy			6.1	9.1

Table 5 Residence, percentages of surveyed visitors (arranged by season)

Area of residence	Winter	Spring	Summer	Fall
Montana	76.1	50.1	11.1	26.3
Idaho	1.4	1.8	1.3	1.8
Washington	4.9	7.9	7.9	8.2
California	1.4	3.4	9.4	10.8
Other U.S. States	14.9	27.4	60.9	37.2
Canada	1.4	7.7	6.9	13.3
Other Countries	0.2	1.6	2.5	2.4

Table 6 Occupations of visitors surveyed in percentage (arranged by season)

Occupation Category	Winter	Spring	Summer	Fall
Armed services	0.0	1.2	0.9	0.2
Clerical	2.5	3.5	2.0	3.9
Crafts person	8.4	6.5	3.8	3.7
Farm laborers	0.0	0.0	0.0	0.5
Farmers	1.0	0.7	2.4	1.4
Homemaker	4.1	5.0	2.4	5.1
Laborers -Not Farm	3.3	3.2	1.1	0.9
Manager/administrative	6.8	9.7	10.9	13.4
Operatives -non transport	2.8	2.7	0.7	1.4
Operatives - transport	1.5	0.7	0.9	0.7
Professional/technical	37.2	31.5	36.2	34.3
Retired	10.9	18.1	24.0	22.7
Sales	6.3	6.7	3.6	5.1
Service workers	8.1	4.5	5.8	3.0
Student	5.3	3.7	3.8	1.9
Unemployed	1.5	2.2	1.3	1.9
Disabled	0.0	0.0	0.2	0.0

Table 7 Percentage of respondents indicating the number of times they had visited the Park (arranged by season)

Number of previous visits	Winter	Spring	Summer	Fall
1	5.4	7.2	26.7	20.7
2 thru 5	12.3	20.4	37.7	23.2
6 thru 10	8.3	10.0	13.1	12.2
11 or more	74.0	62.4	22.5	43.9

Table 8 Percent of respondents visiting selected sites (arranged by season)

Site	Winter	Spring	Summer	Fall	sig. =
Apgar	78.0	76.7	64.8	68.8	.00
Logan Pass	3.8	15.6	83.1	84.7	.00
Rising Sun	1.7	11.0	66.5	52.0	.00
St. Mary	3.8	14.3	80.6	62.3	.00
Two Medicine	2.3	8.1	45.5	14.4	.00
Many Glacier	0.3	6.7	63.5	20.6	.00
Waterton	0.0	4.6	32.3	9.8	.00
North Fork Road	10.7	17.0	13.1	11.1	.04
Lk. McDonald Lodge	57.2	62.9	63.8	63.8	.20

Table 9 Comparison of visitation to selected sites for the summers of 1990 and 1993 (percent of respondents visiting each site)

Site	1993	1990
Logan Pass	83	80
St. Mary	81	68
Rising Sun	67	56
Apgar	65	55
Lk. McDonald Lodge	64	55
Many Glacier	64	43
Two Medicine	46	18
Waterton	32	24
North Fork Road	13	11

1990 data from Littlejohn (1991)

Table 10 Entrance site comparison for the summers of 1990 and 1993 (percent of respondents entering at each site)

Site	1993	1990
West Glacier	55	60
St. Mary	19	32
Waterton Park	3	2
Two Medicine	8	2
Many Glacier	6	2
Polebridge	< 1	< 1
Other	< 1	2

1990 data from Littlejohn (1991)

Table 11 Exit site comparison for the summers of 1990 and 1993 (percent of respondents exiting at each site)

Site	1993	1990
West Glacier	46	52
St. Mary	28	39
Waterton Park	3	3
Two Medicine	8	3
Many Glacier	6	3
Polebridge	< 1	1
Other	2	1

1990 data from Littlejohn (1991)

Table 12 Lodging facilities used (average number of nights spent, arranged by season)

Facility Used	Winter	Spring	Summer	Fall	sig. =
R.V. campground inside the Park	0.2	0.2	1.2	0.4	.00
R.V. campground outside the Park	0.1	0.3	0.5	0.2	.00
Motel/hotel inside the Park	0.0	0.2	0.7	0.5	.00
Motel/hotel outside the Park	0.7	0.9	0.9	1.3	.00
Tent-Park backcountry	0.1	0.0	0.2	0.1	.02
Friends or family	0.3	0.3	0.3	0.5	.07

Table 13 Mode of travel used by respondents (in percent, arranged by season)

Number of previous visits	Winter	Spring	Summer	Fall
Automobile	99.8	98.2	85.9	93.8
Camper Trailer	0.0	0.2	2.9	0.9
R.V.	0.0	1.1	6.5	2.4
Pickup Camper	0.2	0.5	3.6	2.6
Other	0.0	0.0	1.0	0.2

Chapter 4

Expectations, Motivations, Preferences

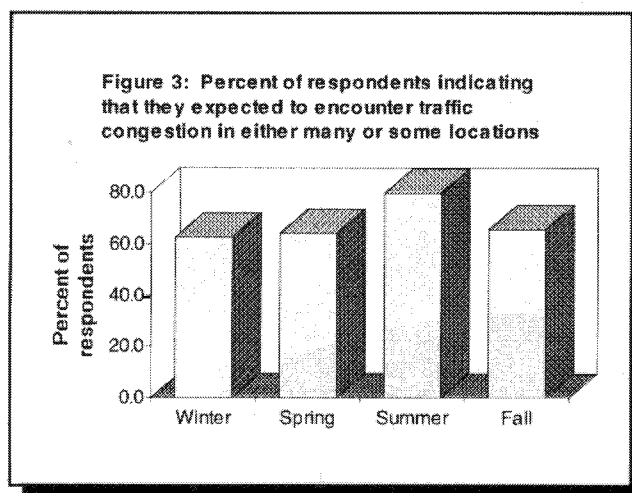
Visitor expectations, motivations, and preferences regarding facilities and conditions in recreational settings are important factors in predicting overall satisfaction. A large body of research has supported a link between expectations, motivations, preferences and satisfaction. Although a full review of this literature is beyond the scope of the current discussion, it is important to note that an understanding of these factors can assist not only in assessing visitor satisfaction, but can also serve as an indicator of management effectiveness in providing facilities and conditions. Also, this type of information can highlight situations where visitor preferences, motivations, or expectations are inconsistent with the mission of the Park; a condition which calls for public education and interpretation.

Expectations

To measure expectations about park facilities and conditions, respondents were presented with a series of items relating to eight park facilities and six management conditions. For each item, visitors were asked to indicate whether they expected to find the attributes "in many locations," "in some locations," "not in the Park," or had "no expectation." Tables 14 and 15 summarize responses for visitors who expected to find these facilities and conditions in either "many" or "some" locations in the Park. Summer respondents were more likely to expect the presence of the listed facilities and management

conditions than respondents from other seasons.

Specifically, summer respondents were most likely to expect hotels, showers and hot water in the campgrounds, Recreational Vehicle (RV) dumpsites, and developed facilities (Table 14). Summer visitors were also more likely to expect traffic congestion (Figure 3).



However, a larger percentage of spring respondents expected to find RV hookups than respondents from other seasons. Similarly, a larger proportion of winter respondents expected to find private home development in the Park than visitors in other seasons. The only facility expectation that exhibited no significant seasonal variation was for the presence of paved roads within the Park. Summer and fall visitors were least likely to expect trail closures.

These findings suggest that summer respondents generally expect to find a higher level of development in the Park when compared to visitors of other seasons. In particular, these expectations extended to facilities designed to provide for visitor comfort and amenities. This expectation for Park development did not, however, extend to private home development within the Park boundaries.

A complicated mix of factors is involved in any discussion of these findings. Clearly, prior knowledge and experience with the Park plays an important role in shaping visitor expectations. The case of expectations regarding private home development inside the Park provides a good example. As noted earlier, winter respondents were more likely to be Montana residents, and to have visited the Park more often than their counterparts from other seasons. Winter visitors, being more familiar with the Park, were more likely to be aware of private home development and thus responded to this question accordingly.

It is important to recognize that the notion of expectation in no way implies acceptability or preference for these attributes. Rather, the results are useful as indicators of areas where a visitor's expectations may not be congruent with what they are likely to find. A potential consequence of this disparity between expectation and actual experience is evident when examining the expectations for showers in the campground. Forty-five percent of summer respondents expected to find showers in the campgrounds within the Park. Since this facility is not provided, the incongruence between expectation and reality could produce a level of dissatisfaction for a large number of visitors. A similar situation exists regarding expectations for hot water in the campgrounds. Although hot water is not available, 40.6% of summer respondents expected it to be provided. The inconsistencies between expectations and actual conditions might suggest at least two courses of action: (1) education that is aimed toward bringing expectations more in line with the realities of camping within the Park, and (2) the development of expected facilities.¹

¹ We note that the development of facilities is constrained by compatibility with the overall mission and objectives for the Park.

In addition to the examination of facility expectations, respondents were queried regarding their expectations of specific Park conditions (Table 15). Regarding expectation of trail closures for bear management, summer visitors represented the lowest percentage of those expecting to find this condition (57.6%) while 70.2% of winter respondents expected such closures. As in the case with private home development in the Park, previous knowledge may account for much of this variation. This previous knowledge is reflected in the fact that winter responses to these questions most likely represent general rather than specific expectations (since bears are not active in the winter). That is, respondents are indicating they would expect to find such conditions at some time within the Park, but not necessarily for the visit they were on when surveyed.

Similar patterns were found about visitor expectations concerning the presence of motor craft on lakes within the Park. Winter respondents were the least likely to expect this condition (38.4%) while summer visitors most likely (42.1%). Again, these seasonal differences were significant ($\alpha \leq .001$). The potential for incongruence between expectations and actual conditions is high since summer visitors have a greater likelihood of encountering both motorcraft and trail closures.

Expectations about traffic conditions also followed a seasonal pattern with summer visitors more likely to indicate this expectation than visitors in other seasons.

Seasonal differences in expectations for Park maintenance, while statistically significant ($\alpha \leq .03$), were less compelling than other conditions examined. While a large percentage of all respondents expected to find the park maintained, fall visitors had somewhat lower expectations compared to the other three seasons.

Expectations for the availability of educational materials and rules and regulations did not exhibit any discernible seasonal variation ($\alpha \leq .14$ and $\alpha \leq .18$, respectively). Particularly in the area of educational materials, this consistency in expectations may suggest a potential area of dissatisfaction for winter visitors. During this season, access to Park information and personnel is the most restricted. However, winter respondents had similar levels of expectations for educational materials as visitors in other seasons.

Another question dealt with visitor expectations regarding crowding. In this question, respondents were asked to rank the level of crowding they experienced compared to what they expected on a six point scale. For a large percentage of visitors, the level of crowding experienced was below or very near what was expected (Table 16). Most respondents indicated that the number of people they saw was either "the right amount", "a few less", or "a lot less". Summer respondents were more likely than their winter, spring or fall counterparts to experience crowding levels above that of their

expectation. We note that the literature on crowding in recreation areas is a large and complex one and suggests that a number of factors influence visitor evaluations of social conditions.

