



Lakes Basin Special Study

“2000 Visitor Characteristics and Service Quality of the Mammoth Lakes Basin” - Erin Ross

“The purpose of the study was to determine the characteristics of visitors and visitors' satisfaction with service quality at the Mammoth Lakes Basin. The review of literature consisted of visitors' personal and behavioral characteristics, and service quality. Visitors were contacted on every Wednesday and Saturday during the months of July and August. Participants completed a 4-page questionnaire, which was collected later that day. It was found that most visitors were from Southern California, women visitors outnumbered male visitors, the average age was 43.03 years, and visitors have a higher level of education. Most visitors participate in various day hikes and have visited the area before. It was found that visitors are satisfied with the service provided by the Forest Service. It is recommended that the Forest Service maintain the same service quality and continue to improve upon it. However, further research is needed before additional services such as a free shuttle are implemented.”

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VISITOR CHARACTERISTICS AND SERVICE QUALITY
OF THE MAMMOTH LAKES BASIN

by

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of the Mammoth Lakes Basin

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ABSTRACT

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OF THE MAMMOTH LAKES BASIN

ERIN ROSS

DECEMBER, 2000

The purpose of the study was to determine the characteristics of visitors and visitors' satisfaction with service quality at the Mammoth Lakes Basin. The review of literature consisted of visitors' personal and behavioral characteristics, and service quality. Visitors were contacted on every Wednesday and Saturday during the months of July and August. Participants completed a 4-page questionnaire, which was collected later that day. It was found that most visitors were from Southern California, women visitors outnumbered male visitors, the average age was 43.03 years, and visitors have a higher level of education. Most visitors participate in various day hikes and have visited the area before. It was found that visitors are satisfied with the service provided by the Forest Service. It is recommended that the Forest Service maintain the same service quality and continue to improve upon it. However, further research is needed before additional services such as a free shuttle are implemented.

Keywords: outdoor recreation, visitor characteristics, service quality, Forest Service

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Chapter 1

INTRODUCTION AND REVIEW OF LITERATURE

Background of the Study

Outdoor adventure and wilderness exploration have been, and continue to be, favorite pursuits of Americans. This interest in the outdoors stems from a rich history of exploring the wilderness. The wilderness offers visitors an opportunity to enjoy nature, meet physical demands, and take risks. Visitors also gain independence, introspection, and a sense of achievement.

In 1907, Theodore Roosevelt proclaimed the Inyo National Forest for the purpose of protecting the land to build the Los Angeles aquaduct. However, after WWII the Inyo Forest became well known for outdoor recreation. Mammoth Lakes located in the Inyo Forest, and the Lakes Basin is located just above the town of Mammoth Lakes. The basin consists of several chains of lakes at the base of Red Mountain and Mammoth Crest. Lakes located in the basin include Lake George, Lake Mary, Lake Mamie, and Twin Lakes.

The first road to the Lakes Basin was built in the 1920s. This road allowed for accommodations and services in the Lakes Basin. Lake George, which overlooks Crystal Crag, has cabins and boat rentals for visitors. Lake Mary is one of the largest lakes in the basin. At Lake Mary, tent rentals are offered and a small market is accessible to guests. Lake Mamie was a splendid resort known as Wildyrie that overlooked Twin Lakes. The lowest lakes in the basin are Twin Lakes where Tamarack Lodge was established and operated for fishermen.

Today, the Inyo Forest is one of the most intensely used forests in the nation and the Lakes Basin is considered a concentrated recreation area of the forest. The primary resource value for the forest is recreation and it is expected to continue into the future (Zinser, 1995). The majority of its users travel six to eight hours from Southern California. Visitors come during the summer to see outstanding scenery, the mountain environment, enjoy the cool weather, trout fishing, and a variety of other recreational opportunities.

In order to accommodate the increasing number of visitors to the Inyo Forest, the Forest Service has invested in additional programs and facilities. This began with America's Great Outdoor Initiative, which was developed to restore and improve outdoor recreation opportunities in the national forests. Some future goals include managing increasing recreation opportunities, managing dispersed summer and winter recreation, and increasing the wilderness land base (Zinser, 1995). This has lead the Inyo Forest to encourage more dispersed use rather than construct more developed sites. Designated areas of conservation education and interpretation can provide information services to meet the increased urban-based population.

In the summer of 1999, the Forest Service conducted a visitor survey to determine user characteristics at the Lakes Basin. Visitors were stopped at the entrance of the Lakes Basin and asked to participate in the brief study. This study proved to be useful, however it did not reveal enough information. The Forest Service would like to conduct a more in-depth study that would extend over the summer to give the Forest Service more useful demographics of those using the area. The results of the survey would give the Forest

Service a better idea of the types of information and education programs to offer in Mammoth Lakes Basin.

Review of Literature

Research for this literature review was conducted at Cal Poly's Robert E. Kennedy Library. Information was gathered from books, journal articles, research papers, and online sources on the following topics: visitor characteristics and service quality.

Visitor characteristics. Numerous studies have been conducted to determine characteristics of wilderness users. This information on users is useful for planning and designing recreation facilities. This section will present the findings of studies that addressed personal characteristics, behavior characteristics, and activities of visitors.

Research has identified common personal characteristics among visitors. These personal characteristics include basic demographic information. The following personal characteristics: residence, gender, age, and education level were examined to help identify visitors.

