

RECREATIONISTS IN THE COLUMBIA RIVER GORGE NATIONAL SCENIC AREA: A SURVEY OF USER CHARACTERISTICS, BEHAVIORS, AND ATTITUDES

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Abstract: The U.S. Forest Service has begun a comprehensive recreation research effort designed to understand visitor use patterns, satisfaction levels, and economic expenditures of forest recreationists. This study examines four categories of variables (socio-demographic, recreation experience, economic expenditure, and customer satisfaction) across a set of five independent variables (type of site, stratum, survey period, state, and season) for the Columbia River Gorge National Scenic Area. The greatest differences were noted for the socio-demographic variables, place attachment variables, and motivations for visiting. Fewer differences were noted across the satisfaction, management preference, and economic expenditure variables.

Introduction

In 1999 the USDA Forest Service (USFS) initiated a national research effort designed to understand recreation use patterns in every national forest across the United States. The National Visitor Use Monitoring (NVUM) study will evaluate one-quarter of the national forests each year. The primary purpose of this study is to provide managers with the number of visitors using USFS facilities and lands. Initial indications are that the USFS will continue to rotate each of the forests through the NVUM study every four years, thus providing a longitudinal study that will facilitate managers' decision making abilities when integrated with new and existing management plans. The Columbia River Gorge National Scenic Area (CRGNSA) was one of the initial National Forest units to undergo the NVUM process. On-site sampling was conducted in the CRGNSA to examine recreational use patterns, satisfaction levels, economic expenditures, and visitors' perceptions of place attachment, motivations to visit, and management preferences.

Market segmentation as a method of managing different recreation users has been recommended by many recreation researchers (Graefe, 1981; Andereck & Caldwell, 1994). For example, users' gender and age have been shown to be valid predictors of perceived park safety (Westover, 1984). Absher and Lee (1981) noted that visitor characteristics and prior experience had an effect on perceptions of crowding in a National Park. Absher, Howat, Crilley, and Milne (1996) measured visitor use characteristics at sporting events and

leisure centers in Australia and New Zealand, demonstrating that customer characteristics such as gender, age, and disability status impacted overall satisfaction levels of users. This study also revealed visit characteristics that showed specific market segments of visitors with significantly different levels of satisfaction.

Description of Study Site

The Columbia River Gorge National Scenic Area is located along the Columbia River, straddling the borders of Oregon and Washington. The CRGNSA encompasses an 80-mile length of land and water along the Columbia River, running from Reed Island, just east of Troutdale, Oregon and Washougal, Washington to Miller Island, near The Dalles, Oregon. The CRGNSA is made up of the natural gorge of the Columbia River, and is one of the Pacific Northwest's most unique outdoor recreation areas, with a plethora of outdoor recreation activities offered in many different settings. The CRGNSA is the only sea level east-west break in the Cascade Mountain Range, providing very strong winds that facilitate superb sail boarding opportunities. The CRGNSA is host to over 120 scenic waterfalls and hiking trails, and includes one of the nation's first scenic highways.

Survey and Analysis Methods

The survey instruments used in this study were designed by the USDA Forest Service's Southeast Research Station for nationwide application. Three different survey versions were used to query visitors about their visitor use patterns, demographics and trip characteristics, satisfaction levels, and economic expenditures. The three instruments included a *basic version* (visitor use patterns, demographics, and trip characteristics); *satisfaction version* (basic version plus importance/satisfaction and crowding indicators); and an *economic version* (basic version plus trip expenditure measures). A short on-site *experience addition* was added for the CRGNSA study. The experience version queried visitors about their sense of place, motivations for recreating in the CRGNSA, management preferences, and so forth.

Data collection followed the protocol for the national (NVUM) study. An onsite face-to-face interview was used to obtain feedback from a sample of recreationists in the CRGNSA. The onsite survey took approximately 5-10 minutes to complete, depending on the version of the instrument that was used in the interview. Approximately one-half of the visitors were interviewed with the basic version/experience addition, while one-quarter received the satisfaction version and one-quarter received the economic version. Sampling was conducted according to a random sampling plan developed by the NVUM national office, and included approximately 200 days of interviewing during the period January 1 to December 31, 2000. A total of 1282 onsite surveys were completed, resulting in a participation rate of 95.5%.

