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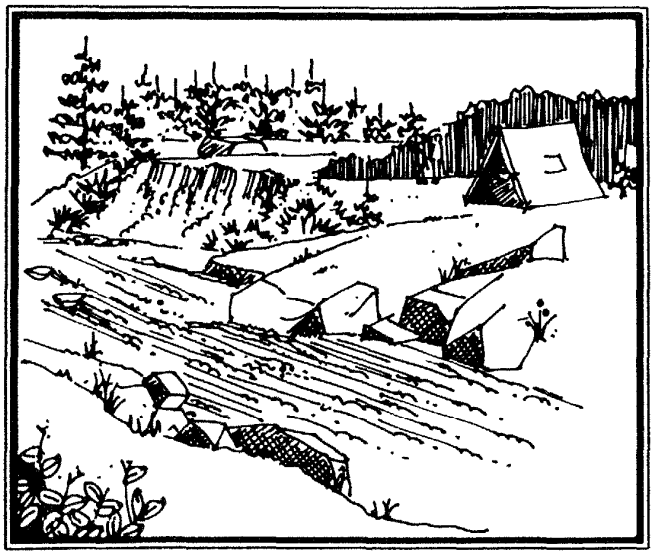

NORTHEASTERN RECREATION RESEARCH MEETING POLICY STATEMENT

The Northeastern Recreation Research meeting seeks to foster quality information exchange between recreation and travel resource managers and researchers throughout the Northeast. The forum provides opportunities for managers from different agencies and states, and from different governmental levels, to discuss current issues and problems in the field. Students and all those interested in continuing education in recreation and travel resource management are particularly welcome.

NERR 1992 STEERING COMMITTEE

The Steering Committee wishes to thank John Nelson for his assistance in developing the conference data base.

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OUTDOOR RECREATION
Outdoor Recreation I

ACTIVITY PACKAGES IN MASSACHUSETTS: AN EXPLORATORY ANALYSIS

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Traditional activity package research has sought to identify recreation groups as a function of participation rates and socio-economic classifications. A major problem in projecting recreation demand has been the failure to recognize that the chosen activity is undertaken at a specific resource. Therefore, recreation demand is hypothesized to be a function of travel diversification and that travel patterns may represent activity compatibility.

Introduction

Travel behavior may result from a series of possible scenarios including a desire to avoid conflict. As visitation of local park resources continues to increase, planners and managers must recognized the intertemporal travel patterns and resource dependency of many outdoor recreation activities. Traditional activity package research has sought to identify recreation groups as a function of participation rates or socio-economic classifications. A major problem in projecting recreation demand has been the failure to recognize that the chosen activity is undertaken at a specific resource. Without inherently linking the resource to the activity, one cannot define activity packages that are useful for park planners and managers. In other words, why do people go to an area and what group of activities do they engage in while there.

The purpose of this study is to explore the linkage between activity participation and destination choice in Massachusetts. It is hypothesized that the level of destination diversification is influenced by the type of activity in which one participates. Furthermore, the greater the diversification one undertakes, the more likely it will be that conflict may have driven the recreator to visit another site.

Literature

Recreation travel can be viewed in one of two ways; either people visit the same park repeatedly or they tend to exhibit diversified travel behavior. It has long been thought that much of travel was exemplified by repetitious travel choice. For instance, Marble and Bowlby (1968) investigated repetitious travel for households. They found people would repeat visits 75% of the time, thus indicating a high degree of travel concentration.

Recently, some geographers have questioned this belief. Hanson and Huff (1988) for example, explain repeat travel findings as a function of poor research design. The authors found that repeat travel was characteristic of short sampling schemes; and when travel patterns were considered for longer periods of time, considerable variation in behavior was found to exist.

Fesenmaier (1985) examined multidestination and diversified travel behavior for recreationists. He recognized that individuals may visit several parks and the failure to study these travel patterns may lead to an underestimation of participation levels.

To understand the reasons for travel diversification, Hanson (1980) reviewed the literature and found several possible explanations for diversified travel behavior. First, for example, travel diversification may result from an interest to spread risk by developing a portfolio of regularly visited destinations. Displacement by recreationists has caused alternative destinations to be selected in order to escape the conflict at the original site (Nielson and Endo 1977).

A second possibility for travel diversification may come about because of temporal, spatial and modal constraints. In a recreation context, this difference could be explained by comparing the experience for a family who takes a weekend picnic at the local park and a family who visits Yellowstone for the family vacation.