Visitor residence is one personal characteristic to help identify who is using the wilderness. Lucas (1989) explained that visitors do not typically travel far to visit the wilderness. However, Watson (1993) found that 80% of visitors live more than 50 miles from the wilderness and only 10% live within 20 miles of the wilderness. Lucas (1980) found in his study, that 45% to 90% of visitors lived in urban areas. However, most visitors were from small-to medium sized cities, rather than large metropolitan areas. He believed that this "movement reflects a general rural-to-urban movement that has existed for generations" (p. 46). In a later study, Lucas (1989) found that most visitors are from

urban areas. He explained that “urban visitors depended largely on the degree of nearby urbanization” (Lucas, 1989, p. 49). Hendon also found that most wilderness visitors were from suburban and semirural areas (Hendon, 1991). He explained that, “There are more wilderness users who do not live in metropolitan areas than in the Central Cities” (Hendon, 1991, p. 107).

A second personal characteristic among visitors is gender. When analyzing gender, it was found that a majority of visitors were male (Lucas, 1980). Lucas (1980) explained that “males made up 70% to 80% of visitors to the areas studied” (p. 48). In both, Hendon’s (1991) and Lucas’s (1980) studies of personal characteristics, males tended to use the wilderness more. Hendon found that males outnumbered females by 46.8% to 53.2%. Although both studies found males to be the most common visitors, recent trends indicate that more females are using wilderness areas (Lucas, 1989). Lucas’s (1989) later study indicated that about a fourth of all visitors were female. Hendon’s study indicated that female participation was up from Lucas’s most recent study.

Age was another personal characteristic looked at to determine who uses the wilderness. Watson (1993) discovered that 20% to 25% of visitors are students. Lucas (1980) also found that visitors are generally in their early 20s and 30s, but he also found that people between the ages of 35 to 54 are equally represented. Although the population is growing older, the age of visitors has not changed over time. Lucas (1989) illustrated this in his second study on visitor characteristics. Once again, he found that “visitors tended to be younger than the general population” (Lucas, 1989, p. 48), and there appeared to be as many older adults between the ages of 26 to 45 (Lucas, 1989).

Roggenbuck and Lucas, and Stankey suggested that visitors who visit areas such as national forests, national parks, and the wilderness tend to be younger to middle age (as cited in Manning, 1999).

The fourth and most distinguishing personal characteristic of wilderness visitors was education level. “A fourth to half of all visitors were college graduates” (Lucas, 1980, p. 50). In general wilderness visitors have a higher education level. Hendon (1991) also found that most wilderness visitors had a higher education level than non-visitors to the wilderness. Although Watson’s (1993) study was slightly different than both Lucas (1980) and Hendon, he found that education level played a role in who purchased a wilderness permit. Education levels were higher for visitors who obtained permits (Watson, 1993).

In addition to personal characteristics, behavioral characteristics help identify wilderness visitors. Behavioral characteristics include length of stay, and prior experience.

Length of stay is a behavior characteristic that helped identify how long the wilderness visitor stays. “Most wilderness visits are short, and many smaller wilderness areas are mainly day-use areas” (Lucas, 1989, p. 43). The typical visitor enters and leaves the wilderness on the same day. Other studies have indicated that overall wilderness and backcountry visits have declined, but total day use is likely to increase (Roggenbuck, Marion, & Manning, 1994). However, there is very little known about the characteristic of day users. With the growing number of day users, more research needs to be conducted.

Another behavioral characteristic is prior experience. One way to determine experience is to ask visitors about the number of years since their first visit to that wilderness area and total visits they have made (Watson & Cronn, 1994). According to Lucas (1980) “Most visitors to all areas have considerable previous experience” (p. 54). From 73% to 89% of visitors had visited wilderness type areas before. “Typically, visitors make three or four wilderness visits per year and spend 6 to 10 days in the wilderness” (Lucas, 1980, p. 54). While a majority of visitors had been to an area many times, Watson and Cronn (1994) discovered that as few as one-sixth to as many as two thirds of visitors were visiting a particular area for the first time. With this information they believed that more experienced visitors perceptions of social and resources problems could be helpful in the type information to provide to visitors to influence desired visitor behavior.

Finally, research has determined common activities that visitors participate in while in the wilderness. In 1994, a nationwide survey was conducted to determine which activities visitors participate in the wilderness. The survey indicated that the top three activities were picnicking, sightseeing, walking and jogging (Manning, 1999). A study was also conducted to determine outdoor recreation participation profiles (Public Area Recreation Visitor Study, as cited in Kraus, 1994). The study found the top three activities to be walking for pleasure, driving for pleasure, and swimming in the outdoors. Wight’s (1996) study compared ecotourist to consumers, which also indicated that ecotourists are looking for trips that include hiking in a wilderness setting.

Service quality. Manning (1999) explained that indicators of quality are receiving increased attention in outdoor recreation literature. Research has examined variables

important to visitors in defining the quality of a recreation experience (Manning, 1999).

This section will present findings related to the challenges of meeting visitor demand, the importance of service quality, and how to measure service quality.

Today wilderness professionals are finding it harder to meet visitor demands and maintain the natural character of the wilderness. To deal with this challenge of customer service, Manning (1999) suggested a formulation of management objectives and associated indicators. He explained management objectives as broad, narrative statements defining the type of visitor experience provided. Indicators are more specific, measurable variables reflecting the meaning of the objective. Virden and Brooks (1991) “wanted to examine how wilderness managers provided a natural, primitive character of the wilderness and provide recreational opportunity” (p. 71). Their study found that “both philosophy and experience variables exhibit significant linkages with some of the wilderness management practices” (Virden & Brooks, 1991, p. 83).

Measuring service quality allows organizations to improve their service. According to Wright, Duray and Goodale (1992), “in order to improve service quality an organization must first assess customers perceptions of existing quality” (p. 34). It can be difficult to make changes without feedback from the users. The only way for management to know if it is meeting the service expectations of customers is to measure customers’ perceptions of service quality (Wright, et al., 1992).