For the purposes of this paper, we compared socio-demographic information, satisfaction levels, economic

expenditures, and experience perceptions across several independent variables. These variables included the *type of survey site* (general forest area versus developed area), *use stratum* (high, medium, or low use as determined by area resource managers), *survey period* (morning or evening), *state* the respondent was interviewed in (Oregon or Washington), and *season* (data were broken down into the four established seasons).

Visitor Demographics and Trip Characteristics Results and Discussion

The majority of visitors interviewed for this study (60.4%) were married, and almost two-thirds (62.9%) were males. The mean age of study respondents was 43 years old, and almost half (47.1%) reported an income of between \$40,000-70,000 for the 1999 tax year. This group of respondents was highly educated, with almost one-third (32.4%) reporting education beyond a bachelor's degree, and 35.5% reporting that they completed a bachelor's degree. Only 13.5% of the respondents indicated that they had a high school degree or less.

About half of the interviews (52.8%) took place during an 8:00 am--2:00 pm shift, with the remainder during the 2:00 pm--8:00 pm shift. Interestingly, the majority of the respondents reported that the Columbia River Gorge was their primary destination, and only 14.5% indicated that they were visiting the area for the first time. Columbia River Gorge National Scenic Area visitors were most likely to be interviewed in family groups (40.7%), in groups consisting of friends (25.8%), or family and friends (14.5%).

Numerous significant differences emerged when the socio-demographic and trip variables were compared across the five independent variables (Table 1). The season variable showed the greatest number of differences across the trip characteristics and socio-demographics, with seven of the 10 dependent variables showing significant differences.

Five of the variables differed by state, and four differed by type of site at which the respondent was surveyed. No variables showed significant differences across all five independent variables; several variables varied by two or three of the independent variables.

Visitors who were contacted during the fall season were more likely than those in other seasons to be male and employed outside of their home. Fall respondents were also less likely to agree to participate in the interview. Winter visitors tended to be in smaller groups. Summer visitors were more likely to have children under 16 in their group and more likely to have graduate degrees. Females and retired individuals were more common during winter and spring.

The state in which users were surveyed showed some notable differences as well, with Oregon users much more likely to be married and somewhat older than Washington users. Additionally, Oregon respondents tended to have more people in their cars than Washington users. Washington visitors were more likely than those in Oregon to be white, single, and to hold a graduate degree.

Type of survey site also accounted for some differences between visitors. People interviewed in developed areas were generally younger and more diverse ethnically than those sampled at general forest areas. The developed area users also showed a higher proportion of females and individuals in the middle income brackets.

Some slight differences were noted across the two survey periods (morning or afternoon), with afternoon users being older and more likely to be employed outside the home than morning respondents. Lastly, only two differences were noted across the use level strata. People interviewed at high use sites tended to be more diverse ethnically and in larger groups than those at either high or low use sites.

Table 1. Summary of Significant Differences in Demographics and Trip Characteristics by Five Independent Variables (Chi square or F-values; non-significant values not shown)

Demographics and Trip Characteristics	Survey Period	State	Stratum	Season	Site Type
Willing to participate				44.6	
Number in car		26.6	6.2	2.7	
Number under 16				6.2	
Gender				19.0	6.8
Ethnicity		7.5	7.4		8.6
Education		9.8		22.7	
Employment	9.9			42.4	
Marital status		4.9			
Age	15.5	14.9			13.3
Income				36.9	14.9

Recreation Experience Version Results and Discussion

There were numerous significant differences across three categories of experiential variables (place attachment, motivations for recreating, and management preferences). The management preference items showed the fewest differences across the independent variables (Table 2). Of the nine motivation variables, use stratum accounted for the greatest number of differences (5 of 9 significant), while three of the nine motivations differed by state and season. The place attachment items showed the most significant differences when compared across states and use strata (Table 2).