A third reason Hanson (1980) found was the need to reduce boredom by adding variety. This strategy may be classified as risk taking, collecting or trophy hunting (McAllister and Pessemier 1982). Further, this collecting process serves to stimulate interest in the National Park Services' (NPS) "Passport" program where visitors collect the Passport stamp for each of the NPS properties.

Activity and Resource Dependency

A major problem in projecting recreation demand has been the failure to recognize that the chosen activity is undertaken at a specific park resource and is therefore intrinsically linked to the physical resource base. Activities are not independent of the resource base. This relationship is important since it is the resource that is managed for the provision of the recreation experience (Driver et al. 1987).

Proctor (1962) was the first to hypothesize this relationship. In his study for the Outdoor Recreation Resources Review Commission (ORRRC), Proctor investigated participation rates in 15 different outdoor recreation activities and found several were uniquely tied to a particular resource base. This grouping yielded activities tied to water resources and the backwoods, implying the need for a particular resource type for certain outdoor recreation activities.

While important in recognizing activity/resource dependency, Proctor's study has one primary failing; the activities found to be resource based were derived only on participation rates and not actual travel to sites. This meant, for example, activities which were unlikely to be found at the same park resource, were grouped together.

A second wave of research considered these relationships. For example, Ditton et al. (1975) first considered water-based recreation by investigating the four unique environments. They found the environmental factors were major determinants of travel behavior even within the same activity category. For example, "Fishing in a stream is quite unlike trolling in Lake Michigan, and the activity at a beach is quite unlike that of a pool" (Ditton et al. 1975:292). Therefore, specific activities are found at specific resources which in turn, directs recreators to seek alternative destinations for alternative activity experiences.

Recognizing that recreation behavior takes place on specific resources, a study by Fesenmaier and Lieber (1988) investigated the travel patterns of recreationists in terms of number of different types of activities pursued and the number of park destinations visited. They hypothesized that recreator would have either of two travel tendencies: (1) concentrated travel behavior (traveling consistently to one or a very few parks for

the same activity), or (2) diversified travel behavior (where an individual tends to visit many parks for the same activity).

For example, water skiing and sailing were generally found to be undertaken at a single resource and thereby travel behavior was concentrated. This is logical since sailboats will be moored at a lake as well as the high horsepower boats needed for water-skiing. On the other hand, diversified travel behavior is found for canoeing. This activity may fuel destination diversification by directing families to seek alternatives to add to their portfolio.

More recently Bristow (1989) found Illinois' recreationists displaying different levels of travel diversification. Here, those who engaged in river canoe trips also sought new rivers to paddle. This was in contrast with lake canoeists who would congregate at the same resource on several trips. Further, this research established the significance of activity participation to explain travel diversification over the more traditional determinants of recreation demand (e.g., socio-economics and spatial distributions).

Activity Packages

Solitary activities are rarely found on a park resource base. Recreators engage in many outdoor recreation activities when at a park. McCool (1978) considered the attractiveness of water-based recreation sites. He reasoned that several outdoor recreation activities attracted people to water resources. For example, a household may wish to boat at a reservoir and also fish, swim and picnic. All activities are intrinsically tied to the particular resource and may require varying facilities to accommodate each. McCool recommended that management of water-based recreation resources and supporting infra- structure should be made to reflect the appropriateness of alternative activities. This further supports resource dependency needs for particular outdoor recreation activities.

There is a need to identify groups of activities that could maximize the use of public lands in order to maximize benefits to society. This area of investigation pertains to the identification of activity packages. However, unlike previous studies that used the term to find what group of activities could satisfy satisfaction and similar needs (e.g., Proctor, 1962; Hendee and Burdge 1974; Romsa 1973; Vaske, Donnelly and Tweed 1982), activity packages take on a different approach in the present study. Activity packages are defined as groups of compatible outdoor recreation activities that can be undertaken by recreators at the same resource base; all activities in the "package" may or may not be undertaken at the same time but all activities are resource dependent.

Methods

In terms of travel behavior, a continuum of activity packages may be derived. At one end, totally compatible activities are found. No conflict exists between the individuals undertaking these pursuits. At the other end, totally incompatible activities are present. Cross-country skiing and snowmobiling are classic examples of two incompatible activities found on the same resource base (Knopp and Tyger 1973). In between the two poles, are activities that are more or less sensitive to each other.