SERQUAL is one instrument used to measure service quality. It is a 22-item instrument based on a comparison between expectations of a service and what is actually received. Parasuraman, Zeithmal, and Berry have done extensive research on service quality and have been responsible for the development of the SERQUAL instrument (as

cited in Wright, et al., 1990) Their research confirmed that consumers assess service quality by comparing perceived service performance with what was expected or desired. The researchers grouped the 22 item SERQUAL instrument into the following five criteria:

1. Tangible: physical facilities, equipment, and appearance of personnel;
2. Reliability: the ability to perform the promised service dependably and accurately;
3. Responsiveness: willingness to help customers and provide prompt service;
4. Assurance: knowledge and courtesy of employees and their ability to convey trust and confidence; and
5. Empathy: caring individualized attention the firm provides its customers.

SERQUAL was designed for use across a wide spectrum of services. It has been criticized as too generic to provide specific information. Managers are encouraged to use a variety of methods to monitor service quality.

Augustyn and Ho (1998) discussed the associated gap analysis of the SERQUAL model. The associated gap analysis, “is used to illustrate how tourism-related organizations can improve their service quality” (p. 75). They identified two important gaps in the tourism industry, the quality perception gap and the delivery of service gap. The quality perception gap and the delivery of service gap investigated the discrepancies or gaps in the consumer-supplier chain to highlight target areas where quality might be involved (Augustyn & Ho, 1998). These gaps can be expanded into the following five gaps of the SERQUAL model.

1. Between customers' expectations and management's perceptions of customers' expectations
2. Between management's perceptions of customers' expectations and service quality specifications
3. Between service quality specifications and service delivery
4. Between service delivery and external communications to customers
5. Between customers expectations and perceived service.

Although the gap analysis has proved to be a valuable tool for measuring service quality, "the gap model is still being tested and refined" (Absher, 1997, p. 32). Fornell and Spreng, Mackenzie, and Olshavsky suggested additional "global desires" or "ideal standards" to determine expectation and affect of satisfaction (as cited in Absher, 1998, p. 32). Patterns, Johnson, and Spreng added "fairness or equity construct that acts separately from expectations as a mediating factor between experiential evaluation and satisfaction" (as cited in Absher, 1998, p. 32). However, the gap model has generally been accepted.

In 1996, the USDA Forest Service began a customer service initiative. Absher (1998) suggested that the gap analysis could be applied to this initiative. He explained that a wide range of leisure settings and customer service research has direct application to Forest Service recreation. Absher (1998) "recommended that the Forest Service assess 22 separate recreation experiences, grouped in three domains" (p. 31). These domains included facilities, services, and information. The study showed that wilderness visitors rated the USDA Forest service highly. This could be because the USDA Forest Service is doing a good job providing recreation to a particular section of Southern California.

The results of the study could have been different depending on the user groups. In the future, wilderness managers will need “a range of information to respond to current and future wilderness planning needs” (Watson & Williams, 1995, p. 14).

Summary. A review of literature was conducted on characteristics of visitors and service quality. A better understanding was achieved about visitors’ personal and behavioral characteristics and activities that take place in the wilderness. This information would allow wilderness managers to better plan for the future. The SERQUAL instrument compared visitors’ perceptions and expectations of service. The gap analysis provided information on the most common causes of dissatisfaction. By understanding visitor characteristics, wilderness professionals have a better idea of who they are serving, which gives management the opportunity to provide quality service.

Purpose of the Study

The purpose of this study was to determine the characteristics of visitors and service quality at the Mammoth Lakes Basin.

Research Questions

This study attempted to answer the following research questions:

1. What are visitors’ personal characteristics?
2. What are visitors’ behavioral characteristics?
3. Are visitors to the Lakes Basin satisfied with the quality of service provided by the Forest Service?

Delimitations

This study was delimited to the following parameters:

1. Subjects for the study consisted of visitors to the Mammoth Lakes Basin during the summer of 2000.
2. The variables measured were service quality provided by the Forest Service and visitors characteristics.
3. Questionnaires were used to determine visitor characteristics and service quality.

Limitations

This study was limited by the following factors:

1. The instrument was not tested for validity or reliability.
2. There was a chance that visitors did not speak English.
3. The weather conditions influenced visitors willingness to participate in the study.

Assumptions

This study was based on the following assumptions:

1. Participants answered the questionnaire honestly and to the best of their ability.
2. That the researcher's presence would not influence the responses.

Definitions of Terms

The following terms are defined as used in this study:

Characteristics. A distinguishing attribute (American Heritage Dictionary, 1994, p.148)

Service quality. The outcome of a comparison between expectations of a service and what is perceived to be received (Wright, et al., 1992, p. 35).

Visitors. Lakes Basin users during the summer of 2000.

Chapter 2

METHODS AND PROCEDURES

The purpose of the study was to determine the characteristics of visitors and visitors' satisfaction with service quality at the Mammoth Lakes Basin. This chapter provides a description of the subjects, the instrument, the procedures, and the method of data analysis.

Description of Subjects

The subjects of the study were visitors to the Mammoth Lakes Basin from July through August 2000. The primary visitation period at the Lakes Basin is during the summer months. Visits to the area vary daily in duration and length of stay. Demographically, visitors mainly consisted of local residents or Northern and Southern California residents.

Subjects were randomly selected by their location in the Lakes Basin. The primary locations in the Lakes Basin are Twin Lakes, Lake Mary, Lake Mamie, Lake George, and Horseshoe Lake. Visitors were asked to complete a short questionnaire to determine visitor characteristics and service quality satisfaction. The subjects were randomly contacted in groups by location during the months of July and August.

