

D-329

**A SURVEY OF VISITORS TO MOWICH LAKE  
IN MOUNT RAINIER NATIONAL PARK**

MARK E. VANDE KAMP  
DARRYLL R. JOHNSON  
JARRETT M. PASCHEL  
TANYA PERGOLA

Technical Report NPS/CCSOUW/NRTR-99-01  
NPS D-329

UNIVERSITY OF WASHINGTON FIELD STATION  
USGS/BRD/FRESC  
COLLEGE OF FOREST RESOURCES  
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## U. S. GEOLOGICAL SURVEY

Biological Resources Division  
Forest and Rangeland Ecosystem Science Center  
University of Washington Field Station  
College of Forest Resources, University of Washington  
15 Anderson Hall, Box 352100  
Seattle, WA 98195-2100

November 20, 1998

### TRANSMITTAL LETTER

To: Jody Morrison (DSC-MS)  
National Park Service  
Technical Information Center  
PO Box 24287  
Denver, CO 80225-0287

**Re: NPS D-329 Technical Report**

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Bette S. Wells  
206-616-3827 Voice  
206-685-0790 Fax  
E-mail: wellsb@u.washington.edu

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November 1998

Subagreement No. 4 to Cooperative Agreement No. 1443-CA-9000-95-019  
National Park Service and University of Washington



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## ACKNOWLEDGMENTS

Thanks go to Stephanie Schulz, Stephen Nowers, and Doug Baker for special efforts in data collection. Esther Hammerschlag also contributed substantially to the success of this project. Finally, Barbara Samora at Mount Rainier provided essential feedback and assistance throughout the course of this project.

## PREFACE

This document reports the results from a survey of visitors to the Mowich Lake area of Mount Rainier National Park (MORA) in the summer of 1993. The questionnaire and on-site contact sheet used in this study are included in Appendix A and B. The questions used in the survey are included in the text of this report. However, readers may benefit by reviewing the questionnaires in order to familiarize themselves with the survey items and the format in which they were originally presented.

A number of respondents to the mail questionnaire took the opportunity to write comments about their trip to MORA. These comments have been transcribed and are presented here in Appendix C. Readers are encouraged to read through these comments which provide a qualitative description of visitors' reactions that quantitative measures do not typically capture.

It is anticipated that this report will be used primarily as a reference document and, therefore, depending on each reader's objective, this report may be used in very different ways. However, any reader not familiar with statistical analysis of survey data is encouraged to refer to Appendix D, "How To Use This Report."

## **SURVEY HIGHLIGHTS**

The full results of the Mowich Lake Visitor Survey (MLVS) are reported in the primary chapters of this report. Below, however, are selected findings that are particularly relevant to the survey objectives. Readers interested in further detail concerning these findings should refer to the later chapters of the report.

### **Mowich Lake Visitors Differ Slightly From the General Cross-Section of MORA Visitors**

When compared to a cross section of MORA visitors (using the 1990 General Visitor Survey(GVS)), Mowich Lake visitors are slightly younger than general MORA visitors (mean age of 39 vs. 43) and are more likely to visit in groups of friends rather than in family groups (1990 GVS - 64% Family, 19% Friends; MLVS - 51% Family, 27% Friends). The most striking difference between Mowich Lake and general MORA visitors is the fact that a considerably higher percentage of Washington residents was found among MLVS respondents (83%) than among respondents to the 1990 GVS (59%). Most of the Mowich Lake visitors from Washington were from King, Lewis, Pierce, Thurston, and Yakima counties (83% of respondents from Washington and 69% of all respondents).

### **Mowich Lake Visitors Who Stay In The Immediate Vicinity Of Mowich Lake Differ From Those Who Hike To More Distant Destinations**

Differences between "Mowich Lake Users" and "Mowich Lake Hikers" were observed throughout the MLVS results. However, only a few of those differences are presented here to illustrate the usefulness of this method of classifying Mowich Lake visitors.

### Survey Highlights

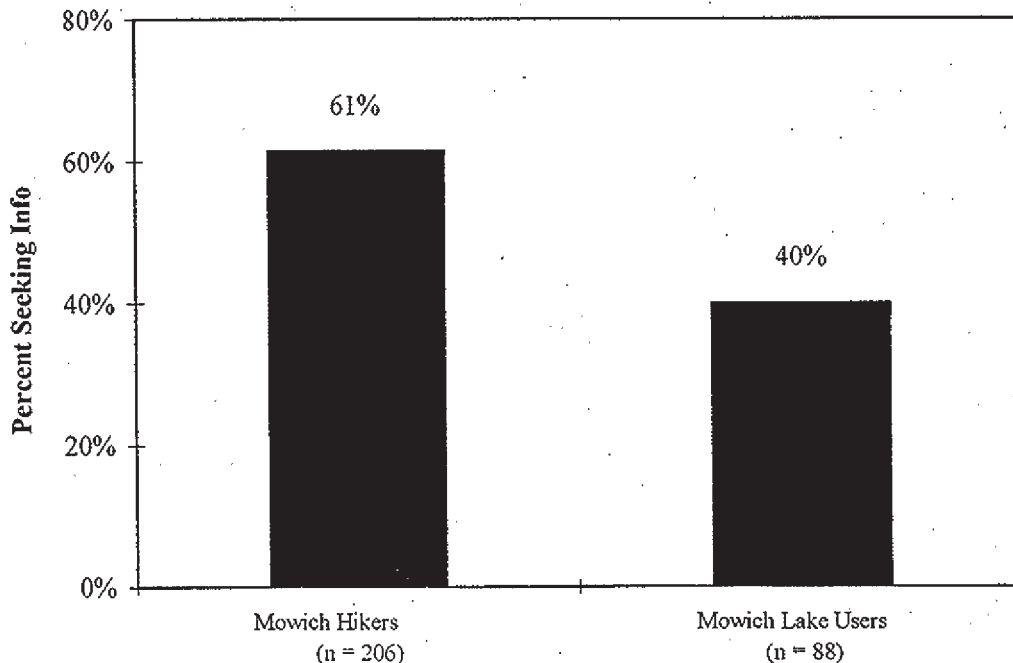
On average, those visitors who hiked to places outside the Mowich Lake vicinity had visited both Mount Rainier National Park and the Mowich Lake area significantly more frequently than those visitors who did not do any hiking or hiked only in the immediate vicinity of Mowich Lake.

**Table SH.1 Average Number of Visits by Visitor Type**

|                      | Mowich Lake Users<br>(n = 87) | Mowich Hikers<br>(n = 203) |
|----------------------|-------------------------------|----------------------------|
| Trips to Mt. Rainier | 4.3                           | 8.0                        |
| Trips to Mowich Lake | 1.5                           | 2.5                        |

In Figure SH.1, we see that those visitors who hiked to areas outside the immediate vicinity of Mowich Lake were more likely to seek information about the Mowich Lake area prior to their trip than those who stayed around Mowich Lake (61% vs. 40%).

**Figure SH.1 Sought Information Prior to Trip by User/Hiker**





### *Survey Highlights*

As expected, nearly every respondent who went on technical climbs (100%), camped while backpacking (95%), and hiked (82%) was classed as a Mowich hiker. Accordingly, most respondents who fished (75%) and drove to view scenery (68%) were Mowich Lake users. Mowich hikers also accounted for most visitors who viewed wildflowers (76%), viewed wildlife (77%), and took photographs (78%). When asked which one of the activities listed in Question 6 was most important to the enjoyment of their trip to the Mowich Lake area, those who were classified as "Mowich Hikers" listed "hiking" most frequently (27%), while those who were classified as "Mowich Lake Users" visitors listed "driving to view scenery" (21%) more often.

#### **About Half Of Mowich Lake Visitors Report Conditions Consistent With Crowding**

Crowding appears to be an important issue in the Mowich Lake area. About half (51%) of respondents said that they encountered more visitors than they *expected*, while 52 percent noted that they encountered more visitors than they *preferred*. Of the 45 percent (177) of visitors who reported that other visitors detracted from their enjoyment of the Mowich Lake area, the majority (63%) reported that the negativity resulted from crowding.

As might be expected, crowding is a greater issue at Mowich Lake on weekends than on weekdays. Weekend visitors were more likely report seeing more visitors than they expected (56%) than were weekday visitors (48%). Weekend visitors also were more likely to report that the number of visitors detracted from their experiences than were weekday visitors (54% vs. 38%). Finally, among the 177 respondents who reported that the number of others detracted from their experiences, the majority of those who said

## *Survey Highlights*

that such detraction resulted from other visitors occupying their preferred destinations (69%) had visited on a weekend.

### **About Half Of Mowich Lake Visitors Feel That The Fish Should Not Be Removed From Mowich Lake**

When asked, "*In its original state, Mowich Lake contained no fish. Some people believe that all the fish currently in the lake should be removed as a step toward restoring the original ecosystem. Do you agree or disagree that all fish should be removed from Mowich Lake?*" about half of all respondents (52%) reported that they disagreed.

However, fewer than ten percent said that removing the fish would make them less likely to visit the area. Thus, removal of the fish would probably not have a dramatic effect on most visitors' visitation patterns. Note, however, that almost one-quarter (22%) of respondents reported that they strongly disagreed with removing the fish, suggesting that there would probably be strongly voiced opposition if MORA managers begin steps to actually remove the fish. Such resistance is particularly likely at public meetings or in other forms of public feedback because local residents (who provide such feedback more often than visitors from more distant areas) were much more likely to be strongly opposed to removal of fish from Mowich Lake than were respondents from all other areas (44%, 20%, 31%, and 12% for Local, Regional, Washington, and Other residents, respectively).

### **Mowich Lake Visitors Are Approximately Evenly Split In Supporting And Opposing An Entrance Gate With Fee Collection**

When asked, "*Because of high levels of use, some people believe that the National Park Service should open an entrance gate on the road to Mowich Lake and charge visitors the standard park entrance fee of \$5 per vehicle. Are you in favor of, or against*

### *Survey Highlights*

*such an action?"* respondents were approximately evenly split in support (43%) and opposition (40%). Opinions on either side were held quite strongly (19% "strongly against" and 18% "strongly in favor"), and about one-quarter of respondents reported that such an action would decrease their visitation to Mowich Lake. Thus, constructing a gate and charging fees would probably be both strongly supported and opposed if it became a public issue. Such action would reportedly have a much greater impact on current visitors' use patterns than would removal of the fish from Mowich Lake.

#### **Most Mowich Lake Visitors Support Moving The Parking Lot**

When asked, *"Because Mowich Lake is being negatively affected by dust and runoff from the road, some people believe the last 300 yards of the road should be closed and that a parking lot should be created at that point, outside the watershed. Would you be in favor of, or against such an action?"* most respondents supported moving the parking lot (70%) and relatively few opposed such an action (13%). Most visitors said their use would not be affected (83%) and approximately as many visitors said they would come more often as said they would decrease their visitation to Mowich Lake. Thus, moving the parking lot would probably be supported by most visitors and would have a small net impact on visitation in the area.

## *Survey Highlights*

### **Some Family Groups and Groups Of Friends Differ In Their Motivation For Visiting Mowich Lake**

Chapter 4 of this report discusses the results of questions concerning six possible reasons why respondents may have visited Mowich Lake.<sup>1</sup> One strong finding from these data was that visitor groups composed of families reported that family-oriented reasons for visiting were much more important than friend-oriented reasons (3.95 versus 2.28 on a 5 point importance scale). Likewise, groups of friends rated friend-oriented reasons as more important than family-oriented reasons (3.83 versus 2.97). In both groups the reasons associated with the group composition were the second most important set of reasons for visiting, falling only slightly short of reasons associated with escape, rest, and introspection.

A more sophisticated analysis of the motivation data is discussed in Chapter VII: Market Segmentation of Mowich Lake Visitors. In this chapter we discuss how the MLVS respondents can be categorized into four market segments that correspond closely with the four market segments that were found in a similar analysis of data from the 1990 MORA General Visitor Survey. The relative importance of the family-oriented and friend-oriented reasons for visiting, and the ratio of family to friend visitor groups are some of the strongest characteristics that define these market segments. In fact, the four labels chosen to characterize the dominant characteristics of the market segments were: 1) Non-family hikers (14% of MLVS respondents); 2) Low-investment, non-family visitors (20%

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<sup>1</sup> See Appendix E for a general discussion of the Recreation Experience Preference scale items used to formulate the six reasons for visiting. See also, Chapter VI for the specific items used in the MLVS and the reasoning for their selection.

### *Survey Highlights*

of MLVS respondents); 3) Family-oriented visitors (28% of MLVS respondents); and 4) High-investment visitors (38% of MLVS respondents).

Analyses of the motivational data suggest that the differences between groups of family and friends extend beyond their motivation to their activities. For example, the ratio of families to friend groups among visitors who stayed in the immediate vicinity of Mowich Lake (i.e., Mowich Lake Users) was 2.8/1, but was only 1.3/1 among those respondents who hiked to destinations more distant from Mowich Lake (i.e., Mowich Lake Hikers).

## **I. INTRODUCTION**

This report begins with a brief description of the methods and procedures used in the 1993 Mowich Lake Visitor Survey (MLVS). The report continues with presentation of the data and interpretations of the findings.

The Mowich Lake Visitor Survey was administered by the University of Washington, Field Station, USGS/BRD/FRESC, located in the College of Forest Resources and hereafter referred to as the field station. The study was proposed and funded by Mount Rainier National Park (MORA).

The survey objectives included the following: (1) to determine visitor attitudes regarding several possible management actions that might be taken to preserve the ecology of Mowich Lake; (2) to identify demographic characteristics and common activities of Mowich Lake visitors; (3) to identify the reasons visitors come to Mowich Lake; (4) to evaluate perceptions of visitor impacts; and (5) to identify homogenous groups of visitors who might serve as target subpopulations in relevant management and planning programs.

### **Questionnaire Development**

The on-site sheet and questionnaire (Appendices A and B) were produced by the field station in cooperation with the MORA staff. Initial meetings were held in 1991 and 1992 to establish project objectives that would generally guide the development of the questionnaire.

Many of the questions used in the questionnaire and all of those on the on-site sheet were adapted from similar questions used by the field station in previous and

## *I. Introduction*

concurrent surveys of national park visitors. However, some questions were designed specifically for this survey. The questions on the questionnaire fall into groups that correspond to Chapters II to VII in the table of contents of this report.

The first group of questions (corresponding to Chapter III: Trip Description) primarily ask respondents to describe their activities on the trip during which they were contacted.

The second group of questions (corresponding to Chapter IV: Trip Motivation) ask respondents to rate the importance of various reasons why they might visit Mowich Lake. These 12 items were selected from a much larger set of questions commonly used in research concerning *recreational experience preferences*. This larger set is commonly referred to as the REP scale and was used in the 1990 Mount Rainier General Visitor Survey (1990 GVS). (See Appendix E for a discussion of the REP scales developed by Driver and his associates). The selection of the twelve items used in the MLVS was based on the REP results of the 1990 GVS. Two items were selected to measure each of six factors identified in the 1990 data. These six factors were: 1) escape/rest/introspection; 2) achievement/risk taking/creativity; 3) nature/learning/scenery; 4) new people/telling others; 5) family; and 6) friends. See Appendix F for the 1990 GVS Market Segmentation Analysis.

The third group of questions (corresponding to Chapter V: Trip Evaluation) ask respondents to evaluate various aspects of their trip. One of the more novel of these, Question 9, asked respondents to rate the degree of opportunity that was available to satisfy each of the 12 reasons for visiting Mowich Lake that were rated for importance in



## *I. Introduction*

Question 8. Comparison of the opportunity and importance ratings for each reason can lead to conclusions that are useful to managers.

The fourth group of questions (corresponding to Chapter VI: Reactions to Possible Management Action) ask respondents to evaluate several possible management actions that could be taken at Mowich Lake. These actions included removal of fish from the lake, construction of an entrance gate on the road, and closing the last 300 yards of the road. These questions were created specifically for the MLVS with input from park staff.

The final group of questions (corresponding to Chapter II: Visitor Profile) ask respondents to describe several basic demographic characteristics. Because this information is useful in the interpretation of the rest of the survey data, it is presented first. The questions were asked last on the questionnaire based on long-standing principles of survey methodology that show survey compliance and completeness are enhanced by putting such simple, straightforward questions at the end of the questionnaire.

### **Sampling Strategies and Visitor Contact Procedures**

The data collection phase of the MLVS extended from August 13 to September 17, 1993. The population to which generalization is intended is all visitors over age 15 who visited Mowich Lake during the summer season of 1993.

Contacts were made on seven weekdays and two weekend days and from approximately 9:00 in the morning to 4:00 in the afternoon.<sup>1</sup> Visitors were contacted after they parked and exited their vehicles. Attempts were made to contact every party that

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<sup>1</sup> To determine whether the disproportion of weekday visitors biased our sample estimates, statistical tests were conducted on all survey data. Where present, significant differences are noted and weighted figures are provided.



## *I. Introduction*

arrived during the periods when survey workers were present. Only at the very busiest times was this not possible and the total number of parties not contacted (estimated as about three percent of eligible parties) was unlikely to affect the representativeness of the sample. The survey worker told visitors that they were working for the University of Washington and were conducting a survey for Mount Rainier National Park. They asked if the visitors would agree to become eligible for a mail survey concerning their trip to Mowich Lake. After visitors agreed (fewer than five percent of parties refused to participate), the survey worker provided the party with an on-site sheet and pencil and asked that all members of the party older than 15 provide their names and addresses. Respondents were told that not all visitors who gave their names would receive the mail questionnaire and were thanked for their participation upon completion of the on-site sheet.

### **Questionnaire Administration**

The survey sample was constructed by systematically selecting every second name, after a random start, on the list of names created by the on-site sheets. Questionnaires were mailed to participants accompanied by a cover letter from the field station. Respondents were instructed to complete the questionnaires and return them by mail in postage-paid envelopes. As a follow-up, all respondents were sent a thank-you/reminder letter about ten days after they received the questionnaire. Non-respondents received a second reminder letter and an additional copy of the questionnaire. A third letter was sent to those who did not respond to the second reminder. Out of a total of 508 questionnaires

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mailed to valid addresses, 398 were returned. The response rate for the MLVS was approximately 78.3 percent.

### **Data Processing**

After the questionnaires were returned to the field station, they were processed by a researcher before being entered into a computer data base. During this phase of processing, the responses to the open-ended questions were reviewed. Responses were categorized and assigned numeric codes for four open-ended questions (Q-13, 16, 18, and 20). It was decided that the responses to the final open-ended question would be more informative if they were simply transcribed as verbatim comments. These comments are presented in Appendix C of this report.

The questionnaire data were then entered into a computer by an employee who was experienced in data entry and her work was verified by another employee. The data were then cleaned by a data analyst to eliminate any inconsistencies that could affect analyses. Preliminary reports were run that gave the analysts their first view of the data. Analysis then proceeded based on the objectives of the study.

### **Non-response**

The overall response rate from our visitor sample was 78.3 percent, meaning that about 22 percent of those contacted to be in our sample did not respond to the questionnaire. It is mathematically possible, therefore, that differential response rates among visitor subpopulations could affect the representativeness of the sample data. Since data on several visitor characteristics were available from the on-site sheets, tests for differential response rates among subpopulations were performed. Statistical tests at the

## *I. Introduction*

.05 level of significance were performed on the following variables: group size, gender, residence location, and age. Only age proved statistically significant. On average, those that returned questionnaires were about six years older than those that did not. This is a consistent finding in this arena and mirrors other recent work at assorted Mt. Rainier sites. Although non-response has affected the age estimate from the MLVS, it is not clear that there should be relationships between age of respondents and the variables addressing the majority of the MLVS objectives. Therefore, no weights are used to correct non-response bias.

### **Limitations**

The MLVS has several limitations that should be kept in mind when interpreting the data. The first of these limitations concerns the sample of visitors. Due to the unusual weather conditions during the Summer of 1993 and other practical considerations, visitors were contacted only in August and September. There is no obvious reason why this should significantly alter how representative the survey is of most Mowich Lake visitors, but it is possible that a sample of Mowich visitors collected across a broader time period during a year with more typical weather might produce results different than those reported below.

The survey and its results as presented in this report are also limited because the general analyses presented may mask large differences in responses made by the heterogeneous user groups who visit Mowich Lake. For example, hikers headed to Spray Park might consistently favor closing the last section of the road while most fishers might oppose such action. There are a nearly infinite number of analyses that might test for such

## *I. Introduction*

differences and only a very few can be considered in this report. Care should be taken when looking at the results of the whole sample not to assume that all subgroups of users fit the aggregate pattern of results. Should users of this report require information concerning the responses of particular sub-samples of MLVS respondents, they should contact the field station.

When interpreting the data, readers should keep in mind that: (1) It is assumed that respondents provide accurate and honest answers to the questions asked; (2) The data represent visitor attitudes and opinions at a particular point in time and changes can occur at any time; (3) Generalization is possible to Mowich Lake visitors only. There are other limitations, noted in the body of the report, that are due to the manner in which individual questions were interpreted.

### **Accuracy of the Sample**

Subject to the limitations stated previously, the authors believe that the data are representative of Mowich Lake visitors during the time of the survey. This confidence is suggested by the high response rate (78.3%), the large sample size, and the small differences in response rates observed for different types of visitors. Therefore, these data *can* be used to make statistical inferences. This means that confidence intervals can be constructed around our sample estimates to determine a range within which the population value is estimated to lie. For example, for questions of "yes/no" type with all respondents providing information, in which the true occurrences of these values in the population are 50%/50%, the sample data can be generalized to the population of Mowich Lake visitors

## *I. Introduction*

with a 95 percent assurance that the observed percentages will vary by no more than  $\pm 1.6$  percent.