A series of five statements queried visitors about their attachment to the place they were visiting. Differences were noted across three of the five independent variables, with survey period and user type showing no significant differences. Four of the five variables were significantly different across the state variable. Oregon visitors were much more likely to report that the main reason for their visit was "because it is the Columbia River Gorge," while Washington users were much more focused on the Gorge as a place to do their chosen activity. Those visitors

interviewed in Washington generally were more attached to the place they visited within the Columbia River Gorge.

The stratum category showed differences in the place attachment items as well. Users interviewed at the low use sites were more likely to agree with the site-specific place attachment indicators. Recreationists at high use sites felt that companionship was more important, and tended to agree more closely with the statement indicating that the Columbia River Gorge itself was their main reason for visiting. One of the five place attachment items differed significantly across the four seasons. Winter users were more likely to agree that "this place means a lot to me."

Nine statements examined visitors' motivations for recreating in the Columbia River Gorge. The stratum variable showed the most differences in the motivation scales, with five of the motivations differing across use level strata. Three of the nine variables showed significant differences for both the state and season categories. No differences were noted with regards to the survey period, and only one difference was noted for the type of site visited.

Table 2. Summary of Significant Differences in Experience Variables by Five Independent Variables (F-values; non-significant values not shown)

Experience Variables	Survey Period	State	Stratum	Season	Site Type
Place attachment					
Most important reason for visiting (because it is the Gorge, activity, place, companions)		12.8	10.9		
This place means a lot to me				3.1	
I enjoy recreating at this place more than any other place		6.4	3.6		
I am very attached to this place		5.6	4.7		
I get more satisfaction out of visiting this place than from visiting any other place		6.9	4.9		
Motivations to visit					
To be outdoors			5.0		
For relaxation			3.5		3.3
To get away from the regular routine					
For the challenge or sport		5.2	6.9	3.0	
For family recreation		9.7		3.3	
For physical exercise		4.7	6.5		
To be with my friends				2.9	
To experience natural surroundings					
To develop my skills			8.6		
Management preferences					
More wildlife viewing areas or opportunities				4.9	
More picnic areas					
More parking spaces					
Better signs directing me to recreation areas				5.3	
More interpretive rangers at recreation areas	5.1	7.2		4.2	

With regards to use stratum, visitors interviewed at medium use sites generally attached more importance to the motivation items. Visitors at the medium use sites especially emphasized challenge and physical effort. Visitors at the high use sites showed the lowest level of importance associated with physical exercise and developing their skills.

Washington visitors attached more importance to challenge and physical exercise, while visitors sampled at Oregon sites gave higher scores for the importance of family recreation. The seasonality variable also accounted for three significant differences among the nine motivation variables. Winter users attached the most importance to being with friends, while spring visitors rated family recreation as more important. Spring visitors attached less importance to challenge than visitors during the other three seasons.

Three of the five management preference items showed significant differences across the four seasons, while few differences were noted for the other independent variables. Better signs directing visitors to recreation areas and additional rangers were generally supported across all seasons, but were most important for winter visitors. Additional parking was a less popular management option, with the exception of respondents interviewed during the winter. Winter visitors also showed more support for additional interpretive rangers at recreation areas compared to visitors during the other three seasons. Interest in more interpretive rangers also varied by state and survey period. Visitors interviewed at Oregon sites and during the morning survey period expressed stronger support for more interpretive rangers at recreation areas.

Customer Satisfaction Version Results and Discussion

Regarding customer satisfaction, fourteen specific satisfaction attributes were examined through the use of a five-point Likert scale (Table 3). Performance and importance were measured for each of the items. A 10-point overall satisfaction scale was used to measure the respondents' overall trip quality. In addition, visitors were asked to report the degree of crowding that they perceived at the recreation site on a 10-point scale.

Significant differences were noted across four of the five independent variables. The season variable showed the greatest differences, with 11 of the 16 satisfaction indicators differing significantly across seasons. There was a large drop-off of significant differences in the other independent variables. Differences were noted across four satisfaction indicators for the state variable, three for the stratum variable, and only one significant difference was noted for the type of survey variable. No significant differences were noted for the survey period. Interestingly, few patterns could be identified across the independent or dependent variables. With the exception of the crowding indicator, which showed significant differences across three of the independent variables (stratum, state, and season), no more than two differences were noted across the independent variables.