Conceptually, one can illustrate the possible relationships between the number of park destinations visited and the number of activities selected by a household (see Figure 1). It is hypothesized that multiple compatible activities at the same site should lead to a decrease in the number of alternative destinations chosen relative to the number of activities that are undertaken by recreators. A slope of less than one illustrates this relationship (b<1); more than one activity may be undertaken at a park resource. Alternatively, when more destinations are visited than the number of activities undertaken (i.e. b>1), one could speculate that the individual is diversifying travel behavior because of conflicts at the initially chosen site.

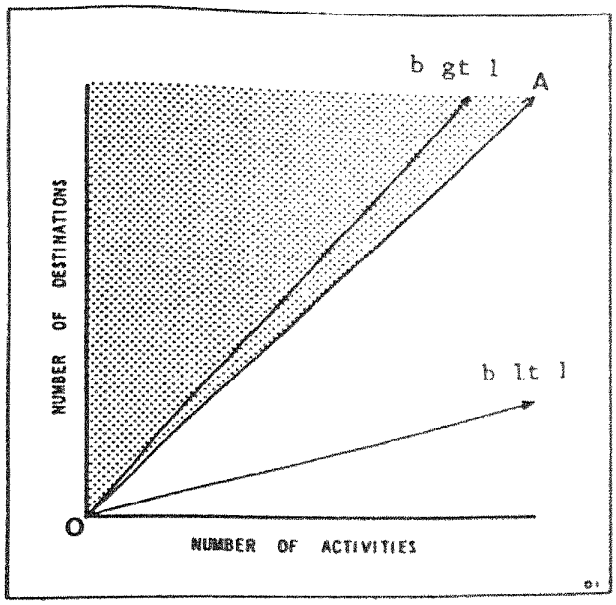

Figure 1. Hypothetical relationships between number of park destinations and number of outdoor recreation activities.

The Sample

The analyses identified in this research is based on the Massachusetts Department of Environmental Management data gathered for the 1988 State Comprehensive Outdoor Recreation Plan (SCORP). A description of the SCORP study is found in Smith et al. (1988). The project utilized a statewide stratified random digit-dialing telephone survey. Completed interviews yielded a sample size of 3,500. The household survey directed the interviewer to seek a head of household respondent over 16 years of age. The questionnaire included personal, socio-economic, and demographic information about the household, levels of participation in cold weather and warm weather recreation activities and the places where each activity took place most frequently. Additional insights sought included travel time and resource satisfaction.

The total number of activities undertaken over the course of the year was calculated. All unique destinations were counted to obtain the total number of resources the household visited during the previous year. These destinations were found both in the Commonwealth as well as outside the state. This is the dependent variable used in this research and is a measure of travel diversification.

Results

The model suggests that a causal relationship will exist between the number of outdoor recreation activities one selects and the resulting travel behavior as defined as the number of unique destinations visited. The results of the regression indicate that there is a correlation ($r^2 = 0.2115$). This information is found in Table 1 and supports the idea that the number of outdoor recreation activities one undertakes influences the number of different destinations choices. The positive parameter estimate (0.56) indicates that Massachusetts recreators tend to diversify travel behavior for one reason or another. The positive intercept (1.96) indicates a tendency to diversify travel since as soon as one decides to participate in an outdoor recreation activity, at least one park destination must be visited.

Table 1. Bivariate regression analysis

VARIABLE	ESTIMATE	STD. ERROR	T-TEST	PROB>(T)
INTERCEPT	1.9566	0.0326	29.388	0.0001
TOTAL # ACTS	0.5566	0.0189	59.955	0.0001

R^2=0.2115; ADJ R^2=0.2113; F VALUE=863.68, PROB>F=0.0001

Resource Dependency

To test the main hypothesis, a multiple regression model was calibrated with independent variables to determine whether or not the individual participated in each of fourteen different outdoor recreation activities. In this test, individual differences between recreators and their activity choice can be investigated. All activities were significant in explaining the travel behavior. The model results are given in Table 2. The degree to which travel behavior varies for the activities, indicates the relative variation of travel strategies within the context of specific activities. For example, high "b" coefficients indicate a trend to diversify choice among alternative destinations. Since at least one facility must be visited when one participates in one activity, the "b's" close to one represent diversified behavior.

Backpacking (parameter estimate = 0.68) is a typical example of an activity driving diversified travel. In contrast, low "b" values describe a situation where travel concentration is expected. For those households who go hiking or walking, travel concentration is evident.

Activity Compatibility

In order to consider activity packages, the possible interaction of all pairs of outdoor recreation activities was evaluated. Fourteen different activities taken two at a time yields 86 possible arrangements. The results of this step are summarized in Table 3.

TABLE 2. Multiple regression Analysis for participation in recreation activities.