### **Statistical Significance**

There are several points throughout the report in which the relationship between two items are said to be "statistically significant". These statements are based on the results of tests of statistical significance known as the "chi-square test for independence" and "t-tests". These types of tests are used to assess the likelihood that an observed (from the sample data) relationship between two variables differs significantly from that which easily could have occurred by chance. The larger the value of chi-square, the more likely that the relationship exists in the population. Therefore, in this report, the explanation that a result is statistically significant means that the value of chi-square obtained during data analysis was large enough to conclude that it is very likely that the relationship exists in the population of Mowich Lake visitors.

### **Missing Data**

In all types of research studies, analysts have to deal with what is known as "missing data". In survey research, missing data occurs when there is no information provided for a specific item on a questionnaire because (1) the respondent chose to skip that item; (2) the respondent unintentionally skipped the item; and (3) the researchers cannot decipher the information the respondent has provided. When reporting the findings for each item on a questionnaire, it is customary for researchers to calculate percentages and other statistics based only on the number of respondents who provided usable information. Therefore, the findings presented in this report are based only on the sample

## *I. Introduction*

of respondents (n) to whom the question applied and had provided usable information. On the rare occasions when missing data are common enough to potentially skew interpretations, these issues are addressed within individual chapters of this report.

### **Report Format**

The report is divided into chapters that (with one exception) coincide sequentially with those of the questionnaire (Appendix A). The first part of each chapter includes the appropriate segment of the questionnaire embedded in the report with the corresponding frequencies attached alongside each item. The surrounding text and graphics describe the interesting findings from the frequencies. The second part of each chapter includes a more extended analysis that incorporates figures and tables to provide additional information about the characteristics and behaviors of different types of Mowich Lake visitors. The definition of the specific types of visitors and the manner in which the typologies were constructed are as describe below.

#### *Mowich Lake Users/Mowich Lake Hikers*

The first characteristic we used to classify visitors was the location(s) where they hiked while in the Mowich Lake area. We hypothesized that visitors who use Mowich Lake as a starting point for hikes to other destinations differ from those visitors who do not leave the lake during their visit. To classify visitors, we differentiated our respondents into two groups. The first group were those who parked in the Mowich Lake area but did not do any hiking (answered "No" to the first part of Q-5), or only hiked around the immediate vicinity of Mowich Lake (answered "Yes" to the first part of Q-5 but only circled code #1 in the second part). We labeled these visitors as "Mowich Lake Users".

## *I. Introduction*

There were 88 respondents in this group, 22 percent of all visitors. The second group of visitors were those who claimed that they did do some hiking during the trip in which they were contacted (answered "Yes" to the first part of Q-5), but hiked to places beyond the immediate vicinity of Mowich Lake (circled one or more of codes #2-7 and/or #9). We labeled these visitors as "Mowich Hikers". There were 206 respondents in this group, 52 percent of all visitors. The remaining 26 percent of visitors claimed that they had hiked both in the immediate vicinity of Mowich Lake *and* to other destinations as well. We decided that this "combination" group was not as theoretically interesting as the first two more distinct groups and proceeded with our analyses using the dichotomy of Mowich Lake Users/Mowich Hikers. The reader should be aware that this dichotomy includes only 74 percent of the sample (294 out of the 398 visitors) and that 70 percent of the 294 are labeled "Mowich Hikers" and 30 percent are "Mowich Lake Users".

### *Weekend/Weekday*

We hypothesized that those visitors who come to the Mowich Lake area during the week may be different in some ways than those who visit on the weekends. Using data gathered on the contact sheet, we categorized visitors by "weekend" vs. "weekday" (counting holidays as "weekend" days). Fifty-nine percent (n=236) of our sample were weekday visitors and 41 percent (n=162) visited the Mowich Lake area on a weekend or holiday.

### *Place of Residence: Local/Regional/WA/Other*

The last characteristic we used to characterize visitors was their place of residence. Again, hypothesizing that those visitors who came from more distant places may differ in



## I. Introduction

some ways from those who live closer to the Mowich Lake area. Using the zip codes from the contact sheets, we assigned visitors to groups as shown in Table 1.1 below.

**Table 1.1 Categorization by Place of Residence.**

| <b>Group</b> | <b>Locations Included</b>  | <b># Cases</b> | <b>% Sample</b> |
|--------------|--|----------------|-----------------|
| Local        | Enumclaw, Carbonado, Wilkeson, Buckley, Bonney Lake/Sumner, Puyallup, and Orting | 26             | 6.5%            |
| Regional*    | King, Lewis, Pierce, Thurston, and Yakima counties.                              | 251            | 63.0%           |
| Washington   | All other Washington counties not included above.                                | 54             | 13.6%           |
| Other        | All other states/countries.  | 67             | 16.8%           |

\*Regional respondents included residents of the five county area who were not from local communities.



## II. VISITOR PROFILE

Based on long-standing principles of questionnaire construction, the last section of the questionnaire gathered basic demographic data from respondents. However, for the purposes of this report, such information is most useful if presented first, prior to the data collected earlier in the questionnaire. Thus, the appropriate descriptive statistics from the final section of the questionnaire are displayed below.<sup>1</sup>

21. Are you male or female?

45.8% 1. Female  
54.2% 2. Male  
(n = 395)

22. What year were you born? (Question used to calculate age of respondents.)

AGE: Median= 39.0; Mean= 40.2  
(n = 394)

23. Are you married?

65.7% 1. Yes  
34.3% 2. No  
(n = 396)

24. What is the highest level of formal schooling you have completed?

|                               |                      |                          |
|-------------------------------|----------------------|--------------------------|
| 1 2 3 4 5 6 7 8 9 10 11 12    | 13 14 15 16          | 17 18 19 20 21 22 23 24+ |
| (Elementary thru High School) | (College/Vocational) | (Graduate/Professional)  |
| 11.7%                         | 51.0%                | 37.3%                    |

YEARS SCHOOLING: Median= 16; Mean= 16.2  
(n = 394)

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<sup>1</sup> Recall from the introduction that data are presented with the questions from the questionnaire. The format of those questions is as close as possible to the format actually used.

## II. Visitor Profile

In addition to the information collected on the mail questionnaire, some demographic data were collected during the initial contact at Mowich Lake when visitors agreed to be potential respondents to the survey. These data are presented below.

1. Please circle your mode of transportation:

61.6% 1. Auto  
24.6% 2. Pickup/Van/Jeep  
13.8% 3. Other  
(n = 369)

2. How many people are in your vehicle?

6.3% 1  
41.2% 2  
21.1% 3  
16.8% 4  
14.6% 5 or more  
Median= 3, Mean= 3.5  
(n = 396)

3. How many people over age 15 are in your vehicle?

11.6% 1  
56.8% 2  
18.1% 3  
13.5% 4 or more  
Median= 2, Mean= 2.9  
(n = 396)

4. Please circle the makeup of your group:

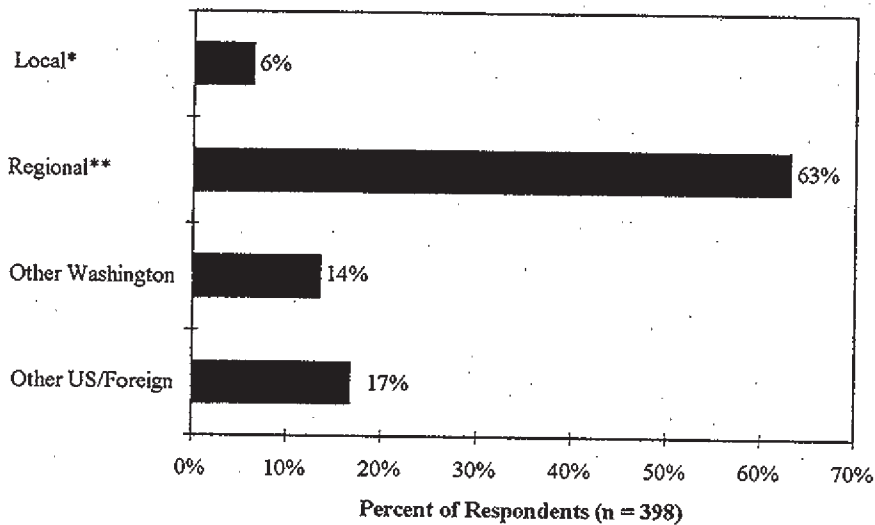
6.9% Individual  
51.3% Family  
26.5% Friends  
13.0% Family and friends  
2.3% Other  
(n = 392)

## II. Visitor Profile

5. Please provide the following information for all persons over age 15 in your vehicle. Only a sample of the persons listed will receive questionnaires, but it is important that we have information on each user.

(The rest of the contact questionnaire consisted of sub-sections in which potential respondents wrote their name, age, sex, and mailing address. The zip code listed in the mailing address was used to sort respondent residences into the categories shown in Figure 2.1.)

Figure 2.1 Home Residence of Respondents



\* Local communities included Bonney Lake, Buckley, Carbonado, Enumclaw, Orting, Puyallup, Sumner, and Wilkeson.

\*\* Regional respondents include King, Lewis, Pierce, Thurston, and Yakima county residents who were not from local communities.

The above data show that Mowich Lake visitors are highly educated, tend to visit as families, and are predominantly from King, Lewis, Pierce, Thurston, and Yakima counties. When compared to a cross section of MORA visitors (using the 1990 General Visitor Survey), Mowich Lake visitors are slightly younger than general MORA visitors (39 vs. 43) and are more likely to visit in groups of friends rather than in family groups (1990 GVS - 64% Family, 19% Friends; MLVS - 51% Family, 27% Friends). However,

## *II. Visitor Profile*

the most striking difference between Mowich Lake and general MORA visitors is the fact that a considerably higher percentage of Washington residents was found among MLVS respondents (83%) than among respondents to the 1990 GVS (59%).

### **Types of Visitors**

While the findings above provide information about the general population of visitors to the Mowich Lake area, the following discussion points out some specific groups of visitors (subpopulations) who differed in their demographic characteristics.

#### *Mowich Lake Users/Mowich Lake Hikers*

The most striking difference between respondents who stayed near Mowich Lake (i.e., Mowich Lake users) and those who hiked to places beyond the immediate vicinity of Mowich Lake (i.e., Mowich Lake Hikers) was that users visited in groups almost 50 percent larger than hikers (4.3 vs. 3.0 persons/group, respectively). In a second observed difference, Mowich users showed an almost equal split between males and females (49.4% Male/50.6% Female), while Mowich Lake Hikers were more likely to be male (60.5%). Mowich hikers were also slightly more highly educated than Mowich users, with hikers averaging 16.5 years of education, compared to 15.3 for users. Finally, Mowich users were not significantly more likely to be local residents than were Mowich hikers.

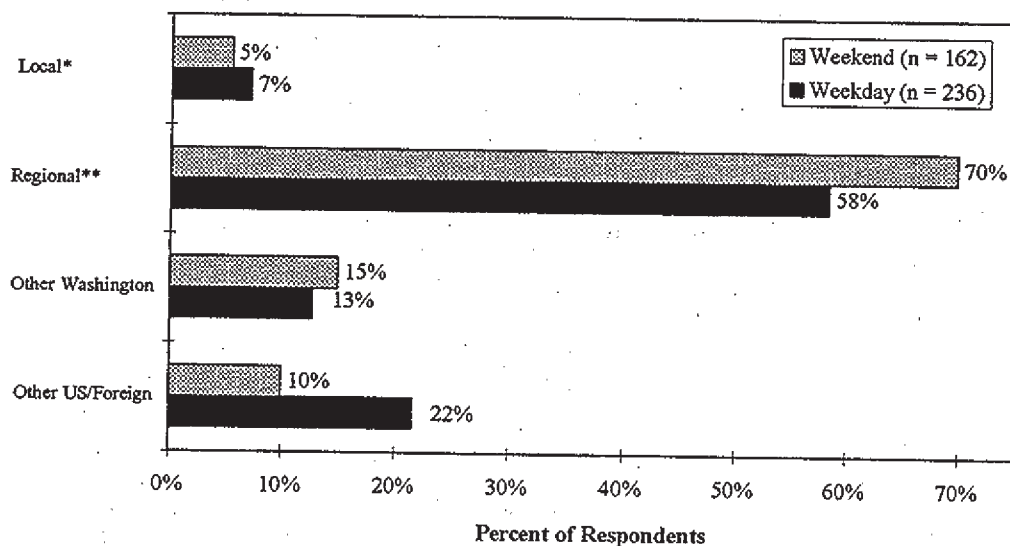
#### *Weekend/Weekday*

The only difference between weekend and weekday visitors that was observed for the data collected in this section of the questionnaire concerned respondents' residences. Weekend visitors were more likely than weekday visitors to be King, Lewis, Pierce, Thurston, and Yakima county residents who were not from local communities (70% on

## II. Visitor Profile

weekends vs. 58% on weekdays), and less likely to be from outside Washington (10% on weekends vs. 22% on weekdays). Figure 2.2 shows the home residences of weekend and weekday visitors.

Figure 2.2 Residence of Respondent by Weekend or Weekday Visit



\* Local communities included Bonney Lake, Buckley, Carbonado, Enumclaw, Orting, Puyallup, Sumner, and Wilkeson.

\*\* Regional respondents include King, Lewis, Pierce, Thurston, and Yakima county residents who were not from local communities.

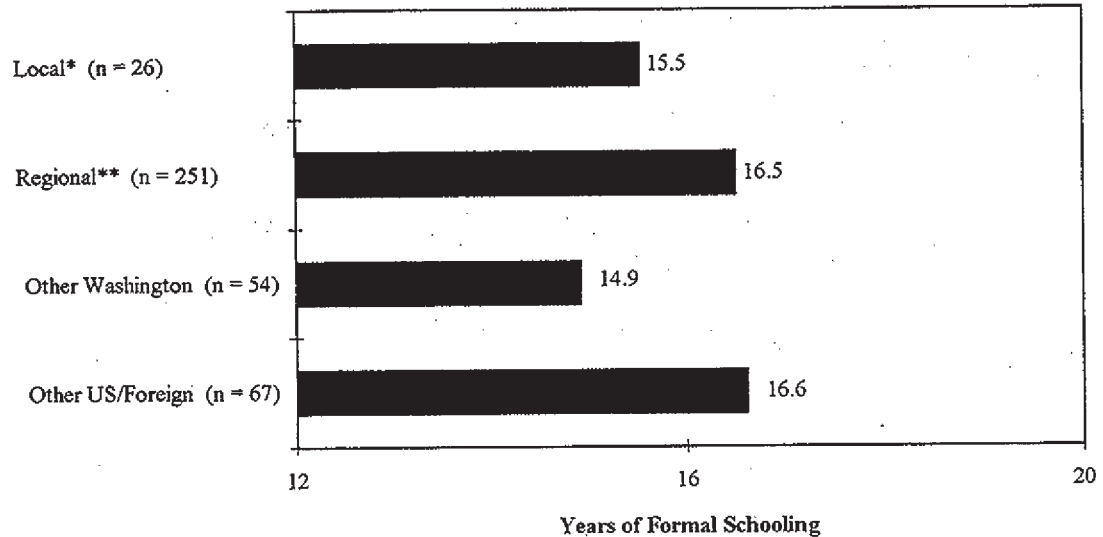
### *Place of Residence: Local/Regional/WA/Other*

The final difference found in analyzing the data from this section of the questionnaire was that respondents from King, Lewis, Pierce, Thurston, and Yakima county who were not from local communities, and those from outside Washington, were slightly more highly educated than respondents from local communities and those from Washington counties outside the Mt. Rainier region (see Figure 2.3). It should be noted,

## II. Visitor Profile

however, that respondents from all residence categories are highly educated when compared to the general US population.

**Figure 2.3 Years of Formal Schooling by Residence of Respondent**



\* Local communities included Bonney Lake, Buckley, Carbonado, Enumclaw, Orting, Puyallup, Sumner, and Wilkeson.

\*\* Regional respondents include King, Lewis, Pierce, Thurston, and Yakima county residents who were not from local communities.

### III. TRIP DESCRIPTION

The first seven questions of the MLVS questionnaire were designed to gather information about a visitor's previous experience with Mt. Rainier National Park and the Mowich Lake area as well as details about the trip during which they were contacted. The information below displays the appropriate descriptive statistics for the first section of the questionnaire.<sup>1</sup>

1. Including this trip, how many trips have you made to Mt. Rainier National Park in the last three years?

|       |            |
|-------|------------|
| 20.6% | 1          |
| 22.6% | 2 - 3      |
| 14.2% | 4 - 5      |
| 11.5% | 6 - 7      |
| 12.6% | 8 - 10     |
| 18.5% | 11 or more |

Median= 4, Mean= 6.7  
(n = 389)

2. Including this trip, how many trips have you made to Mowich Lake in the last three years?

|       |           |
|-------|-----------|
| 58.1% | 1         |
| 16.0% | 2         |
| 10.9% | 3         |
| 15.0% | 4 or more |

Median= 1, Mean= 2.1  
(n = 393)

3. When did you leave Mowich Lake?<sup>2</sup>

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<sup>1</sup> Recall from the introduction that data are presented with the questions from the questionnaire. The format of those questions is as close as possible to the format actually used.

<sup>2</sup> These data were used to scale the duration of visit and are presented later.

### III. Trip Description

4. Prior to the trip on which you were contacted, did you make any attempts to specifically seek out information about the Mowich Lake area? No      Yes  
43.3%    56.7%  
(n = 395)

IF YES, Where did you try to get information? (Circle as many numbers as apply.)

- 63.8% 1. Guidebooks
  - 56.7% 2. Friends or family
  - 5.8% 3. The NPS/NFS information telephone number in Seattle
  - 4.5% 4. Magazine or newspaper articles
  - 22.3% 5. Personal experience
  - 1.8% 6. Television/radio
  - 31.7% 7. Information from the National Park Service
  - 15.6% 8. Other sources
- (n = 224)

Was the amount of information you found to help plan your trip to the Mowich Lake area:

- 5.0% 1. More than you wanted
  - 77.6% 2. About as much as you wanted
  - 17.4% 3. Less than you wanted
- (n = 218)

5. Did you do any hiking on this trip to Mowich Lake? No      Yes  
5.1%    94.9%  
(n = 395)

IF YES, Where did you hike? (Circle as many numbers as apply.)

- 41.3% 1. Around immediate vicinity of Mowich Lake
  - 18.1% 2. Spray Park Trail to Eagle Cliff
  - 24.8% 3. Spray Park Trail to Spray Falls
  - 35.5% 4. Spray Park Trail to Spray Park
  - 5.6% 5. Knapsack Pass Trail
  - 19.2% 6. Wonderland Trail to Ipsut Pass
  - 4.8% 7. Wonderland Trail South across Mowich River
  - 3.5% 8. Don't know
  - 23.7% 9. Other places (Please specify below.)
- (n = 375)

\*6. While you were in the Mowich Lake area, did you ...  
(Circle as many numbers as apply.)

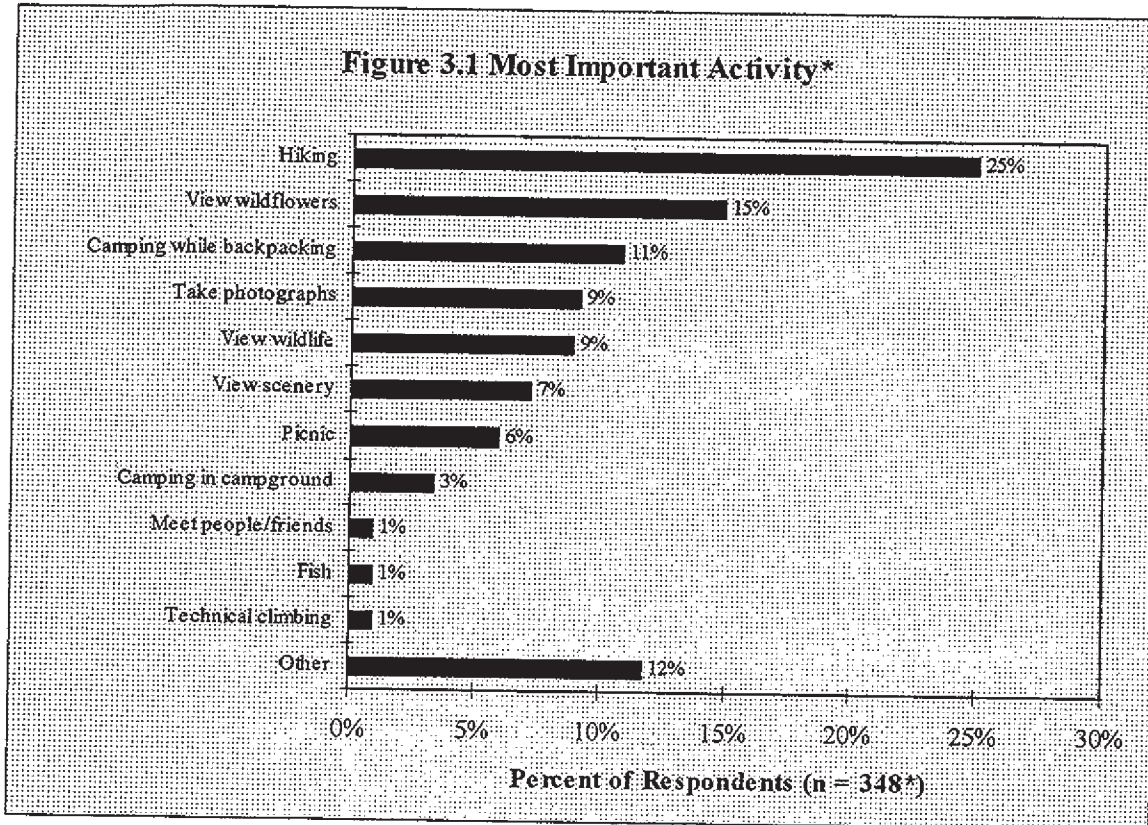
- 13.8% 1. camp overnight while backpacking
  - 13.3% 2. camp overnight in a campground
  - 1.5% 3. go technical climbing using special equipment
  - 26.3% 4. drive around viewing scenery from road and turnouts
  - 75.4% 5. view wildflowers
  - 57.5% 6. view wildlife
  - 67.1% 7. take photographs
  - 54.3% 8. picnic
  - 3.5% 9. fish
  - 17.6% 10. meet people and make new friends
  - 19.1% 11. do any other activities not described [Please specify.]
- (n = 398)



### III. Trip Description

\*7. If you circled two or more of the activities above, which of those activities was most important to your enjoyment of the Mowich Lake area? (Enter the appropriate number in each of the blanks.)

