

BUILDING STEWARDSHIP WITH RECREATION USERS: AN APPROACH OF MARKET SEGMENTATION TO MEET THE GOAL OF PUBLIC-LANDS MANAGEMENT

Po-Hsin Lai

Doctoral Student, Department of Recreation, Park &
Tourism Sciences

Texas A&M University,
2261 TAMU
College Station, TX 77841

Chia-Kuen Cheng

Texas A&M University

David Scott

Texas A&M University

Abstract.—Participation in outdoor recreation has been increasing at a rate far exceeding the population growth since the 1980s. The growing demand for outdoor recreation amenities has imposed a great challenge on resource management agencies of public lands. This study proposed a segmentation framework to identify different outdoor recreation groups based on their attitudes toward three dimensions of natural resource management at Padre Island National Seashore. A number of variables was applied to describe the sociodemographic, geographic, behavioral, and psychological characteristics of these recreation groups. Implications of this segmentation approach on public-lands management are discussed.

1.0 INTRODUCTION

Federal-lands management agencies have played an important role in providing outdoor recreation resources because they manage approximately 30 percent of the lands in the United States (Cordell & Overdevest 2001) and because these lands are fairly accessible for people seeking these lands for the purpose of recreation. However, these agencies are facing several recent trends in outdoor recreation, including an increasing number and increasing heterogeneity of outdoor recreation participants, and growing diversity of outdoor recreation activities (Cordell 2004, Cordell & Overdevest 2001). Market segmentation has been applied as one of the approaches to address the growing public demand for outdoor recreation on public lands to meet different needs.

Segmentation Research

Marketing is a relatively new concept to many public sectors (Knopf 1990, Havitz 2000). Only a few segmentation studies have been conducted to explore outdoor recreation groups on destinations managed by public agencies. Among these studies, most of them adopted primarily a demand-oriented approach and focused on the needs and benefits pursued by recreation resource users. The segmentation criteria used by these studies include benefit or motivation (Galloway 2002, McCool & Reilly 1993), setting preference (Donnelly et al. 1996, Fredman & Emmelin 2001), use pattern (Ryan & Sterling 2001), specialization (McFarlane & Boxwell 1996), and place attachment (Warzecha & Lime 2001). A common feature of these studies is that different recreation groups were identified based on what kinds of recreation resources they demanded. The need to maintain the ecological integrity of public lands was frequently subsumed to resource users' demands for recreation. The demand-oriented approach of segmentation is likely to impose a higher level of difficulty on public-lands agencies to meet their management goals when only limited resources are available and demand for outdoor recreation continues to grow.

Most public-lands agencies have the management goals of serving the current population for the enjoyment of the outdoors while sustaining the resources for future generations. However, if the recreation demand on public lands continues to grow, the achievement of one management goal is likely to impair the achievement of the other. The problem is further aggravated by the constraints of financial and human resources faced by many public agencies (Crompton & Lamb 1986, Andereck & Caldwell 1994). By involving recreation users in public-lands management and building a sense of stewardship of resource conservation among them, the agencies will be more likely to enhance their capacity to meet the dual goal of resource management. In order to involve outdoor recreationists in resource management, an alternative of segmentation is to identify different

recreation groups and examine how likely they are to ally with public-lands agencies to achieve their management goals (e.g., Borrie et al. 2002).

Following the same line, this study was designed to address the goals of public-lands agencies to sustain natural resources while taking into account the need to meet diverse recreation demands by asking two research questions: (1) Do different attitudes toward sustainable resource management exist among public-lands recreationists? (2) What are the characteristics of the groups where different attitudes toward resource management are identified? Attitudes toward natural resource management were used as the segmentation criteria in this study to identify different recreation groups whose characteristics were then described using sociodemographic, geographic, behavioral, and psychological variables.

2.0 METHODS

Study Area

The segmentation framework was applied in the context of outdoor recreation at Padre Island National Seashore (PAIS) using the secondary data from a visitor survey. PAIS is located along the east coast of Texas to protect the longest undeveloped barrier island in the world. The unique environment of PAIS provides habitats for diverse biological communities, including several endangered and threatened species. At the same time, the park also offers a wide variety of recreational and educational opportunities for people to enjoy the landscapes at PAIS. The convenient transportation network around the park and proximity to several metropolitan areas, such as San Antonio and Houston, make PAIS accessible to many outdoor recreation participants and, at the same time, vulnerable to visitor impacts.