The data concerning expectations suggests several areas for potential visitor dissatisfaction, due largely to differences between expectations and actual conditions and influenced by previous experience and knowledge about the park. Summer visitors tend to have less experience in the Park. This may lead to potentially unrealistic expectations.

Motivations and Preferences

To uncover the motivations of visitors, they were asked to rank the importance of eleven items as reasons for visiting using a six point scale. Table 17 details the responses to this question for respondents who rated the motivations as "very" or "extremely" important.

Winter visitors were more likely than their summer counterparts to indicate motivations that might be characterized as "getting away from it all". These respondents were the most likely to cite "rest and relaxation", "escaping pressures and stress back home", or "privacy and introspection" as motivations for visiting the Park. In contrast, summer respondents were the least likely to characterize their motivations as stemming from a search for "escape" or "privacy and introspection". Instead, summer respondents were the most likely to indicate "learning and discovery" and "scenery" as important motivations. One possible exception to this finding lies in the motivation of "seeking recreational activities". Here, winter respondents had the highest percentage indicating this to be an important motivation, while fall respondents were the least likely to cite this as important.

Fall and spring visitors did not exhibit the differences noted above with two exceptions: spring respondents were more likely than those in the fall to indicate that "exercise and skill development" and "privacy and introspection" were important motivations.

For all seasons, "scenery" was cited as the most important motivation for visiting the Park with "wildlife" cited second most frequently. This is interesting because, although significant seasonal differences occurred in several of the motivational variables, there is substantial agreement among visitors about the importance of both "scenery" and "wildlife" for visiting the Park.

Motivations that ranked third among the seasons revealed more diversity. Winter respondents indicated that "rest and relaxation" (70.4%) was the next most important after "scenery" and "wildlife". For fall respondents this position was occupied by "change of routine" (67.7%). "Time with family and friends" ranked third among the

motivations selected by summer and spring respondents (70.5% and 69.9% respectively).

The responses to the motivational items were subjected to a principal components analysis to determine if a simpler underlying structure existed. The purpose is to assess if the eleven items actually measure a simpler motivational structure. The analysis proceeded using all respondents initially, without regard to the season of visit.

Results from this analysis isolated three distinct groupings, or factors, that help to describe motivational attributes for visitors (see Technical Appendix, Table 1, for factor loading on these domains). First, there is a motivational domain that can be characterized as a desire for *escape*. Items within this domain include: rest and relaxation, time for privacy and introspection, escape, and a change of routine. A second domain focuses upon *nature appreciation*. Items in this domain include an appreciation of the natural scenery, opportunities to view wildlife, and the occasion to learn more about the Park. The third domain identified an *activity/social* domain. Items within this domain include: participation in recreational activities, exercise and skill improvement, opportunities to meet other people, and spending a night inside the Park.

The next step in this analysis was to test the hypothesis that there are seasonal differences in the three motivational domains. To test this hypothesis, response scales for each of the motivational domains were developed. Numbers were assigned to the five responses for each of the individual motivational items with 1 corresponding to "not at all important", 2 for "slightly important", 3 for "moderately important", 4 for "very important", and 5 for "extremely important" (the sixth response category, "uncertain", was not included in scale calculations). Using the above, a simple summative scale score for each respondent on each domain was calculated. For example, the scale for the escape domain was calculated by summing the responses to the motivations "rest and relaxation", "privacy and introspection", "escape from pressure and stress", and "change of daily routine".

From these scale scores it was possible to determine mean responses by season for each of the motivational domains. An Analysis of Variance (ANOVA) was performed on these scores to determine any seasonal differences in motivation (Table 18).

Significant seasonal differences were observed for all three motivational domains ($\alpha \leq .001$). Winter and spring respondents were found to have higher mean escape motivation scores than their counterparts in the summer or fall. Summer respondents, by comparison, scored higher for nature appreciation. Activity participation and social interaction appears to be most important to

winter respondents. Understanding the differences reported here may also help managers in dealing with the differences in expectations reported earlier.

Preferences for Management Alternatives

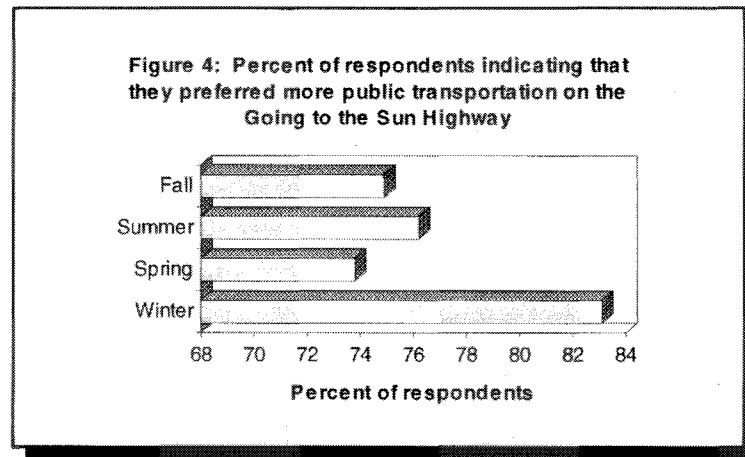
An objective of the study was to better understand how visitors might react to a variety of potential management actions concerning traffic on the Going to the Sun Highway. This highway, is the only through road traveling east to west in the Park and is a premier attraction for visitors. This particular issue was highlighted because decisions regarding management of this roadway would potentially have significant impacts on visitor experiences.

To measure preferences, respondents were asked to indicate the three "most preferred" actions from a list of seven possible alternatives, that managers could take should conditions become such that traffic must be restricted. Table 19 details the options presented and the proportion of respondents indicating what actions would be preferred. For visitors in all four seasons, the first, second and third most cited preferences were the same. The provision of public transportation was the option most often selected by respondents. A restriction of vehicles to certain "off-peak" times was the next most popular. The third most cited alternative was to initiate additional user fees for private vehicles in the Park.

Several seasonal differences did exist concerning the preferences to alter Going to the Sun Highway management. Thus, even though the

most preferred alternative for all seasons was the provision of more public transportation, winter respondents were more likely to choose this option (Figure 4) compared to the other seasons ($\alpha \leq .01$); of the seven options available, winter respondents

focused heavily on public transportation, while respondents in other seasons spread their support over the other options. Winter and fall respondents were more likely than others to support restricting private vehicles to off-peak times. The options of building more roads and of



making the Going to the Sun highway a one-way road were favored more by summer and fall respondents.

The data suggest that visitors prefer highway management options that involve changing the number of private vehicles using the system, but do not prefer actions that restrict freedom or increase the number of roads. Visitors from all seasons supported the idea of public transportation. The level of support is significant and suggests that visitors will use such transportation if it does not significantly adversely impact their freedom to see the Park.

Table 14 Expectations regarding the presence of selected facilities within the Park (arranged by season)

Facility	Winter	Spring	Summer	Fall	Sig.
R.V. dump site	28.3	24.8	32.1	24.5	.00
R.V. hookups	22.4	25.4	23.8	21.3	.00
Showers in campgrounds	39.2	36.7	45.9	36.3	.00
Hot water in campgrounds	36.8	31.3	40.6	34.0	.00
Private home development	32.3	25.9	12.6	18.8	.00
Developed facilities	73.6	77.6	79.7	72.5	.00
Hotels	67.8	67.7	76.0	66.1	.00

Percent expecting the facility in "many locations" or in "some locations"

Table 15 Expectations regarding the presence of selected conditions within the Park (arranged by season)

Condition	Winter	Spring	Summer	Fall	Sig.
Trail closures	70.2	60.3	57.6	58.9	.00
Motor craft on lakes	42.1	41.4	38.4	34.3	.00
Traffic congestion	62.6	64.1	79.6	65.6	.00
Park maintenance	82.1	82.2	84.1	78.2	.03
Education materials	88.5	88.8	93.3	90.2	.14
Posted rules and regulations	89.4	92.1	93.5	89.9	.18

Percent expecting the facility in "many locations" or in "some locations"

Table 16 Experience compared to expectations of crowding (percent of respondents arranged by season)

Expectations	Winter	Spring	Summer	Fall
Lot less than expected	14.5	24.7	12.2	16.2
Few less than expected	7.7	9.1	17.6	13.0
About as many as expected	48.2	43.5	38.0	43.6
Few more than expected	11.6	10.0	10.2	11.2
Lot more than expected	9.9	3.7	12.8	4.3
Didn't know	8.0	9.1	9.1	11.7

Table 17 Reasons for visiting the Park that were either "very important" or "extremely important (arranged by season)

Motivation	Winter	Spring	Summer	Fall	Sig.
Rest and relaxation	70.4	62.3	59.1	59.6	.00
Escape pressure	66.3	61.9	54.5	59.1	.00
Privacy and introspection	60.9	52.2	35.2	41.8	.00
Exercise/skill development	53.1	36.7	30.4	29.9	.00
Recreational activities	51.9	31.7	32.8	25.5	.00
Spending a night inside the Park	27.8	23.7	47.2	23.1	.00
Scenery	94.0	90.4	95.5	92.2	.02
Learning and discovery	68.3	61.6	69.9	64.7	.04
Seeing Wildlife	76.1	80.2	80.9	75.0	.07
Meeting others	4.8	4.5	7.4	6.3	.23
Family and friends	66.7	69.9	70.5	66.1	.39
Change of daily routine	66.4	68.2	65.2	67.7	.78

Percent expecting the facility in "many locations" or in "some locations"

Table 18 Mean scores and ANOVA significance levels on scales for motivation domains (arranged by season)

Domain	Winter	Spring	Summer	Fall	sig =	Sheffe test
Escape	3.8	3.7	3.5	3.5	.00	sum., fall < wint., spr.
Nature appreciation	4.2	4.2	4.3	4.1	.00	wint., spr., fall < sum.
Activity/social	2.9	2.6	2.6	2.4	.00	spr., fall, < sum. < wint.

Table 19 Most preferred management responses to increased traffic in the Park (in percent, arranged by season)

Management option	Winter	Spring	Summer	Fall	Sig.
Make GTS highway one-way	28.6	35.9	40.4	39.4	.00
Provide more public transportation	83.1	73.8	76.2	74.9	.01
Restrict private vehicles to off-peak times	53.2	47.9	42.9	52.2	.01
Build more roads	14.8	19.4	20.1	22.6	.04
Require advanced registration	19.6	23.2	25.3	25.2	.17
Ban public vehicles	25.6	25.5	27.1	21.0	.18
Charge more fees	35.6	38.9	40.5	41.2	.34

Chapter 5

Park Facilities and Conditions: Visitor Evaluation and Response

Visitor satisfaction has long been viewed as a measure of quality in recreational settings. In some cases visitor satisfaction has been viewed as synonymous with quality when dealing with the complex issues associated with managing recreational settings and their visitors. Over 20 years ago it was argued that "*the principal goal of recreation management is to maximize user satisfaction consistent with certain administrative, budgetary and resource constraints*".¹

Visitor evaluations of park facilities and conditions can help managers better understand how visitors perceive the quality of the recreational opportunity offered in the park but can also serve as a sort of report card on performance. In addition, such evaluations can alert managers to potential issues as well as challenges. In this chapter, we report findings concerning three aspects of visitor satisfaction. First, we show how visitors perceive facilities and conditions within the Park. This includes how visitors rate the job Park managers are doing in providing certain opportunities, and their perceptions of specific aspects and locations within the Park that visitors identified as particular sources of satisfaction or dissatisfaction.