VARIABLE	ESTIMATE	STD. ERROR	T-TEST	PROB>(T)
INTERCEPT	1.9622	0.0341	57.39	0.0001
COURT SPORTS	0.5728	0.0443	12.92	0.0001
BIKING	0.5467	0.0456	11.97	0.0001
HIKING/ WALKING	0.4352	0.0306	14.18	0.0001
FIELD SPORTS	0.5670	0.0592	9.57	0.0001
SWIMMING	0.6209	0.0301	20.61	0.0001
BOATING	0.5313	0.0683	7.77	0.0001
FRESH FISHING	0.6497	0.0716	9.07	0.0001
SALT FISHING	0.5880	0.0774	7.59	0.0001
CAMPING	0.6760	0.0644	10.49	0.0001
PICNIC	0.5075	0.0638	7.94	0.0001
VISIT PARKS	0.4696	0.0910	5.16	0.0001
BACKPACKING	0.6817	0.1371	4.97	0.0001
HORSE RIDING	0.5101	0.1238	4.12	0.0001
GOLF	0.6190	0.0567	10.92	0.0001

R^2=0.2215; ADJ R^2=0.2181; F VALUE=65.18, PROB>F=0.0001

Table 3. Multiple regression analysis for participation in pairs of activities.

Compatible Activity Packages	b Parameter
Boating & Visiting Parks	-0.649
Camping & Visiting Parks	-0.504
Incompatible Activities	**b Parameter**
Horseback vs. Golf	0.6191
Field Sports vs. Visiting Parks	0.5671
Court Sports vs. Picnics	0.4887
Salt Water Fishing vs. Backpacking	0.6893
Biking vs. Fresh Water Fishing	0.5467
Boating vs. Camping	1.1804
Swimming vs. Visiting Parks	0.6209
Backpacking vs. Visiting Parks	0.4352

R^2 = 0.2215, Adjusted R^2 = 0.2181, F VALUE = 65.18, Prob. > F = 0.0001, parameters significant at 0.0001 level.

Several pairs of activities were found to influence the number of destinations visited. Those that tended to decrease the number of destinations traveled to are shown by a negative coefficient and can be termed compatible. Compatible pairs of outdoor recreation activities will tend to decrease the number of different park resources visited by households participating in both activities. Conversely, positive coefficients represent those pairs of activities that increase the likelihood of visiting more parks and these pairs of activities could be classified as incompatible.

Examples of incompatible outdoor recreation activities include boating and camping. This indicates that the Massachusetts recreators will visit a greater number of sites if they participate in both activities. While both activities are found at many of the Commonwealth's public parks, individuals must be undertaking these activities on separate trips. Other activities make sense; obviously horse back riding and golf are examples of incompatible packages.

Both field sports (i.e., soccer, softball) and court sports (basketball, tennis) appear to be incompatible with visiting parks and picnicking, respectively. One could conclude that school yards adequately serve these users and that the park system need not include these sports in the activity offerings. The other incompatible activities are clearly evidence of resource dependency. Saltwater fishing and backpacking are examples.

Compatible activities, (those with significant negative coefficients) are best exemplified by boating and visiting parks (b = -0.65). Other activities that appear to be compatible are camping and visiting parks. These situations support the establishment of boating and camping at state parks. It is interesting to note the high diversification of camping and boating. People must be visiting parks to camp or boat, but not both.

Implications

In summary, one can see that destination diversification depends on the activity selection. The best predictor of this travel behavior is the choice of one's activity. Several activities were shown to be correlated with diversified travel. Others, were shown to explain travel concentration. The implications of this are important when one considers the limited funding available in the state park system.

For instance, diversification may represent an over supply or abundance of resources for that particular activity. Needless offerings can be withdrawn based on the travel patterns of individuals. Alternatively, concentrated travel may lead planners to provide activity packages that can be uniformly offered throughout the state park system.

Future investigations should include a measure of recreation intensity. This measure may represent activity specialization, and those intensely participating in certain activities may not be willing to give up a favorite fishing spot or secret camp. Travel time might help to explain travel diversification since longer travel may represent activity specialization as well. Additionally, the spatial structure of Massachusetts park sites should be identified, since the aggregation of visitors by market supply may provide a better explanation.