\_\_\_\_\_ MOST IMPORTANT ACTIVITY  
\_\_\_\_\_ SECOND MOST IMPORTANT ACTIVITY



#### \*An Important Limitation of Questions 6 and 7

In an effort to eliminate redundancy between Questions 5 and 6, hiking was not included in the possible activities listed in Question 6. Unfortunately, this had the unforeseen consequence of forcing visitors who hiked at or near Mowich Lake to write hiking in under response item #11 as, "any other activities not described". This problem probably had two negative effects on the survey data. First, it may have confused or frustrated some respondents and led to the relatively large number of missing responses to Question 7 (13%). Second, it almost certainly had a large negative effect on the number

### *III. Trip Description*

of people who specified hiking as their most important activity in Question 7. Thirty percent of respondents did write in hiking as an activity in which they participated (compared to 95% who said they hiked in Question 5), and hiking was most commonly reported as respondents' "most important activity" (25% of respondents). However, it is likely that many more respondents would have listed hiking as most important in Question 7 if it had been properly listed in Question 6.

#### **Duration of Visits**

To calculate the average amount of time visitors spent in the Mowich Lake area, we combined the data from the contact sheet recording visitors' arrival times with the data from the questionnaire measuring departure times. Because more than half of all respondents failed to fully report the time and date that they left Mowich Lake, this calculation yielded a total of only 184 valid observations. Of these, the mean was 50.4 hours and the median was 6.12 hours.<sup>3</sup>

#### **Types of Visitors**

While the findings above provide information about the general population of visitors to the Mowich Lake area, the following discussion points out some specific groups of visitors (subpopulations) who differed in experience level, type of information they seek, and their behavior during their visit.

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<sup>3</sup> The large disparity between these measures of central tendency can be explained by the large standard deviation (101), meaning that there is wide dispersion among the respondents, where some visitors spend a great deal of time in the area while others spend very little. The respondents who spent a great deal of time in the Mowich Lake area skew the distribution of times and thus have a large inflationary effect on the mean in comparison to the median.

### III. Trip Description

#### *Mowich Lake Users/Mowich Lake Hikers*

We first looked at the differences between those visitors who stayed around Mowich Lake, versus those who hiked from the lake to other areas. Table 3.1 displays the differences in responses for the first question on the survey. On average, those visitors who hiked to places outside the Mowich Lake vicinity had visited both Mount Rainier National Park and the Mowich Lake area significantly more frequently than those visitors who did not do any hiking or hiked only in the immediate vicinity of Mowich Lake ( $p < .001$ ).

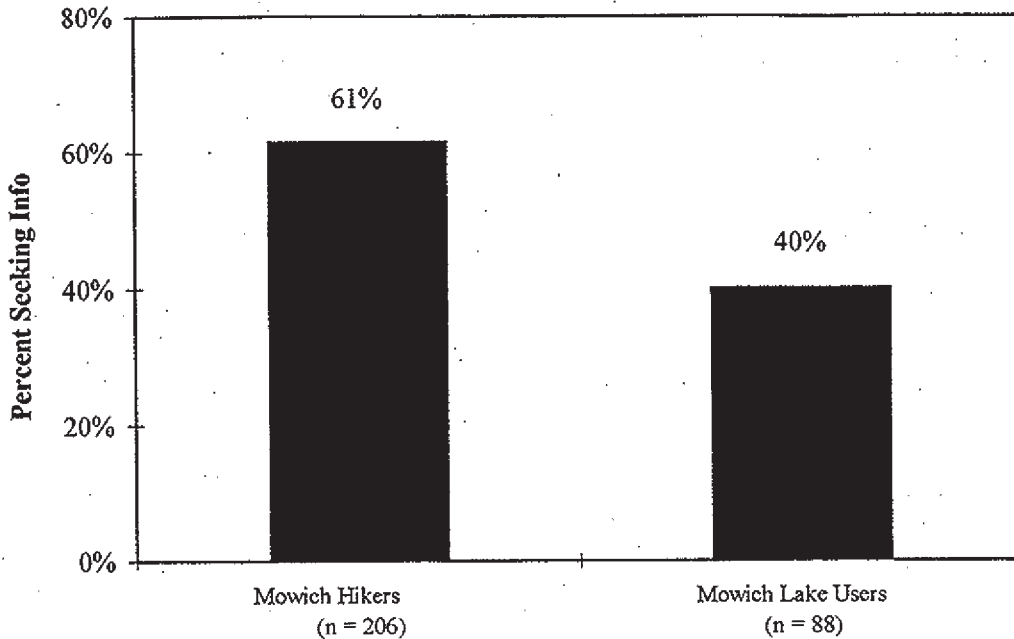
**Table 3.1 Average Number of Visits by Visitor Type**

|                      | Mowich Lake Users<br>(n = 87) | Mowich Hikers<br>(n = 203) |
|----------------------|-------------------------------|----------------------------|
| Trips to Mt. Rainier | 4.3                           | 8.0                        |
| Trips to Mowich Lake | 1.5                           | 2.5                        |

Question 3 asked visitors whether they had made attempts to seek out information about the Mowich Lake area prior to the trip on which they were contacted. In Figure 3.2, we see that those visitors who hiked to areas outside the immediate vicinity of Mowich Lake were more likely to seek information than those who stayed around Mowich Lake (61% vs. 40%).

### III. Trip Description

Figure 3.2 Sought Information Prior to Trip by User/Hiker



Question 6 asked visitors to tell us whether or not they participated in specific activities while in the Mowich Lake area. As expected, nearly every respondent who went on technical climbs (100%), camped while backpacking (95%), and hiked (82%) was classed as a Mowich hiker. Accordingly, most respondents who fished (75%) and drove to view scenery (68%) were Mowich Lake users. Mowich hikers also accounted for most visitors who viewed wildflowers (76%), viewed wildlife (77%) and took photographs (78%). When asked which one of the activities listed in Question 6 was most important to the enjoyment of their trip to the Mowich Lake area, those who were classed as "Mowich Hikers" listed "hiking" most frequently (27%), while those who were classed as "Mowich Lake Users" visitors listed "driving to view scenery" (21%) more often.

### III. Trip Description

#### *Weekend/Weekday*

The day of the week when respondents visited Mowich Lake had no effect on their responses to the questions in this section.

#### *Place of Residence: Local/Regional/WA/Other*

Of the survey questions described in this chapter, place of residence was significantly related only to trip frequency. Respondents from the *local* area reported visiting Mowich Lake and Mount Rainier the most often (3.5 trips to Mowich Lake, 10.6 trips to MORA), followed by those from the *regional* area (2.3 trips to Mowich Lake and 7.8 trips to MORA), the state of Washington (1.8 trips to Mowich Lake and 5.6 trips to MORA), and outlying states and countries (1.5 trips to Mowich Lake and 2.0 trips to MORA). In short, the closer respondents live to Mount Rainier and Mowich Lake, the more likely they are to visit.

Place of residence was also related to the amount of time that respondents spent in the Mowich Lake area. Respondents from the *local* area reported the longest average visits (174 minutes), followed by those from the *regional* area (77 minutes), and the state of Washington (32 minutes). Respondents from outlying states and countries (49 minutes) fell between regional and state residents in the duration of their visits. This pattern might result because visitors who travel long distances may have less time available for activities once they reach Mowich Lake. However, further analyses would be required to classify this hypothesis as anything more than conjecture.

Almost all respondents from outlying states and countries took photographs during their trip to Mowich Lake (91%), a significantly higher percentage than among visitors from other areas (62%).

#### IV. TRIP MOTIVATION

Questions 8 and 9 (shown, with their frequency data, on the next two pages of the report) were designed to gather information about the assorted motivating factors behind visitors' decisions to visit the Mowich Lake area. Question 8 asked respondents about the importance of the motivating factors, and Question 9 asked how much opportunity they had for satisfying those motivations during their trip.

As mentioned in the introduction, the items used in Question 8 and 9 were selected from a much larger set of questions commonly used in research concerning *recreational experience preferences*. This larger set is commonly referred to as the REP scale and was used in the 1990 Mount Rainier General Visitor Survey (1990 GVS). The selection of the twelve items used in Question 8 and 9 was based on the REP results of the 1990 GVS. (See Appendix F and E for the 1990 GVS Market Segmentation Analysis and a discussion of the recreational preference scales.) The two items with the highest loadings on each of six factors identified in the 1990 data were selected. These six factors were: 1) *escape/rest/introspection* [Items 7 and 11]; 2) *achievement/risk taking/creativity* [Items 1 and 12]; 3) *nature/learning/scenery* [Items 5 and 6]; 4) *new people/telling others* [Items 3 and 9]; 5) *family* [Items 2 and 4]; and 6) *friends* [Items 8 and 10]. Although the twelve items are presented below in the same manner they were found in the questionnaire, the discussion and summary of these motivation data focus on scores for the six factors, calculated by averaging the two item scores representing each factor.

#### IV. Trip Motivation

8. On your trip to Mowich Lake, how important was it for you to ...  
(n = 370)

|   | not important | somewhat important | moderately important | very important | extremely important |
|---|---------------|--------------------|----------------------|----------------|---------------------|
| 1 DEVELOP YOUR SKILLS AND ABILITIES             | 42.1%         | 23.7%              | 19.6%                | 11.1%          | 3.4%                |
| 2 DO SOMETHING WITH YOUR FAMILY                 | 21.4          | 5.2%               | 9.0%                 | 33.6%          | 30.7%               |
| 3 OBSERVE OTHER PEOPLE IN THE AREA              | 82.3%         | 10.9%              | 5.7%                 | 0.8%           | 0.3%                |
| 4 BRING YOUR FAMILY CLOSER TOGETHER             | 27.1%         | 7.9%               | 15.3%                | 28.2%          | 21.6%               |
| 5 EXPERIENCE NEW AND DIFFERENT THINGS           | 4.1%          | 9.3%               | 26.8%                | 41.5%          | 18.3%               |
| 6 LEARN MORE ABOUT NATURE                       | 4.8%          | 9.9%               | 29.8%                | 38.8%          | 16.6%               |
| 7 GET AWAY FROM THE USUAL DEMANDS OF LIFE       | 1.8%          | 4.8%               | 13.0%                | 38.8%          | 41.6%               |
| 8 BE W/ OTHERS WHO ENJOY THE SAME THINGS YOU DO | 14.8%         | 11.5%              | 23.2%                | 29.6%          | 20.9%               |
| 9 TALK TO NEW AND VARIED PEOPLE                 | 53.4%         | 26.3%              | 16.8%                | 2.6%           | 1.0%                |
| 10 BE WITH FRIENDS                              | 21.9%         | 8.0%               | 19.3%                | 35.0%          | 15.9%               |
| 11 EXPERIENCE TRANQUILITY                       | 3.6%          | 4.1%               | 15.2%                | 34.8%          | 42.4%               |
| 12 LEARN WHAT YOU ARE CAPABLE OF                | 27.2%         | 22.1%              | 23.7%                | 17.2%          | 9.8%                |



#### IV. Trip Motivation

9. On your trip to Mowich Lake, how much opportunity was there for you to ...  
(n = 342\*)

|   | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
|---|----------------|------------------|------------------|-----------------------|-----------------------|
| 1 DEVELOP YOUR SKILLS AND ABILITIES             | 3.7%           | 6.7%             | 56.3%            | 17.6%                 | 15.7%                 |
| 2 DO SOMETHING WITH YOUR FAMILY                 | 4.5%           | 0.8%             | 19.5%            | 32.3%                 | 42.9%                 |
| 3 OBSERVE OTHER PEOPLE IN THE AREA              | 1.6%           | 11.5%            | 53.1%            | 16.9%                 | 16.9%                 |
| 4 BRING YOUR FAMILY CLOSER TOGETHER             | 4.6%           | 0.5%             | 28.3%            | 34.8%                 | 31.8%                 |
| 5 EXPERIENCE NEW AND DIFFERENT THINGS           | 0.3%           | 3.4%             | 34.3%            | 37.7%                 | 24.3%                 |
| 6 LEARN MORE ABOUT NATURE                       | 0.3%           | 4.7%             | 30.7%            | 35.7%                 | 28.6%                 |
| 7 GET AWAY FROM THE USUAL DEMANDS OF LIFE       | 0.5%           | 1.8%             | 16.2%            | 28.2%                 | 53.3%                 |
| 8 BE W/ OTHERS WHO ENJOY THE SAME THINGS YOU DO | 1.0%           | 2.9%             | 29.9%            | 31.2%                 | 34.9%                 |
| 9 TALK TO NEW AND VARIED PEOPLE                 | 2.7%           | 16.5%            | 56.6%            | 14.9%                 | 9.6%                  |
| 10 BE WITH FRIENDS                              | 5.3%           | 1.3%             | 28.9%            | 32.4%                 | 32.1%                 |
| 11 EXPERIENCE TRANQUILITY                       | 2.4%           | 9.8%             | 23.0%            | 27.7%                 | 37.2%                 |
| 12 LEARN WHAT YOU ARE CAPABLE OF                | 2.4%           | 9.8%             | 44.8%            | 23.3%                 | 19.6%                 |

\* Non-response to Question 9 (14%) may have resulted when respondents who didn't read the instructions or items closely assumed it was redundant with Question 8.



#### IV. Trip Motivation

**Table 4.1 Trip Motivation Factors  
(scored 1-5 from L to R on each scale)**

|  | Importance | Opportunity |
|--|------------|-------------|
| escape/rest/introspection ( <i>items 7 and 11</i> )          | 4.11       | 4.10        |
| nature/learning/scenery ( <i>items 5 and 6</i> )             | 3.57       | 3.85        |
| family* ( <i>items 2 and 4</i> )                             | 3.28       | 3.99        |
| friends* ( <i>items 8 and 10</i> )                           | 3.23       | 3.99        |
| achievement/risk taking/creativity ( <i>items 1 and 12</i> ) | 2.35       | 3.42        |
| new people/telling others ( <i>items 3 and 9</i> )           | 1.49       | 3.24        |

\* The aggregated data for the importance of these factors underestimate their relative importance for specific groups of visitors. See text below for further discussion.

When looking at the series of "importance" questions -- where the respondents were asked to rate a variety of factors based on their relative importance to their Mowich lake experience -- the data show that respondents most highly value the *escape/rest/introspection* factor (as measured by items 7 and 11). In contrast, the least important factors were *achievement/risk taking/creativity* (items 1 and 12) and *new people/telling others* (items 3 and 9).

Further analyses of these data suggest that the average responses to the *family* and *friends* factors may lead to misleading interpretations. Visitor groups composed of families rated the *family* factor much higher than the *friends* factor (3.95 versus 2.28), and likewise, groups of friends rated the *friends* factor much higher than the *family* factor (3.83 versus 2.97). Thus, in both groups the factor corresponding to the group composition was the second most highly rated factor, falling only slightly short of the *escape/rest/introspection* factor in importance. The combined average importance ratings shown for the *family* and *friends* factors in Table 4.1 and Figure 4.1 aggregate

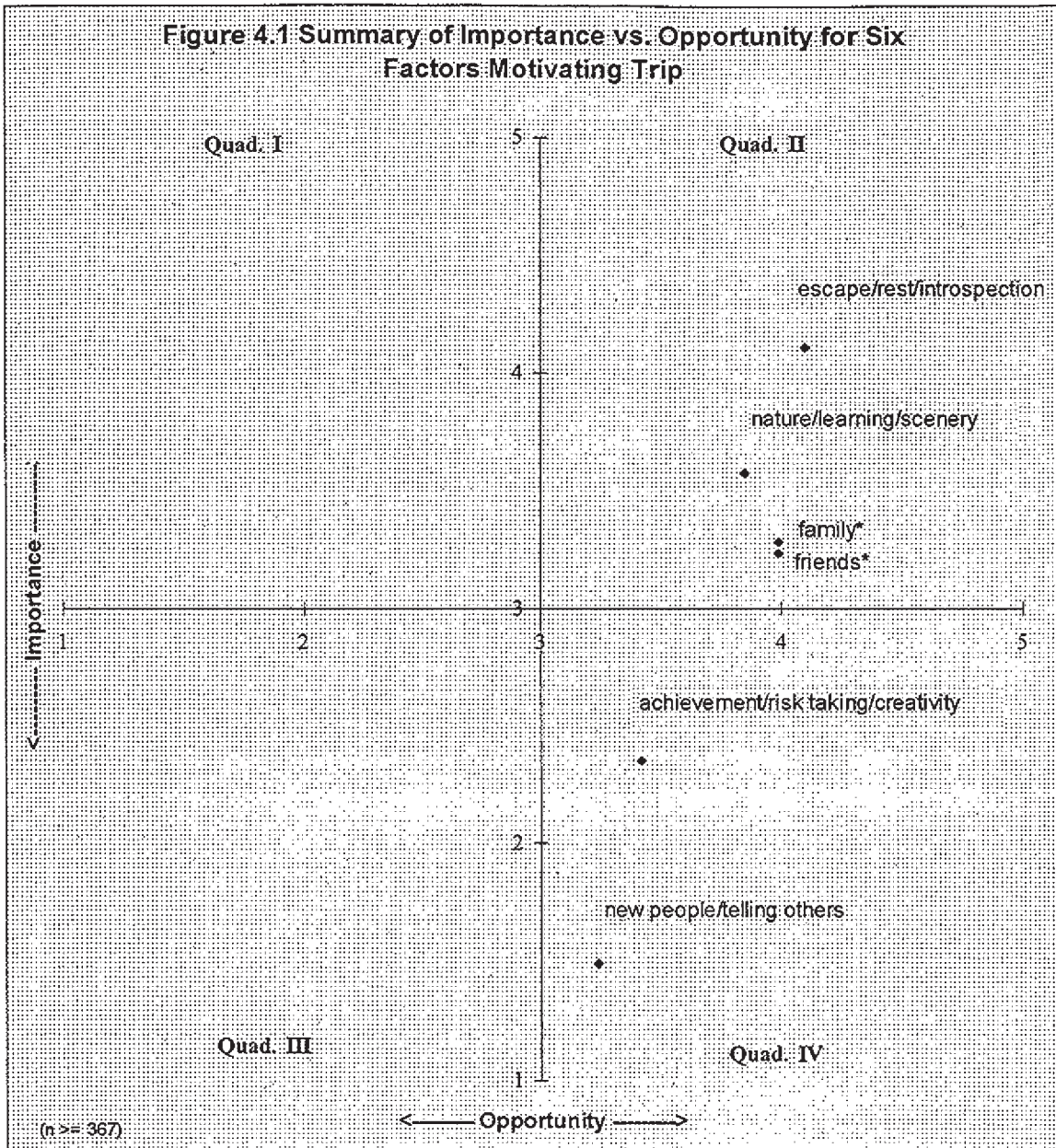
#### *IV. Trip Motivation*

respondents' data in a way that underestimates the importance of these factors for specific groups of visitors.

The responses to the opportunity questions -- how much opportunity was there to engage in the previously mentioned importance factors -- were similar to those described above for the importance factors. This suggests there were few instances where respondents felt there was little opportunity to satisfy the motivations that were important to the Mowich Lake experience. The relationship between importance and opportunity was further explored by constructing a chart (Figure 4.1 below) where we plotted the mean for each "importance" factor along the Y-axis and the mean for each corresponding "opportunity" factor on the X-axis.

Ideally, none of the represented factors should fall in Quadrant I, for this would represent relatively important motivating factors for which there was little reported opportunity for satisfaction. Further, one would hope that a majority of the factors would fall in Quadrant II, suggesting that for relatively important motivating factors, there was sufficient opportunity to meet these needs while in the Mowich Lake area. According to the data represented in Figure 4.1 below, respondents felt that there was reasonable opportunity to meet their trip "motivating" factors. Further, Quadrant IV suggests that even for factors scoring relatively low on the motivation section, there was still sufficient opportunity to satisfy these needs.

#### IV. Trip Motivation



\* The aggregated data for the importance of these factors underestimate their relative importance for specific groups of visitors. See text above for further discussion.

The data collected in Question 8 were also used in a cluster analysis that attempted to define market segments among Mowich Lake visitors. The results of this analysis are described in Chapter VII: Market Segmentation Analysis.

#### IV. Trip Motivation

##### Types of Visitors

While the findings above provide information about the general population of visitors to the Mowich Lake area, the following discussion points out some specific groups of visitors (subpopulations) who differed in their ratings of the importance and opportunity to satisfy the six factors measured by the twelve items in Questions 8 and 9.

##### *Mowich Lake Users/Mowich Lake Hikers*

Most of the differences in the factor ratings of Mowich Hikers and Mowich Users can be explained by the fact that Mowich Hikers were less likely to be family groups and more likely to be groups of friends than were Mowich Users (the ratio of families to friend groups is 2.8/1 for Mowich users and 1.3/1 for Mowich hikers). Accordingly, Mowich Hikers rated the importance of the *family* factor less highly than did Mowich Users (3.0 vs. 3.5 on the 5 point scale), rated the *friends* factor more highly (3.3 vs. 2.9), and rated the opportunity to satisfy the *friends* factor as greater (4.0 vs. 3.7).

The ratings of the *achievement/risk taking/creativity* factor also differed for Mowich Hikers and Mowich Users. Hikers rated the factor as more slightly important (2.5 vs. 2.1) and reported a very slightly greater opportunity for its satisfaction (3.5 vs. 3.3). These findings are consistent with the idea that Mowich Hikers undertook more strenuous activities than did Mowich Users.