Second, we examine perceptions of use density and visitor evaluations of such conditions as crowded. In this aspect, we report how study respondents evaluated the number of encounters they had with other visitors and where those encounters occurred.

Third, we studied the behaviors employed by visitors in response to perceptions of crowding. In particular, we examined the extent to which visitors experienced crowding in previous visits, when they anticipate the Park to be crowded and how they coped with crowding.

Visitor Perceptions of Facilities and Conditions

Two questions with identical items were designed to assess visitor perceptions of specific facilities and conditions in the Park.

¹ Lime and Stankey (1971).

First, respondents were asked to indicate if they had observed the listed facility or condition, and if so, whether it added or detracted from their visit. This item used a five position scale—including response categories "did not observe", "neither" and "uncertain". On the second set of questions, respondents were asked to evaluate the status of the facility or condition in terms of its acceptability. A similar five position response category was used for this question. The purpose of these questions was to gain an understanding of what park attributes were important to visitors and how the current status of these attributes affected visitor's experience in the Park.

Table 20 shows the list of conditions that visitors generally perceived as adding to their experience. Note that the items consist of attributes that attract visitors or those that can enhance their experience, such as educational material. The data also shows that with the exception of wildlife, significant seasonal differences exist among visitors. Winter visitors tended to be least likely to rate items in Table 20 as adding to their experience. Two items—lodging cleanliness and camping/picnic areas—were difficult to rate for winter respondents because of the lack of availability in these facilities in this season. This may account for the low percentages for the winter. However, the ratings on other items, in particular, educational materials, would suggest some potential areas to address.

Results for facilities and conditions that detract from a visitor's experience are shown in Table 21. In general, there were few such items that a majority of visitors rated as "detracting"; yet there continued to be significant seasonal differences among respondents. The presence of litter was the most frequently mentioned attribute detracting from experiences. Seasonal differences were observed; winter visitors were more likely to cite this condition and summer visitors the least likely.

Vandalism was another factor detracting from respondents' visits. Again, winter and summer respondents differed significantly in the likelihood that the presence of vandalism would detract from a visit. Other conditions that a large minority indicated detracted from their visit included private home development in the park, aircraft noise, speeding cars, presence of motor craft on lakes, lack of parking areas, and slow vehicles on park roads. For nearly all these, significant seasonal differences were observed. However, visual examination of the data in Table 21 suggests that much of the difference is between winter respondents and respondents in other seasons. We have previously

noted other similar differences. We speculate that much of the difference is a result of winter respondents living nearby and being well informed about Park management issues and conditions. Although respondents were instructed to rate conditions they experienced on the current visit, winter visitors may have generalized their feelings to other seasons and experiences.

As noted earlier, respondents were presented a list of the same facilities and conditions and asked to rate the how acceptable their current status was. Results for items generally perceived as acceptable are shown in Table 22. While the differences among the seasons are statistically significant for all but one of the items, we argue that the differences among seasons for several are a matter of degree. For example, the item "wildlife at roadside", while showing a statistical difference, was highly rated (over 79%) by all seasons.

Table 23 shows the results for unacceptability ratings. These ratings follow the pattern shown in Table 21 with respect to items detracting from an experience, and also show significant seasonal variation. Litter and vandalism were the most likely to be rated as unacceptable by respondents. Winter visitors reported the greatest sensitivity to these items as well as many others in Table 23. Summer visitors rated speeding cars as the most unacceptable condition they encountered, with vandalism, litter and private home development closely behind. For respondents in each of the other seasons, these items were also rated as the most unacceptable conditions, although the order varied somewhat. As with previous results, winter respondents were more likely to rate conditions as unacceptable than respondents in other seasons.

Visitor Evaluation of Park Management Performance

Respondents were asked to rate their level of satisfaction with the performance of Park management in providing specific opportunities, facilities and services. A five position response category (very satisfied to very unsatisfied) plus an "uncertain" response category was presented to respondents for each item in this question.

Park management generally received high marks for its performance (Table 24). The table shows the percentage of respondents that indicated they were "very satisfied" or "satisfied" with Park management performance. The data in the table also shows significant seasonal variation, with winter respondents being somewhat lower in their level of satisfaction and summer visitors,

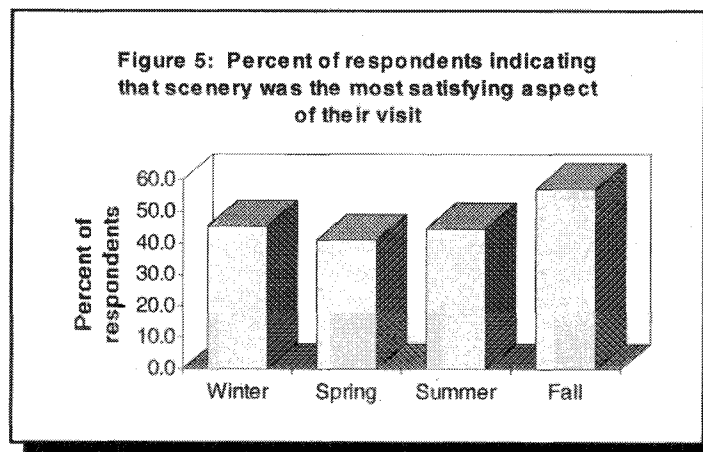
on most items, providing a somewhat higher level of satisfaction. The three most highly rated items were preserving scenic views, preserving the natural ecosystem, and providing road access. Most negatively rated were providing access for people with disabilities, providing historical and cultural sites and structures and providing educational programs.

The results in Table 24 reinforce findings presented earlier: significant differences exist among seasonal visitor groups. Winter respondents tend to be more critical of their evaluations than visitors in other seasons, suggesting that management may need to pay special attention to local visitor concerns.

Satisfying and Dissatisfying aspects of a visit

To further address the issue of satisfaction, respondents were asked to indicate the most satisfying and dissatisfying aspects of their visit. In addition, they were queried about the location within the Park where these aspects occurred. The questions in this area were open ended (i.e., visitors wrote answers and were not presented predetermined response categories). The reader should note that not all respondents answered each question. The percentages displayed in the next four tables are based on those responding, not the total number of respondents in each of the seasonal samples. The number responding to each question is noted under the season in each table.

Figure 5 shows that scenery was the most satisfying aspect of a visit to the Park. This attribute was cited more frequently than any other regardless of season. Fall visitors in particular were likely to cite this attribute. Solitude and quiet were cited more frequently by winter respondents than those in other seasons, reinforcing the notion of seasonal differences in the recreation experience opportunity afforded by the Park (Table 25). Summer visitors were more likely to cite recreation activities



while spring respondents cited wildlife viewing.

Visitors were asked where these experiences had occurred. Table 26 shows results. Major differences among the seasons are noted for this variable. Lake McDonald was cited most frequently for winter and spring respondents with summer visitors citing Going to the Sun Highway and fall visitors listing "everywhere". Summer and fall visitors also listed Logan Pass. Obviously, because the Pass is closed in winter and spring, it was not listed by many of the visitors in these seasons. Summer visitors also pointed out the Many Glacier area as a location of satisfying experiences. Slightly over 10% of the spring visitors identified Avalanche Lake trail as a satisfying location.

In part the results reflect seasonal variations in accessibility to Park features and opportunities. The results also reflect, however, important seasonal variations in how visitors define their experience, reinforcing results reported earlier. Winter visitors seem to be pursuing escape, solitude and quiet. Summer visitors are seeking recreation, scenery, and wildlife. Fall and spring visitors expect wildlife and scenery.

The most dissatisfying aspects of respondents' visits are shown in Table 27. It shows a wide variety of attributes of which access and seasonal closures and environmental conditions affecting the comfort (snow, rain, clouds and insects) of respondents figure most prominently. Problems with access seem to be most prominent with spring respondents, who may bring with them expectations of the park being open, yet in many areas the Park may still be closed because of snow. Of those responding, summer and winter visitors also cited information as a source of dissatisfaction. Finally, fall visitors were concerned about crowding more than visitors in other seasons. This may suggest that fall visitors bring an expectation that there will be relatively few others in the Park during that season, or they may have a more limited range of acceptability for meeting others.

While Lake McDonald may have been frequently mentioned as a source of satisfaction, visitors also cited it relatively frequently as a source of dissatisfaction (Table 28). This was particularly true of winter visitors, who also listed the Apgar area as a source of dissatisfaction. Spring and fall visitors identified the Going to Sun Highway as a place where dissatisfaction occurred. Summer respondents also mentioned Logan Pass.

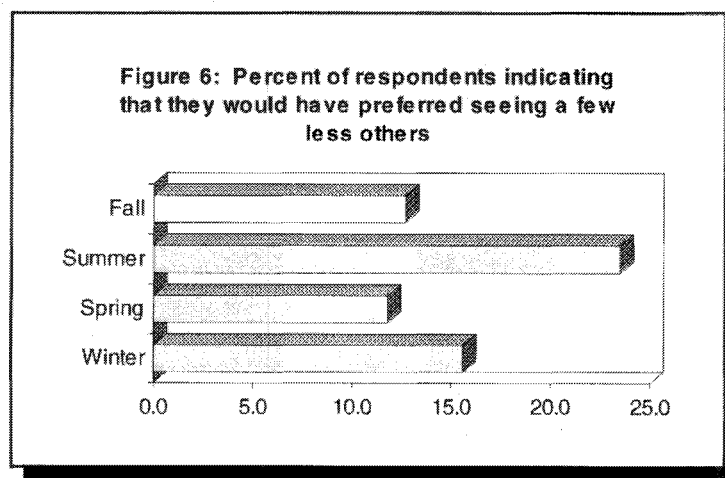
The data presented here is useful in identifying where dissatisfaction exists, although the linkage between the location

and the conditions causing dissatisfaction is not identified. However, the data does help suggest more specific questions about dissatisfaction. For example, why is Logan Pass listed so frequently when it is one of the highlights of a Park visit? Is the source of dissatisfaction congestion, lack of parking space, the visitor center, trail closure, or some other factors?