Description of Instrument

Subjects were asked to complete a 20-item questionnaire. A copy of the questionnaire used in this study is included in the Appendix. The questionnaire was

designed to determine visitors' characteristics and visitors' satisfaction with service quality. The questionnaire was divided into four sections: (a) visitors' behavioral characteristics; (b) visitors' satisfaction with service quality, (c) visitors' personal characteristics, and (d) general recommendations regarding service and comments about personal experiences.

The first eight questions were designed to determine visitors' behavioral characteristics. The first question asked subjects to specify their favorite location in the Lakes Basin. Subjects were also asked about previous visits to the Lakes Basin, the number of visits to the area in the last year, and the total number of visits planned for the summer. Next, subjects were asked to indicate their length of stay in the Lakes Basin. The range of stay was from less than one hour to an overnight trip. If subjects stayed overnight, they were asked to state how many nights. Subjects were also asked about other accommodations used during their visit. If subjects stayed outside the Lakes Basin, they were asked to check alternative accommodations that applied during their visit. The last questions in this section asked visitors about using alternative transportation to get around the Lakes Basin. This would include using a free shuttle to reduce traffic if parking was limited.

The second section of the questionnaire was designed to determine visitors' satisfaction with service quality in the Lakes Basin. Question six was based on the SERQUAL method developed by Zeithaml, Parasuraman, and Berry (1990). A rating scale was used to measure subjects' satisfaction with different service attributes provided by the Forest Service. The rating scale was based on a 1-5 scale with five being extremely satisfied and one being extremely dissatisfied.

The third section of the questionnaire addressed personal characteristics. Items 7 through 15 were closed-ended items designed to obtain demographic information about subjects. Subjects were asked questions regarding their gender, age, ethnic origin, residence, education level, group type, income level, and activities.

The final section asked three open-ended questions regarding visitors' input about additional programs and information to provide in the area. Subjects were also asked to share their most memorable experience during a trip or trips to the Lakes Basin.

Description of Procedures

Inyo Forest Service employees, Debbie Nelson and Sandi Hogan, gave permission to conduct the survey. Before the survey was administered, Mrs. Hogan asked the City Planner and the Director of Parks and Recreation of Mammoth Lakes what additional information should be included in the questionnaire. Additions and corrections were made and the instrument was finalized.

In order to give all visitors an equal chance to participate in the survey, a simple random sample of 15 days in the Lakes Basin was conducted. The questionnaires were distributed during every Wednesday and Saturday in July and August. The Lakes Basin consisted of five different sites, which included Twin Lakes, Lake Mary, Lake George, Lake Mamie, and Horseshoe Lake. Microsoft Excel was used to randomly select location in the Lakes Basin.

Subjects were randomly selected by their location in the Lakes Basin. Each subject was asked to participate in an anonymous 10-minute questionnaire regarding visitors' characteristics and their satisfaction with service quality provided by the Forest

Service. One questionnaire was handed to each subject at their campsite or nearby recreation facilities. Subjects were also given a clipboard and a pencil. The researcher and assistant left the questionnaire with the subjects to be completed. Subjects were asked to leave the survey at their campsite and the researcher returned 30 minutes later to collect the completed questionnaire. The researchers took the questionnaires and placed them in a large envelope.

Method of Data Analysis

The contents of the questionnaire were designed to evaluate and answer three research questions. The first research question examined visitors behavioral characteristics. The second research question measured visitors' satisfaction with the service quality provided by the Forest Service. The third question addressed visitors' personal characteristics.

Questions 1 through 8 examined behavioral characteristics. A mean score was tabulated to determine the average number of trips per year and the average number of future trips for the summer. Length of stay in the Lakes Basin was tabulated according to frequency and percentage. A mean score was tabulated for number of nights for overnight trips. For further analysis, a cross tabulation between favorite site and length of stay was tabulated to determine the percentage of stay at each site. Subjects were also asked to select any alternative accommodations in Mammoth other than the Lakes Basin. Data were tabulated according to frequency and percentage. The final questions in this section asked subjects if they would be willing to use a free shuttle to get around the Lakes Basin. These data were tabulated according to frequency and percentage.

Satisfaction with service quality was measured with a 5 point Likert-type scale. For each service attribute, a mean score was calculated and then an overall mean score was calculated to determine satisfaction. Comments on additional programs and information to provide in the Lakes Basin were tabulated by enumeration. After reviewing each questionnaire, similar responses from these open-ended questions were identified and placed into categories.

Visitors' personal characteristics were attained regarding gender, age, ethnic origin, residence, education level, type of group, income level, and activities. All except age were tabulated according to frequency and percentage. A mean score was calculated to determine the average age of subjects who visit the Lakes Basin.

Chapter 3

PRESENTATION OF THE RESULTS

The purpose of the study was to determine the characteristics of visitors and visitors' satisfaction with service quality at the Mammoth Lakes Basin. Data collection was conducted every Wednesday and Saturday during the months of July and August. The town of Mammoth Lakes recorded 49,057 visitors during these months, and a total of 150 visitors participated in this study.

Visitors' Behavioral Characteristics

Items 1 through 8 on the questionnaire were designed to determine the behavioral characteristics of visitors at the Lakes Basin. Visitors were asked to indicate their favorite lake to visit in the Lakes Basin (refer to Table 1). Sixty-one (40.67%) visitors indicated that Lake Mary was their favorite lake to visit. Only one (0.67%) visitor responded that Horseshoe Lake was their favorite lake to visit.