Data Collection

The visitor survey was implemented in 2003. Systematic sampling was applied to select the study participants by intercepting visitors at the main entrance station during the winter (January 18 - February 7), spring (April 22 - May 9), summer (July 7 - July 31), and fall (October 6 - November 25) on both weekdays and weekends. Visitors 18 years of age or older who had celebrated the

most recent birthday were asked to participate in the survey. Those who agreed to participate were then given a questionnaire (along with a postage-paid return envelope) and asked to complete it after the visit and return it by mail. Of the 2,044 visitors contacted, 1688 visitors agreed to participate and 987 visitors returned completed questionnaires after the follow-up procedure (response rate = 58.5%).

Measurement and Data Analysis

Only selected items from the questionnaire were used for the purpose of this study. In addition to the sociodemographic background, place of residence, and activities that respondents participated in when visiting PAIS, two measurement scales were also included in data analyses. Attitudes toward park management were measured using twelve items by a 5-point Likert-type scale where "1" represented "strongly disagree" and "5" represented "strongly agree." Likewise, a 5-point Likert-type scale was applied to measure the 25 items pertaining to motivation for visiting PAIS. Responses to the motivation scale ranged from "1" or "not at all important" to "5" or "extremely important." Principal component analysis with varimax rotation was applied to identify the underlying dimensions of the attitude and motivation scales.

Two steps were included in segmenting PAIS visitors based on the factor scores of the underlying attitude dimensions resulting from principal component analysis. Hierarchical analysis was first performed to determine the number of cluster and initial center for each cluster. The initial cluster centers were imported into K-Means cluster analysis to categorize the respondents into their respective groups. After visitor segments were identified, chi-square test was used to examine if the variations in sociodemographic (i.e., gender, education, age, ethnicity, income, and occupation), geographic (i.e., place of residence), and behavioral descriptors (i.e. first visit to PAIS, visit frequency, planning PAIS as a primary destination, activities participated in when visiting PAIS, and driving distance on the PAIS beach) were significantly associated with the visitor segments. One-way ANOVA was applied to examine if groups significantly differed in terms of the psychological descriptor of motivation.

Table 1.—Standardized factor scores of attitudes toward park management for visitor segments

Attitude Dimension	Visitor Segment				
	Group I (Anti-Wildlife Protection)	Group II (Pro-Land Acquisition)	Group III (Pro- Development)	Group IV (Anti-Land Acquisition)	Group V (Pro- Protection)
Wildlife protection & limited vehicle access	-1.25 ^a	-0.83 ^b	0.22 ^c	0.57 ^d	0.73 ^e
Limited development	0.47 ^a	-0.65 ^b	-1.26 ^c	0.31 ^a	0.66 ^d
Creating a buffer around the park	-0.42 ^a	1.46 ^b	-0.17 ^c	-0.94 ^d	0.64 ^e

*LSD Post Hoc Test

**Different superscripts indicate significance at .05 or better probability level.

Table 2.—Gender composition of visitor segments

Sociodemographic descriptor	Visitor Segment (%)					χ^2	Sig.
	Group I	Group II	Group III	Group IV	Group V		
Gender						17.864	.001
Males	76.3	59.7	66.4	62.0	51.4		
Females	23.7	40.4	33.6	38.1	48.6		

3.0 STUDY FINDINGS

Segmenting PAIS Visitors

Three dimensions were identified from responses to attitudes toward park management, including wildlife protection and limited vehicle access ($\alpha=0.84$), limited development in the park ($\alpha=0.60$), and creating a buffer zone around the park ($\alpha=0.68$). Cluster analysis based on these three attitude dimensions resulted in five visitor segments (Table 1). The first visitor segment (Group I) scored significantly lower than the rest of the groups on the attitude dimension of wildlife protection and limited vehicle access, and was termed as the “Anti-Wildlife Protection Group.” Slightly more than one-fifth of the PAIS visitors belonged to this group. The second visitor segment (Group II) had a significantly higher score on the attitude dimension of creating a buffer zone around PAIS and was named the “Pro-Land Acquisition Group.” Although Group II was most supportive of land acquisition, it scored relatively low on the other two attitude dimensions (i.e., wildlife protection and limited vehicle access, and limited development in the park). This group consisted of only one-tenth of the PAIS visitors. The third group (Group III), “Pro-Development Group,” was most opposed to limited development at PAIS. Approximately one-fifth of the PAIS visitors belonged to Group III. Group IV, “Anti-Land Acquisition,” had

the lowest score on supporting the creation of a buffer zone around PAIS and represented around one-fifth of the PAIS visitors. The last and also largest visitor segment (Group V) scored most positive on two attitude dimensions, including wildlife protection and limited vehicle access, and limited development in the park. Group V also had a relatively high score on the attitude dimension of creating a buffer zone around the park. As a consequence, this group was called the “Pro-Protection Group.” More than one-fourth of the PAIS visitors were categorized into this group.