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THE ADIRONDACK PARK:

CHANGING PERCEPTIONS OF RESIDENTS

TOWARDS PARK LAND USE ISSUES

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During the summer of 1989, 330 Adirondack Park residents were interviewed using a mail questionnaire regarding their perceptions of land use change due to tourism and commercial recreation growth in the Adirondack Park. In the summer of 1991, the respondents to the 1989 mail questionnaire were contacted by telephone to determine if their perceptions of the impact from increasing tourism and commercial recreation development had changed. The results of the 1991 survey suggest that the study group perceptions had moderated in their negative view of the impact of tourism and commercial recreation development on the Adirondack Park since 1989.

Introduction

"What was left ... was a vastly altered environment. Without stands of timber or a forest floor, ...water evaporates more quickly or runs off steep hills. It is no longer released quickly, diminishing the possibilities for fast second growth trees. The habits, food supplies, and distribution of many animals are disrupted (Keller, 1980: 97)."

The above quotation does not describe conditions in the rain forests of South America, Asia, and Africa today, but the Adirondack region of New York State in the late 1800's. New York reversed the environmental decline of the region by creating a state forest preserve in the Adirondacks in 1885, declaring the region a park in 1892, and protecting the forest preserve lands with the historic "forever wild" amendment to the state constitution in 1894. Since then, the Adirondack Park has grown to six million acres (1/5 of the total area of New York State), which is one million acres larger than Olympic, Yellowstone, Grand Canyon, and Yosemite National Parks combined. Its size, location (60 million people live within a days drive of the park), recreational resources (2,300 lakes and ponds, 1,200 miles of river, 30,000 miles of brooks and streams, 42 peaks over 4,000 feet in elevation, 2,000 miles of hiking trails, and 43 state camp grounds), "forever wild" constitutional protection, and combination of public and private lands make the Adirondack Park the world's foremost experiment in environmental protection through land use planning.

Despite its significance to the environmental movement, the Park's centennial year has been marked as much by controversy as it has by celebration. Environmental groups are backing a bill proposed in the Democratic controlled state Assembly that would significantly decrease the number of new homes that could be built in the park, and require that waterfront homes within the park be set well back from the shoreline. This legislation has been rejected by the deputy majority leader who has held unofficial veto power over Adirondack legislation in the Republican dominated state Senate. With strong support from park residents, legislation has been proposed that would eliminate the Adirondack Park Agency (APA) which regulates development on private lands within the park, and limit the designation "Adirondack Park" to the land owned by the state. Whatever the result of these legislative initiatives, it is clear that the policy debate surrounding the park is becoming increasingly polarized and counter-productive.

The roots of this polarization can be found in events that took place in the Adirondack Park in the mid-to-late 1980's. The sale of large Adirondack tracts to land speculators prompted the media and environmental groups to proclaim that the park was facing a "development crisis" (Knustler, 1989, Barth, 1988, and Bauer, 1988). Responding to these concerns, Governor Mario Cuomo appointed a Commission on the Adirondack Park in the 21st Century to develop a set of policy recommendations for the park. When the Governor's Commission released its final report in June of 1990, many park residents responded with (sometimes violent) protests and acts of civil disobedience. In 1991, park residents led a successful fight to defeat the Environmental Quality Bond Act that included $950 million to purchase additional state-owned land, much of which was speculated to be in the Adirondack Park.

The attitudes and perceptions of the Adirondack Park's 130,000 permanent and almost 200,000 seasonal residents are crucial to understanding this polarization. In 1989 a majority of a random sample of 330 permanent and seasonal park residents reported that they perceived the rate of development in the park to be "too fast," almost 2/3's reported that environmental conditions in the park were declining, and only a little over 1/4 reported that the jobs created by development were worth the changes they caused in the park (Buerger and Pasquarello, 1990). In light of these results, the increasing conflict between environmental groups and residents over Adirondack Park land use issues suggested that resident's perceptions of the impact of tourism and commercial recreation growth had changed dramatically.

The purpose of this study was to re-survey the original sample of Adirondack residents on key questions from the 1989 study concerning the effects of development on the park and collect new data on residents' perceptions of the Governor's Commission and the Environmental Quality Bond Act. This paper compares the results of the two surveys, examines the impact of intervening events on perceptual changes in residents' perceptions of the impact of tourism and commercial recreational growth, and explores the implications of the changes on the future of the Adirondack Park.

Procedures

With guidance from various state agencies and environmental groups, and drawing on a survey of Adirondack landowners conducted by Cornell University's School of Rural Sociology (Geisler et. al., 1985), a survey instrument was designed to measure residents' perceptions of land use change due to tourism and commercial recreation growth in the Adirondack Park. Specific questions were cast in five dimensions: demographics, recreation, development and environment, park management, and the forest products industry.