Crowding: Perceptions and Satisfaction

Visitation at Glacier National Park has increased dramatically over the last decade, with the total number now exceeding 2 million per year. Understanding how visitors perceive and respond to use levels can help managers understand what type of and where appropriate actions need to be addressed. We investigated the issue of crowding by querying visitors on several items. First, we asked visitors to state their preferences with respect to the number of people they encountered (on a five position scale). Second, we asked respondents to tell us if they felt the number they encountered was a "crowd". Third, we asked our study respondents if there were specific places they avoided because of too many people. Finally, we wanted to know if visitors select specific times of the year to visit the Park in order to avoid crowds.

Results of our first analysis are shown in Table 29. The results show several interesting patterns. Most people rated the number encountered as "about right", suggesting few major concerns at current use levels. Second, summer visitors were somewhat more likely to state they would like to have seen "a few less" than visitors in other seasons (Figure 6). Third, a larger percentage of visitors indicated they would like to see fewer others than those stating they would like to see more. These findings suggest that while a majority of respondents feel the current



situation is acceptable, there may need to be monitoring of these perceptions as use grows.

Table 30 shows that Logan Pass and Going to the Sun Highway account for much of the concern about the level of encounters. These places are spectacular resources that draw visitors to the Park. At the same time, they tend to be the focus of much of the concern about crowding. The Apgar area and the Avalanche Lake trail were also noted with some frequency as places where too many encounters occurred. Finally, fall visitors cited a large number of other locations, each too small to be named individually but as a total suggesting a need to examine fall visitor patterns with respect to crowding.

Table 31 displays our data with respect to visitor evaluations of encounters as to crowding. Less than 10% of our respondents evaluated Park conditions as "very" or "extremely" crowded. These data reinforce the earlier conclusion: crowding is not now a major issue for most visitors in many places (with the exception of summer), but is something that will require monitoring.

How do visitors respond to perceptions of crowding, in terms of behavior? If people experience or anticipate encountering too many people, what are they likely to do? Do visitors go someplace else or do they plan their trip at a time when they likely to encounter fewer visitors? We term the going someplace else as a *spatial* coping behavior, while visiting at another time a *temporal* coping behavior.

To examine overall coping behaviors, respondents were asked if they "ever decided to not visit GNP because you thought there would be too many visitors or traffic?" Significant differences among respondents exist in answers to this question. Summer visitors were least likely to have avoided the Park for this reason (6.7%) while winter visitors were most likely (49.6%). Spring and fall visitors were in-between.

Respondents were next asked if they have attempted to avoid crowds by avoiding specific locations. Again, significant differences were found, with winter visitors more likely to indicate this strategy (49.5%), than spring (28.4%), summer (18.4%) or fall (17.4%). The principal areas avoided are shown in Table 32, and are primarily the Logan Pass and Going to the Sun Highway areas.

The final question in our examination of crowding was to determine if respondents visited places at low use times to avoid encountering many others. Summer visitors were far less likely to have structured their visit this way (21.1%) than for visitors in the

winter (74.8%), spring (61.7%) or fall (63.0%) seasons. The areas visited by these respondents are shown in Table 33. These areas replicate the places respondents avoided, suggesting that the places are very attractive to visitors but their enjoyment is hampered by the presence of others.

This examination of crowding suggests several important patterns, some of which were mentioned earlier. First, winter visitors appear to be more susceptible to crowding than visitors in other seasons. We've noted on several occasions that winter visitors are more likely local residents than in other seasons. They have a depth of knowledge and experience that others do not have. They have a familiarity with conditions and a repertoire of coping strategies available only to those with flexible travel plans. Thus, they tend to visit the Park in winter when they can escape pressures and avoid crowds while enjoying the quiet and solitude offered then. In one sense, many winter visitors may have been displaced from the summer by current use levels.

Summer visitors are less likely to be visiting the Park to enjoy solitude than the outstanding scenery it avails. They are more oriented toward recreation activities, and because most are from out of state, they have relatively inflexible travel patterns. Because of these factors, they do not have the potential coping behaviors to deal with crowding, although they are sensitive to its presence.

These results suggest that it is important to ask questions about displacement, monitoring and how perceptions of crowding might influence behavior in the future. Questions should be explored regarding the level of satisfaction temporal or spatial coping strategies give visitors. We also need to examine what level of use would allow them not to engage their coping behaviors. Addressing these and other questions would help develop a better understanding of how the park management can meet the mission for the Park mentioned in Chapter One.

Table 20 Percent of Respondents Indicating That Selected Attributes Added to Their Visit -- All Respondents

Attribute	Winter	Spring	Summer	Fall	Sig.
Availability of Ed. Material	68.5	66.3	81.3	69.9	.00
Camping/picnic areas	45.8	51.5	61.4	55.0	.00
Lodging Cleanliness	43.4	46.9	67.0	58.6	.00
Quality of the Educational Mat.	67.5	67.9	79.4	70.0	.01
Wildlife at Roadside	71.9	79.6	76.4	74.1	.35
Wildlife in Backcountry	81.4	81.9	84.5	79.4	.46

Table 21 Percent of Respondents Indicating That Selected Attributes Detracted From Their Visit -- For Respondents Who Observed The Attribute

Attribute	Winter	Spring	Summer	Fall	Sig.
Aircraft Noise Inside Park	42.0	18.1	32.3	29.0	.00
Auto Noise	26.3	15.7	22.0	11.9	.00
Commercial Dev. Outside	41.5	30.7	24.3	21.8	.00
Food Service Availability	11.2	7.1	8.0	14.0	.00
Hotel Availability	12.1	9.2	16.8	10.5	.00
Motor Craft on Park Lakes	40.4	30.1	22.6	25.6	.00
Parking Shortage	33.5	24.9	43.4	21.9	.00
Rules and Regulations	2.7	2.9	0.0	3.6	.00
Traffic Congestion at Entrances	38.3	18.8	18.0	20.2	.00
Traffic Congestion Inside Park	43.4	28.4	43.4	27.0	.00
Vandalism	58.8	49.6	39.4	49.6	.00
Home Dev. Outside	25.2	21.5	19.2	15.1	.02
Litter Inside Park	60.1	50.0	49.1	53.5	.02
Private Home Dev. Inside Park	47.9	47.6	40.6	44.1	.02
Bear Warnings at Trailsides	5.9	4.0	2.3	3.7	.04
Cars Speeding Inside Park	46.1	38.4	45.8	46.0	.09
Evidence of Forest Fires	14.2	13.5	8.9	12.9	.11
Slow Vehicles Inside Park	30.5	24.4	24.1	27.4	.18
Wildlife at Roadside	2.4	1.2	2.0	1.1	.34
Wildlife in Backcountry	0.7	0.3	1.2	1.4	.46

Table 22 Percent of Respondents Indicating That Selected Attributes Were Acceptable -- For Respondents Who Observed The Attribute

Attribute	Winter	Spring	Summer	Fall	Sig.
Camping/picnic areas	69.6	80.5	84.8	82.0	.00
Lodging Cleanliness	51.3	59.3	74.6	69.9	.00
Quality of the Educational Mat	75.5	80.1	85.7	80.1	.00
Wildlife at Roadside	79.8	86.7	88.5	84.8	.00
Availability of Ed. Material	76.7	77.6	85	80.4	.02
Wildlife in Backcountry	83.8	85.3	87.1	84.3	.07

Table 23 Percent of Respondents Indicating That Selected Attributes Were Unacceptable -- For Respondents Who Observed The Attribute

Attribute	Winter	Spring	Summer	Fall	Sig.
Aircraft Noise Inside Park	39.3	22.2	25.2	24.4	.00
Bear Warnings at Trailsides	3.1	1.0	0.5	0.9	.00
Commercial Dev. Outside	35.1	27.0	19.3	18.7	.00
Food Service Availability	10.2	8.1	7.2	11.5	.00
Home Dev. Outside	20.9	17.2	14.8	13.0	.00
Hotel Availability	9.1	7.2	12.3	9.0	.00
Litter Inside Park	58.3	47.1	40.7	39.7	.00
Motor Craft on Park Lakes	36.7	26.7	18.2	24.5	.00
Parking Shortage	24.8	20.6	32.3	19.0	.00
Traffic Congestion at Entrance	30.9	16.7	11.2	12.1	.00
Traffic Congestion Inside Park	29.7	19.5	21.4	14.6	.00
Auto Noise	20.6	13.6	15.2	11.5	.02
Slow Vehicles Inside Park	22.4	15.8	18.2	15.5	.02
Vandalism	63.2	51.4	47.7	49.7	.02
Cars Speeding Inside Park	49.3	42.6	53.3	48.7	.03
Private Home Dev. Inside Park	46.3	39.8	42.6	39.7	.03
Evidence of Forest Fires	16.1	16.4	19.8	17.7	.04
Rules and Regulations	2.3	1.5	1.0	2.2	.05

Table 24 Percent of respondents indicating that they were either "satisfied" or "very satisfied" with the Park's performance in selected areas (arranged by season)

Management Responsibility	Winter	Spring	Summer	Fall	Sig.
Preserve scenic views	88.4	92.5	93.4	93.9	.00
Preserve the natural ecosystem	77.8	85.6	89.4	86.9	.00
Provide developed rec. facilities	72.6	77.6	84.7	79.8	.00
Provide educational displays	70.4	69.2	78.0	68.8	.00
Provide educational programs	65.5	60.0	68.9	55.4	.00
Provide opportunities for undeveloped (backcountry) recreation	71.2	61.7	61.4	58.4	.00
Provide road access	75.6	81.5	82.4	85.0	.00
Provide historical and cultural sites and structures	62.9	66.5	75.0	67.1	.02
Provide opportunities for solitude	74.9	74.1	73.0	70.9	.14
Provide access for people with disabilities	49.3	47.7	44.9	44.2	.64

Table 25 Percent of respondents indicating that selected attributes were the most satisfying aspects of respondent's visit

Aspect of visit	Season/(Percent of Sample Responding)			
	Winter (28.3)	Spring (29.9)	Summer (35.8)	Fall (36.9)
Scenery	45.5	41.1	44.7	57.1
Solitude	11.3	8.1		4.8
Quiet	11.3	6.0	2.1	3.2
Wildlife viewing	9.6	19.4	12.6	9.7
Engaging in rec. activities (active)	9.1	10.8	21.8	6.8
Engaging in rec. activities (passive)			3.7	
Relationship with natural environment	5.5	4.0	4.3	7.6
Whole park	2.2	2.8	2.3	3.8
Driving/motor vehicle related	1.4	2.0	1.6	2.6
Time with family or friends	1.1	1.8		0.8
Exercise	0.8			
Relaxing		1.0	1.0	
Learning and discovery			1.2	1.0
Others	2.2	3.0	4.7	2.6

Table 26 Locations where respondents indicated experiencing the most satisfying aspect of their visit (in percent of respondents)