##### *Weekend/Weekday*

Weekend visitors reported greater importance for the family factor than did weekday visitors (3.5 vs. 3.1 on the 5 point scale). This result can be explained by the fact that weekday visitors were less likely to be family groups and more likely to be groups of

#### IV. Trip Motivation

friends than were weekend visitors (the ratio of families to friend groups is 1.6/1 for weekdays and 2.7/1 for weekends).

Consistent with results suggesting that crowding was greater on weekends than weekdays (see Chapter V. Trip Evaluation), weekend visitors reported greater opportunity to satisfy the new people/telling others factor than did weekday visitors (3.4 vs. 3.1).

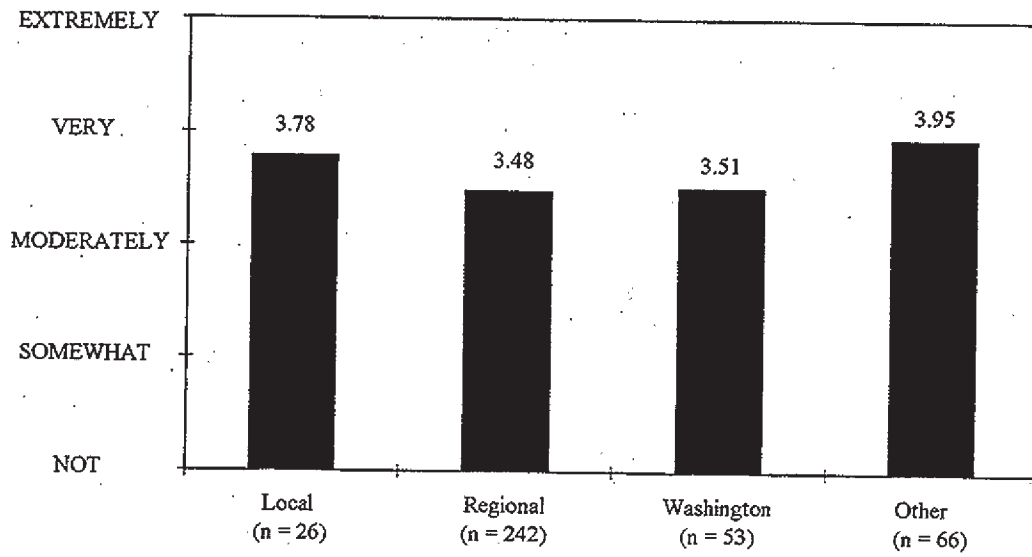
#### *Place of Residence: Local/Regional/WA/Other*

Visitors residing in areas local to Mowich Lake reported a much higher importance on the *family* factor than did visitors from other locations (4.1 vs. 3.2). They also reported a slightly greater opportunity to satisfy the *family* factor (4.2 vs. 4.0). However, groups residing locally were no more likely to be characterized as families than were those from more distant locations. Thus, it is not clear why local residents placed a higher importance on the *family* factor, but it is clear that the factor was, indeed, very important.

The *nature/learning/scenery* factor was rated highly by respondents from all locations, but was rated most highly by those residing outside Washington (see Figure 4.2). This factor may be one of the primary motivations for such long trips.

#### IV. Trip Motivation

Figure 4.2 Importance of Nature/Learning/Scenery Factor  
by Residence of Visitor



## V. TRIP EVALUATION

The next section of the questionnaire asked respondents to evaluate their trip to the Mowich Lake area with five questions designed to measure different aspects of satisfaction. The information below displays the appropriate descriptive statistics for this section of the questionnaire.<sup>1</sup>

10. Before you entered the Mowich Lake area you might have had expectations about the number of visitors you would see. Were there more visitors than you expected, fewer than you expected, or about the same number as you expected?

1.3% 1. A lot less than expected  
11.6% 2. Less than expected  
30.6% 3. As expected  
33.4% 4. More than expected  
18.0% 5. A lot more than expected  
5.1% 6. No expectations  
(n = 395)

11. Besides expectations, you might also have preferences about the number of visitors you would like to see while you were in the Mowich Lake area. Were there more visitors than you preferred, fewer than you preferred, or about the same number as you preferred?

0.3% 1. A lot less than preferred  
1.0% 2. Less than preferred  
34.0% 3. As preferred  
36.0% 4. More than preferred  
16.4% 5. A lot more than preferred  
12.3% 6. No preference  
(n = 397)

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<sup>1</sup> Recall from the introduction that data are presented with the questions from the questionnaire. The format of those questions is as close as possible to the format actually used.



## V. Trip Evaluation

12. In general, would you say that other visitors detracted from your enjoyment of the Mowich Lake area?

55.4% 1. No, did not detract from experience  
 24.2% 2. Yes, detracted somewhat  
 13.4% 3. Yes, detracted moderately  
 7.1% 4. Yes, detracted significantly  
 (n = 397)

--> If yes, how did the other visitors detract from your experience? (Circle all that apply.)

63.3% 1. The area felt crowded  
 18.1% 2. People occupied preferred destinations  
 28.8% 3. Some visitors were excessively loud or rowdy  
 24.9% 4. Some visitors were breaking park rules  
 11.9% 5. Other \* \_\_\_\_\_  
 (n=177)

\* The most common "other" detractions concerned parking.

13. Did you see any evidence that other visitors had unacceptably damaged the places you visited in the Mowich Lake area? (Circle one number.)

78.1% 1. No  
 21.9% 2. Yes -> What was the damage, and where did you see it? See Figure 5.1  
 (n = 397)

Did the damage you saw detract from your enjoyment of the area?

8.3% 1. No, did not detract from experience  
 58.3% 2. Yes, detracted somewhat  
 15.5% 3. Yes, detracted moderately  
 17.9% 4. Yes, detracted significantly  
 (n = 87)

14. Overall, how would you rate your trip to the Mowich Lake area?

0.0% 1. Poor  
 2.8% 2. Fair, it just didn't work out very well  
 14.6% 3. Good, but I wish a few things could have been different  
 24.6% 4. Very Good, but it could have been even better  
 43.0% 5. Excellent, only minor problems  
 15.1% 6. Perfect  
 (n = 391)

Clearly, the majority of respondents are quite satisfied with their Mowich Lake experience. More than half (58%) rate the experience as excellent or better, and if we include those that responded "Very Good..." the number rises to 82%.



## V. Trip Evaluation

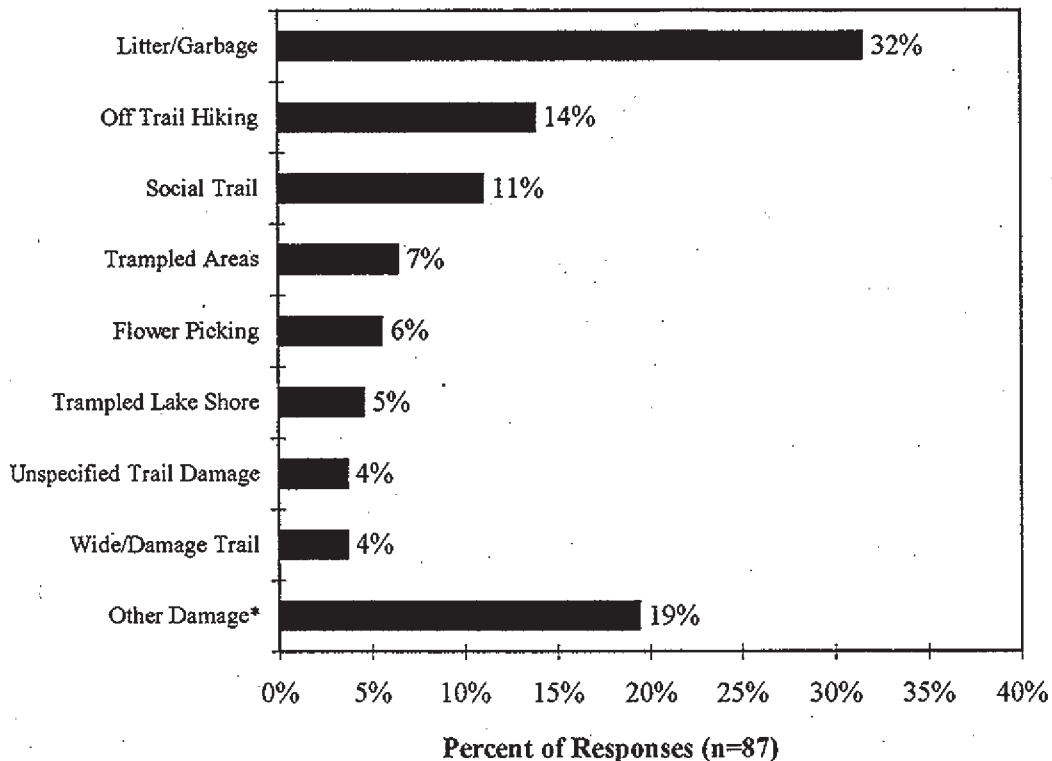
Question 14 provided the sole distinction between the two versions of the MLVS questionnaire. In Version 1, alternatives 2 through 5 of the rating scale include text that very briefly elaborates on the listed ratings, while in Version 2, all the alternatives include only single word descriptions. This variation in the question wording produced no significant difference in respondents' satisfaction ratings.

Although satisfaction was high, the issue of crowding nonetheless appears to be important in the Mowich Lake area. For example, 51% of respondents said there were more visitors encountered than *expected*, while 52% noted there were more visitors encountered than *preferred*. Of the 45% (177) of visitors who reported that other visitors detracted from their enjoyment of the Mowich Lake area, the majority (63%) reported that the negativity resulted from crowding.

Only 22% (87) of the respondents reported seeing evidence of visitor damage to the Mowich Lake area. The assorted types of damage reported are presented in Figure 5.1 below.

## V. Trip Evaluation

Figure 5.1 Reported Visitor-Caused Damage



\* The wide range of "other damage" reported included some responses indicating that ongoing trail rehabilitation efforts were seen as damage.

As might be predicted, respondents who reported that other visitors detracted from their enjoyment of the Mowich Lake area were significantly more likely than other respondents to also report unacceptable visitor damage to the Mowich Lake area. In fact, when the 63 (16%) of respondents who reported both unacceptable visitor damage *and* visitor detractions are compared with the rest of respondents, striking response patterns emerge on issues such as visitor satisfaction. Whereas 85% of the rest of the sample rated their Mowich Lake trip as very good or better, only 65% of the "unacceptable visitor damage & visitor detractions" rated their Mowich Lake trip as good or better.

## *V. Trip Evaluation*

### **Types of Visitors**

While the findings above provide information about the general population of visitors to the Mowich Lake area, the following discussion points out some specific groups of visitors (subpopulations) who differed in their trip evaluations.

#### *Mowich Lake Users/Mowich Lake Hikers*

Although almost all users had expectations concerning the number of other visitors they would encounter, Mowich users were less likely to have expectations than were Mowich hikers (89% vs. 99%). Users were also more likely than hikers to report that they encountered more visitors than they expected (65% vs. 49%). The fact that Mowich hikers had more often visited Mowich Lake in the last three years (2.5 visits vs. 1.5 for users; see Table 3.1) may explain both of these findings -- Mowich users may have been more likely to be first time users with no expectations, or may have formed their expectations based on visits more than three years prior when visitation in the area may have been lower.

#### *Weekend/Weekday*

As might be expected, crowding is a greater issue at Mowich Lake on weekends than on weekdays. Weekend visitors were more likely report seeing more visitors than they expected (56%) than were weekday visitors (48%). Weekend visitors also were more likely to report that the number of visitors detracted from their experience than were weekday visitors (54% vs. 38%). Finally, among the 177 respondents who reported that the number of others detracted from their experiences, the majority of those who said that

## *V. Trip Evaluation*

such detraction resulted from other visitors occupying their preferred destinations (69%) had visited on a weekend.

### *Place of Residence: Local/Regional/WA/Other*

Respondents' place of residence had no effect on their responses to the questions in this section.

## VI. REACTIONS TO POSSIBLE MANAGEMENT ACTION

Next, we asked respondents about their opinions regarding specific management actions for the Mowich Lake area. The information below displays the appropriate descriptive statistics for this section of the questionnaire.<sup>1</sup>

15. In its original state, Mowich Lake contained no fish. Some people believe that all the fish currently in the lake should be removed as a step toward restoring the original ecosystem. Do you agree or disagree that all fish should be removed from Mowich Lake?

21.5% 1. Strongly disagree  
30.9% 2. Disagree  
35.0% 3. Neither disagree nor agree  
7.2% 4. Agree  
5.4% 5. Strongly agree  
(n = 391)

16. How would your use of the Mowich Lake area be affected if all the fish were removed from Mowich Lake?

4.1% 1. Would come to the area more often  
89.0% 2. No change in use of the area  
4.9% 3. Would come to the area less often  
2.1% 4. Would stop coming to the area  
0.0% 5. Would stop visiting Mt. Rainier National Park  
(n = 390)

Please explain your response to this question.\*

\* In Question 16, respondents were also asked to explain their responses. In accordance with the data shown above, the most common explanation was, "I don't fish in Mowich Lake" (68%). Also in accordance with earlier data, only six percent of respondents explained their responses by saying, "I come here to fish."

In summary, Questions 15 and 16 show that about half of all respondents feel that the fish should not be removed from Mowich lake, but fewer than ten percent say that

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<sup>1</sup> Recall from the introduction that data are presented with the questions from the questionnaire. The format of those questions is as close as possible to the format actually used.

## VI. Reactions to Possible Management Action

such an action would make them less likely to visit. Thus, removal of the fish would probably not have a dramatic effect on most visitors' visitation patterns. Note, however, that almost one-quarter (22%) of respondents reported that they strongly disagreed with removing the fish, suggesting that there would probably be strongly voiced opposition if MORA managers begin steps to actually remove the fish.

Because our questionnaire did not ask if respondents had fished (or plan to fish) in Mowich Lake on trips other than the one during which they were contacted, we can not rule out the hypothesis that opposition to the removal of the fish is based on a desire to fish for them. However, the very small percentage of respondents who reported fishing (3.5%), and the small number (6%) who explained their answer to Question 16 by saying, "I come here to fish," suggest that opposition is based on a more complex, and broad set of reasons.

17. Because of high levels of use, some people believe that the National Park Service should open an entrance gate on the road to Mowich Lake and charge visitors the standard park entrance fee of \$5 per vehicle. Are you in favor of, or against such an action?

18.5% 1. Strongly against  
22.0% 2. Against  
17.0% 3. Neither against nor in favor of  
25.1% 4. In favor of  
17.5% 5. Strongly in favor of  
(n = 395)

18. How would your use of the Mowich Lake area be affected if the National Park Service were to construct an entrance gate on the road to Mowich Lake and charge a fee for entry?

4.4% 1. Would come to the area more often  
70.3% 2. No change in use of the area  
17.8% 3. Would come to the area less often  
6.7% 4. Would stop coming to the area  
0.8% 5. Would stop visiting Mt. Rainier National Park  
(n = 387)

Please explain your response to this question.\*

## *VI. Reactions to Possible Management Action*

\* In Question 18, respondents were again asked to explain their responses. In accordance with the data shown above, the most common explanations described why visitors would continue to visit the area. The top explanation was, "I visit this area infrequently" (24%). The most common explanation for decreasing visitation was, "Fee is too much," which was given by six percent of respondents.

In summary, Questions 17 and 18 show that respondents are approximately evenly split in supporting (43%) and opposing (40%) an entrance gate with fee collection, and opinions on either side are held quite strongly (19% "strongly against" and 18% "strongly in favor"). About one-quarter of respondents report that such an action would decrease their visitation to Mowich Lake. Thus, constructing a gate and charging fees would probably be both supported and opposed if it became a public issue, but would reportedly have a much greater impact on current visitors' use patterns than would removal of the fish. Further analyses could be conducted to explore the differential impact of a gate on sub-groups of Mowich Lake visitors. The analyses reported later in this chapter show that the impact would be significantly greater for some groups, but would not be limited only to local users.

19. Because Mowich Lake is being negatively affected by dust and runoff from the road, some people believe the last 300 yards of the road should be closed and that a parking lot should be created at that point, outside the watershed. Would you be in favor of, or against such an action?

- 4.6% 1. Strongly against
  - 8.6% 2. Against
  - 17.0% 3. Neither against nor in favor of
  - 41.3% 4. In favor of
  - 28.6% 5. Strongly in favor of
- (n = 395)

## VI. Reactions to Possible Management Action

20. How would your use of the Mowich Lake area be affected if the last 300 yards of the road were closed and a parking lot was created at that point?

9.6% 1. Would come to the area more often  
82.8% 2. No change in use of the area  
5.3% 3. Would come to the area less often  
1.5% 4. Would stop coming to the area  
0.8% 5. Would stop visiting Mt. Rainier National Park  
(n = 395)

Please explain your response to this question.\*

\* In Question 20, respondents were again asked to explain their responses. In accordance with the data shown above, the vast majority of explanations described why visitors would continue to visit the area. The top explanation was, "I could adjust to the change" (29%). The most common explanation for decreasing visitation was, "Walk too difficult," which was given by only three percent of respondents.

In summary, Questions 19 and 20 show that most respondents support moving the parking lot (70%) and few oppose such an action (13%). Moving the parking lot would reportedly have very little effect on Mowich Lake visitors or on net visitation in the area. Most visitors say their use would not be affected (83%) and approximately as many visitors say they would come more often as say they would decrease their visitation to Mowich Lake. Thus, moving the parking lot would probably be supported by most visitors and would have a small net impact on visitation in the area.

### **Types of Visitors**

While the findings above provide information about the general population of visitors to the Mowich Lake area, the following discussion points out some specific



## *VI. Reactions to Possible Management Action*

groups of visitors (subpopulations) who differed in their reactions to the possible management scenarios.

### *Mowich Lake Users/Mowich Lake Hikers*

Mowich Users were somewhat more likely to express an opinion concerning the removal of fish than were Mowich Hikers (27% vs. 36% circled "Neither Disagree Nor Agree"). More importantly, users were more likely report that they strongly disagree with such an policy (28% vs. 19%). These results are consistent with the idea that issues concerning the lake itself are more important to Mowich Users than to Mowich Hikers.

Construction of a gate and charging of entrance fees would reportedly have a much greater impact on Mowich Users than on Mowich Hikers. More Users than Hikers said their visitation would be negatively impacted by a gate (35% vs. 22%) and more than four times as many said they would stop visiting Mowich Lake (14% vs. 3%). If management wished to equalize the impact of fees on these two groups, one possible strategy might be to have separate fees for entrance and for hiking permits. Thus, the hikers (who report less impact due to fees) would shoulder a greater fee burden.

Moving the parking lot would also have a greater negative impact on Mowich Users than on Mowich Hikers. More Users than Hikers said their visitation would be negatively impacted by moving the parking lot (15% vs. 5%). Conversely, more Hikers than Users reported that they would be more likely to visit the area if the parking lot was moved (12% vs. 6%).

## *VI. Reactions to Possible Management Action*

### *Weekend/Weekday*

The day of the week when respondents visited Mowich Lake had no effect on their responses to the questions in this section.

### *Place of Residence: Local/Regional/WA/Other*

The only difference in reactions to the possible management actions that was found across respondent residence was that local residents were much more likely to be strongly opposed to removal of fish from Mowich Lake than were respondents from all other areas (44%, 20%, 31%, and 12% for Local, Regional, Washington, and Other residents, respectively). This finding is probably not due to a prevalence of Mowich Lake fishers in the Local residents -- none of the Local residents reported that they fished on the trip when they were contacted for the survey (although they may have fished at Mowich Lake in the past). Given the high likelihood that such local residents would participate in any public input meetings concerning the fish issue, MORA managers should further explore the reasons why local residents tend to be strongly opposed to the removal of the fish.

## VII. MARKET SEGMENTATION OF MOWICH LAKE VISITORS

As previously noted, the trip motivation questions (see Chapter IV: Trip Motivation) were selected on the basis of the Mount Rainier 1990 General Visitor Survey. Section VII of the 1990 GVS report describes how a larger set of trip motivation questions were used to classify visitors into several groups.<sup>1</sup> Based on a marketing approach, these groups were referred to as "market segments". In this chapter, we describe a similar attempt to define market segments among Mowich Lake visitors.

### Introduction

The definition of market segments is useful to park managers as part of a marketing approach to planning decisions. The primary emphasis of such an approach is placed upon delivering programs and services that people want and will support. This contrasts with the selling approach in which management delivers what the agency deems appropriate. Identification of target markets, or groups of visitors whose characteristics and service preferences are similar, is an important part of the marketing approach.

One way to divide market segments is based on the benefits that clients (i.e., visitors) seek from a product. This approach, called benefit-based market segmentation, was used in the 1990 GVS and is repeated here. If the Mowich Lake visitor population is diverse enough in the benefits (i.e., psychological outcomes) that they seek, they can be divided into segments based on the types of benefits that are most important to them. The segments can then be examined in terms of differences in: a) demographic characteristics; b) uses of the park; c) satisfaction with the park; and d) opinions on park management.

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<sup>1</sup> See Appendix E for a discussion of the recreational preference scales, and see Appendix F for the 1990 GVS Market Segmentation Analysis in which they were used.

## *VII. Market Segmentation of Mowich Lake Visitors*

### **Market Segmentation Analysis**

The present market segmentation of Mowich Lake visitors constitutes a conceptual replication of the 1990 GVS analysis -- it creates market segments, but the process by which it does so differs from the earlier analysis in several ways. First, only 12 of the 31 REP items (i.e., trip motivation items) used in the 1990 GVS were used in the MLVS. As explained earlier (see Chapter IV: Trip Motivation), these twelve items were those that loaded most strongly on the six factors that were found in a factor analysis of the 1990 data. Second, for MLVS respondents, the scores for the two items related to each factor are combined and considered to be a measure of the benefit or motivation related to that factor. In contrast, the factor scores for each of the six factors in the 1990 GVS analysis are true factor scores, calculated based on the factor analysis of the 31 REP items. Third, and finally, the cluster analysis of the six "benefit scores" from the MLVS specified a four cluster solution, whereas the 1990 GVS cluster analysis arrived at a four cluster solution based on a more complex comparative process. The specification of a four-cluster solution for the MLVS data was intended to allow direct comparison of the results of the two segmentation analyses.