A random sample of households residing within park boundaries was drawn by Survey Sample, Inc. of Norwalk, Connecticut, from its sampling frame of 78 million homes and addresses representing over 88 percent of all U.S. households. After two mailings, 330 responses (40 percent of deliverable questionnaires) were gathered and analyzed during 1989.[1] In the summer of 1991 the respondents to the 1989 mail survey were contacted by telephone, and 150 agreed to participate in the follow-up study.

Results

Results from the 1991 re-survey indicate that Adirondack Park residents' perceptions of the impact of commercial recreation and tourism development had changed significantly since 1989. For all of the development related questions, respondents moved from negative perceptions about development and its associated

environmental impacts to a general belief that the park was not being threatened by new development. Specifically, nearly 60% of the sample group perceived the rate of development as being too fast in 1989. By 1991, only 40% responded in this fashion, while an additional 13% responded that the rate of development was "about right." Complete results for this question can be seen in Table 1.

Table 1. Adirondack Park residents' perceptions of the rate of development within the Adirondack Park.

Perception of Development	1989 Study n=324	1991 Study n=150
	PERCENT	PERCENT
Too Fast	59	33
About Right	27	40
Too Slow	8	17
Don't Know	7	9
Total	101*	99*

*due to rounding

Similarly, when questioned as to whether the growth of commercial recreation and tourism development was changing the character of the park, in 1989 79% of respondents agreed that it was. In the 1991 survey only 50% of the respondents perceived changes in the park resulting from development. In 1989, change had a negative connotation, with 64% of respondents reporting that environmental conditions in the Adirondacks were declining, while in 1991 only 33% responded in this manner. The complete results for these questions can be seen in Tables 2 and 3.

Table 2. Adirondack park residents' perceptions toward whether or not increased development is changing the character of the Adirondack Park.

Development is Changing the Character	1989 Study n=330	1991 Study n=150
	PERCENT	PERCENT
Agree	73	50
Neutral	11	16
Disagree	13	34
Don't Know	4	0
Total	101*	100

*due to rounding

1/ To determine the extent of bias resulting from self-selection in the mail survey, a follow-up phone survey of 79 randomly selected non-respondents was conducted in the summer of 1990. The demographic characteristics (age, income, education, years of residence in the park) of non-respondents and respondents were virtually identical, suggesting that self-selection bias did not seriously skew the results of the mail survey.

Table 3. Adirondack Park residents' perceptions of environmental conditions within the Adirondack Park.

Perception of Conditions	1989 Study n=327	1991 Study n=148
	PERCENT	PERCENT
Improving	7	16
About Same	29	51
Declining	64	33
Total	100	100

In 1989, the economic benefits of increasing commercial recreation and tourism development did not appear to offset concerns about the negative impacts that may result from such growth. Sixty five percent of those surveyed reported that they did not believe the jobs created by development were worth the changes they would cause to the park. By 1991, only 24% of the sample had a similar response. Complete results for this question can be found in Table 4.

Table 4. Adirondack Park residents' perceptions of whether or not jobs created by development are worth the changes they cause to the Adirondack Park.

Perception Towards Jobs	1989 Study N=322	1991 Study N=149
	PERCENT	PERCENT
Jobs Worth Changes	26	39
Jobs Not Worth Changes	65	24
Don't Know	9	38
Total	100	101*

*due to rounding

The results of the 1989 survey indicated that most Adirondack residents did not seem to be knowledgeable about the "forever wild" amendment to New York's constitution that protects state owned lands in the park. Despite the intense public debate and media attention focused on park management and planning that resulted from the controversy surrounding the report of the Governor's Commission on the Adirondack Park in the 21st Century, the percentage of 1991 study respondents who correctly identified state lands in the park as constitutionally protected actually declined from 47% to 43%. Complete results for the question pertaining to residents' knowledge of the constitutional protections afforded state lands in the Adirondack park can be found in Table 5.

Table 5. Adirondack Park residents' knowledge of the protection of the forest preserve by the New York State Constitution.

Forest Preserve is Protected by the Constitution	1989 Study n=329	1991 Study n=150
	PERCENT	PERCENT
Yes	47	43
No	5	7
Don't Know	48	51
Total	100	101*

*due to rounding

It was not possible to conduct T-tests for the difference between the means for responses from all 150 subjects who agreed to participate in both surveys due to the use of a different questionnaire coding system on the second mailing of the 1989 survey. Of the 150 subjects who participated in both studies, 92 could be positively matched with both their 1989 and 1991 questionnaires. Even with the smaller sample size, the T-test showed significant differences between the means (.05 level) for the response to the questions: rate of development (Table 1), changing character of the park (Table 2), environmental conditions (Table 3), and value of new jobs (Table 4). Response to the constitutional protection question (Table 5) did not result in a statistically significant difference in means between the two studies.