Location	Season/(Percent of Sample Responding)			
	Winter (25.0)	Spring (27.8)	Summer (37.2)	Fall (30.4)
Lake McDonald	39.8	22.4	4.5	5.3
Going to the Sun Road	15.4	17.6	18.7	21.5
Apgar	11.6	11.1	3.4	4.6
Avalanche Lake Tr.	5.6	10.3	3.6	3.9
Everywhere	5.0	13.0	9.9	25.4
Camas Rd.	4.7	8.4		
Fish Creek	2.8			
Logan Pass	2.5	2.7	13.3	17.9
Trail of the Cedars	1.3	3.2		
Bowman Lk.		1.4		
Rising Sun area	1.3		3.4	3.1
Many Glacier		2.2	15.7	4.1
Two Medicine Area			7.3	1.4
Hidden Lake Trail			2.6	
St. Mary Lake and Area				1.9
Others	10.0	7.7	17.6	10.9

Table 27 Percent of respondents indicating that selected attributes were the most dissatisfying aspects of their visit

Aspect of visit	Season/(Percent of Sample Responding)			
	Winter (21.5)	Spring (26.6)	Summer (30.1)	Fall (28.6)
Access/seasonal closures	23.2	35.9	4.9	12.7
Information (quality)	11.1	7.1	15.5	5.8
Environmental conditions (comfort)	11.6	18.5	25.8	19.3
Wildlife (lack of)	7.2	5.7	5.2	9.8
Crowding	4.8	5.0	8.2	10.2
Leaving/visit too short	4.8	2.8	3.0	8.0
Facilities (lack of)		6.8	3.0	
Facilities (quality of)	4.8		8.7	3.3
Pollution/litter	4.3	1.4		3.3
Roads (condition of)	3.9		3.3	5.5
View/pull-off's (lack of)	3.4	2.8	1.9	2.9
Rules and regulations	2.9			
Wildlife (management of)		2.5		
Survey		1.4		
Parking (lack of)			6.3	
Other visitors (rude)				2.5
Other	18.0	10.1	14.2	16.7

Table 28 Locations where respondents indicated experiencing the most dissatisfying aspect of their visit (in percent of respondents)

Location	Season/(Percent of Sample Responding)			
	Winter (11.6)	Spring (16.3)	Summer (22.0)	Fall (15.9)
Lk. McDonald	32.3	16.7	4.4	9.2
Apgar	24.2	16.2	7.3	11.1
Going to the Sun Road	10.1	21.8	13.6	20.7
Everywhere	8.7	18.1	15.8	21.7
Camas Rd.	4.0	2.3		
Logan Pass	4.0	5.6	21.2	15.7
Avalanche Lk. Trail	2.0	5.6	3.2	2.8
Polebridge		1.9		
Two Medicine Area	2.0			
Fish Creek	2.0			
Homesite (inholder)	1.3			
Bowman Lk.		1.4		
Many Glacier			9.5	1.8
St. Mary Lake/area			4.1	5.1
Rising Sun area			2.5	
Campgrounds		1.4	2.2	
Entrance				2.8
Others	9.4	9.0	16.2	9.1

Table 29 Preferences Regarding Levels of Crowding (in percent)

Preference	Winter	Spring	Summer	Fall
Would like to have seen a lot more	3.2	3.1	1.1	1.1
Would like to have seen a few mor	3.4	7.1	2.9	4.3
Saw about the right number	55.5	62.1	51.6	66.7
Would like to have seen a few less	15.6	11.8	23.5	12.7
Would like to have seen a lot less	11.7	7.1	16.0	6.6
Don't know	10.7	8.8	4.8	8.6

Sig. <= .001

Table 30 Locations of too many encounters (percent of respondents)

Location	Season/(Percent of Sample Responding)			
	Winter (7.4)	Spring (3.3)	Summer (19.5)	Fall (4.7)
Logan Pass	28.4	9.1	47.5	32.9
Lk McDonald	17.9	18.2	1.4	8.6
Going to the Sun Rd	10.5	22.7	12.5	11.4
Apgar	11.6	11.4	7.5	5.7
Avalanch Lake Tr.	8.4	13.6	5.4	7.1
Hidden Lake Tr.	4.2		5.0	4.3
Trail of the Cedars	3.2	4.5	1.4	2.9
Entrance	2.1			
Two Medicine Area	2.1			
Everywhere			4.5	1.1
Visitor Centers			4.5	
Many Glacier				8.6
Highline Tr.	2.1		1.4	
Sun Rift Gorge				2.9
Camas Rd.			4.5	
Lodges			2.3	
Restrooms				2.9
Others	9.5	4.7	8.2	18.4

Table 31 Overall evaluation of the level of encounters experienced (in percent)

Preference	Winter	Spring	Summer	Fall
Not at all Crowded	70.4	79.7	18.6	70.7
Slightly Crowded	10.4	10.6	24.3	14.5
Moderately Crowded	9.2	6.4	43.6	11.2
Very Crowded	5.5	1.9	8.6	0.7
Extremely Crowded	3.0	0.0	3.3	1.3
Don't Know	1.5	1.4	1.5	1.6

Sig. <= .001

Table 32 Locations avoided (percent of respondents)

Location	Season/(Percent of Sample Responding)			
	Winter(17.6)	Spring (11.6)	Summer (8.0)	Fall (7.6)
Logan Pass	38.7	23.4	33.0	32.0
Going to the Sun Road	14.2	16.9	11.3	10.7
Apgar	12.4	9.7	10.4	8.7
Lake McDonald	9.3	11.0	9.6	8.7
Avalanche Lake Tr.	8.9	10.4	6.1	7.8
Hidden Lake Tr.	6.2	2.6	4.3	3.9
Everywhere	1.8	3.9	1.7	6.8
Highline Tr.	1.3			
Visitor Centers	1.3	2.6	3.5	
Hotels		3.2		
Many Glacier	1.3	2.6	7.0	3.9
Trail of the Cedars			3.5	
Lodges				2.9
Campgrounds				2.9
Others	4.6	13.7	9.6	11.7

Table 33 Locations visited at low use times

Location	Season/(Percent of Sample Responding)			
	Winter (25.1)	Spring (22.9)	Summer (8.4)	Fall (26.2)
Lk McDonald	22.0	16.1	5.8	9.8
Going to the Sun Rd.	13.4	18.7	23.3	24.9
Logan Pass	11.2	6.9	11.7	16.2
Avalanche Lake Tr.	10.2	6.9	5.0	5.0
Apgar	9.0	10.5	6.7	5.3
Two Medicine area	3.1		7.5	2.0
Many Glacier	4.0	2.6	10.0	7.6
Bowman Lake	3.1	5.2		
Highline Tr.	2.8			
Camas Rd.	2.5	4.9		
Everywhere		6.6	5.8	11.2
Trail of the Cedars		4.3		
Swift Current area			3.3	
Hidden Lake Tr.			2.5	2.5
St. Mary Lake/area				2.2
Others	18.7	17.3	18.4	13.3

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Appendix A
Regulatory Compliance Statement

Notice of Regulatory Compliance

16 U.S.C. 1a-17 authorizes collection of this information. This information will be used by park managers to better serve the public. Response to this request is voluntary. No action may be taken against you for refusing to supply the information requested. Your name is requested for follow-up mailing purposes only. When analysis of the questionnaire is completed, all names and address files will be destroyed. Thus the permanent data 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 anticipated 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 response. Direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, National Park Service, P.O. Box 37127, Washington DC 20014-7127; and to the Office of Management and Budget, Paperwork Reduction Project 1024-0119, Washington DC 20503

Appendix B
Visitor Registration Form

Location: _____

Visitor Registration

Survey Date: _____

Surv. #	Name	Mailing Address: Street, City, State, Zip	Group Size	Mode

1=pvt 2=camper trailer 3=RV (self contained)
4=pickup camper

Appendix C
Sampling Plan

Sampling will be conducted in three day blocks, one block randomly selected from days of the month, and one block per month. Thus days beginning with the date 29, 30, or 31 are ineligible to be the beginning date of the sampling period. During the period November through March, sampling will occur over the weekend. During these periods, the beginning day of the sampling period can either be Friday or Saturday. Sampling will begin November 13, 1992.

To select the sampling blocks in the November through March period, all Fridays and Saturday dates are listed for each month. A two-digit random number is drawn. The Friday or Saturday closest to this number is then selected as the beginning date of the sampling period. The sampling blocks for the April and May period were selected by randomly selecting a two-digit number between 1 and 28. This number will represent the beginning date of the sampling block.

The August sampling took place during a full week of sampling. The beginning date represents the start of a seven day period.

This procedure results in the following sampling dates:

<u>Month</u>	<u>Beginning Date</u>
November	13
December	19
January	8
February	5
March	20
April	12
May	22
August	16
September	22
October	15

Appendix D
Questionnaire

OMB#: 1024-0112
Expiration Date: 7/31/94

Survey No. _____

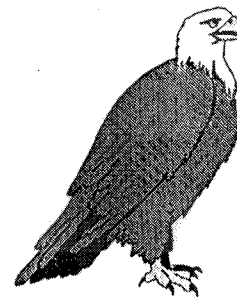
Notice of Regulatory Compliance

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Public reporting burden for this form is estimated to average 15 minutes per response. Direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, National Park Service, P.O. Box 37127, Washington DC 20014-7127; and to the Office of Management and Budget, Paperwork Reduction Project 1024-0119, Washington DC 20503

Glacier National Park

Visitor Survey



The University of
Montana
Institute
for
Tourism and
Recreation
Research

General Information: We would appreciate a few minutes of your time to answer this survey. Your responses should be based upon your current visit to Glacier National Park. For the purpose of our survey, a park visit consists of the time spent within the park boundaries. We ask that **ONLY YOU** personally respond to all questions so that your answers represent just your views.

USE THIS SPACE, FOR ANY COMMENTS YOU WOULD LIKE TO MAKE REGARDING HOW WE CAN MAKE YOUR EXPERIENCE IN GLACIER N.P. A BETTER ONE.

Section 1. You and Your Trip to Glacier National Park

1. Was this your first visit to Glacier N.P.? (circle one number)

- 1 YES
- 2 NO (if no, please answer the following)

1a About how many times, not including this trip, have you visited Glacier N.P.? _____

2. Was this your first visit to any National Park?

- 1 YES
- 2 NO

3. How many nights did you stay either inside or outside the park during your visit to Glacier N.P.? _____

4. If you stayed one or more nights while visiting Glacier N.P., please indicate the number of nights you spent in each of the following types of lodging.

- ___ auto/RV campground inside the park
- ___ auto/RV campground outside the park
- ___ a backcountry chalet
- ___ a tent in the park backcountry
- ___ a hotel/motel/lodge inside the park
- ___ a hotel/motel/lodge outside the park
- ___ with family or friends (in their residence)

5. How many different times did you enter the park during your visit, at any or all of the park entrances? Be sure to include all entries, including those times you left the park to buy groceries, meals, etc., and then re-entered the park.

Total number of entries _____

PLEASE MAIL THE COMPLETED SURVEY IN THE SELF-ADDRESSED ENVELOPE. NO STAMP IS NEEDED; THE POSTAGE WILL BE PAID.

THANK YOU FOR YOUR HELP AND COOPERATION

12. Please indicate the extent to which each of the following conditions were acceptable or unacceptable **DURING THIS VISIT** to Glacier N.P..