### *Cluster Analysis and Formation of Market Segments*

Cluster analysis is a statistical technique that considers a range of characteristics and searches for groups of similar objects within them. In this case, the objects are respondents and the characteristics under consideration are the six benefit scores.

Based on instructions to cluster respondents into four groups, the cluster analysis of the MLVS data yielded the market segments shown in Table 7.1. These segments can

VII. Market Segmentation of Mowich Lake Visitors

be thought of as groups of people who seek similar benefits from visiting Mowich Lake. The mean scores for each benefit factor (i.e., trip motivation factor) are also presented in Table 7.1. They range from 1.2 to 4.6 out of a possible range of 1 for "not important" and 5 for "extremely important". It should be noted that there is considerable variability within each segment. Although the average segment 1 benefit score for the *family* benefit factor is quite low, not every respondents in segment 1 can be assumed to have given the same low rating. Thus, in the following discussion of the market segments, readers should not assume that descriptions of the segments *on average* apply to every respondent classed in that segment.

TABLE 7.1. CLUSTER ANALYSIS OF BENEFIT SCORES: MEAN SCORES AND NUMBER OF CASES FOR EACH SEGMENT (MLVS DATA)

| Benefit Factors                      | Segment            |     |     |     |
|--------------------------------------|--------------------|-----|-----|-----|
|                                      | 1                  | 2   | 3   | 4   |
|                                      | Mean Benefit Score |     |     |     |
| Escape/ rest/ introspection          | 4.6                | 3.8 | 3.8 | 4.3 |
| Achievement/ risk taking/ creativity | 3.7                | 1.6 | 1.6 | 3.7 |
| Nature/ learning/ scenery            | 4.1                | 2.8 | 3.2 | 4.0 |
| New people/ telling others           | 1.7                | 1.2 | 1.2 | 1.7 |
| Family                               | 1.6                | 1.4 | 4.0 | 4.3 |
| Friends                              | 3.6                | 2.8 | 2.2 | 3.9 |
| Number of cases                      | 51                 | 74  | 104 | 141 |
| Percent of total sample <sup>2</sup> | 14%                | 20% | 28% | 38% |

For comparison purposes, Table 7.2 shows the comparable information from the 1990 GVS market segmentation analysis. Here again, the segments can be thought of as groups of people who are similar in the benefits they wish to obtain by visiting MORA.

<sup>2</sup> The total number of respondents excluded from the MLVS due to missing data was much smaller than that in the 1990 GVS (7% vs. 18%). The difference may result because the MLVS used only 12 of the 31 REP items used in the 1990 GVS, and respondents were thus more likely to complete all of the items.

VII. Market Segmentation of Mowich Lake Visitors

The mean scores for each benefit factor (i.e., trip motivation factor) in the 1990 data are 1.2 to 4.4 out of a possible range of 1 for “not important” and 5 for “extremely important”.

| Benefit Factors                      | Segment           |      |      |      |
|--------------------------------------|-------------------|------|------|------|
|                                      | 1                 | 2    | 3    | 4    |
|                                      | Mean Factor Score |      |      |      |
| Escape/ rest/ introspection          | 3.36              | 1.71 | 2.63 | 3.94 |
| Achievement/ risk taking/ creativity | 2.34              | 1.15 | 1.57 | 3.11 |
| Nature/ learning/ scenery            | 3.90              | 2.87 | 3.74 | 4.36 |
| New people/ telling others           | 1.94              | 1.36 | 1.73 | 2.63 |
| Family                               | 1.28              | 1.35 | 3.65 | 4.12 |
| Friends                              | 3.17              | 2.09 | 2.75 | 4.19 |
| Number of cases                      | 196               | 248  | 972  | 160  |
| Percent of total sample              | 12%               | 16%  | 62%  | 10%  |

*Comparison of MLVS and 1990 GVS Market Segments*

In a comparison of the market segmentation results of the MLVS and 1990 GVS, the first and most notable feature is the similarity of the market segments based on the pattern of their benefit and factor scores. This pattern can be discerned through careful consideration of the scores shown in Table 7.1 and Table 7.2, but is examined more systematically in Table 7.3 below. This table shows the rankings of the average benefit/factor scores from each market segment within each survey. For example, Table 7.2 shows that in the 1990 GVS, segment four had a higher average score on the *escape/rest/introspection* factor than did any of the other segments. Accordingly, segment

VII. Market Segmentation of Mowich Lake Visitors

four in Table 7.3, under the GVS column, shows a ranking of "1" for *escape/rest/introspection*.

Comparing the rankings of the GVS and MLVS market segments presented in Table 7.3 shows that they share similar patterns. For example, segment one in both surveys placed relatively high importance on all the benefit factors except *family*.

Conversely, segment three in both surveys placed relatively high importance on *family*, but tended to rate the other benefit factors lower than did the other segments.

TABLE 7.3. RANK FOR SCORES ON EACH BENEFIT FACTOR FOR MARKET SEGMENTS FROM THE 1990 GENERAL VISITOR SURVEY (GVS) AND FROM THE MOWICH LAKE VISITOR SURVEY (MLVS).

| Benefit Factors                      | Segment |      |     |      |     |      |     |      |
|--------------------------------------|---------|------|-----|------|-----|------|-----|------|
|                                      | 1       |      | 2   |      | 3   |      | 4   |      |
|                                      | GVS     | MLVS | GVS | MLVS | GVS | MLVS | GVS | MLVS |
| Escape/ rest/ introspection          | 2       | 1    | 4   | 3    | 3   | 4    | 1   | 2    |
| Achievement/ risk taking/ creativity | 2       | 1    | 4   | 3    | 3   | 4    | 1   | 2    |
| Nature/ learning/ scenery            | 2       | 1    | 4   | 4    | 3   | 3    | 1   | 2    |
| New people/ telling others           | 2       | 1    | 4   | 3    | 3   | 4    | 1   | 2    |
| Family                               | 4       | 3    | 3   | 4    | 2   | 2    | 1   | 1    |
| Friends                              | 2       | 2    | 4   | 3    | 3   | 4    | 1   | 1    |

Rank Within Survey

*Description of Market Segment One*

Market segment one includes 14 percent of the MLVS respondents. These visitors might be referred to as non-family hikers.<sup>3</sup> In comparison to segments three and four,<sup>4</sup>

<sup>3</sup> The analyses used to differentiate between the market segments included comparisons of the mean benefit scores and comparisons of responses to all the primary MLVS questionnaire items (i.e., those questionnaire items that were only answered by a subset of respondents, such as the sources of information used by those respondents who sought information, were not used in comparisons). All statistically significant differences in these primary MLVS questions are included in the segment descriptions.



## VII. Market Segmentation of Mowich Lake Visitors

segment one placed relatively low importance on the *family* benefit factor. Accordingly, respondents in this segment were the least likely to visit in a family group (20% vs. 68% for segments three and four), the least likely to include children in their party (8% vs. 46% for segments three and four), and the least likely to be married (43% vs. 74% for segments three and four). They were the segment most likely to visit as a group of friends (53% vs. 15% for segments three and four), and were also relatively likely to visit as individuals (18% vs. 2% for segments three and four).

Respondents in segment one tended to place extremely high importance on *escape/rest/introspection* and were also the segment with the highest average importance ratings for *achievement/risk taking/creativity*, *nature/learning/scenery*, and *new people/telling others* (see Table 7.1). Nearly all of segment one visitors (90%) hiked to destinations outside the Mowich Lake vicinity (i.e., were classified as Mowich Lake hikers rather than Mowich Lake users). They were the most likely segment to seek information when planning their trip (75% vs. 53% for other segments), the most likely to say they camped while backpacking during their trip (35% vs. 11% for other segments), the most likely to report that they viewed wildlife during their trip (69% vs. 58% for other segments), and the least likely to report having picnics (41% vs. 55% for other segments).

Respondents in market segment one were slightly younger than those in the other segments (average age of 34 vs. 38 for other segments) and had the fewest adults per party (2.1 vs. 2.4 for other segments). They reported slightly higher satisfaction ratings

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<sup>4</sup> Because segment two is similar to segment one in the relatively low importance of the *family* factor (see description below), some statistical comparisons are made to the combined data of segment three and four rather than to the combination of all other segments.



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with their Mowich Lake visits than did the other market segments (on a 1 to 6 scale, 4.74 vs. 4.52 for other segments).

The characteristics associated with segment one membership are similar for the MLVS and the 1990 GVS respondents. The 1990 report states:

These people cite nature/learning/viewing scenery as their most important motives in the decision to visit the Park, and in this regard, are very similar to those in cluster [i.e., segment] three. The people in cluster one, however, rate escape/rest/introspection as much more important than those in cluster three. They seek to share these experiential outcomes with friends; motives pertaining to family interaction rate very low with this group. These visitors are most likely to visit the park alone, the least likely to have children, the highest educated, and the most likely to be local residents.

This description closely mirrors the immediately prior discussion of segment one in the MLVS. The surveys are also similar in that segment one accounts for 14 percent of the MLVS respondents and 12 percent of the 1990 GVS sample.

### *Description of Market Segment Two*

Market segment two includes 20 percent of the MLVS respondents. These visitors might be referred to as lower-investment, non-family visitors. Like segment one, segment two visitors placed relatively low importance on the *family* benefit factor. Accordingly (as above for segment one), respondents in segment two were unlikely to visit in family groups (24% vs. 68% for segments three and four), were unlikely to include children in their party (8% vs. 46% for segments three and four), and were relatively unlikely to be married (49% vs. 74% for segments three and four). Segment two visitors were also relatively likely to visit in a group of friends (47% vs. 15% for segments three and four) or as individuals (20% vs. 2% for segments three and four).

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Segment two is also like segment one in that its members are relatively unlikely to report that they picnicked (37% vs. 61% for segments three and four). At this point, however, the similarities between segment one and two come to an end. Segment two respondents are referred to as lower-investment because their benefit scores for every benefit factor were lower than those for segment one and were never higher than more than one other segment (see Table 7.1 and Table 7.3). Consistent with the lower-investment label, segment two members were also the least likely segment to report that they sought information about Mowich Lake prior to their visit (37% vs. 61% for other segments).

Segment two visitors did not rate their trips as significantly less satisfactory than did other respondents (4.53 on a 6 point scale vs. 4.52 for other segments), suggesting that this segment does not consist simply of visitors who used a "response set" and chose relatively negative responses on every survey question.

A sizable majority of respondents in market segment two were male (70% vs. 55% for other segments) and they were the oldest market segment (42 vs. 38 for other segments).

The characteristics associated with segment two membership are similar for the MLVS and the 1990 GVS respondents. The 1990 report states:

The most striking thing about these people is that compared to the other clusters, they don't rate any outcome for visiting the park very high. The highest rated factor was nature/learning/scenery but even this was significantly lower than the other three clusters. All other psychological outcomes were rated relatively low. These visitors are most likely to be from outside the state of Washington, more likely to be over 60 and retired, more likely to be on their first visit, and on average stay in the park for a shorter period of time. Seventy-six percent of this group stay in the park less than six hours.

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This description has many common features with the immediately prior discussion of segment two from the MLVS. Also, similar proportions of the MLVS and 1990 GVS samples were classified into segment two (20% vs. 16%, respectively). However, several of the features of segment two differed between the two surveys. For example, segment two members in the MLVS were not significantly more likely to be from outside Washington, were not more likely to be on their first visit, and were not the segment reporting the shortest visits. It is not clear whether these discrepancies in the characteristics of segment two in the two surveys are of managerial importance. It is clear, however, that in terms of the benefit factors used to define the market segments, segment two is very similar for the MLVS and the 1990 GVS.

### *Description of Market Segment Three*

Market segment three includes 28 percent of the MLVS respondents. These persons might be referred to as family-oriented visitors. For segment three, the benefit scores for every factor except *family* were relatively low. While the scores for the *family* factor were much higher than segments one and two, and nearly as high as segment four (which we shall soon see is characterized by very high benefit scores for all factors). Accordingly, respondents in this segment were the most likely to visit in a family group (78% vs. 43% for other segments), the most likely to include children in their party (52% vs. 26% for other segments), and the most likely to be married (88% vs. 56% for other segments). They were the segment least likely to visit as a group of friends (5% vs. 35% for other segments), and were also relatively unlikely to visit as individuals (3% vs. 9% for other segments).

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For respondents in segment three, the only benefit factor that rivaled *family* in importance was *escape/rest/introspection*. Segment three gave the lowest average importance ratings for *achievement/risk taking/creativity*, *nature/learning/scenery*, *new people/telling others*, and *friends* (see Table 7.1). Segment three visitors were the least likely of the four segments (62%) to hike to destinations outside the Mowich Lake vicinity (i.e., were less likely than other segment members to be classified as Mowich Lake hikers rather than Mowich Lake users). They were also the least likely to say they camped while backpacking during their trip (9% vs. 16% for other segments) and the least likely to report that they viewed wildlife during their trip (47% vs. 64% for other segments).

About 61 percent of market segment three members were men (compared to 53% for all other segments and 47% of segments one and four). On average, they reported lower satisfaction ratings with their Mowich Lake visits than did the other market segments (on a 1 to 6 scale, 4.17 vs. 4.66 for other segments). Although only 28 percent of all respondents, segment three accounted for 50 percent of the satisfaction ratings lower than "Very Good". The lower satisfaction ratings for segment three may result from difficulty in satisfying their trip objectives that involve interactions with nature, escape and introspection, and quality interactions with family members -- particularly children.

The characteristics associated with segment three membership are similar for the MLVS and the 1990 GVS respondents. The 1990 report states:

This group of people most importantly visit Mt. Rainier to experience nature, to learn and to view scenery. They also seek to share these outcomes in a familial context. These people rate achievement, risk taking, and creativity very low in importance. Meeting new people and telling others about the experience at MORA also rate low. These visitors are

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most likely to be married and accompanied by children; 83% of the visitors accompanied by children are in cluster three.

This description is similar to the immediately prior discussion of segment three in the MLVS. However, the most obvious and important difference between segment three in the MLVS and 1990 GVS is that it accounts for only 28 percent of the MLVS respondents compared to 62 percent in the 1990 GVS. Apparently, segment three is the primary market segment among general MORA visitors but Mowich Lake is less attractive to this market segment than are other sites in MORA.

One reason why there may be fewer segment three visitors at Mowich Lake than among general MORA visitors may be the absence of developed facilities and educational programs at Mowich Lake. This explanation may also account for the finding that the relative importance of *escape/rest/introspection* and the *nature/learning/scenery* benefit factors is approximately reversed in the two surveys (see Table 7.1 and Table 7.2).

Perhaps the members of segment three in the 1990 GVS who sought organized educational opportunities were relatively unlikely to visit Mowich Lake (and thus unlikely to show up in the MLVS market segmentation). Also consistent with the idea that Mowich Lake is a less attractive destination to segment three visitors are the slightly lower satisfaction ratings found among segment three MLVS respondents.

### *Description of Market Segment Four*

Market segment four is the largest of the segments in the MLVS, including 38 percent of the MLVS respondents. These persons might be referred to as high-investment visitors. The primary reasons for labeling segment four as high-investment are the high benefit scores they assigned to the benefit factors. Five of the six benefit factors averaged

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3.7 or higher on the five point scale of importance (see Table 7.1). For segment four, it is difficult to meaningfully tie this pattern of response in the market segmentation questions to other characteristics of the segment members. In many ways, segment four falls among the other segments rather than standing apart.

In terms of the makeup of visitor groups, segment four included more families and groups with children than segments one and two, but fewer than in segment three.

Similarly, segment four fell between segments two and three in terms of the percentage of segment members who were married (see Table 7.4).

TABLE 7.4. CLUSTER MEMBERSHIP AND SELECTED CHARACTERISTICS (MLVS DATA)

| Characteristic                      | Segment                |    |    |    |
|-------------------------------------|------------------------|----|----|----|
|                                     | 1                      | 2  | 3  | 4  |
|                                     | Percent of Respondents |    |    |    |
| Visit as family                     | 21                     | 24 | 77 | 60 |
| Visit as friends                    | 53                     | 47 | 5  | 22 |
| Visit as mixed family/friends group | 8                      | 9  | 15 | 17 |
| Visit as individual                 | 18                     | 20 | 3  | 1  |
| Group included children             | 8                      | 8  | 52 | 42 |
| Respondent married                  | 43                     | 49 | 88 | 64 |

Segment four members did tend to report participating in a wide range of activities. They were the group most likely to report that they met people and made new friends in the Mowich Lake area (26% vs. 14% for other segments). They were also the segment most likely to take photographs (78% vs. 62% for other segments), most likely to picnic (64% vs. 47% for other segments), and were more likely to view wildlife (67% vs. 55% for other segments).



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Finally, segment four members tended to visit in groups that included more adults (2.56 vs. 2.26 for other segments) and were somewhat more likely to be female (54% vs. 39% for other segments).

As with the previous market segments, the characteristics associated with segment four membership are similar for the MLVS and the 1990 GVS respondents. The 1990 report states:

These people on average rate each of the motive categories higher than their counterparts in other clusters. Apparently, these visitors have multiple objectives in visiting Mt. Rainier. The lowest motive category rating for this group is meeting new people and telling others about the experience but even this score is higher than that received by the other clusters.

This description is similar to the immediately prior discussion of segment four in the MLVS. However, an obvious and important difference between segment four in the MLVS and 1990 GVS is that it accounts for fully 38 percent of the MLVS respondents compared to only 10 percent in the 1990 GVS.

Segment four is the most difficult of the four market segments to define in terms of the demographic characteristics of its members. Nonetheless, the data paint a picture of high-investment visitors that has some intuitive appeal and may be important for park managers. Because segment four members are highly invested in many aspects of the park experience, they may also be more likely to take part in public involvement proceedings or other political processes concerning the park. Testing this hypothesis would be an excellent topic of future analysis.

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### **Defining Market Segments By Other Means**

To this point, this chapter has been concerned with reporting the method and results of a benefit-based market segmentation analysis. However, market segments can be defined by other means. In fact, market segments defined in the introduction of this report have been described throughout chapters one to six. These market segments included Mowich hikers vs. Mowich users, weekend vs. weekday visitors, and visitors residing in local/regional/WA/Other locations. Depending on the issues that are relevant to managers, a particular method of defining market segments may be more or less useful. Managers and researchers can best work together to examine both the available market segmentation methods and the relevant managerial issues in order to best utilize the data from the MLVS or any other visitor survey.

### **Summary and Conclusion**

The benefit-based market segmentation of MLVS respondents yielded four clusters that were very similar to the clusters obtained in a similar market segmentation of general MORA visitors in 1990. This similarity suggests that statistical analyses can consistently segment MORA visitors based on REP items that measure the psychological outcomes motivating their visits. Further, the finding that the 1990 GVS and the MLVS differed sharply in the proportion of respondents classified in each of the four market segments supports the hypothesis that different areas of MORA will be more attractive to, and more commonly visited by, visitors from different market segments. For example, we observed a lower proportion of segment three (i.e., family-oriented) visitors in the MLVS compared to the 1990 GVS, and also observed a much higher proportion of segment four (i.e., high-



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investment) visitors in the MLVS. Even within the MLVS data we observed different distributions of market segments. Relatively few segment three (i.e., family-oriented) visitors hiked outside the immediate vicinity of Mowich Lake.

The differences between the MLVS and 1990 GVS results are readily interpretable and supported by other patterns within the data. Segment three visitors were most likely to be married, most likely to be accompanied by children, and placed high value on the outcome of sharing park experiences with family members. These characteristics suggest that such visitors will attempt less strenuous recreation activities, and will generally seek out opportunities at more developed areas with services useful to family groups. Likewise, the observation of proportionally more segment four visitors at Mowich Lake may result because visitors who ascribe higher importance to several dimensions of the park experience are more likely to be found at sites that allow satisfaction of all those objectives. In particular, they are likely to be found in relatively uncrowded areas (like Mowich Lake) that exclude "drive-through" visitors.

The danger associated with intuitively appealing post hoc explanations such as those offered above to explain of the 1990 GVS and MLVS market segmentation results is that they are hypothetical and of questionable validity until empirically tested. Alternate hypotheses that also fit the data must be considered equally valid. For example, the segment four respondents that we describe as high-investment may actually comprise visitors who are simply more likely to check extreme answers on mail questionnaires. We are cautiously optimistic that future research or analyses of existing data will better

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establish the validity of the market segmentation results and support our interpretation of their meaning.

The managerial usefulness of the market segmentation results depends not only on the validity of their interpretation, but also on the application of the results to more specifically and directly enhance visitor experiences. One way in which market segmentation data might be used is to describe the types of visitors found at different MORA locations so that managers can design policies that are likely to best satisfy those visitors. For example, by knowing that segment three (i.e., family-oriented) visitors are more common at Mowich Lake than in Spray Park, managers may better design interpretation or visitor management in those areas. Farther in the future, after considerable research, market segmentation data might also be used in more innovative ways. For example, visitors entering the park might stop at a computer kiosk and answer a few questions concerning the types of experiences they seek. The program could then classify them into the appropriate market segment and provide information concerning the locations and activities in MORA that had previously been found to provide satisfying outcomes to people having comparable motivations.

Even if benefit-based market segmentation is not pursued in future studies, the basic framework associated with market segmentation remains valuable. Market segments based on intuitive understanding of MORA visitors (such as Mowich users vs. Mowich Hikers) should be defined and used in analyzing survey data. Throughout this report we see that such an analysis style can yield important insights that are useful to managers.

**Appendix A: Mail Questionnaire**

*OMB Approval 10024-0145*

**1993 Mount Rainier National Park  
Mowich Lake Visitor Survey**

Version I

Cooperative Park Studies Unit  
College of Forest Resources AR-10  
University of Washington  
Seattle, Washington 98195

On a recent trip to Mowich Lake in Mount Rainier National Park you agreed to participate in a survey by filling out this mail questionnaire. Thank you for your cooperation.