Considering differences between the two states, visitors in Oregon gave higher satisfaction scores than Washington visitors for three specific attributes (scenery, signage, attractiveness of forest landscape). However, there was no difference between Oregon and Washington visitors in overall satisfaction, and Oregon visitors rated the sites as more crowded than their counterparts in Washington.

Table 3. Summary of Significant Differences in Satisfaction Variables by Five Independent Variables
(F-values; non-significant values not shown)

Satisfaction Attributes	Survey Period	State	Stratum	Season	Site Type
Scenery		5.0			
Parking availability				6.0	
Parking lot condition				6.8	
Restroom cleanliness				7.1	8.8
Condition of natural environment			11.6	8.9	
Condition of developed facilities			7.1	10.8	
Condition of forest roads					
Condition of forest trails					
Availability of recreation information				6.2	
Feeling of safety				2.6	
Adequacy of signage		4.8			
Employee helpfulness				3.9	
Attractiveness of forest landscape		13.5		4.8	
Value for fee paid					
Overall satisfaction				6.8	
Crowding		17.6	12.8	2.7	

Visitors sampled at low use sites rated the condition of both the natural environment and developed facilities lower than those interviewed at medium and high use sites. Not surprisingly, perceived crowding was higher at high use sites than at medium or low use sites.

A closer examination of the season variable showed no clear pattern of satisfaction scores across seasons. Recreationists interviewed during the winter season reported especially low levels of satisfaction for parking availability, parking lot condition, restroom cleanliness and availability of information. They also showed the lowest levels of overall satisfaction. Fall interviewees showed the highest satisfaction scores for availability of parking, availability of information, and feeling of safety. The fall group, however, showed the lowest satisfaction scores for condition of the natural environment, condition of developed facilities, and staff helpfulness. Summer users reported the highest satisfaction scores for parking lot condition, restroom cleanliness, and overall satisfaction. Spring users showed the highest satisfaction scores for condition of the environment and the forest landscape, but showed the lowest ratings for feelings about safety and crowding.

Economic Expenditure Version Results and Discussion

A series of questions focused on how much money respondents spent on recreation-related items and services. Very few differences were noted across the five independent variables for the economic expenditure variables (Table 4). Of particular note is the lack of differences between the two states and the four seasons, while these two variables accounted for many of the differences within the satisfaction and experience variables.

The type of site at which the respondent was interviewed showed significant differences for purchases of fuel and other transportation costs. Visitors interviewed at general forest areas spent significantly more money on gasoline and oil, while those interviewed at developed use sites spent more money on other types of transportation. Both of these findings were expected, since dispersed users may drive

further or may have been driving larger, less fuel-efficient vehicles. Developed site users may have been part of a bus tour, or even on a day trip away from a cruise ship on the Columbia River. The only other significant differences associated with recreation economic expenditures were noted for season. Respondents who were interviewed during spring or summer spent significantly less money on private lodging, while fall visitors were most likely to have spent money for other transportation costs.

Conclusions and Implications

The preceding results show numerous differences across the independent variables examined. The socio-demographic and trip characteristics show us that these users are indeed different people when examined by other than ethnic make-up. Significant differences were noted in respondents' ages and party size for three of the five independent variables. Most differences, however, were noted across the four seasons during which this survey was conducted in 2000.

Few differences were noted across the economic expenditure variables, and no distinct patterns were noted for these variables. Perhaps this is attributable to the relatively close distances between the sites (most sites are located within minutes of a highway) and the relatively small size of the CRGNSA in comparison to most other National Forests. It was interesting to note that no expenditure differences were noted across the two states of Oregon and Washington, given the differences found between these two states in other areas.