Table 1

Favorite Lakes to Visit in the Lakes Basin

<u>Favorite Location</u>	<u>#</u>	<u>%</u>
Twin Lakes	41	27.33
Lake Mary	61	40.67
Lake Maime	6	4.00
Lake George	31	20.67
Horseshoe	1	0.67

Visitors were asked to indicate if this was their first visit to the Lakes Basin. Forty-six (30.67%) visitors were new to the area while, 104 (69.33%) visitors had visited the area before. Of those repeat visitors, the average trips per year were 2.3 trips, and on average visitors planned to take 1.15 more trips to the Lakes Basin during the summer.

Question 5, asked visitors to indicate their length of stay in the Lakes Basin. The range of stay was from less than one hour to an overnight trip (refer to Table 2). One hundred and sixteen (77.33%) visitors stayed overnight. Only one (0.67%) visitor planned to stay 7 to 12 hours. If subjects stayed overnight, they were asked to state how many nights. The number of nights ranged from 1 to 14 and the average overnight stay was 4.21 nights.

Table 2
Visitors Length of Stay at the Lakes Basin

<u>Length of Stay</u>	<u>#</u>	<u>%</u>
Less than an hour	3	2.00
1 to 3 hours	18	12.00
4 to 6 hours	8	5.33
7 to 12 hours	1	0.67
More than 12 hours, but overnight	4	2.67
Overnight	116	77.33

In addition to length of stay, visitors were asked if they stayed in any other locations overnight in Mammoth other than the Lakes Basin or a residence during their visit. One hundred and two (68.00%) visitors stayed only in the Lakes Basin during their

visit to Mammoth. If visitors stayed outside the Lakes Basin, they were asked to check alternative accommodations that applied during their visit. For other alternative accommodations selected, refer to Table 3. Thirty-two percent of visitors checked “yes”, which indicated that they had stayed in other locations. The most popular response checked (12.67%) was other location. These locations included condos, motels, and hotels.

Table 3

Other Locations Visited During Trip

Locations	#	%
Campsites	11	7.33
Resorts	12	8.00
With Family/Friends	7	4.67
Other	19	12.67

Finally, visitors were asked to consider using a free shuttle bus to get around the Lakes Basin if adequate parking was no longer available or cost money. Seventy-five (50.00%) visitors would not be willing to use a free shuttle bus to get around the Lakes Basin. Visitors were also asked, if they would consider using a free shuttle to avoid looking for parking. Fifty-four (36.00%) visitors would consider using a free shuttle bus to avoid looking for parking.

Visitors' Satisfaction with Service Quality

Question 9, instructed visitors to indicate, on a scale of 1 to 5 (1=extremely dissatisfied, 2= somewhat satisfied, 3=satisfied, 4=very satisfied, and 5= extremely satisfied), their level satisfaction with certain service attributes provided by the Forest Service (refer to Table 4). Visitors were most satisfied with the cleanliness of the facilities, with a mean score of 4.11. They were also satisfied with the maintenance of the campgrounds (4.02). Visitors were most dissatisfied with the availability of parking (3.13).

Table 4

Visitor's Satisfaction with Services Attributes

<u>Service Attributes</u>	<u>Mean</u>
Cleanliness of facilities	4.11
Availability of information	4.02
Maintenance of facilities	4.02
Physical facilities were visually appealing	4.00
Employees willingness to help visitors	3.87
Frequency of trash removal	3.75
Quality of information	3.59
Access of information	3.59
Employees knowledge about the area	3.53
Employees' understanding of visitors needs	3.48
Availability of parking	3.13

Visitors' Personal Characteristics

The third section of the questionnaire addressed demographic information about visitors. The gender breakdown of who completed the questionnaire is as follows: 66 (44.00%) visitors were male and 83 (55.33%) visitors were female. Visitors' ages ranged from 15 to 66 years old with a mean age of 43. Visitors were also asked to identify their ethnic origin. One hundred and twenty (80.00%) visitors checked Anglo, and only one (0.67%) visitor checked African American (refer to Table 5).

Table 5
Ethnic Origins of Visitors to the Lakes Basin

<u>Ethnic Origin</u>	<u>#</u>	<u>%</u>
Anglo	120	80.00
Asian	10	6.67
African American	1	0.67
Hispanic	11	7.33
Other	2	1.33

To determine residency, visitors from California were asked in which county they permanently resided (refer to Table 6). Non-California visitors were asked the state or country of principle residence. A majority of visitors were from Southern California, with 21 (14.00%) visitors from Los Angeles and with 16 (10.67%) visitors from Orange County.

Table 7 refers to the visitors' level of education. The most frequent response, with 58 (38.67%) visitors, was some college. The next most common response, with 34 (22.67%), was visitors who completed a 4-year college degree.

Table 6

Location of Permanent Residence

Residence	#	%
Los Angeles	21	14.00
Orange County	16	10.67
San Diego	10	6.67
Venture	8	5.33
Riverside	7	4.67
Nevada	7	4.67
Kern	5	3.33
San Bernardino	4	2.67
Mariposa	2	1.33
Mono	3	2.00
Santa Barbara	1	0.67
Santa Clara	1	0.67
Colorado	1	0.67
France	1	0.67
Cambria	1	0.67
Tuolumne	1	0.67
Utah	1	0.67
Italy	1	0.67
Hawaii	1	0.67
Texas	1	0.67
Placier	1	0.67
Arizona	1	0.67
Marion	1	0.67
Albania	1	0.67
Oregon	1	0.67

Table 7

Highest Level of Education

Education	#	%
Completed grade school	0	0.00
Some high school	4	2.67
Completed high school	17	11.33
Some college	58	38.67
Completed 4-year college degree	34	22.67
Some graduate work	12	8.00
Completed graduate work	20	13.33

To determine group type, visitors were asked to indicate which type of group best describes their group. Visitors could choose from family members to commercial tours (see Table 8). The most popular response was family members with a total of 76 (50.67%) visitors. The second most popular response was with family and friends with a total of 47 (31.33%) visitors. The range of group size was 1 to 45 and the average group size was 6.02.