While filling out this questionnaire please remember that **all questions ask about the trip to Mowich Lake during which you were contacted for this survey.** Also, please be sure to read each question carefully before answering it.

1. **Including this trip, how many trips have you made to Mt. Rainier National Park in the last three years?**

NUMBER OF TRIPS \_\_\_\_\_

2. **Including this trip, how many trips have you made to Mowich Lake in the last three ears?**

NUMBER OF TRIPS \_\_\_\_\_

3. **When did you leave Mowich Lake?**

DATE \_\_\_\_\_ TIME \_\_\_\_\_ AM / PM

4. **Prior to the trip on which you were contacted, did you make any attempts to specifically seek out information about the Mowich Lake area?**

1 NO

2 YES - Where did you try to get information? *(Circle as many numbers as apply.)*

- 1 Guidebooks
  - 2 Friends or family
  - 3 The NPS/NFS information telephone number in Seattle (220-7450)
  - 4 Magazine or newspaper articles
  - 5 Personal experience
  - 6 Television/radio
  - 7 Information from the National Park Service
  - 8 Other sources
- 

What type of information did you want?

Was the amount of information you found to help plan your trip to the Mowich Lake area: *(Circle one number.)*

- 1 MORE THAN YOU WANTED
- 2 ABOUT AS MUCH AS YOU WANTED
- 3 LESS THAN YOU WANTED

5. Did you do any hiking on this trip to Mowich Lake? *(Circle one number.)*

1 NO

2 YES - Where did you hike? *(Circle all that apply.)*

- 1 Around immediate vicinity of Mowich Lake
- 2 Spray Park Trail to Eagle Cliff
- 3 Spray Park Trail to Spray Falls
- 4 Spray Park Trail to Spray Park
- 5 Knapsack Pass Trail
- 6 Wonderland Trail to Ipsut Pass
- 7 Wonderland Trail South across Mowich River
- 8 Don't know
- 9 Other places *(Please specify below.)*

6. While you were in the Mowich Lake area, did you ....  
*(Circle as many numbers as apply.)*

- 1 ... camp overnight while backpacking
- 2 ... camp overnight in a campground
- 3 ... go technical climbing using special equipment
- 4 ... drive around viewing scenery from road and turnouts
- 5 ... view wildflowers
- 6 ... view wildlife
- 7 ... take photographs
- 8 ... picnic
- 9 ... fish
- 10 ... meet people and make new friends
- 11 ... do any other activities not described *(Please specify below.)*

7. If you circled two or more of the activities above, which of those activities was most important to your enjoyment of the Mowich Lake area? *(Enter the appropriate number in each of the blanks.)*

\_\_\_\_\_ MOST IMPORTANT ACTIVITY  
\_\_\_\_\_ SECOND MOST IMPORTANT ACTIVITY

8. Below are 12 reasons that people might visit recreation areas like Mowich Lake. To the right of each is a scale of how important each reason was in motivating your visit.

**On your trip to Mowich Lake, how important was it for you to ...**  
*(Circle one response for each reason.)*

**EXAMPLE:**

|   |                     |                  |                       |                         |                   |                        |
|---|---------------------|------------------|-----------------------|-------------------------|-------------------|------------------------|
| 1 | EXPERIENCE SOLITUDE | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
|---|---------------------|------------------|-----------------------|-------------------------|-------------------|------------------------|

For this person, experiencing solitude was a very important reason why they chose to visit.

|    |   |                  |                       |                         |                   |                        |
|----|---|------------------|-----------------------|-------------------------|-------------------|------------------------|
| 1  | DEVELOP YOUR SKILLS<br>AND ABILITIES                  | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 2  | DO SOMETHING WITH<br>YOUR FAMILY                      | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 3  | OBSERVE OTHER PEOPLE<br>IN THE AREA                   | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 4  | BRING YOUR FAMILY<br>CLOSER TOGETHER                  | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 5  | EXPERIENCE NEW AND<br>DIFFERENT THINGS                | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 6  | LEARN MORE ABOUT<br>NATURE                            | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 7  | GET AWAY FROM THE<br>USUAL DEMANDS OF LIFE            | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 8  | BE WITH OTHERS WHO<br>ENJOY THE SAME THINGS<br>YOU DO | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 9  | TALK TO NEW AND<br>VARIED PEOPLE                      | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 10 | BE WITH FRIENDS                                       | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 11 | EXPERIENCE TRANQUILITY                                | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |
| 12 | LEARN WHAT YOU ARE<br>CAPABLE OF                      | not<br>important | somewhat<br>important | moderately<br>important | very<br>important | extremely<br>important |

9. Below are the same 12 reasons that people might visit recreation areas, but this time the scale on the right concerns how much opportunity there was to satisfy that reason for visiting.

**On your trip to Mowich Lake, how much opportunity was there for you to ...** (Circle one response for each reason.)

**EXAMPLE:**

1 EXPERIENCE SOLITUDE  
 no opportunity    poor opportunity    good opportunity    very good opportunity    excellent opportunity

This person felt that on their trip they had a poor opportunity to experience solitude.

- |    |   |                |                  |                  |                       |                       |
|----|---|----------------|------------------|------------------|-----------------------|-----------------------|
| 1  | DEVELOP YOUR SKILLS AND ABILITIES               | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 2  | DO SOMETHING WITH YOUR FAMILY                   | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 3  | OBSERVE OTHER PEOPLE IN THE AREA                | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 4  | BRING YOUR FAMILY CLOSER TOGETHER               | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 5  | EXPERIENCE NEW AND DIFFERENT THINGS             | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 6  | LEARN MORE ABOUT NATURE                         | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 7  | GET AWAY FROM THE USUAL DEMANDS OF LIFE         | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 8  | BE WITH OTHERS WHO ENJOY THE SAME THINGS YOU DO | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 9  | TALK TO NEW AND VARIED PEOPLE                   | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 10 | BE WITH FRIENDS                                 | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 11 | EXPERIENCE TRANQUILITY                          | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |
| 12 | LEARN WHAT YOU ARE CAPABLE OF                   | no opportunity | poor opportunity | good opportunity | very good opportunity | excellent opportunity |

10. Before you entered the Mowich Lake area you might have had expectations about the number of visitors you would see. Were there more visitors than you expected, fewer than you expected, or about the same number as you expected?

- 1 A LOT LESS THAN EXPECTED
- 2 LESS THAN EXPECTED
- 3 AS EXPECTED
- 4 MORE THAN EXPECTED
- 5 A LOT MORE THAN EXPECTED
  
- 6 NO EXPECTATIONS

11. Besides expectations, you might also have preferences about the number of visitors you would like to see while you were in the Mowich Lake area. Were there more visitors than you preferred, fewer than you preferred, or about the same number as you preferred?

- 1 A LOT LESS THAN PREFERRED
- 2 LESS THAN PREFERRED
- 3 AS PREFERRED
- 4 MORE THAN PREFERRED
- 5 A LOT MORE THAN PREFERRED
  
- 6 NO PREFERENCE

12. In general, would you say that other visitors detracted from your enjoyment of the Mowich Lake area? (*Circle one answer.*)

- 1 No, did not detract from experience
  - 2 Yes, detracted |  
somewhat |
  - 3 Yes, detracted | -> How did the other visitors detract from your  
moderately | *experience? (Circle all that apply.)*
  - 4 Yes, detracted |  
significantly |
- 1 THE AREA FELT CROWDED
  - 2 PEOPLE OCCUPIED PREFERRED DESTINATIONS
  - 3 SOME VISITORS WERE EXCESSIVELY LOUD OR ROWDY
  - 4 SOME VISITORS WERE BREAKING PARK RULES
  - 5 OTHER \_\_\_\_\_



13. Did you see any evidence that other visitors had unacceptably damaged the places you visited in the Mowich Lake area? *(Circle one number.)*

- 1 NO
- 2 YES ->What was the damage, and where did you see it?

---

Did the damage you saw detract from your enjoyment of the area?  
*(Circle one number.)*

- 1 NO, DID NOT DETRACT FROM EXPERIENCE
- 2 YES, DETRACTED SOMEWHAT
- 3 YES, DETRACTED MODERATELY
- 4 YES, DETRACTED SIGNIFICANTLY

14. Overall, how would you rate your trip to the Mowich Lake area? *(Circle one number.)*

- 1 POOR
- 2 FAIR, IT JUST DIDN'T WORK OUT VERY WELL
- 3 GOOD, BUT I WISH A FEW THINGS COULD HAVE BEEN DIFFERENT
- 4 VERY GOOD, BUT IT COULD HAVE BEEN EVEN BETTER
- 5 EXCELLENT, ONLY MINOR PROBLEMS
- 6 PERFECT

15. In it's original state, Mowich Lake contained no fish. Some people believe that all the fish currently in the lake should be removed as a step toward restoring the original ecosystem. Do you agree or disagree that all fish should be removed from Mowich Lake? *(Circle a number to indicate your response.)*

- 1 STRONGLY DISAGREE
- 2 DISAGREE
- 3 NEITHER DISAGREE NOR AGREE
- 4 AGREE
- 5 STRONGLY AGREE

16. How would your use of the Mowich Lake area be affected if all the fish were removed from Mowich Lake? *(Circle a number to indicate your response.)*

- 1 WOULD COME TO THE AREA MORE OFTEN
- 2 NO CHANGE IN USE OF THE AREA
- 3 WOULD COME TO THE AREA LESS OFTEN
- 4 WOULD STOP COMING TO THE AREA
- 5 WOULD STOP VISITING MT. RAINIER NATIONAL PARK

Please explain your response to this question.

17. Because Mowich Lake and the nearby wilderness areas are being negatively affected by current high levels of use, some people believe the road to Mowich Lake should be closed three miles from the lake and that a parking lot should be created at that point. Would you in favor of, or against such an action? *(Circle a number to indicate your response.)*

- 1 STRONGLY AGAINST
- 2 AGAINST
- 3 NEITHER AGAINST NOR IN FAVOR OF
- 4 IN FAVOR OF
- 5 STRONGLY IN FAVOR OF

18. How would your use of the Mowich Lake area be affected if the road were closed three miles from Mowich Lake and a parking lot was created at that point? *(Circle a number to indicate your response.)*

- 1 WOULD COME TO THE AREA MORE OFTEN
- 2 NO CHANGE IN USE OF THE AREA
- 3 WOULD COME TO THE AREA LESS OFTEN
- 4 WOULD STOP COMING TO THE AREA
- 5 WOULD STOP VISITING MT. RAINIER NATIONAL PARK

Please explain your response to this question.

19. Because of high levels of use, some people believe that the National Park Service should open an entrance gate on the road to Mowich Lake and charge visitors the standard park entrance fee of \$5 per vehicle. Are you in favor of, or against such an action? (*Circle a number to indicate your response.*)

- 1 STRONGLY AGAINST
- 2 AGAINST
- 3 NEITHER AGAINST NOR IN FAVOR OF
- 4 IN FAVOR OF
- 5 STRONGLY IN FAVOR OF

20. How would your use of the Mowich Lake area be affected if the National Park Service were to construct an entrance gate on the road to Mowich Lake and charge a fee for entry?

- 1 WOULD COME TO THE AREA MORE OFTEN
- 2 NO CHANGE IN USE OF THE AREA
- 3 WOULD COME TO THE AREA LESS OFTEN
- 4 WOULD STOP COMING TO THE AREA
- 5 WOULD STOP VISITING MT. RAINIER NATIONAL PARK

Please explain your response to this question.

The last set of questions ask you to describe yourself

21. Are you? (*Circle one number.*)

- 1 FEMALE
- 2 MALE

22. What year were you born?

19 \_\_\_\_

23. Are you married? (*Circle one number.*)

- 1 YES
- 2 NO

24. What is the highest level of formal schooling you have completed? *(Circle the appropriate number.)*

1 2 3 4 5 6 7 8 9 10 11 12      13 14 15 16      17 18 19 20 21 22 23 24+  
(Elementary thru High School) (College/Vocational) (Graduate/Professional)

25. Are there any other comments you care to make about the positive or negative aspects of your trip to the Mowich Lake area, or about National Park Service management of the area?

**Appendix B: On-site Contact Sheet**

Date:  
Time:  
Interviewer initials:

OMB Approval 1024-0145

### 1993 MOWICH LAKE VISITOR SURVEY

The National Park Service would like to send you a brief questionnaire regarding your current visit to Mt. Rainier National Park. Your participation in this survey will help us to better meet the needs of visitors to the reserve. Thank you for your time.

1. Please circle your mode of transportation:

AUTO AUTO W/TRAILER PICKUP/VAN/JEEP PICKUP W/CAMPER BUS  
PICKUP W/TRAILER MOTOR HOME MOTORCYCLE BICYCLE PEDESTRIAN

2. How many people are in your vehicle? \_\_\_\_\_

3. How many people **over age 15** are in your vehicle? \_\_\_\_\_

4. Please circle the makeup of your group:

INDIVIDUAL FAMILY FRIENDS FAMILY AND FRIENDS  
ORGANIZED TOUR GROUP OTHER \_\_\_\_\_  
(please specify)

3. Please provide the following information for **all persons over age 15** in your party. Only a sample of the persons listed will receive questionnaires, but it is important that we have information on each user.

1) Name \_\_\_\_\_ Age \_\_\_\_\_

Mailing Address \_\_\_\_\_ Sex: F M  
(Number and Street)

\_\_\_\_\_  
(City, State, Zip Code, Country)

PLEASE CONTINUE ON BACK SIDE OF PAGE

2) Name \_\_\_\_\_ Age \_\_\_\_\_  
Mailing Address \_\_\_\_\_ Sex: F M  
(Number and Street)  
\_\_\_\_\_  
(City, State, Zip Code, Country)

3) Name \_\_\_\_\_ Age \_\_\_\_\_  
Mailing Address \_\_\_\_\_ Sex: F M  
(Number and Street)  
\_\_\_\_\_  
(City, State, Zip Code, Country)

4) Name \_\_\_\_\_ Age \_\_\_\_\_  
Mailing Address \_\_\_\_\_ Sex: F M  
(Number and Street)  
\_\_\_\_\_  
(City, State, Zip Code, Country)

5) Name \_\_\_\_\_ Age \_\_\_\_\_  
Mailing Address \_\_\_\_\_ Sex: F M  
(Number and Street)  
\_\_\_\_\_  
(City, State, Zip Code, Country)

## APPENDIX C: COMMENTS FROM THE MAIL QUESTIONNAIRE

A number of respondents to the mail questionnaire took the opportunity to write comments about their trip to MORA. These comments have been transcribed and are presented here. The comments have been classified into the following categories: compliments, criticism, suggestions, miscellaneous comments, and comments concerning the questionnaire.

### COMPLIMENTS

- ⇒ A great place to hike.
- ⇒ I live in Enumclaw and enjoy our family trips, camping [at] and hiking to campgrounds, Sunrise, Paradise, Mowich and other wonderful places! Thank you for your management!
- ⇒ Park was extremely clean; all trails/wildlife appeared to be well-protected/well-managed. Will most definitely return.
- ⇒ It was beautiful, clean, [and] well taken care of! People were wonderful. Appreciate the rangers being on the trails protecting the area!
- ⇒
- ⇒ Great trail hiking!
- ⇒ This area is beautiful, and I will again visit here.
- ⇒ Beautiful area. Very enjoyable visit - friendly ranger in fire tower!
- ⇒ Enjoyed my visit immensely!!
- ⇒ Overall, I think the Park Service is doing a good job of managing the Mowich Lake area.
- ⇒ Wonderful. My best one day vacation all year.
- ⇒ Was beautiful!



- ⇒ We enjoyed hiking in the park and will be camping in the area next year. Oh, I heard the west side road was closed. I like hiking Gobblers Knob. The extra distance is too far for me.
- ⇒ I enjoyed it well enough to return again. This was our first visit.
- ⇒ I think that it was very well managed when I was there, and being so accessible to Seattle, a pleasure for everyone with lots of variety in the hikes and trails for all standards.
- ⇒ Keep up the good work.
- ⇒ We love hiking the Wonderland Trail!
- ⇒ Very nice toilet facility was appreciated. Thanks!
- ⇒ We were able to go to Mowich on a weekday. We were happy to see less people. Overall we enjoyed this visit.
- ⇒ Keep up the good work.
- ⇒ It's a beautiful lake!
- ⇒ Trails are well maintained and signed.
- ⇒ Hiking trails to Tolmie Peak were great.
- ⇒ [It] Is very beautiful place to visit.
- ⇒ Everything was beautiful - the rangers the day we were there were outstanding.
- ⇒ I walked the Wonderland Trail plus more and enjoyed it very much. I liked the way the N.P.S. keeps the backcountry from being overcrowded.
- ⇒ It was beautiful, we had a great trip.
- ⇒ The Park Service is doing an admirable job managing the Park given the pressures of its popularity.
- ⇒ Great park. Very well kept.
- ⇒ The Carbon Lake Rangers were excellent.

- ⇒ Trip was great. [It was] My first visit to the Pacific Northwest (I live in Washington D.C.), but I have a friend in Seattle and will come again.
- ⇒ Love the Park and many wonderful hiking trails.
- ⇒ Nice hiking.
- ⇒ I was very impressed with trail conditions and the bridges to cross rivers. The park employees were very helpful and friendly.
- ⇒ I feel the trail was well maintained and marked. The visit was very enjoyable.
- ⇒ I enjoyed it very much!
- ⇒ I have never visited the area on a weekend or holiday because I've been told there are a lot of people then. Midweek it's wonderful! Excellent trails.
- ⇒ I appreciate well maintained trails, which I feel safe on.
- ⇒ The hiking trails are great and the area is kept very nice. The restoration of trampled areas was nice to see.
- ⇒ Great place to hike or camp!
- ⇒ Great staff!
- ⇒ We see Mt. Rainier from our home in Kent, WA and it was just a thrill to see it in all it's glory up close, both for us and for the three kids. Everything was well marked and clean. Thanks!
- ⇒ Beautiful - friendly.
- ⇒ Thanks for maintaining large campgrounds like Cougar so well -shrubs trees about for some peace and privacy and cleanliness at each campsite and restroom!! This must be a difficult task. Thanks for doing it well.
- ⇒ It is a pleasant spot. We visited after Labor Day so the place was quiet.
- ⇒ Very beautiful spot. We have a home on a lake in the upper peninsula of Michigan very much like Mowich Lake - clear bottom, no fish.
- ⇒ I love the area and think it has been kept beautifully!

- ⇒ The area offers great access to beautiful areas of the park. We shall return to it next year. Our children still speak of the experience and are making plans this winter to return next summer.
- ⇒ Very good.
- ⇒ All in all I think a good job is being done! Thank you.
- ⇒ It's amazing how you keep the place so beautiful.
- ⇒ I thoroughly enjoyed my trip.
- ⇒ Nice upkeep of trash and garbage - good luck!
- ⇒ I enjoyed the trip to Mowich lake very much. It was very beautiful up there. And it enabled me to spend more time with my family and friends that I don't usually get.
- ⇒ I did the Wonderland Trail this year and enjoyed everything about the park. It isn't easy to schedule a trip like this with the limited sites in some of the camps. Thank you!
- ⇒ I was impressed with the volunteer trail upkeep crew...way to go gang!
- ⇒ I like the area.
- ⇒ The area is beautiful and I hope the beauty will be maintained. I appreciate the efforts of the National Park Service.
- ⇒ Mowich Lake is one of our favorite areas on Mt. Rainier.
- ⇒ You are all doing your best!! Park personnel at trail ends are extremely helpful and informative. Thank you.
- ⇒ It was beautiful and well kept. The ranger was very nice. I apologize for taking so long to respond. I have moved. Thank you.
- ⇒ A lovely park.
- ⇒ I really enjoyed my visit. The people were extremely nice and I even met someone from South Africa! The area is beautiful and the management of the area was extraordinary!
- ⇒ Wonderful. My best one day vacation all year.

## CRITICISMS

- ⇒ I've been dealing with the park service for 28 years and I've lost any respect I had for them. They're more into honking than helping. They're poorly trained and most of them just don't care. The rule is more important to them than the reason. For instance, the Mowich road is closed in winter. It is one of the better cross country ski areas around. The Park Service puts a gate across it that is, for much of the winter, below snow level. This makes it impossible to ski there and makes a lot of people very angry when they drive all the way there to find they have to stop before they get to the snow. There is no way to know where the snow level is unless you've been there recently. Do you think the Park Service gives a damn?
- ⇒ I have visited most every portion of Mount Rainier National Park throughout the last 20 years. Compared to these other areas, Mowich Lake noticeably lacked a ranger presence. This inattention to the NW corner of the park has resulted in preventable visitor impacts.
- ⇒ Rangers frequently overlook violations (e.g. noisy groups, fires, wood gathering).
- ⇒ On trail to Spray Park an attempt to put in steps - i.e. rocks, boards, are incomplete and difficult to walk along hence went on either side.
- ⇒ The paths are in good shape except for a few climbs on the way to Ipsut Pass.
- ⇒ I appreciate the ability to come to the area at the last minute, from a planning standpoint, on day hikes. The National Forest people are getting too restrictive in their thinking about day use permits and restrictions.
- ⇒ The fact that I had spent 5 days in the backcountry was wonderful, but I was sort of disappointed to be hassled by a survey person. But keep up the good work.
- ⇒ We were pleased with the area except for lack of parking.
- ⇒ Backcountry travel too regulated - would rather go to National Forest area with fewer rules.
- ⇒ Camping spaces too tight and not very private.
- ⇒ Campground looks like a refugee area (because of no fee?). In general, I feel that National Parks are in danger of being destroyed by an overly democratic management. If people want beauty they need to meet it halfway at least. If effort is involved it will help create both respect for and protection of nature.