The satisfaction indicators showed great differences across the four seasons. Although no distinct patterns emerged, it was clear that those visitors interviewed during the summer season were most satisfied, followed by spring users. Winter respondents were least satisfied, followed closely by those respondents who were contacted during the fall season. Statewide comparisons showed that satisfaction ratings were always higher for the Oregon side of the Columbia River. This coincides with more high-use areas, which in turn may receive more attention from maintenance

Table 4. Summary of Significant Differences in Economic Variables by Five Independent Variables
(F-values; non-significant values not shown)

Economic Version	Survey Period	State	Stratum	Season	Site Type
Government lodging					
Private lodging				3.1	
Restaurants/bars					
Other food/drinks					
Fuel/oil, etc.					3.2
Other transportation costs				5.5	3.0
Recreation activities					
Entry/parking fees					
Souvenirs					
Other expenses					
Total spent annually					

personnel. It was interesting to note that Oregon users rated crowding as worse than Washington respondents. This may be a function of the type of activities that are offered in each state. Oregon offers more social-oriented opportunities (a scenic highway, waterfalls near the roadway, developed picnic areas, etc.), while Washington users tend to participate in activities that involve a degree of solitude, such as hiking, biking, flower viewing, etc.

The category that showed the most significant differences was the visitor experience variables. Oregon and Washington visitors are clearly different in their feelings of place attachment toward the CRGNSA. Washington respondents, while attached to the place where they do their outdoor recreation activity, are more focused on the activity itself. Conversely, Oregon respondents seem more likely to feel that the special designation of the Columbia River Gorge as a National Scenic Area is important to them. It is clear that the different strata attract people for different reasons. Visitors to the high use areas do tend to care that it is "the Gorge," and not just another place to participate in their chosen outdoor recreation activity. Respondents who were interviewed in the winter season placed the most agreement on one place attachment item, indicating that the place they visited means a lot to them.

Motivations to visit the recreation areas varied greatly across the stratum variable, once again demonstrating the different types of recreationists who visit the vast array of outdoor recreation sites that the CRGNSA has to offer. The recreation sites within the medium use category showed considerably higher degrees of importance for most of the motivation variables. An interesting finding is that few differences were noted across the types of survey sites (general forest versus developed sites). Seasonal differences were noted for motivations to visit as well, with winter respondents placing the highest levels of importance on being with friends. Spring users expressed the lowest importance for challenge and the highest importance for family recreation. A similar trend was noted across the two states, with Oregon visitors placing greater importance on social reasons, and Washington respondents more oriented toward physical activities.

Few differences were noted across the management preferences outlined in the instrument, and most of those

were noted across the four seasons. Respondents who were interviewed in the winter season showed greater support for additional rangers at the recreation sites and for additional parking areas. Winter respondents also indicated no opposition to adding more directional signs to the recreation sites, while recreationists surveyed during the other seasons showed some opposition to additional signs.

This paper demonstrates the need to understand visitors' motivations, needs, satisfaction levels, and use patterns across several variables. The socio-demographic make-up of CRG visitors is diverse in many ways; however these variables accounted for relatively few differences among the satisfaction and economic expenditure variables. The differences observed were particularly strong for variables related to the experience of the recreationists. Recreation managers may wish to focus on the experience variables outlined in this paper in order to better meet visitors' needs in an increasingly diverse outdoor recreation setting. Future analysis of these data will focus specifically on the influence of the recreation site and the activity pursued on satisfaction, economic expenditures and the recreation experience.

References

- Absher, J. D., Howat, G., Crilley, G., & Milne, I. (1996). Toward customer service: Market segment differences for sports and leisure centres. *Australian Leisure*, 7(1), 25-28.
- Absher, J. D., & Lee, R. G. (1981). Density as an incomplete cause of crowding in backcountry settings. *Leisure Sciences*, 4, 231-247.
- Andereck, K. L., & Caldwell, L. L. (1994). Motive-based segmentation of a public zoological park market. *Journal of Park and Recreation Administration*, 12(2), 19-31.
- Graefe, A. R. (1981). Understanding diverse fishing groups: The case of drum fishermen. In *Marine Recreational Fisheries VI* (pp. 69-79). Washington, DC: The Sport Fishing Institute.
- Westover, T. N. (1984). *Perceptions of crime and conflict in urban parks and forests*. Unpublished doctoral dissertation, Michigan State University.