Profiling Visitor Segments

Only the descriptors that had significance levels less than .01 were presented here. Gender was the only sociodemographic descriptor showing that the variation between male and female visitors was significantly associated with the segments (Table 2). Male was the dominant gender in Groups I, II, III, and IV where Group I had the highest percentage of male (76.3%). Group V had approximately an equal number of males (51.4%) and females (48.6%). Chi-square test also showed visitor segments were associated with group variations in the behavioral descriptors of first-time visit, frequency of visit, participation in consumptive activities when visiting PAIS, and driving distance on the sandy

Table 3.—Behavioral descriptors of visitor segments

Behavioral Descriptor	Visitor Segment (%)						χ^2	Sig.
	Group I	Group II	Group III	Group IV	Group V	Overall		
First Trip to PAIS	16.1	12.3	38.1	45.7	41.4	33.2	40.624	.000
Visit Frequency								
Less than 5 times	56.1	67.9	75.3	83.6	81.7	72.6		
Equal or more than 5	43.9	32.1	24.7	16.4	18.3	27.4	22.586	.000
Participation in Consumptive Activities while Visiting PAIS								
Driving on the Beach	71.4	74.6	47.9	50	54.9	58	24.076	.000
Fishing from Shore	50.4	33.9	21	12.9	10.3	24.2	71.504	.000
Driving Distance down the Beach (60 miles long)								
0-30 miles	72	78.4	95.5	89.6	94.4	86.6		
31-60 miles	28.1	21.6	4.6	10.4	5.6	13.4	27.233	.000

Table 4.—Standardized factor scores of motivation for visiting PAIS for visitor segments

Dimension of Motivation	Visitor Segment					F	Sig.
	I	II	III	IV	V		
Experiencing nature	-0.26 ^a	0.18 ^b	-0.42 ^a	-0.37 ^a	0.41 ^b	14.14	.000

*LSD Post Hoc Test

beach with four-wheel drive vehicles (Table 3). Members of Groups I and II were less likely to be first-time visitors and more likely to be frequent visitors (visit frequency ≥ 5 during the past 12 months) compared to Groups III, IV, and V. Furthermore, Groups I and II had higher percentages of visitors participating in the consumptive activities of driving on the beach and fishing from shore. Regarding the activity of driving on the beach, higher percentages of visitors in Groups I and II drove more than 30 miles compared to the rest of the visitor groups.

Six dimensions of motivation for visiting PAIS were identified after principal component analysis with varimax rotation, including experiencing nature ($\alpha=0.86$), escape ($\alpha=0.84$), skill enhancement ($\alpha=0.78$), being adventurous ($\alpha=0.69$), being with friends ($\alpha=0.66$), and being with family ($\alpha=0.65$). One-way ANOVA showed that only one motivation dimension, experiencing nature, was significantly different among the visitor groups with the significance level less than .01. Groups II and V were motivated more by the natural attributes of PAIS compared to Groups I, III, and IV (Table 4).

4.0 DISCUSSION AND MANAGEMENT IMPLICATIONS

Answers to the two research questions were revealed by the study findings. PAIS visitors differ in terms of their attitudes toward park management. Moreover, their sociodemographic background, the activities participated in when visiting PAIS, and motivation for visiting PAIS can be distinguished among visitors of different park management attitudes. Visitors who are less in favor of sustainable resource management are more likely to have visited the park, visit the park more often, are involved in consumptive activities, and travel further on the 60-mile sandy beach of PAIS with four-wheel drive vehicles. On the other hand, visitors who are more supportive of sustainable resource management are more likely to be first-time visitors, visiting the park fewer times, participating less in consumptive activities, and driving less on the beach. Furthermore, visitors who support land acquisition and overall protection of the park are more likely to be motivated to visit PAIS because of its natural environment. An implication from the study findings is that different strategies will be needed for the Park Service to foster stewardship with different groups

of visitors to reduce their impacts on the environment and further encourage their active involvement in sustainable park management. Management strategies to achieve these goals may include on-site visitor impact management and off-site relationship development with park visitors.

Knopf (1990) suggested that marketing could be used as a management tool for public agencies to meet the diverse recreation demands while sustaining natural resources. This is achieved by directing different user groups to desired recreation opportunities and appropriate recreation settings so that impacts on fragile ecosystems can be minimized. In the context of managing visitor impacts at PAIS, visitors who are less supportive of wildlife protection, such as Groups I and II, may be directed to less ecologically sensitive areas by designating areas for their preferred activities and desired experiences away from those areas. This information can be integrated into the management components of Recreation Opportunity Spectrum as a step for developing visitor management frameworks, such as Limits of Acceptable Change, Visitor Impact Management, Visitor Activity Management Process, and Visitor Experience and Resource Protection.