- ⇒ The cars are too near the camp.
- ⇒ We were treated poorly by the Park Ranger. We missed the sign at permits in Carbon Glacier - [we] were told she would give us one. She was rude and intimidating, although she did accommodate us.  
The sign for stating where to get backcountry permits is poorly placed. It is where you are studying the road signs for your turn - no time to even notice park sign.
- ⇒ There was no garbage [receptacles]. Backpackers were protecting the park or rangers were cleaning it. Mystic Lake outhouse was the worst I've been in.
- ⇒ The long dusty road to Mowich was the only drawback of the trip.
- ⇒ We were surprised that information on the area seemed difficult to obtain. We were spending the last few days of our holiday at Enumclaw - to give us access to a different part of Mt. Rainier and [it's] just a couple of hours drive from Seattle Airport. People we talked to in the motel and restaurants were uncertain of what was available. However, we were so taken by the beauty and peacefulness of the area that we have seriously thought about hiring camping equipment if we manage to visit the area again. On this, and previous visits to National Parks, we have been very impressed by the high standard of facilities and courtesy, knowledge and friendliness shown by staff.
- ⇒ The very dusty road was no pleasure. We couldn't find drinking water.
- ⇒ I do not like high elevations and the entrance road bothered me. The sharp edges and the terrific roughness scared me - I felt like the car would slide off. My husband loves it there and will return often, and hike up to higher elevations on the trails.
- ⇒ Sometimes things are over managed.
- ⇒ Going to Copper River R.S. to get [a] backcountry permit was very time consuming.
- ⇒ The road is very dusty. The clearcuts outside the park are discouraging.
- ⇒ Too many visitors. Felt as though Big Brother was watching us!
- ⇒ Main trail was not obvious when we reached Spray Park due to number of side trails.
- ⇒ I think the National Park Service management is the worst thing that ever happened to our National Parks.

⇒ I'm sure the Park Service can do a cleaner and more efficient job on the trail repair work. Otherwise, I had a fantastic day hike to Observation Rock.

## SUGGESTIONS

- ⇒ Water for drinking would be helpful.
- ⇒ I would like to see commercial airlines and military flights detoured outside the park's airspace. While hiking the Wonderland Trail this summer, I found this to be my number 1 concern.
- ⇒ Think closing [the] road would limit access of many others to the area. Area is still in good shape despite current use. Make no changes.
- ⇒
- ⇒ Would like to have been able to obtain a trail guide brochure such as are available at Longmire and elsewhere.
- ⇒ Would like to have been able to obtain a trail guide brochure such as [those that] are available at Longmire and elsewhere.
- ⇒ Environmental extremists are wasting tax payers dollars. These monies should be put forth directly to park services.
- ⇒ It's such a beautiful place, but wasn't serene enough for me because [of] too many people and cars. Move [the] parking lot. Don't change money.
- ⇒ The Mowich Lake area is well patrolled and maintained, but I think more rangers are needed in the area because it is the park's prettiest area.
- ⇒ We ran short of drinking water because it was so hot. Please, could you supply a source of drinking water at the parking lot by the lake or trailhead.
- ⇒ Beautiful place. It's a shame you can drive so close to it. Would be a lot better if you had to hike in.
- ⇒ Would like more high altitude shelters around mountain (S/A Muir and Schurman). Disburse climbing pressure on popular routes. Use the \$5 fees for physical facilities. Maintain development if not already doing so. Establish a by-mail backcountry camping reservations system with a no-show /cancellation contingency. Guarantee clear weather on mountain!
- ⇒ We picked a traditionally busy weekend, but it was lighter than expected, being a Friday. A lot of my answers to #9 had more to do with the people I was with than the location of Mowich Lake. I would strongly encourage better handicapped access, especially if you close the road.



- ⇒ Fix the roads.
- ⇒ It would be nice to have a water pump at Mowich Lake campground. I did bring a gallon of water just in case so this wasn't a problem for us.
- ⇒ I like it because it's not so crowded like Paradise area. I'm in favor of keeping the road gravel and not making a lot of improvements except the watershed. Lets keep all those big R.V.s out of there; they can go to Paradise.
- ⇒ I encourage continued trail maintenance of all trails. The campsites seemed awfully open and not very exciting.
- ⇒ The informational sign that you need a permit to camp in the backcountry (available at Carbon River) was not in a location to be noticed by our party readily. It should be a further distance before the fork in the road (Carbon River or Mowich Lake).
- ⇒ Need a gate and a ranger station to support the area.
- ⇒ Quite satisfied with management. Would be convenient if backcountry permits were available at Mowich Lake. Also, fix bumps in access road!
- ⇒ I enjoyed it. Next time I'll bring bug repellent. The volunteer ranger we met at Tolmie Peak was very helpful. He answered all our questions and let us borrow his binoculars. I'd recommend continued support for the volunteer ranger program.
- ⇒ It's hard to know if the campgrounds are full until you drive all the way down the roads, and they are long. I felt lost a few times, but I was not. Signs at the beginning of the roads for additional information would be nice.
- ⇒ Please pave the access road!!
- ⇒ Maintain current fishery in the park. [Have a] booth into Mowich Lake. Move parking lot.
- ⇒ Yes, it definitely should be kept open later into the fall (at least till first snowfall), and opened sooner (at least by July 4th) even if lake is still frozen.
- ⇒ Nice variety. Restore the Lake. The camping sites are ugly -back off the Lake and make a nice campground.
- ⇒ Think present development provides both adequate control and access. Damage control methods, although not perfect (none ever are) are more than adequate and seem to work. Do not pave the road.



- ⇒ Road into area should be paved. More "hike-in" camping sites [are] needed. Park rules [should be] printed in Japanese.
- ⇒ Do not pave the road to Mowich Lake. While on trail to Spray Park, work parties were improving the trail through the meadows. Strongly approve of this; if trail is "paved" with rocks and gravel and prevented from becoming muddy, visitors are much more likely to stay on it. Attract on it. Attractive trails add greatly to [the] aesthetic enjoyment of an area.
- ⇒ For some cars, the dirt road and chuck holes are hard on them. Laying an oiling (tar base) [on] this part would give it a harder surface and cut down on the large amounts of dust on roadway.
- ⇒ With the exception of the road and bathroom facilities, keep the area primitive. I would like to see the road at least oiled from where the pavement ends.
- ⇒ The speed limits and the attitude of police in Wilkison is not favorable. They need to concentrate on liquor control.
- ⇒ Preservation, preservation, preservation!
- ⇒ Keep up the good work. Continue to protect Park for damage -especially by visitors.
- ⇒ Should charge fees [that are] enough to be self-supporting (including stopping subsidies of logging and charging entrance fees).
- ⇒ Positive steps need to be taken now to preserve this fragile wilderness. I would gladly go less often and do my part. I would also volunteer to help meadow reconstruction.
- ⇒ Grade the road please. Fill in potholes! Carbon River too.
- ⇒ The park Service, in my opinion, should work towards making the west side of the park more remote [and] more rewarding for those who would go there. Keep the west side road closed at Tahoma Creek. Also, close the Mowich Lake road at Paul Park.
- ⇒ The road to Mowich Lake is incredibly dusty. Is there a way to oil it or something to decrease the dust?
- ⇒ Spray Falls was well worth the long trip from Paradise. I would, however, like to see a great deal more sharing of information between ranger stations - especially about

the weather conditions in other areas of the park before a visit to that area. Beautiful area!!

- ⇒ As more and more visitors from around the world visit the park, more effort should be put into signs in other languages. Numerous times we've run across Asian visitors inside the Frozen Lake fenced area or standing on fragile meadows because they didn't realize these areas are "off limits."
- ⇒ I definitely will visit Lake Mowich more often if the road is all paved instead of being graveled.
- ⇒ No gate or fee!!
- ⇒ Sometimes the road is hazardous because it has too much washboard. It should be graded more often.
- ⇒ Pave the last 300 feet to the park to eliminate the dust. Set up the charge to the park, and use it to pave the road.
- ⇒ A limit should be put on the number of people car-camping there (i.e. backpackers get first priority).
- ⇒ Get rid of the campground.
- ⇒ Keep out the RVs. They don't belong in a wilderness.
- ⇒ A more active management plan for Mowich lake is OK with me. Perhaps keep the road open to the parking lot in winter for skiers only.
- ⇒ The day I was there it snowed at Spray Park, so there weren't many people. If you charge too much admission too many people would go elsewhere outside the park and clog up those remote areas. Keep west side road closed for bikers. Thanks.
- ⇒ I would like to see some of the old-style stone amenities and a park-like camping/picnic area.
- ⇒ It's a wonderful experience to hike in this magnificent naturally beautiful area. Maintain it. Don't commercialize it like Yellowstone National park is.
- ⇒ The Park Service needs the money. Charge a fee!
- ⇒ We were not stopped to pay fee at Paradise Park Entrance (another trip). If finances are a problem, staff should be available to collect much needed money!

- ⇒
- ⇒ I would greatly prefer #19 to #17 (make the lazy slobs walk).
- ⇒ Would be nice to have drinking water. If I had known, I would have brought some from home.
- ⇒
- ⇒ Being able to hike the backwoods area of Mt. Rainier is a gift from our forefathers who planned ahead to enable us to enjoy it. Let's do the same for generations to come.
- ⇒ Area appears to be overused. It is beginning to look like a city park. Throw out picnic tables. Encourage low impact style picnic/camping.
- ⇒ Access to water that is safe to drink would be nice, especially for those who hike to [the] lake.
- ⇒ Please sell some bug repellent up there. It will help a big deal! Thank You.
- ⇒ Management of the area [is] good. Would like to have more information on these types of somewhat "primitive" areas before going to them. Available trail descriptions [are] a necessity!

Our first "attempt" to visit Lake Mowich area was last year. We had just moved here and decided to take a Sunday drive. We thought we would buy a hamburger, fries, etc. for lunch upon our arrival. We never got there, as the gravel road seemed to go on forever and got worse and worse. On top of that we felt sort of "lost", as there were no signs saying how far it was. We finally turned around, but were very disappointed.

This time we still had no idea what was there, but decided to try again. We noticed some mileage signs that we didn't see the year before. We were very surprised to see how many cars were there and how many tents were set up. The area was quiet, as almost everyone was hiking. If they hadn't been gone, we would not have had a table to picnic on. I would like to see a small picnic area away from the tent area. Also, we have a five year old who we are breaking into hiking. We need information about the trails, as we can only take short ones that are fairly easy, and [still] would like some views.

- ⇒ The area was very pleasant and well maintained. Keep up the good work. But please, let's not charge a fee like hospitals do; every time they do something they charge extra.
- ⇒ Eunice Lake is lovely. Please don't make it any easier to access! If the campground could be planted with some trees, and gravel removed, it would be much more pleasant.

- ⇒ Yes. Improve access road.
- ⇒ Persecute and prosecute the meadow stompers and the animal feeders.
- ⇒ Black topping the last 300 yards of road and parking area would eliminate the dust problem and crippled people could still enjoy the area more easily.
- ⇒ The road to Mowich should be blacktop. I feel it would be better for the area and for the visitors.
- ⇒ Mowich Lake access is extremely important. I would like to see the campground improved and expanded. The roadway need not be paved, but regrading would smooth it out to be less harmful to vehicles. It would be nice to continue a passenger unloading area near lake with no parking.
- ⇒ I was part of a Sierra Club volunteer trail work crew. A more substantial expression of appreciation should have been offered.
- ⇒ I would prefer having campfires in a confined area or something.
- ⇒ A fee to the area would lower the number of people entering it and slightly increase the area's budget. If used appropriately, such as to dismantle the original parking lot and replace it with nature's beauty and at the same time help the lake, the idea would be an excellent one.
- ⇒ Would like to see you make a camping area within 1 - 1.5 [miles] of lake so families could spend weekends. Then charge for overnight camping.
- ⇒ You're doing a good job. I'd like to see the west side road open again.
- ⇒ It is such a beautiful area. Thank you for the work you are doing to keep it this way. We would like to see more signs with tree names - peak names, etc.
- ⇒ Need better and more toilet facilities. They smelled bad and did not seem to be taken care of.
- ⇒ Please pave the gravel road. It is too dusty.
- ⇒ I was appalled by the public's lack of respect for the park, using the turnouts for their waste disposal and restrooms. Perhaps the park service could provide dumpsters and restrooms in some of these areas.

- ⇒ The camping sites around [the] immediate vicinity of Mowich Lake, specifically next to the picnic area, should be limited to only a few (i.e. back country hikers). I felt that there were way too many campers in the designated area. Maybe there should be fines for misuse of the park, such as picking wildflowers, running or walking through meadowlands, etc.. Aside from clearcutting happening in our National Forest and National Parks, the forest service does a good job.
- ⇒ I think the bathrooms could have been a little cleaner.
- ⇒ Rangers were very nice and helpful. I brought a dog and did not walk her on trails as requested, but I saw several dogs on the trail anyway. Either enforce the rule or abolish it. Perhaps a fine?
- ⇒ When camping with a small child, campsites on dusty graveled ground are not very comfortable. Grass would be much better. (I know that grass doesn't stand intensive use).
- ⇒ Mowich is like the rest of Mt. Rainier National Park in that usage is increasing. I would only camp there midweek when crowds are less. I suppose limiting access would help maintain the beauty of the place.
- ⇒ Either eliminate camping at lake or distribute sites (by reservation only) around periphery of lake with appropriate sanitary facilities. The camping in the old parking lot is disgusting. Pave the access road (in cooperation with the state) and put an entrance gate. Consideration might be given to making it a day use area only.
- ⇒ [Provide more] Information for novices at Mowich Lake, not just the map. Also any regulations for visitors, especially prohibit thing, etc. P.S. In this trip we were fined because of lack of information. So, we did something wrong because we didn't know. It's not fair.
- ⇒ I would request visitors be prohibited from having pets along with them. It would be quieter, cleaner and safer.
- ⇒ Please, please pave the road all the way in (and with all the tourist amenities put in recently to Mt. Baker lodge as this [is] now world standard). Also, put in aids to make the more difficult hikes as safe as they are in the Alps.
- ⇒ We support controlled management of the park as visitation is getting heavier each year. We notice fewer people getting out of their cars, zipping through, and others who haven't a clue how to treat the trails or ecosystems. Proper management will help people to think before they take "advantage" of the park

- ⇒ Most enjoyable. Would like to see clear cutting stopped. Especially adjacent to National Parks.
- ⇒ Don't improve the road to Mowich Lake.

## MISCELLANEOUS

- ⇒ Too many bugs! Can this be controlled? [It] really did detract from our enjoyment - particularly [at] Spray Park.
- ⇒ I have visited Mowich only once, so I haven't a great deal of perspective concerning how others use the park. But my family enjoys day hiking, so we might go again for a different hike if the weather is just right. The view of the mountain is an attraction that makes the long dirt road drive acceptable. Favorable weather - in terms of warmth, as opposed to rain or clouds and wind - is equally important.
- ⇒ It's a great place for a day hike, and is just fine as it is now. Went on [a] hike to enjoy nature and beauty of area, not to develop skills or friendships.
- ⇒ Glad rangers are there watching over the area. Concerned about heavy use and damage!
- ⇒ Since I did not spend much time at Mowich Lake, I'm not sure how I feel; most of my experiences were on the trail.
- ⇒ We could do without so many bugs
- ⇒ More chicks.
- ⇒ It is difficult to keep everyone happy. The Park Service does fairly well in balancing interests.
- ⇒ The road to Mowich Lake is very rough in some places.
- ⇒ The lake and area are very beautiful. The only frustrating thing about national parks is the logging that occurs within them. This is very devastating to the environment and [it] angers me to see public land used and destroyed by logging.
- ⇒ I hope your survey went well and you got a lot of responses.
- ⇒ Please order clear weather for my next trip!
- ⇒ Overall area was clean, without litter.
- ⇒ I think the National Park Service does well with limited funds on high use areas such as Mowich Lake. I know it will get busier.



- ⇒ The only things that I didn't like were the bugs and flies. There were more than I had expected. I realize that there's not much that anyone can do about that.
- ⇒ I was glad to see rangers there enforcing park rules to make my visit more enjoyable (i.e., witnessed ranger escorting individual who brought his dog back down to parking lot).
- ⇒ Didn't get a permit, but was stopped by a ranger. It was a positive experience. He laid down the rules for us without issuing a ticket.
- ⇒ I went there in [the] summer of '91 and returned the summer of '93 (two years [later]), and to my delight noticed no adverse use impact. Actually, I first did the Eunice Lake hike [in] '74. It still appears the same. The road was even worse in '74. Except [the] '91 visit it was terribly crowded on a sunny Sunday
- ⇒ As indicated on question 12, we could have used more privacy. We weren't allowed on meadow, but some were near or going into water. [It was] Obvious [that] it would be under water in the spring or fall. We wished we could be away from the open picnic area.
- ⇒ I love the park. Many people use the Mowich entrance because it is free. I prefer the special beauty of the area. A fee would limit [the number of] visitors, yet better facilities [would] increase them. More or less good.
- ⇒ Eagle's Roost Camp Area was very nicely designed and located -easy access and yet isolated from the crowds on the trail. It was a bit awkward to have to drive to Carbon River Entrance to get a camping permit.
- ⇒ I love the beauty of this area, but hate the dust from the road when there are lots of cars. Improving the road would mean more people; it's a trade-off.
- ⇒ Use is very high, but visitors seem to be taking care of it by 1) not destroying vegetation in mass (vegetation areas are coming back!), and 2) packing out litter.
- ⇒ So many flies it was impossible to enjoy the hike!
- ⇒ I couldn't believe I was in a National Park for free.
- ⇒ Tolmie Peak was my very first hike in 1970, and also the last with my mother who passed away in 1991. This area is very sentimental to me; my mother and I hiked the Mowich area often.
- ⇒ Too many people feed the animals at Sunrise.



- ⇒ If you change the parking lot, [and] charge \$5, you would need to make it nicer for people to come there. You can't see the mountain from Mowich. You need something more? I will always like Mowich.
- ⇒ Although a few families were not respectful of the environment, the Rangers were prompt to enforce the rules. We appreciated this!
- ⇒ I would have been slightly happier if the camping area consisted of approved or designated little polarized areas to pitch a tent, offering some privacy rather than a big open lot. But maybe this helped to keep the density of campers to the level it was.
- ⇒ The more "comfortable" the area, the more visitors and, the less likely I'll want to come. The simplicity of Mowich Lake access is its strongest asset and what sets it apart from other Mt. Rainier areas.
- ⇒ This was a mid week trip so the area was less crowded than usual.
- ⇒ Sending this "first class" and in large envelope seems an excessive expense.
- ⇒ I didn't realize dogs were not allowed on the trails, and we had brought our dog. I can understand the reasoning behind that. My two boys and I loved our visit!
- ⇒ Not really. It's always been clean and well groomed. Keep up the good work!
- ⇒ I've lived here all my life and I see all of the destruction happening by people who haven't any respect for nature. Something needs to be done to stop this, but why should we suddenly be charged for all of the pleasantries in life.
- ⇒ I appreciate the fact that the area hasn't been developed into a large drive-in campground.
- ⇒ This area was totally new to us. We visited that day on a side trip following [a] hike in Carbon River area. Paradise and Sunrise are our two usual destinations for hiking. We love them both. All areas of Mt. Rainier seem well managed; a difficult feat in a large, well used area.
- ⇒ I believe the NPS management of Mowich is good. When we last visited there, we had to walk perhaps 1200 feet down the road to reach our car because of heavy Sunday parking and patronage. We had a good trip! Parking lot and small fee are good ideas.
- ⇒ Don't feel that you have to control our lives. Just leave us alone. That is what a park is for, remember?

- ⇒ It's a beautiful area and very peaceful considering that there are so many people.
- ⇒ I am hiking with my 2 year old and I picked the area because the rangers are there.
- ⇒ Lots! But you didn't give me much room. I found beer cans on the path over Knapsack Pass! What the...!?!
- ⇒ I was stunned at the number of dayhikers, but pleasantly surprised that there were still campsites available. On that particular weekend, we were glad as campsites are often hard to come by.
- ⇒ I would like to visit more often, but of course this adds to the overcrowding.
- ⇒ It was very foggy which detracted from the trip my girlfriend and I made to Mowich Lake. We couldn't even see the lake.
- ⇒ Pretty area; good for families.
- ⇒ I have only made one trip to Mowich Lake area and it was raining and overcast. We took our hike anyway but were disappointed we had such bad visibility. Unless the weather is better, I won't drive 15 miles on unpaved road again to hike in the area.
- ⇒ I live in Puyallup. Mowich is the closest hiking area from my home. We do visit Sunrise and Ohanopecosh in [the] summer, Paradise and Mowich in [the] winter. We are avid hikers and backpackers.
- ⇒ Many of the people around our campsite were abusing the area (littering, picking and stomping the wildflowers, fishing, etc.). I would like to say, though, that the park rangers were excellent - both helpful and accommodating in the harsh weather.
- ⇒ We missed being able to have campfires at night and being able to have our truck at the campsite.
- ⇒ We had a wonderful trip which we'll repeat every year. Marmots woke us up a little too early!
- ⇒ The only negative aspect was the weather.
- ⇒ I have been visiting Mowich Lake since I was a kid. I have loved the natural beauty basically untouched by commercial business type atmosphere that might be created by toll gates, construction, and/or change. I grew up in Buckley and am basically a local. Thank you very much for hearing my opinion.

## COMMENTS ABOUT QUESTIONNAIRE

- ⇒ Our trip occurred over the Labor Day weekend. Therefore the number of visitors to the lake I think would be more than normal. As a result my survey may not reflect a true picture.
- ⇒ It is great that you are doing this research.
- ⇒ Who are the potheads that think up these things, [such] as above, removing the dam from Elwa and importing Grizzlies into the North Cascades. Obviously the Park Service has too much money if they are studying such nonsense.
- ⇒ I think that the management of the area is doing a fine job. The more surveys the better.