Table 9 refers to annual household income. The most frequent level of income, with 34 (22.67%) visitors, was \$100,000 or greater. Thirteen (8.67%) visitors indicated an income level between \$60,000 to \$69,000 and \$70,000 to 79,999.

Visitors were also asked to check all activities they participated in during their visit to the Lakes Basin. Activities included a wide spectrum from walking for pleasure to running and jogging (refer to Table 10). The most frequent activity, with 109 (72.67%) visitors was walking for pleasure. The second most popular activity, with 104 visitors

(69.33%) was fishing. If visitors indicated day hiking as an activity, they were asked to indicate which day hikes they took during their stay (refer to Table 11). Twenty-three (15.33%) visitors hiked to Crystal Lake and 19 (12.67%) visitors indicated other day hikes. These included hikes to Duck Lake, Reds Meadow, Skelton Lake, Emerald Lake, Heart Lake, Panorama Dome, and Mammoth Crest.

Table 8

Description of Visitor Group

<u>Type of Group</u>	<u>#</u>	<u>%</u>
Family member	76	50.67
Family and friends	47	31.33
Friends	10	6.67
By yourself	6	4.00
Club or organization	2	1.33
School or study group	0	0.00
Commercial tour	0	0.00
Other	1	0.67

Table 9

Annual Household Income

<u>Income Level</u>	<u>#</u>	<u>%</u>
Less than \$10,000	7	4.67
\$10,000 to \$19,000	6	4.00
\$20,000 to \$29,999	4	2.67
\$30,000 to \$39,999	12	8.00
\$40,000 to \$49,999	8	5.33
\$50,000 to \$59,999	10	6.67
\$60,000 to \$69,999	13	8.67
\$70,000 to \$79,999	13	8.67
\$80,000 to \$89,999	6	4.00
\$90,000 to \$99,999	8	5.33
\$100,000 or greater	34	22.67

Table 10

Activities Participated in During Visit to Lakes Basin

Activities	#	%
Walking for pleasure	109	72.67
Sightseeing	93	62.00
Picnicking	55	36.67
Driving	62	41.33
Birdwatching	14	9.33
In-line skating	7	4.67
Camping	92	61.33
Day hiking	81	54.00
Horseback riding	20	13.33
Backpacking	17	11.33
Mountain Biking	26	17.33
Canoeing	23	15.33
Photography	52	34.67
Fishing	104	69.33
Rafting	0	0.00
Running/Jogging	12	8.00

Table 11

Day Hikes Taken in the Lakes Basin

<u>Day Hikes</u>	<u>#</u>	<u>%</u>
Crystal Lake	23	15.33
Mcleod Lake	11	7.33
T.J. Lake	15	10.00
Barrett Lake	12	8.00
Other	19	12.67

General Recommendations/Comments about Personal Experiences

The last section of the questionnaire allowed for visitors to comment on additional recreation activities, programs and information to provide in the area. Visitors were also asked to share their most memorable experiences. The data from these questions were reviewed and divided into categories. These categories included additional recreation activities, improvements, and what visitors enjoyed most about their visit.

Comments regarding additional Recreation Activities:

- Single track trails for mountain bikes
- Swimming
- Paragliding
- Bungy jumping
- Kayak rentals
- Canoe rentals
- Power Boats, wave runners

- Tennis courts, volleyball facilities
- Horse shoe pits
- Jet and water skiing

Comments to improve the area:

- Reservations
 - “More information on the web about campgrounds and vacancy”
 - “Camp site reservation system”
 - “I wish you took reservation”
- Information
 - “Better directional signs and maps”
 - “Better signs indicating when lakes have been stocked”
 - “Maps to tell us what to do and where to go”
 - “More information posted regarding geologic history of specific areas, recommend a self guided tour”
 - “A centralized information center”
 - “Ranger talks”
- Showers
 - “Quality of showers could be improved”
 - “More showers”
 - “Pay showers would be nice”
 - “Showers in bathrooms”
 - “Free showers facilities”

- Hook ups
 - “More water spouts close to the campsite”
 - “R.V. hook ups”
- Crowds
 - “Getting too crowded up here”
 - “More parking”
- Campgrounds
 - “Larger parking spaces for R.V.s”
 - “Larger campsites”
 - “More campsites”
- Bears
 - “Institute the same bear policies as in Yosemite”
 - “Bear boxes so we wouldn’t have to transport all our food”
- Camp hosts
 - “Camp hosts at Lake Mary were rude and enforcing silly rules”
 - “New camp hosts”
 - “Camp hosts with a better understanding of their campers”
 - “A much more pleasant camp host”
 - “The camp host could have a better attitude”

Comments on most enjoyed aspects of the visit

- “We enjoyed in general everything- the natural beauty of the high sierras”
- “Enjoyed the beauty of the lakes”
- “Proximity to town for food and a variety of hikes”

“ Enjoyed the fresh air, blue sky, and pine trees”

“I came to enjoy the natural atmosphere, and I got it”

“Quiet campground”

“Clean and peaceful”

“Enjoyed fishing and bike riding”

“The opportunity to fish and relax out of the city race”

“Fishing is great”

“Weather, views, fishing, and people”

“Fishing was great at Lake Mary and amenities are convenient”

Chapter 4

DISCUSSION AND CONCLUSIONS

Summary

The purpose of this study was to determine the characteristics of visitors and visitors' satisfaction with service quality at the Mammoth Lakes Basin. This study took place during July and August of 2000. Both day use visitors and overnight visitors were asked to participate in the study.