	Did Not Observe	Unacceptable	Neither	Acceptable	Uncertain
a. Commercial or industrial development just outside the park boundaries	()	()	()	()	()
b. Private home development just outside the park boundaries	()	()	()	()	()
c. Campgrounds and picnic facilities in the park	()	()	()	()	()
d. Automobile noise present while hiking or skiing	()	()	()	()	()
e. Shortage of parking spaces within designated parking areas	()	()	()	()	()
f. Traffic congestion at park entrances	()	()	()	()	()
g. Traffic congestion within the park	()	()	()	()	()
h. Vehicles speeding along park roadways	()	()	()	()	()
i. Sightseers in cars, slowing down traffic	()	()	()	()	()
j. Wildlife in the road or very close to roadside	()	()	()	()	()
k. Quality of educational information about the park	()	()	()	()	()
l. Wildlife visible in backcountry setting	()	()	()	()	()
m. Presence of litter in the park	()	()	()	()	()
n. Presence of motor craft on lakes	()	()	()	()	()
o. Evidence of forest fires in the park	()	()	()	()	()
p. Availability of educational information about the park	()	()	()	()	()
q. Private home development inside park boundaries	()	()	()	()	()
r. Aircraft noise present while hiking or skiing ..	()	()	()	()	()
s. Bear warning signs at trailheads	()	()	()	()	()
t. Vandalism or other damage to park facilities ..	()	()	()	()	()
u. Availability of hotel or motel accommodations	()	()	()	()	()
v. Food service available and convenient	()	()	()	()	()
w. Clean and well-maintained lodging facilities ..	()	()	()	()	()
x. Posted rules and regulations for visitor behavior	()	()	()	()	()

13. How did the number of people you saw in the park compare with what you expected to see? (Circle one number)

- 1 saw a lot less than expected
- 2 saw a few less than expected
- 3 saw about as many as expected
- 4 saw a few more than expected
- 5 saw a lot more than expected
- 6 I didn't really know what to expect

14. How did you feel about the number of people you saw in the park? (circle one number)

- 1 would like to have seen a lot more
- 2 would like to have seen a few more
- 3 saw about the right number
- 4 would like to have seen a few less
- 5 would like to have seen a lot less
- 6 don't know

15. Was there any place in particular that you experienced too many visitors?

- 1 YES
- 2 NO

15a. If yes, where? Please write a specific location. (Be as specific as possible, i.e. specific lake, specific trail, etc.).

16. Have you ever decided to **not visit** Glacier N.P. because you thought there would be too many visitors or traffic?

- 1 YES
- 2 NO

17. Have you ever deliberately **visited** Glacier N.P. during **low-use periods** to avoid large numbers of visitors or too much traffic?

- 1 YES
- 2 NO

17a. If yes, which locations did you visit? Please write a specific location. (Be as specific as possible, i.e. specific lake, specific trail, etc.).

18. Have you ever **avoided** particular places in Glacier N.P. because of large numbers of visitors?

- 1. YES
- 2. NO

18a. If yes, which locations did you **avoid**? Please write a specific location. (Be as specific as possible, i.e., specific lake, specific trail, etc.).

19. On this visit, did you get your first choice of accommodations or camping area?

- 1 YES
- 2 NO

20. Overall, did you feel the park was: (circle one number)

- 1 not at all crowded
- 2 slightly crowded
- 3 moderately crowded
- 4 very crowded
- 5 extremely crowded
- 6 don't know

21. Overall, what was the most satisfying part of your visit?

21a. Where did you experience this? (Please write a specific area)

22. Overall, what was the most dissatisfying part of your visit?

22a. Where did you experience this? (Please write a specific area)

Section 3. Your Evaluation of Glacier National Park

11. Please indicate the extent to which each of the following conditions influenced the quality of **THIS VISIT** to Glacier N.P.. Specifically, we are interested in your evaluation of whether the condition added or detracted from your **CURRENT VISIT**.

	Did Not Observe	Detracted	Neither	Added	Uncertain
a. Commercial or industrial development just outside the park boundaries	()	()	()	()	()
b. Private home development just outside the park boundaries	()	()	()	()	()
c. Campgrounds and picnic facilities in the park ..	()	()	()	()	()
d. Automobile noise present while hiking or skiing	()	()	()	()	()
e. Shortage of parking spaces within designated parking areas	()	()	()	()	()
f. Traffic congestion at park entrances	()	()	()	()	()
g. Traffic congestion within the park	()	()	()	()	()
h. Vehicles speeding along park roadways	()	()	()	()	()
i. Sightseers in cars, slowing down traffic	()	()	()	()	()
j. Wildlife in the road or very close to roadside ..	()	()	()	()	()
k. Quality of educational information about the park	()	()	()	()	()
l. Wildlife visible in backcountry setting	()	()	()	()	()
m. Presence of litter in the park	()	()	()	()	()
n. Presence of motor craft on lakes	()	()	()	()	()
o. Evidence of forest fires in the park	()	()	()	()	()
p. Availability of educational information about the park	()	()	()	()	()
q. Private home development inside park boundaries	()	()	()	()	()
r. Aircraft noise present while hiking or skiing ..	()	()	()	()	()
s. Bear warning signs at trailheads	()	()	()	()	()
t. Vandalism or other damage to park facilities ..	()	()	()	()	()
u. Availability of hotel or motel accommodations	()	()	()	()	()
v. Food service available and convenient	()	()	()	()	()
w. Clean and well maintained lodging facilities ..	()	()	()	()	()
x. Posted rules and regulations for visitor behavior	()	()	()	()	()

Section 5: You the Visitor

The following questions are our attempt to learn about the types of people whom we are seeking to serve at Glacier National Park. Your responses are entirely confidential and are used only for group comparisons and profiles.

24. Your present age _____ Years
25. Your sex Male Female
26. What is the highest level of education you have completed so far? (Circle one Number)
- | | | | | | | | | | | | | | | | | | | |
|------------|---|---|---|---|---|---|---|-------------|----|----|----|-------------------|----|----|----|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19+ |
| Elementary | | | | | | | | High School | | | | After High School | | | | | | |
27. Do any members in your party have impairments which limited their ability to visit the park?
- 1 YES
2 NO
- 27a. If yes, what kind of impairment is that?
- _____
28. What is your home zip code? _____
29. What kind of work do you do? (Please be as specific as possible)
- _____

Section 2. Your Expectations and Motivations for Visiting Glacier N.P.

People have a wide variety of expectations for their visit to a National Park. Some of these are listed below. Check the response that best describes your expectation for each of the following questions.

YOUR RESPONSE TO THIS STATEMENT IS:

- | | | | | | | |
|--|----------------------|--------------------|----------------------|----------------|---------------------|-----------|
| | Not at all important | Slightly important | Moderately important | Very important | Extremely important | Uncertain |
|--|----------------------|--------------------|----------------------|----------------|---------------------|-----------|
6. How important is it that you spend the night inside the park (as opposed to a campground or motel outside)? () () () () () ()
7. How important to you are each of the following reasons for visiting Glacier N.P.?
- | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|
| a. rest and relaxation | () | () | () | () | () | () |
| b. learning and discovery | () | () | () | () | () | () |
| c. escaping pressure and stress back home .. | () | () | () | () | () | () |
| d. meeting other people | () | () | () | () | () | () |
| e. having time to myself for privacy and introspection | () | () | () | () | () | () |
| f. doing things with family and friends | () | () | () | () | () | () |
| g. enjoying natural scenery | () | () | () | () | () | () |
| h. seeing wildlife | () | () | () | () | () | () |
| i. having a change from my daily routine | () | () | () | () | () | () |
| j. exercising and improving my skills | () | () | () | () | () | () |
| k. participation in recreation activities | () | () | () | () | () | () |
- | | | | | | | |
|--|----------------|-----------|---------|-------------|------------------|-----------|
| | Very Satisfied | Satisfied | Neither | Disatisfied | Very Disatisfied | Uncertain |
|--|----------------|-----------|---------|-------------|------------------|-----------|
8. How satisfied are you with the job that Glacier N.P. is doing to:
- | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|
| a. preserve the natural ecosystem | () | () | () | () | () | () |
| b. provide developed recreation facilities (visitor centers, campgrounds, etc.) | () | () | () | () | () | () |
| c. provide educational programs | () | () | () | () | () | () |
| d. provide educational displays | () | () | () | () | () | () |
| e. preserve historical and cultural sites and structures | () | () | () | () | () | () |
| f. preserve scenic views | () | () | () | () | () | () |
| g. provide road access | () | () | () | () | () | () |
| h. provide opportunities for undeveloped (backcountry) recreation | () | () | () | () | () | () |
| i. provide opportunities for solitude and privacy | () | () | () | () | () | () |
| j. provide access for people with disabilities | () | () | () | () | () | () |

9. Prior to entering Glacier N.P., to what extent did you expect to encounter, or to find, the following facilities/conditions?

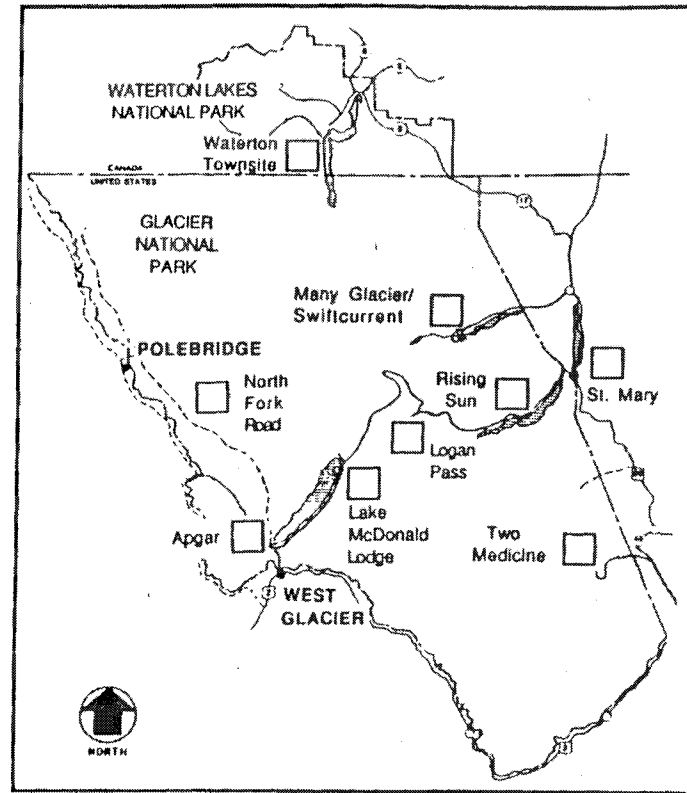
	In Many Locations	In Some Locations	Not Located in the Park	No Expectations
a. R.V. dump stations	()	()	()	()
b. R.V. hook-ups	()	()	()	()
c. showers in the campgrounds	()	()	()	()
d. hot water in the campgrounds	()	()	()	()
e. trail closures for bear management	()	()	()	()
f. motor craft on the lakes	()	()	()	()
g. paved roads	()	()	()	()
h. traffic congestion	()	()	()	()
i. private home development within the park	()	()	()	()
j. developed facilities within the park	()	()	()	()
k. hotel accommodations within the park	()	()	()	()
l. educational information about the park	()	()	()	()
m. posted rules and regulations for visitor behavior ..	()	()	()	()
n. Park Service maintenance activity (road work, building projects, etc.)	()	()	()	()

10. As the park reaches the point where vehicle traffic must be restricted, which of the following would you find most acceptable? Using an "X", please mark the three most preferred actions to be taken.