## APPENDIX D: HOW TO USE THIS REPORT

This section is a brief introduction to the basic statistical methods included in this report. It defines some key terms and illustrates the ways in which the statistical tables and graphs have been prepared.

The main tool used in statistics is data--those observations and measurements that are recorded in a study. As commonly used, the word "data" is plural. For example, all of the visitors' ages comprise data. A single unit of data -- for example, the age of a single visitor -- is a datum.

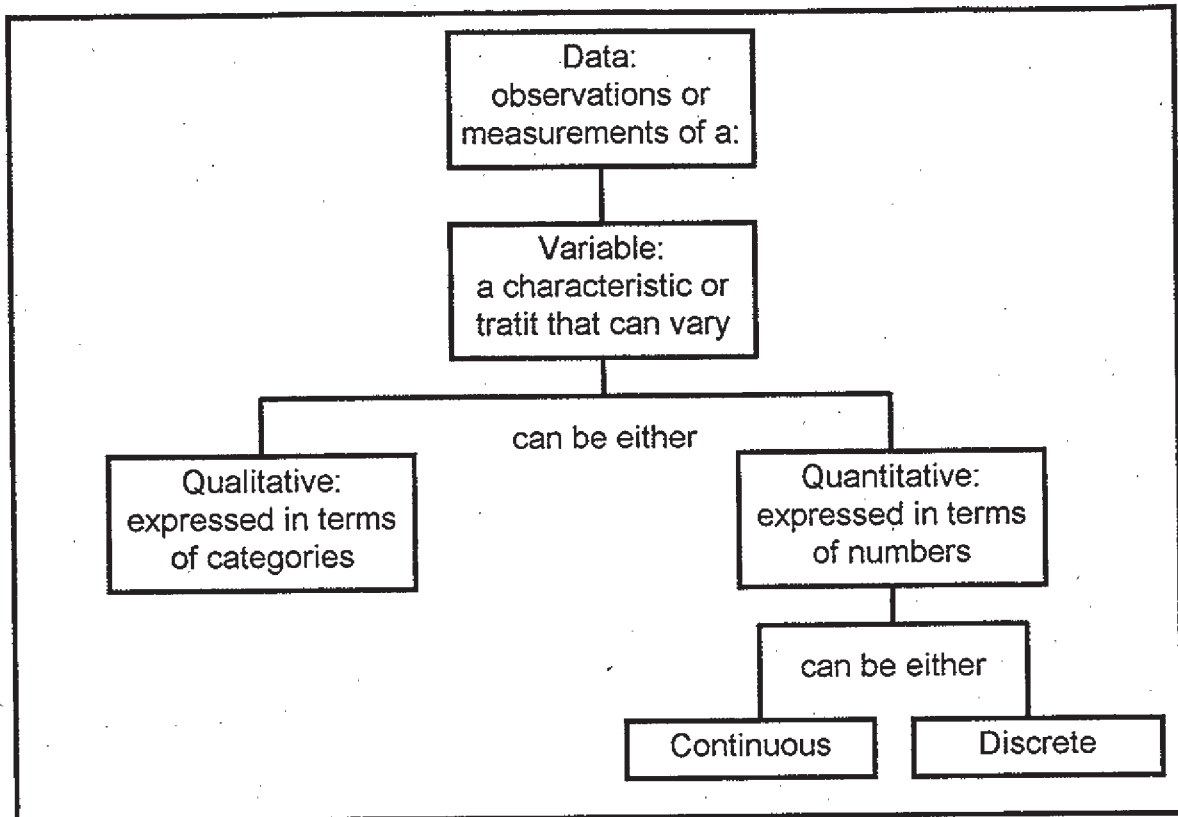
Data are collected about relevant variables. A variable is simply a characteristic or trait of interest that can vary. For example, the ages of visitors, their party characteristics, or their satisfaction with wildlife sightings at MORA can all be considered variables. Each of these traits or characteristics varies from person to person in the study sample.

Variables can be of two types: Qualitative variables are expressed in terms of categories, such as whether or not a visitor has been to the Visitor Center. Quantitative variables are expressed in terms of numbers, such as the size of a visitor party.

Discrete quantitative variables have distinct and separate units. There are no values possible between the units of a discrete variable. For example, the number of visitors in a single party consists only of whole numbers of people. One cannot talk about a party of 1 1/2 persons.

Figure D.1 illustrates these concepts.

FIGURE D.1. FLOW CHART OF STATISTICAL CONCEPTS AND TERMINOLOGY



Often data for more than one variable are collected. The data for the unit of analysis under consideration (an individual visitor, a single party, a specific park) are a case. Statistical analyses are done on groups of cases to form a dataset. The number of cases in a data set is usually referred to as "n." For example, if 1000 visitors answered a question,  $n = 1000$ .

In many instances, respondents do not answer all of the questions in a survey. They either inadvertently skip a question or are asked to skip question because it does not apply to them. When a respondent does not answer a question that they should have

answered, he/she is a "missing case" for that question. If the number of missing cases exceeds 10 percent of those who should have answered the question, a corresponding footnote or statement in the text will indicate this fact.

Data can be collected for all of the possible cases such as on every visitor to MORA. This is a census. Alternately, data can be collected for a sample of the total population. There are many ways to choose a sample. One common approach is a random probability sample, in which each individual has an equal chance of being included in the data set. In the strictest mathematical sense, the MRNP sample is not random due to the possibility of bias through non-response. However, the writer believes that the potential bias is so minimal that, for ordinary management purposes, the sample can be considered random and therefore, representative of the population of park visitors.

The data in this paper are reported as descriptive statistics. These statistics are used to summarize a large group of numbers and to describe general characteristics of the data set. For example, there might be a long list of each visitors' ages. Descriptive statistics can be used to quickly summarize this long list. The average (mean) age would be the total of all of the cases' ages divided by the number of cases. The modal age (mode) would be the most frequently reported age. The range would be the spread of ages from the youngest to the oldest.

Statistics can be presented in several formats. Tables simply organize the data into horizontal rows and vertical columns and sometime include brief explanations. Graphs or figures illustrate the data through a visual presentation. All of these formats are present in this report.

## Appendix E: Recreation Experience Preference Scales

The Recreation Experience Preference (REP) scales were designed by Bev Driver and his associates with a program of research that began in the early 1970's. [See Driver (1976).] The REP items were designed to measure expected psychologically valued outcomes of recreation experiences that motivate recreation behavior.

This approach holds that people select and participate in recreation activities to realize certain psychological goals. It is derived from expectancy-valence theory in psychology. Tinsley (1986) elaborates:

According to this model, individuals engage in a given recreational activity at a given location because they have expectations of positively valued psychological outcomes. The model distinguishes two features of outcomes, individuals' expectancies that they will experience certain psychological benefits (e.g. increased self-esteem) while pursuing the recreational activities, and the value individuals place on these psychological benefits.

Driver and associates have developed a list of items designed to empirically measure potential motives. These items, the methodology used to create them, and various psychometric properties are described in selected documents sent separately to OMB [Driver (1977, 1983); Cooksey (date unknown); Tinsley et al. (1981)]. Respondents to REP scales are asked to rate the relative importance of several motives for choosing a designated activity. These items are clustered by a statistical technique into "domains" representing categories of motivations. Table E.1 lists the domains measured

by the current (1983) list of REP items. Those indicated with a \* are included in this study.

Manning (1986) elaborates on the usefulness of the REP methodology.

Its potential usefulness for outdoor recreation managers is enhanced ... because of its direct focus on outdoor recreation activities and its standardization as a result of extensive empirical testing. The motivation scales have been developed and refined in dozens of empirical studies generating in excess of 20,000 usable questionnaires. Tests have generally confirmed both the reliability and validity of the motivational scales (Rosenthal et al. 1982).

Table E.2 lists several selected studies in the peer reviewed literature utilizing the REP scales. Several of these studies have used the REP scales to group similar visitors for the purpose of identifying "market segments." This use attests to the acceptance of these scales among researchers in the social psychology of leisure and outdoor recreation.



**TABLE E.1. PSYCHOLOGICAL BENEFITS AND PSYCHOLOGICAL BENEFIT DOMAINS MEASURED BY THE RECREATION EXPERIENCE PREFERENCE (REP) SCALE**

Domain/Scales

**ACHIEVEMENT/STIMULATION**

- \*Reinforce Self-Image
- \*Social Recognition
- \*Skill Development
- \*Competence Testing
- \*Excitement
- Endurance
- \*Telling Others

**AUTONOMY/LEADERSHIP**

- \*Independence
- Autonomy
- \*Control/Power

**RISK TAKING**

- \*Risk-Taking

**EQUIPMENT**

- \*Equipment

**FAMILY TOGETHERNESS**

- \*Family Togetherness

**SIMILAR PEOPLE**

- \*Being with Friends
- \*Being with Similar People

**NEW PEOPLE**

- \*Meeting New People
- \*Observing Other People

**LEARNING**

- General Learning
- \*Exploration
- Geography of Area
- \*Learn About Nature

**ENJOY NATURE**

- \*Scenery
- \*General Nature Experience

**TEMPERATURE**

- Temperature

Domain/Scales

**INTROSPECTION**

- \*Spiritual
- \*Introspection

**CREATIVITY**

- \*Creativity

**NOSTALGIA**

- \*Nostalgia

**PHYSICAL FITNESS**

- \*Exercise-Physical Fitness

**PHYSICAL REST**

- \*Physical Rest

**ESCAPE PERSONAL-SOCIAL PRESSURES**

- \*Tension Release
- Slow Down Mentally
- \*Escape Role Overloads
- Escape Daily Routine

**ESCAPE PHYSICAL PRESSURES**

- \*Tranquillity
- \*Privacy
- \*Escape Crowds
- Escape Physical Pressures

**SECURITY**

- Social Security

**ESCAPING FAMILY**

- Escaping Family

**TEACHING-LEADING OTHERS**

- Teaching-Sharing Skills
- Leading Others

**RISK REDUCTION**

- Risk Moderation
- Risk Avoidance

\* These scales are measured in the 1990 Mount Rainier Survey.

## TABLE E.2. SELECTED STUDIES USING REP SCALES

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- Graefe, A.R., R. Ditton, J. Roggenbuck, and R. Schreyer. 1981. Notes on the stability of the factor structure of leisure meanings. Leisure Science 4(1): 51-65.
- Haas, G.E., B.L. Driver, and P.J. Brown. 1980b. A study of ski touring experiences in the White River National Forest. Pages 25-30 in: Proceedings of the North American Symposium on Dispersed Winter Recreation. Office of Special Programs, Education Series 2-3, University of Minnesota, St. Paul.
- Hautaluoma, J.E. and P.J. Brown. 1978. Attributes of the deer hunting experience: a cluster analytic study. Journal of Leisure Research 10(4): 271-287.
- Knopf, R.C. 1984. A Recreation Manager's Guide to Understanding River Use and Users. USDA Forest Service General Technical Report WO- 38.
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- Manfredo, Michael J., B.L. Driver, and Perry J. Brown. 1983. A test of concepts inherent in experience based setting management for outdoor recreation areas. Journal of Leisure Sciences 15(3): 263-283.
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Driver, B.L. 1983. Item Pool for Scales Designed to Quantify the Psychological Outcomes Desired and Expected from Recreation Participation. Ft. Collins, CO: Rocky Mountain Forest Range Experiment Station (Mimeographed).

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Norusis, Marija J. and SPSS Inc. 1990. SPSS Advanced Statistics User's Guide. Chicago: SPSS, Inc.

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Rosenthal, D.H., D.A. Waldman, and B.L. Driver. 1982. Construct validity of instruments measuring recreationists' preferences. Leisure Sciences 5(2): 89-108

Tinsley, Howard E.A. 1984. The psychological benefits of leisure counseling (i.e. participation). Society and Leisure. 7:125-140.

Tinsley, Howard E.A., Richard A. Kass, and B.L. Driver. 1981. Reliability and concurrent validity of the recreation experience preference scale. Educational and Psychological Measurement 41.

## **APPENDIX F: Market Segmentation Analysis From The 1990 MORA General Visitor Survey**

### **Factor Analysis of REP Items**

To reduce the 31 REP items to a few underlying dimensions of visit motivation, a factor analysis, using principal components method of extraction, was done. Factor analysis is a technique used to identify a small number of factors that can be used to represent sets of many interrelated variables, or items. The assumption is that the factors are the underlying dimensions that the items are measuring, and any correlation between items is a result of their sharing a common factor. In this case, it is assumed that the 31 REP items are observable variables that together measure some more global dimensions (factors, which we will call visit-benefit factors) of benefits sought in visiting MORA. (See Appendices of MORA 1990 Visitor Survey for further discussion of factor analysis and treatment of missing data.)

The factor analysis results are displayed in Table F.1. Factor loadings are a measure of the degree to which a variable is related to a factor. Numbers greater than 0.50 indicate strong relationships. Twenty-eight of the REP items loaded on all factors. Three items were eliminated because their loadings were less than 0.50. The first visit-benefit factor, labeled 1 - Escape/Rest/Introspection, is composed of the first 9 items in Table F.1. Five additional factors were derived: 2 - Achievement/Risk Taking/Creativity, 3 - Nature/Learning/ Scenery, 4 - New People/Telling Others, 5 - Family, and 6 - Friends.

Six visit-benefit factor scales were created by taking the mean of a each respondent's rating (ranging from 1 for not important to 5 for extremely important) of the

items making up the six factors. The reliability of each scale (the degree to which each scale yields the same results over repeated uses) was calculated. Cronbach's alpha, a commonly used measure of reliability for which an alpha of .50 is considered the minimum acceptable level of reliability, was used. Factor one had an alpha of .89, factor two was .87. Alpha's of .75, .60, .83 and .68 were found for factors three through six, respectively. Each of these indicate good reliability.

TABLE F.1. PATTERN MATRIX OBTAINED FROM FACTOR ANALYSIS OF RECREATION EXPERIENCE PREFERENCE ITEMS

FACTOR 1: Escape/Rest/Introspection  
 FACTOR 2: Achievement/Risk taking/Creativity  
 FACTOR 3: Nature/Learning/Scenery  
 FACTOR 4: New people/Telling others  
 FACTOR 5: Family  
 FACTOR 6: Friends

| Item  | Factor          |      |      |      |      |      |
|---|-----------------|------|------|------|------|------|
|   | 1               | 2    | 3    | 4    | 5    | 6    |
|   | Factor Loadings |      |      |      |      |      |
| Experiencing tranquility                    | .77             | .17  | .25  | .06  | .03  | .09  |
| Getting away from demands of life           | .70             | .08  | .13  | .11  | .07  | .16  |
| Experiencing elbow room                     | .69             | .31  | .21  | .05  | .00  | .14  |
| Releasing/reducing tension                  | .69             | .23  | -.02 | .03  | .07  | .08  |
| Experiencing solitude                       | .68             | .28  | .19  | -.09 | .02  | -.03 |
| Relaxing physically                         | .65             | .02  | .17  | .21  | .18  | .05  |
| Thinking about personal values              | .60             | .31  | .11  | .30  | .10  | .07  |
| Being on your own                           | .59             | .42  | .11  | .04  | -.07 | -.14 |
| Growing and developing spiritually          | .54             | .30  | .19  | .20  | .12  | .12  |
| Developing your skills and abilities        | .15             | .76  | .11  | .00  | -.03 | .09  |
| Learning what you are capable of            | .27             | .76  | .13  | .22  | .05  | .08  |
| Gaining self confidence                     | .29             | .70  | .17  | .19  | .07  | .03  |
| Taking risks                                | .16             | .68  | .02  | .13  | -.09 | .11  |
| Using your equipment                        | .12             | .67  | .01  | .00  | -.03 | .05  |
| Being in control of things that happen      | .37             | .56  | .01  | .28  | .06  | .03  |
| Being creative                              | .33             | .55  | .16  | .27  | .12  | .06  |
| Experiencing new and different things       | .09             | .20  | .74  | .15  | .13  | .03  |
| Learning about nature                       | .23             | .21  | .71  | .17  | .12  | .02  |
| Viewing the scenery                         | .22             | -.11 | .67  | .08  | -.04 | .13  |
| Being close to nature                       | .44             | .12  | .61  | -.06 | .16  | .08  |
| Observing other people                      | .08             | .06  | .01  | .71  | -.03 | .03  |
| Talking to new people                       | .16             | .16  | .16  | .69  | .00  | .09  |
| Telling others about the trip               | .07             | .14  | .29  | .60  | .06  | .19  |
| Doing something with family                 | .07             | -.06 | .11  | .01  | .90  | .02  |
| Bringing family closer together             | .23             | .05  | .12  | .07  | .87  | .09  |
| Being with friends                          | .12             | .11  | .08  | .13  | .01  | .83  |
| Being with others who enjoy the same things | .13             | .15  | .12  | .16  | .10  | .78  |

## **Cluster Analysis and Formation of Market Segments**

Next, a cluster analysis was performed to identify groups of park visitors with similar importance scores on the six visit-benefit factors. Cluster analysis is a statistical technique that searches for homogeneous groups of objects or cases based on selected characteristics. Agglomerative hierarchical cluster analysis was used. The first step in this type of cluster analysis involves finding the two most similar cases, based on their visit-benefit factor scores, and combining them into a cluster. Next, the third case is either added to the first cluster, or combined with another case to form a second cluster. At each successive step, a case is either added to an existing cluster or clusters are combined to form new, larger clusters. (See Appendices of MORA 1990 Visitor Survey for further discussion of cluster analysis.)

Cluster analysis of the park visitors based on the six visit-benefit factors resulted in four segments. (A fifth cluster containing only one case was also found. That case was eliminated from further analysis). These clusters can be thought of as groups of people who have relatively homogeneous motives for visiting the Park. "Motives" for visitation are equivalent to the psychological outcomes (benefits) that are measured by the REP items. The mean scores on each factor for the four segments are presented in Table F.2. They range from 1.15 to 4.35 out of possible range of 1 for not important to 5 for extremely important.

The scores are discussed in the following section, which profiles each segment based on benefits sought in visiting MORA and other selected characteristics.



**TABLE F.2. CLUSTER ANALYSIS OF REP FACTORS: MEAN FACTOR SCORES AND NUMBER OF CASES FOR EACH SEGMENT**

| <u>Items</u>                         | Segment                  |      |      |      |
|--------------------------------------|--------------------------|------|------|------|
|                                      | 1                        | 2    | 3    | 4    |
|                                      | <u>Mean Factor Score</u> |      |      |      |
| Escape/ rest/ introspection          | 3.36                     | 1.71 | 2.63 | 3.94 |
| Achievement/ risk taking/ creativity | 2.34                     | 1.15 | 1.57 | 3.11 |
| Nature/ learning/ scenery            | 3.90                     | 2.87 | 3.74 | 4.36 |
| New people/ telling others           | 1.94                     | 1.36 | 1.73 | 2.63 |
| Family                               | 1.28                     | 1.35 | 3.65 | 4.12 |
| Friends                              | 3.17                     | 2.09 | 2.75 | 4.19 |
| Number of cases                      | 196                      | 248  | 972  | 160  |
| Percent of total sample              | 12%                      | 16%  | 62%  | 10%  |

### **Description of Market Segments**

We see from the fact that 62% of the sample is in cluster three that a large proportion of visitors have similar outcomes they hope to achieve in the process of the MORA visit. This group of people most importantly visit Mt. Rainier to experience nature, to learn and to view scenery. They also seek to share these outcomes in a familial context. These people rate achievement, risk taking, and creativity very low in importance. Meeting new people and telling others about the experience at MORA also rate low. These visitors are most likely to be married and accompanied by children; 83% of the visitors accompanied by children are in cluster three.

Cluster one includes 12% of the visitor sample. These people cite nature/learning/viewing scenery as their most important motives in the decision to visit the Park, and in this regard, are very similar to those in cluster three. The people in cluster one, however, rate escape/rest/introspection as much more important than those in cluster three. They seek to share these experiential outcomes with friends; motives pertaining to

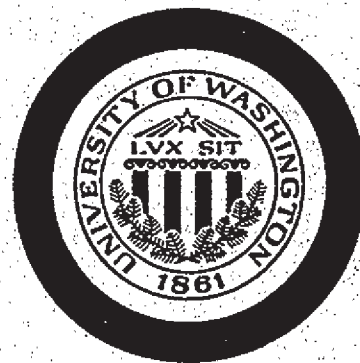
family interaction rate very low with this group. These visitors are most likely to visit the park alone, the least likely to have children, the highest educated, and the most likely to be local residents. Almost all technical mountain climbers in the sample were either in cluster one or four.

Cluster two is comprised of 16% of the respondents. The most striking thing about these people is that compared to the other clusters, they don't rate any outcome for visiting the park very high. The highest rated factor was nature/learning/scenery but even this was significantly lower than the other three clusters. All other psychological outcomes were rated relatively low. These visitors are most likely to be from outside the state of Washington, more likely to be over 60 and retired, more likely to be on their first visit, and on average stay in the park for a shorter period of time. Seventy-six percent of this group stay in the park less than six hours.

Cluster four (10% of the visitor sample) is the logical opposite of cluster two. These people on average rate each of the motive categories higher than their counterparts in other clusters. Apparently, these visitors have multiple objectives in visiting Mt. Rainier. The lowest motive category rating for this group is meeting new people and telling others about the experience but even this score is higher than that received by the other clusters. These people were least likely to be on their first visit, and less educated than the people from other clusters

In summary, we see that members of each cluster rate nature/learning/ scenery higher than the other categories. This is a primary motivation for park visitation that runs across all four visitor groups. The groups are distinguished by: (1) the generally

indifferent attitudes of those in cluster two; (2) the multiplicity of relatively high ratings across all of the motive categories by those in cluster four (compared to the other clusters in which one to three factors dominate the importance scores); (3) the low importance of family interaction and the relatively high importance of escape/rest/introspection in cluster one and (4) the paired importance of nature/learning/scenery and family interaction to segment three respondents.



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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environment and cultural values of our national parks and historical places, and providing for enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interest of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under US administration.