The surprising number of residents who appeared to be unaware of the unique constitutional protection afforded state lands in the Adirondack Park, and the hostile reaction of Adirondackers to the report of the Governor's Commission on the Adirondack Park in the 21st Century and the 1991 Environmental Quality Bond Act prompted the addition of four new questions about park management and political issues in the 1991 survey.

The results of the 1991 survey underscored the depth of residents' misunderstanding of the salient characteristics that distinguish the Adirondack Park. Only 43% of the 1991 sample knew that New York's Department of Environmental Conservation was responsible for managing the Public Forest Preserve park lands and only 59% knew that the Adirondack Park Agency was responsible for planning and regulating private land use in the park. Complete results for these questions appear in Tables 6 and 7.

Table 6. Adirondack Park residents' belief about the New York State agency responsible for managing the public forest preserve lands in the Adirondack Park. n = 150

	FREQUENCY	PERCENT
NYDEC	65	43
APA	38	25
Other	15	10
Don't Know	32	21
Total	150	99*

*due to rounding

Table 7. Adirondack Park residents' belief about the New York State agency responsible for planning and regulating private land use in the Adirondack Park. n = 150

	FREQUENCY	PERCENT
APA	89	59
NYDEC	6	4
Other	17	11
Don't Know	38	25
Total	150	99*

*due to rounding

The debate within the park about the recommendations of the Governor's Commission on the Adirondack Park in the 21st Century (issued April 1990) was generally characterized by the media as being overwhelmingly negative in terms of park resident support for the commission report. An additional question on the 1991 survey asked the sample group whether or not they agreed with the recommendations of the Governor's Commission on the Adirondack Park in the 21st Century. Only 13% of the subjects reported that they agreed with the commission recommendations. Similarly, subjects were not supportive of the 1990 New York State Environmental Quality Bond Act. Of those who responded, only 14% of the subjects acknowledged having voted during the preceding fall election in favor of the Environmental Quality Bond Act (complete results to these questions can be seen in Tables 8 and 9).

Table 8. Adirondack Park residents' who agreed with the recommendations of the governor's commission on the Adirondacks in the twenty-first century. n = 150

	FREQUENCY	PERCENT
Agree	19	13
Neither Agree Nor Disagree	54	36
Disagree	77	51
Total	150	100

Table 9. Adirondack Park residents who voted in favor of the 1990 New York State Environmental Quality Bond Act. n = 150

	FREQUENCY	PERCENT
Yes	21	14
No	86	57
Did Not Vote	21	14
Don't Remember	22	14
Total	150	99*

*due to rounding

Conclusions

The results of the 1989 and 1991 surveys show significant changes in residents' perceptions of the impact of commercial recreation and tourism development in the Adirondack Park. Since it is highly unlikely that development patterns in the park have changed significantly in such a short period of time, it is reasonable to assume that the changes may reflect residents' dissatisfaction with the Governor's Commission on the Adirondack Park in the 21st Century. Even though the Commission was appointed in January 1989, it did not issue its first interim report or hold public hearings in the park until October 1989. As a result, most residents were unfamiliar with the Commission and its charge during the June-September data collection period for the 1989 survey.

This changed rapidly as the residents began to hear of Commission recommendations, such as a one year moratorium on new development in the park, additional shoreline restrictions, and the acquisition of 654,850 additional acres for the Forest Preserve. The recommendations seemed to emphasize preservation of natural resources at the expense of greater regulation of private land. By the time data collection for the 1991 survey had begun, the release of the Commission's final report had triggered vocal, sometimes violent protests, acts of civil disobedience, and the formation of at least 20 different citizens groups in the park to protest the recommendations. The leader of one of the citizen groups summed up the feeling of many Adirondack residents, "I think that the commission report is the most outrageous assault on constitutional rights that I've seen in my adult life" (Staff, 1990). The Environmental Quality Bond Act, a part of which would be used to finance the acquisition of additional state land in the Adirondack Park, had also become a focal point for park residents' protests. In fact, much of the statewide opposition to the Environmental Quality Bond Act can be traced to negative information about the Bond Act put out by Adirondack interest groups (Staff, 1992).