For off-site relationship development, information derived from the study findings may be used to develop social marketing strategies to advocate a sense of stewardship of resource conservation among outdoor recreationists. The purpose of social marketing is to market an idea, behavior, or tangible object to enhance the well-being of a group of individuals or the society in a broader sense through a series of marketing processes (Kotler & Roberto 1989). Applying the concept of social marketing to natural resource management would help to promote the social good of sustaining resources for the enjoyment of current and future generations, and for the intrinsic value of the natural environment. Segmentation based on the criterion of attitudes toward park management helps identify different outdoor recreation groups based on how likely they are to support and participate in sustainable resource management. Educational programs can be designed to transform negative attitudes and enhance positive attitudes. This may be achieved by informing

park users that the quality of the nature-based recreation experiences, and the activities they like to do, can only be maintained by sustaining the three dimensions of park management (i.e., wildlife protection and limited vehicle access, limited development in the park, and creating a buffer zone around the park). Moreover, since all the visitor segments value at least one dimension of park management, it can be emphasized that caring for one aspect of the park cannot be achieved without addressing the other two aspects. Distribution of educational messages to reach out to different outdoor recreation groups will need to rely on various communication mechanisms. For example, for those who visit the park more often, on-site programs (e.g., volunteer, interpretive, or other naturalist programs, etc.) may provide an effective way to involve frequent park users and build relationships with them. On the other hand, for less-frequent park visitors, long-distance communication, such as using the park Website or e-mail to inform park users about the news, issues, or opportunities associated with park management, may be applied. By developing a sense of the stewardship in outdoor recreationists, the Park Service will be able to better take the challenge of sustaining natural resources into the future.

5.0 REFERENCES

- 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.
- Borrie, W.T.; Christensen, N.; Watson, A.E.; Miller, T.A.; McCollum, D.W. 2002. **Public purpose recreation marketing: a focus on the relationships between the public and public lands.** Journal of Park and Recreation Administration. 20(2): 49-68.
- Cordell, H.K.; Overdevest, C. 2001. **Footprint on the land: An assessment of demographic trends and the future of natural lands in the United States.** Champaign: Sagamore.
- Cordell, H.K. 2004. **Outdoor Recreation for 21st Century America: A Report to the Nation,**

- the National Survey on Recreation and the Environment.** State College, Venture Publishing.
- Crompton, J.L.; Lamb, C.W. 1986. **Marketing government and social services.** New York: John Wiley & Sons.
- Donnelly, M.P.; Vaske, J.J.; DeRuiter, D.S.; King, T.B. 1996. **Person-occasion segmentation of state park visitors.** Journal of Park and Recreation Administration. 14(2): 95-106.
- Fredman, P.; Emmelin, L. 2001. **Wilderness purism, willingness to pay and management preferences: a study of Swedish mountain tourists.** Tourism Economics. 7(1): 5-20.
- Galloway, G. 2002. **Psychographic segmentation of park visitor markets: evidence for the utility of sensation seeking.** Tourism Management. 23: 581-596.
- Havitz, M.E. 2000. **Marketing public leisure services: Some (temporarily) pessimistic perspectives from an unrepentant optimist.** Journal of Leisure Research. 32(1): 42, 42-48.
- Knopf, R.C. 1990. **Marketing public lands: Is it the right thing to do?** Parks and Recreation. 25: 56-61.
- Kotler, P.; Roberto, E. 1989. **Social Marketing: Strategies for Changing Public Behavior.** New York: The Free Press.
- McCool, S.F.; Reilly, M. 1993. **Benefit segmentation analysis of state park visitor setting preferences and behavior.** Journal of Park and Recreation Administration. 11(4): 1-14.
- McFarlane, B.L.; Boxall, P.C. 1996. **Exploring forest and recreation management preferences of forest recreationists in Alberta.** The Forestry Chronicle. 72(6): 623-629.
- Ryan, C.; Sterling, L. 2001. **Visitors to Litchfield National Park, Australia: A typology based on behaviours.** Journal of Sustainable Tourism. 9(1): 61-75.
- Warzecha, C.A.; Lime, D.W. 2001. **Place attachment in Canyonlands National Parks: Visitors' assessment of setting attributes on the Colorado and Green Rivers.** Journal of Park and Recreation Administration. 19(1): 59-78.