- ___ provide more public transportation
- ___ restrict private vehicles to certain "off-peak" times
- ___ ban private vehicles and provide public transportation
- ___ require advance reservations to enter the park in a private vehicle
- ___ initiate additional user fees for private vehicles in the park
- ___ build more roads in the park
- ___ make the Going to the Sun Road a one way route

Section 4: Visiting Glacier N.P.

23. On the map below, please indicate the places you and your group visited in Glacier N.P., during this trip to the park. Simply check (✓) the box beside each place you visited



23a. Where did you and your group first enter Glacier N.P.?

23b. Where did you and your group exit Glacier N.P.?

Appendix E
First Cover Letter



United States Department of the Interior

NATIONAL PARK SERVICE
GLACIER NATIONAL PARK
WEST GLACIER, MONTANA 59936

(406) 888-5441
FAX: (406) 888-5581



IN REPLY REFER TO:

December 1992

Dear Visitor:

Thank you for taking your time to participate in this study. Our objective is to learn about the expectations, opinions, and interests of visitors to Glacier National Park. This will assist us in our efforts to better manage Glacier National Park, and to serve you, the visitor.

This questionnaire is only being given to a relatively small number of visitors. Your participation is very important to the success of this study and to the protection of Glacier National Park. It should only take a few minutes of your time during your visit to Glacier National Park to complete the questionnaire.

When your visit is over, please complete the questionnaire. Use the postage paid envelope provided and simply drop it in any U.S. mailbox.

If you have any questions, please contact Dr. Stephen F. McCool, Director, Institute for Tourism and Recreation Research, The University of Montana, Missoula, Montana 59812, (406) 243-5406.

Sincerely,

H. Gilbert Lusk
Superintendent

Appendix F
Follow-up Post Card

Dear Park Visitor,

You may recall receiving a questionnaire concerning your visit to Glacier National Park. If you have completed your questionnaire and returned it to us, I would like to thank you for your cooperation. If you have not had the opportunity to complete the questionnaire, please do so at your earliest convenience. Your responses to these questions are important in helping Glacier National Park managers determine how to best manage the park and to serve you.

Thank you,

Stephen F. McCool
Project Director

Appendix G
Replacement Cover Letter

Dear Glacier National Park Visitor

Several weeks ago we sought your cooperation in a study of visitors to Glacier National Park. As of this day, we have not yet received your completed questionnaire.

The study involves such questions as preferences for the management of the Park, visitor perceptions of crowding, and other information essential to proper management of the area. Because only a limited number of individuals have been included in the study, your cooperation is important.

Enclosed is another copy of the questionnaire in the event that you have misplaced the original. Please take a few minutes to complete the questionnaire within the next several days. Place it in the stamped, self-addressed envelope and drop it in any convenient mailbox. Your help is greatly appreciated.

If you have already sent your questionnaire to us, we want to thank you for your cooperation.

Sincerely,



Stephen F. McCool
Director

enclosures

Appendix H
Coding Sheets

Location Code list

<i>Code</i>	<i>Location</i>	<i>Code</i>	<i>Location</i>
58	Akolaka Lk.	22	Lodges
7	Apgar	5	Logan Pass
3	Avalanche Area	108	Lunch Creek
26	Backcountry	15	Many Glacier Area
51	Belly River	127	McGregor Lake
90	Big Bend	74	Mount Cannon
23	Bowman Lk.	33	Mount Jackson
109	Brown Pass	110	Nashukin Lk,
24	Camas Rd.	40	Ole Cr.
63	Campgrounds	39	Park Cr.
27	Chalets	48	Polebridge
200	Cobalt Lk,	111	Pradise
75	Cossley Ridge	38	Ptarmigan Tunnell
42	Cutbank Campground	57	Quartz Lake
121	Dawson Pass	49	Quintta Lk,
65	Ellen Wilson Lk.	68	Ranger Stations
4	Entrance	52	Red Eagle Valley
12	Everywhere	95	Restraunts
31	Fifty Mountain Meadow	92	Restrooms
87	Firn Cr.	113	Ridge line Tr.
30	Fish Cr.	77	Rising Sun Area
35	Flathead Ranger Station	100	Roads
43	Frozen Lk,	73	Rocky Pt.
81	Garden Wall	60	Scalpluck Lookout Tr.
116	Goat Haunt	28	Snyder Lk.
53	Granite Park	76	Sperry Chalet
128	Great North Circle Tr.	41	Sperry Glacier
9	GTS Rd.	101	Sprague
6	Gunsight Tr.	34	St. Mary Area
79	Harrison Lk.	59	Stanton Tr.
125	Heavens Peak	103	Stony Indian Pass
14	Hidden Lk. Area	54	Sun Rift Gorge
13	Highline Tr.	64	Swiftcurrent
112	Hole in the Wall	2	Trail of the Cedars
71	Homesite (inholder)	104	Trails
66	Hotels	115	Trick Falls
118	Hwy 17	123	Triple Divide
91	Hwy 2	56	Trout Lk,
96	Jackson Glacier	120	Two Dog Flats
80	John's Lake	11	Two Medicine Area
47	Kelly Camp	20	Visitor Centers
32	Kintla Lk.	83	Waterton Area
1	Lake McDonald Area	72	Weeping Tr.
29	Lincoln Lk.		

Satisfaction Code Sheet

<i>Code</i>	<i>Description</i>
17	Driving/motor vehicle related
102	Engaging in recreational activities (active)
103	Engaging in recreational activities (passive)
18	Escape
23	Exercise
104	Guided tours
100	Learning and discovery
25	Leaving
34	lodging
45	Nothing
12	Quiet
101	Relationship with nature
29	Relaxing
3	Scenery
2	Solitude
21	Time with family or friends
1	Whole park
4	Wildlife viewing

Dissatisfaction Code Sheet

<i>Code</i>	<i>Description</i>
200	Access/seasonal closures
77	Boarder crossing
58	Chalet closure
24	Commercial Development (inside)
34	Commercial Development (outside)
6	Crowding
211	Environmental Conditions (comfort)
203	Facilities (lack of)
202	Facilities (quality of)
41	Family
89	Fees/entrance
63	Fire (evidence of)
66	Fishing (quality of)
207	Food service
14	Handicap access
74	hiking
60	Horses (presence of)
201	Information (quality of)
79	Lack of Indians
52	Lodging (prices of)
39	Motor Boats (presence of)
208	Noise
3	Nothing
42	Other visitors/rude
204	Park maintenance activities
206	Park personnel
18	Parking (lack of)
209	Pollution/litter
22	Private homes inside
37	quiet
44	R.V's (presence of)
4	Roads (condition of)
28	Roads (too many)
205	Rules and regulations
12	Survey
81	Travel
47	Trees (dead/down)
80	Two Med. area
210	Views/pull-off (lack of)
212	Wildlife (lack of)
213	Wildlife (management of)

Occupation Code Sheet

<i>Code</i>	<i>Description</i>
15	Armed Services
4	Clerical
5	Crafts person
10	Farm laborer
9	Farmer
13	Homemaker
8	Laborer -- not farm
2	Manager/administrative
6	Operatives -- not transportation
7	Operatives -- transportation
1	Professional/technical
14	Retired
3	Sales
11	Service worker
12	Student
16	Unemployed

Entry/Exit Location Code Sheet

<i>Code</i>	<i>Description</i>
15	Babb
10	Big Creek
9	Camas
12	Camps Creek
14	Cheif Mt. area
13	East Glacier
2	Essex
8	Many Glacier
4	North Fork Road
11	Polebridge
3	St. Mary
16	Swiftcurrent
6	Two Medicine
5	Walton
7	Waterton
1	West Glacier

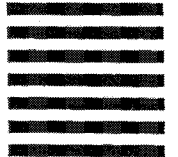
Impairment Code Sheet

<i>Code</i>	<i>Description</i>
2	Age
4	Arthritis
13	Asthma
6	Back problems
17	Cerebral Palsy
10	Calastomy
8	Hearing impaired
11	Heart disease
3	Multiple Sclerosis
9	Developmentally disabled
1	Mobility
15	Paraplegic
12	Polio
7	Prosthesis
14	Sight impaired
5	Spinal injury
6	Wheelchair

Appendix I
Non-response Test Post Card



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

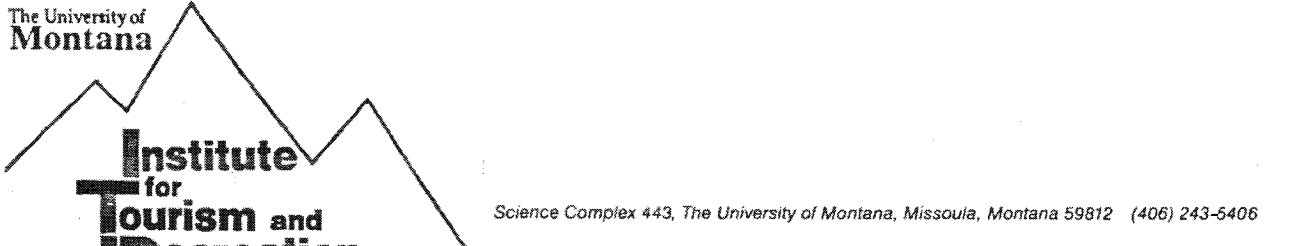
FIRST-CLASS MAIL PERMIT NO. 69 MISSOULA, MT

POSTAGE WILL BE PAID BY ADDRESSEE

Institute for Tourism and Recreation Research (RC-2385)
THE UNIVERSITY OF MONTANA
MISSOULA, MT 59801-9968



The University of
Montana



Institute
for
Tourism and
Recreation
Research

Science Complex 443, The University of Montana, Missoula, Montana 59812 (406) 243-5406

July 12, 1993

Dear Glacier National Park Visitor,

Some time ago we sought your cooperation in a study of visitors to Glacier National Park. As of this day, we have not yet received your completed questionnaire.

The study is an attempt by park managers to develop management strategies that best meet the needs of both visitors and the resources of the park. For this reason your views are very important for protecting the Park. Because only a limited number of individuals have been included in the study, your cooperation is crucial.

At this time we are asking you to respond to a few of the questions that were in the original questionnaire -- questions that are particularly important to Glacier National Park managers. Please take a few minutes to complete the questionnaire within the next several days. Simply detach the questionnaire and drop it in any convenient mailbox. Your help is greatly appreciated.