The Inyo National Forest is one of the most intensely used forests in the nation. With the increasing number of visitors to the area, the Forest Service has begun to invest in additional programs and facilities. Previous studies conducted in the Lakes Basin to determine visitors' characteristics, but did not reveal adequate information. The results from this study will give the Forest Service the opportunity to better understand who uses the area, and what needs improvement. This will assist management in determining the types of information and educational programs to offer in the area.

The major topics reviewed in this study were visitors' personal and behavior characteristics, and service quality. As a result of the literature review on visitors' personal and behavioral characteristics, it was found that visitors are from urban areas, a majority of visitors are male, but female participation in the wilderness has increased. In general, visitors are younger, and have a higher education level than non-users. Behavioral characteristics include their length of stay and prior experience in a wilderness environment. Most visitors have visited a wilderness area before. The most popular activities for visitors include walking for pleasure, swimming, sightseeing, and picnicking.

Because of the growing number of people visiting the outdoors, wilderness managers must determine what they do well and what needs to be improved. It was found that wilderness managers have to provide a balance between maintaining a natural primitive areas and providing recreational opportunities. There are two basic techniques wilderness managers can use to determine visitors' satisfaction with service quality. These two methods include the SERQUAL instrument and gap analysis. The SERQUAL instrument is based on a comparison between expectations of service and what was actually received. The gap analysis identifies the gaps between the consumer-supplier chain to highlight areas where quality might be involved.

Data were collected on every Wednesday and Saturday during July and August. The researcher asked visitors if they would be interested in participating in the study. Throughout the months of July and August, a total of 150 visitors completed the 4-page questionnaire. It was found that 55.33% of visitors were female, 77.33% of visitors stayed overnight in the Lakes Basin, 24.67% of visitors were from Southern California, and visitors were most satisfied with the cleanliness of facilities.

Discussion

The first research question to be answered for this study was what are visitors' personal characteristics. From the literature review, the typical wilderness user would be described as the following: younger, male, and from urban areas that have a higher level of education. The results from the study showed that most visitors are from Southern California. People living in Southern California have a direct route to the area. These findings are consistent with Lucas (1980) study showing that 45% to 90% of visitors lived

in urban areas. In general, visitors spend 5-7 hours in travel time, indicating that most visitors lived more than 50 miles from the Lakes Basin. Women visitors outnumbered male visitors by 11.33%. These findings would support the recent trend of increased use by females in wilderness. The average age of visitors was 43.03. These results suggest that visitors are getting older. Previous studies have found that visitors tend to be younger, but all ages are equally represented. Finally, the most distinguishing characteristics of visitors was level of education. Fifty-eight visitors had some college and 34 visitors had completed a 4-year degree. These findings appear to be consistent with the literature review.

The second research question to be answered for this study was what are visitors' behavioral characteristics? Previous studies have shown that visitors are spending less time in the wilderness and the amount of day use has increased. The results from the study indicate that the majority of visitors plan to stay overnight in the Lakes Basin. However, visitors participate in various day hikes that take them into the wilderness and return to their campsite later that afternoon. Hikes that visitors take into the wilderness include hikes to Duck Lake, Crystal Lake, McLeod Lake, and Mammoth Crest. These findings would suggest that visitors are spending less time in the wilderness. Another behavior characteristic examined in the literature review was prior experience in the wilderness. The results from the study indicate that most visitors had visited the Lakes Basin before and are aware of various activities offered in the area. Long-term users noticed an increase in use, over crowding, and would like to see the Lakes Basin remain the same. They are also concerned about the traffic and over commercializing the area.

These findings support the idea that more experienced visitors' perceptions of social and resource problems could be helpful for future planners.

The third research question to be answered for this study was are visitors to the Lakes Basin satisfied with the quality of service provided by the Forest Service. The results indicate that visitors are satisfied with the service provided in the area. Visitors are most satisfied with the cleanliness of the facilities, and most dissatisfied with the availability of parking. In Absher's (1997) study conducted in Southern California, it was found that visitors rated the Forest Service highly. However, this can depend on visitors' previous experiences and the particular area. Availability of parking is rated low because the study was conducted during the peak period of the summer months. To reduce this reoccurring problem, the town of Mammoth and the Forest Service would like to implement a shuttle service for the Lakes Basin. However, 50% of visitors are not willing to use a free shuttle to get around the Lakes Basin. Only 36% of visitors would consider using a free shuttle to avoid looking for parking. This shows that visitors like having the convenience of their cars, and think using a shuttle is an inconvenience.

One limitation to the study was a lack of time and resources. The researcher had limited time on selected days to collect data. The researcher also had a difficult task of attempting to contact all visitors in the area. However, not all visitors were willing to participate in the study, either because of language barriers or weather conditions.

The study gives the Forest Service a better idea of who is using the area and their overall satisfactions with service quality. This information will allow the managers of the Lakes Basin to determine what information and educational programs to implement in the area.

Conclusions

Based on the findings of this study, the following conclusions are drawn:

1. Visitors to the Mammoth Lakes Basin are from Southern California, females make up a majority of the user population, the average age is 43.03, and most visitors have been exposed to higher education or completed a 4-year degree.
2. Visitors to the Lakes Basin in general only stay in the Lakes Basin and stay an average of 4.02 nights per visit. Most visitors have visited the area before and planned to take 2-3 trips per year.
3. Visitors to the Lakes Basin are satisfied with the service quality provided by the Forest Service.

Recommendations

Based on the conclusions of this study the following recommendations are made:

1. Due to comments regarding improvements of the area, measures should be taken to update and increase information and educational programs in the Lakes Basin.
2. Additional information should be directed to both day use visitors and overnight visitors.
3. Further research is needed before additional services such as a free shuttle are implemented.
4. To maintain the high rating of service quality the Forest Service should maintain the current level of service and continue to improve upon it.

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APPENDIX

Appendix

Visitor Questionnaire

Visitor Survey



Thank you for your willingness to participate in our visitor survey. Your answers to the following questions will be held in confidence. This research is being conducted as a Senior Project for Cal Poly State University.

1. Of the lakes listed below, please indicate your favorite lake to visit (check only one).

Twin Lakes Lake Maime Horseshoe Lake

Lake Mary Lake George

2. Is this your first visit to the Lakes Basin?

yes no

If yes, please skip to question 4.

3. Since June 1999, how many trips have you taken to the Lakes Basin? _____

4. How many more visits do you plan to make to the Lakes Basin this summer? _____

5. How long was your visit to the Lakes Basin (check one only)?

Less than hour 7 to 12 hours

1 to 3 hours More than 12 hours, but not overnight

4 to 6 hours Overnight

If your stay was overnight, how many nights did you stay in the Lakes Basin? _____

6. Did you stay in any other locations overnight in Mammoth other than the Lakes Basin or your home residence during your visit to Mammoth Lakes?

yes no

If yes, where did you stay during your trip to Mammoth Lakes (check all that apply)?

Campsite (provide name and location) _____

Resort (provide name and location) _____

With family or friends

Other (please specify) _____

(over)

7. If adequate parking were no longer available or cost money, would you consider using a free shuttle bus to get to and around the Lakes Basin?

yes no

8. Would you use a free shuttle in the Basin so you would not have to look for parking?

yes no

9. Indicate your level of satisfaction with the following service attributes using a 1-5 scale, with 5 being extremely satisfied and 1 being extremely dissatisfied. Please circle one number for each attribute.

	<u>Extremely</u> <u>Dissatisfied</u>			<u>Extremely</u> <u>Satisfied</u>	
Physical facilities were visually appealing	1	2	3	4	5
Frequency of trash removal	1	2	3	4	5
Cleanliness of facilities	1	2	3	4	5
Access of information, pamphlets and exhibits	1	2	3	4	5
Availability of information	1	2	3	4	5
Quality of information	1	2	3	4	5
Maintenance of facilities	1	2	3	4	5
Employees willingness to help visitors	1	2	3	4	5
Employees and knowledge about the area	1	2	3	4	5
Employees understanding of visitors' needs	1	2	3	4	5
Available parking	1	2	3	4	5

10. What is your gender? Male Female

11. What is your age? _____ years

12. What is your ethnic origin (please check one)?

Anglo (white) African- American Other _____

Asian Hispanic

13. What county do you live in? If you do not live in California, indicate the state or country of principle residence _____

14. What is the highest level of education that you have completed (please check one)?

- | | |
|---|--|
| <input type="checkbox"/> Completed grade school | <input type="checkbox"/> Completed 4 year college degree |
| <input type="checkbox"/> Some high school | <input type="checkbox"/> Some graduate work |
| <input type="checkbox"/> Completed high school | <input type="checkbox"/> Completed graduate degree |
| <input type="checkbox"/> Some college | |

15. During your current visit to the Lakes Basin, please indicate which type of group best defines whom you were with (check only one)?

- | | |
|---|---|
| <input type="checkbox"/> Family members | <input type="checkbox"/> Club or organization |
| <input type="checkbox"/> Family and friends | <input type="checkbox"/> School or study group |
| <input type="checkbox"/> Friends | <input type="checkbox"/> Commercial tour |
| <input type="checkbox"/> By yourself | <input type="checkbox"/> Other (please specify) _____ |

16. How many people are in your group? _____

17. Which of the following categories best represents your annual income?

- | | | | |
|---|--|--|---|
| <input type="checkbox"/> Less than 10,000 | <input type="checkbox"/> 30,000-39,999 | <input type="checkbox"/> 60,000-69,999 | <input type="checkbox"/> 90,000-99,999 |
| <input type="checkbox"/> 10,000-19,999 | <input type="checkbox"/> 40,000-49,999 | <input type="checkbox"/> 70,000-79,999 | <input type="checkbox"/> 100,000 or greater |
| <input type="checkbox"/> 20,000-29,999 | <input type="checkbox"/> 50,000-59,999 | <input type="checkbox"/> 80,000-89,999 | |

18. Which of the following activities did you participate in during your visit to the Lakes Basin (please check all that apply)?

- | | | |
|---|---|--|
| <input type="checkbox"/> Walking for pleasure | <input type="checkbox"/> Camping | <input type="checkbox"/> Canoeing |
| <input type="checkbox"/> Sightseeing | <input type="checkbox"/> Day hiking | <input type="checkbox"/> Photography |
| <input type="checkbox"/> Picnicking | <input type="checkbox"/> Horseback riding | <input type="checkbox"/> Fishing |
| <input type="checkbox"/> Driving for pleasure | <input type="checkbox"/> Backpacking | <input type="checkbox"/> Rafting |
| <input type="checkbox"/> Birdwatching | <input type="checkbox"/> Mountain Biking | <input type="checkbox"/> Running/Jogging |
| <input type="checkbox"/> In-line Skating | | |

(over)

If hiking was an activity you participated in, which of the following day hikes did you take in the Lakes Basin (check all that apply)?

Crystal Lake TJ Lake Barrett Lake
 Mcleod Lake Other (please specify) _____

19. Indicate additional recreation activities you would like provided in the Lakes Basin?

20. What could be improved or added in the Lakes Basin to enhance your visit?

21. What did you enjoy or not enjoy about your visit to the Lakes Basin? _____

Thank you