If you have already sent your questionnaire to us, we want to thank you for your cooperation.

Sincerely,

Stephen F. McCool
Director

Please detach here and return lower portion.

Please detach here and return lower portion.

Please respond to the following questions as they pertain to the trip for which we originally contacted you.

1. Was this your first visit to Glacier N.P.? (Circle one number)
1 YES
2 NO
2. How did the number of people you saw in the park compare with what you expected to see? (Circle one number)
1 saw a lot less than expected
2 saw a few less than expected
3 saw about as many as expected
4 saw a few more than expected
5 saw a lot more than expected
6 I didn't really know what to expect
3. Have you ever decided to not visit Glacier N.P. because you thought there would be too many visitors or traffic?
1 YES
2 NO
4. How did you feel about the number of people you saw in the park? (Circle one number)
1 would like to have seen a lot more
2 would like to have seen a few more
3 saw about the right number
4 would like to have seen a few less
5 would like to have seen a lot less
6 don't know
4. How many nights did you stay either inside or outside the park during your visit to Glacier N.P.? _____
5. Your present age _____ Years
6. Are you: Male Female
7. What is the highest level of education you have completed so far? (Circle one number)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19+
Elementary High School After High School

THANKS FOR YOUR HELP

NO POSTAGE NECESSARY -- DROP IN ANY CONVENIENT MAIL BOX WHEN FINISHED

Appendix J
Non-response Bias Analysis

FST_TRP_ First trip to GNP? by Non-response first trip, GNP

NON-RESPONSE: FIRST TRIP TO GNP? Page 1 of 1

	Count Exp Val Col Pct	NON-RESPONSE: FIRST TRIP TO GNP?		Row Total
		Yes	No	
MAIN SAMLE		1	2	
FIRST TRIP GNP?		6	10	16
Yes		5.4 24.0%	10.6 20.4%	21.6%
No	2	19 76.0%	39 79.6%	58
Column Total		25 33.8%	49 66.2%	74 100.0%

Chi-Square	Value	DF	Significance
Pearson	.12602	1	.72259
Minimum Expected Frequency -	5.405		

No. of encounters vs. expected (Main Sample) by no. people vs expected (non-response)

NR_CRWD Page 1 of 2

	Count Exp Val Col Pct	NR_CRWD					Row Total
		lot less	few less	as expec t.	few more	more	
CROWD_EX		0	1	2	3	4	
Lot less than ex	1	0 .5 .0%	5 3.0 38.5%	0 .7 .0%	8 7.9 23.5%	1 1.2 20.0%	17 23.3%
Few less than ex	2	0 .2 .0%	0 1.1 .0%	1 .2 33.3%	4 2.8 11.8%	0 .4 .0%	6 8.2%
About as many as	3	0 .9 .0%	6 6.1 46.2%	2 1.4 66.7%	16 15.8 47.1%	3 2.3 60.0%	34 46.6%
Few more than ex	4	1 .1 50.0%	1 .7 7.7%	0 .2 .0%	0 1.9 .0%	0 .3 .0%	4 5.5%
Lot more than ex	5	1 .2 50.0%	0 1.2 .0%	0 .3 .0%	3 3.3 8.8%	1 .5 20.0%	7 9.6%
Didn't know what	6	0 .1 .0%	1 .9 7.7%	0 .2 .0%	3 2.3 8.8%	0 .3 .0%	5 6.8%
(Continued) Column Total		2 2.7%	13 17.8%	3 4.1%	34 46.6%	5 6.8%	73 100.0%

CROWD_EX No. of encounters vs. expected by NR_CRWD no. people vs expected

Page 2 of 2

CROWD_EX	Count Exp Val Col Pct	NR_CRWD		Row Total
		lot more 5	dont kno w 6	
Lot less than ex	1 1.6 14.3%	1 1.6 14.3%	2 2.1 22.2%	17 23.3%
Few less than ex	2 .6 .0%	0 .6 .0%	1 .7 11.1%	6 8.2%
About as many as	3 3.3 28.6%	2 3.3 28.6%	5 4.2 55.6%	34 46.6%
Few more than ex	4 .4 14.3%	1 .4 14.3%	1 .5 11.1%	4 5.5%
Lot more than ex	5 .7 28.6%	2 .7 28.6%	0 .9 .0%	7 9.6%
Didn't know what	6 .5 14.3%	1 .5 14.3%	0 .6 .0%	5 6.8%
Column Total		7 9.6%	9 12.3%	73 100.0%

Chi-Square	Value	DF	Significance
Pearson	32.14176	30	.36096
Minimum Expected Frequency -	.110		
Cells with Expected Frequency < 5 -	39 OF	42 (92.9%)	

NO_VISIT Ever not visited GNP because anticipated crowds (main sample)
by NR_NO_VI Not visit due to crowd (non-response)

Page 1 of 1

NO_VISIT	Count Exp Val Col Pct	NR_NO_VI		Row Total
		Yes 1	No 2	
Yes	1 9 10.2 42.9%	9 10.2 42.9%	27 25.8 50.9%	36 48.6%
No	2 12 10.8 57.1%	12 10.8 57.1%	26 27.2 49.1%	38 51.4%
Column Total		21 28.4%	53 71.6%	74 100.0%

Chi-Square	Value	DF	Significance
Pearson	.39367	1	.53038
Minimum Expected Frequency -	10.216		

CROWD_EV Evaluation of encounters (main sample) by NR_CRWD1 Evaluation of encounters (non-² response test)

Page 1 of 2

CROWD_EV	Count Exp Val Col Pct	NR_CRWD1					Row Total
		Like lot more	Like few more	about ri ght	Like few less	Like lot less	
		1	2	3	4	5	
1	0	0	2	0	0	3	
Like to see a lo	.1 .0%	.2 .0%	1.2 7.1%	.5 .0%	.5 .0%	4.3%	
2	0	1	0	0	0	2	
Like to see a fe	.1 .0%	.1 20.0%	.8 .0%	.3 .0%	.3 .0%	2.9%	
3	2	4	16	4	5	33	
Saw about the ri	1.0 100.0%	2.4 80.0%	13.4 57.1%	5.3 36.4%	5.3 45.5%	47.8%	
4	0	0	5	4	3	13	
Like to see a fe	.4 .0%	.9 .0%	5.3 17.9%	2.1 36.4%	2.1 27.3%	18.8%	
5	0	0	3	1	1	10	
Like to see a lo	.3 .0%	.7 .0%	4.1 10.7%	1.6 9.1%	1.6 9.1%	14.5%	
6	0	0	2	2	2	8	
dont know	.2 .0%	.6 .0%	3.2 7.1%	1.3 18.2%	1.3 18.2%	11.6%	
Column (Continued) Total	2	5	28	11	11	69	
	2.9%	7.2%	40.6%	15.9%	15.9%	100.0%	

CROWD_EV Evaluation of encounters by NR_CRWD1 Crowd Evaluate

Page 2 of 2

CROWD_EV	Count Exp Val Col Pct	NR_CRWD1		Row Total
		Dont kno w	6	
1	1	1	3	3
Like to see a lo	.5 8.3%	.5 8.3%	4.3%	4.3%
2	1	1	2	2
Like to see a fe	.3 8.3%	.3 8.3%	2.9%	2.9%
3	2	2	33	33
Saw about the ri	5.7 16.7%	5.7 16.7%	47.8%	47.8%
4	1	1	13	13
Like to see a fe	2.3 8.3%	2.3 8.3%	18.8%	18.8%
5	5	5	10	10
Like to see a lo	1.7 41.7%	1.7 41.7%	14.5%	14.5%
6	2	2	8	8
dont know	1.4 16.7%	1.4 16.7%	11.6%	11.6%
Column Total	12	12	69	69
	17.4%	17.4%	100.0%	100.0%

Chi-Square	Value	DF	Significance
Pearson	29.92888	25	.22696

SEX Sex (main sample) by NR_SEX (non-response test)

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SEX	Count Exp Val Col Pct	NR_SEX		Row Total
		1	2	
Male	1	31 29.9 62.0%	12 13.1 54.5%	43 59.7%
Female	2	19 20.1 38.0%	10 8.9 45.5%	29 40.3%
Column Total		50 69.4%	22 30.6%	72 100.0%

Chi-Square	Value	DF	Significance
Pearson	.35294	1	.55245

Variable	Mean	Std Dev	Minimum	Maximum	Valid N	Label
NR_NO_NI	1.46	1.93	0	7	71	No. night during visit (non-response test)
NO_NGT2	2.27	2.71	.00	14.00	1630	No. nights during visit (main sample)
NR_AGE	39.65	13.47	18	82	75	Age (non-response test)
AGE	45.34	14.29	18	83	1683	Age (main sample)

ED_CAT Education Category (main sample) by NR_EDCAT Education Category (non-response test)

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ED_CAT	Count Exp Val Col Pct	NR_EDCAT					Row Total
		9 thr 11	12 yrs 15	13 thru 15	16 yrs 4	>=17 5	
8 yrs or <	1	1 .2 33.3%	0 1.2 .0%	2 1.7 9.5%	0 1.0 .0%	3 1.9 12.5%	6 7.9%
12 yrs	3	0 .3 .0%	3 1.4 20.0%	0 1.9 .0%	1 1.2 7.7%	3 2.2 12.5%	7 9.2%
13 thru 15	4	1 .7 33.3%	4 3.4 26.7%	4 4.7 19.0%	1 2.9 7.7%	7 5.4 29.2%	17 22.4%
16 yrs	5	0 .8 .0%	6 3.9 40.0%	6 5.5 28.6%	4 3.4 30.8%	4 6.3 16.7%	20 26.3%
17 >	6	1 1.0 33.3%	2 5.1 13.3%	9 7.2 42.9%	7 4.4 53.8%	7 8.2 29.2%	26 34.2%
Column Total		3 3.9%	15 19.7%	21 27.6%	13 17.1%	24 31.6%	76 100.0%

Chi-Square	Value	DF	Significance
Pearson	18.80094	16	.27912

Minimum Expected Frequency = .237
 Cells with Expected Frequency < 5 = 19 OF 25 (76.0%)

Number of Missing Observations: 1727

Technical Appendix
Factor Analysis for Visitor Motivations

Appendix Table 1 Factor loadings for individual motivational items and Chronbach's alpha reliability coefficients for resulting scales (only the highest loadings shown).

Item	Factors		
	One	Two	Three
Escape pressure	0.83		
Rest and relaxation	0.76		
Privacy and introspection	0.67		
Change from daily routine	0.66		
Scenery		0.84	
Seeing wildlife		0.82	
Learning and discovery		0.62	
Recreational activities			0.79
Exercise/skill development			0.76
Meeting others			0.51
Spending a night inside the Park			0.41

Appendix Table 2 Reliability scores for developed motivational Scales

Domain	Chronbach's alpha of reliability
Escape	.76
Nature appreciation	.70
Activity/social	.56