The shifting perceptions of park residents has dramatic implications for the future of the Adirondack Park. It is significant that the Governor's Commission on the Adirondack Park in the 21st Century did not include a single member from

Adirondack local government. Furthermore, the commission held only two public hearings within park boundaries during its deliberations, and even those were held at a such a late date as to seem almost perfunctory. Unless steps are taken to include park residents in planning and decision making, further polarization of policy positions seems inevitable. The lack of knowledge displayed by residents about the salient features that distinguish the Adirondack Park is also cause for concern. Park managers and environmental groups must take steps to educate residents about the history, structure, and environmental significance of the Adirondack Park. Failure to take these measures may result in a future Adirondack Park characterized by conflict, environmental degradation, and a lost sense of park identity.

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IMPORTANCE-PERFORMANCE ANALYSIS: CONGRUITY/DISPARITY BETWEEN CHARTER BOAT CAPTAINS AND CUSTOMERS

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Lake Ontario charter fishing captains and customer were surveyed during the 1991 season to measure customer motivations, relative importance of charter operation characteristics to customers, and customers' evaluation of the captains' performance. The importance of various items was measured using both 5-point Likert scales and a weighted attribute approach and was evaluated using the importance/performance technique.

Introduction

The development of the Lake Ontario charter fishing industry has been successful because of the fishery management program of the New York State Department of Environmental Conservation, the entrepreneurial ability of the charter captains, and the demand for lake fishing access by the charter fishing customers. While the success of the fishery and charter business industry has been documented in previous research, knowledge about charter fishing customers has been anecdotal and subject to considerable speculation. The charter industry has made important economic contributions in the coastal region and the future of the industry rests on both fishery supply and customer demand (Dawson and Voiland, 1990).

The charter fishing industry along New York's Lake Ontario waters reportedly grew from 33 vessels in 1975 to 450 in 1985 and to 560 in 1990 (Murray et al., 1976; Voiland, 1987; Dawson 1991). These charter operations represent both capital investments and economic contributions to the local economy. The estimated current market value of the boat and equipment of the 563 charter operations located in the 1990 survey of New York's Great Lakes waters was $29 million (Dawson, 1991). The estimated revenues received by these operations in 1990 from customers taking the 29,840 paid charters was $9.9 million (Dawson, 1991). Beyond these direct revenues, the charter fishing industry has a much greater positive economic impact on New York's Great Lakes coastal region as the charter revenues are respent by captains to pay operating and other expenses, and as customers generate additional trip-related expenditures within the coastal region (Dawson et al., 1989).

While locating fish and having a reasonable probability of catching fish is an important ingredient for most anglers, many other social and recreational factors affect a customer's decision to fish. The three most important characteristics customers reported they sought in a charter were the captain's ability to locate fish, boat safety features, and the hospitality shown customers (Mahoney et al., 1985; Gunderson, 1988; Hushak and Mohammad, 1988; Kinnunen and Mahoney, 1989). Other contributing characteristics which were less important included: catch rate and species of fish in the area, size and appearance of the boat, and availability of comfort features and fishing equipment on the boat. Selection of a charter operation was influenced by the customer's reasons for going charter fishing. The most often stated reasons were: challenge and excitement, relaxation, to enjoy nature and the Great Lakes, and to get away from daily routines (Mahoney et al., 1985; Gunderson, 1988; Kinnunen and Mahoney, 1989)

Overall, angler motivation studies in the past 20 years have indicated that the motives for fishing are multiple, and that experiencing the natural environment, relaxation, and companionship were often rated by anglers as more important than were factors of catch; catch was rated more highly for tournament anglers and some highly involved anglers (e.g., Moeller and Engelken, 1972; Knopf et al.,1973; Fedler and Ditton, 1986; Absher and Collins, 1987; Loomis and Ditton, 1987; Siemer et al., 1989; Steele et al., 1990). Many angler studies were descriptive and generally relied on the Fishbein attribute-focused model (Ajzen and Fishbein, 1975) and measurements were based on Likert-type scales to rate the relative importance of various attributes or motives. In some studies, the attribute or motive scores were used with factor analysis or cluster analysis to construct scales (e.g., common motivational dimensions) using various subgroups of attributes or motives (e.g., consumptive). The scale scores were used to test for differences between various angler sub-groups or those with some distinguishing characteristics (e.g., tournament vs. non-tournament anglers) or to develop a linear regression equation to explain the variance of the component scales or attributes. However, implicit assumptions about the equal weight of each attribute or motives were common but generally these assumptions were not explicitly discussed and evaluated.

Both policy analysis and decision analysis tend to use more sophisticated models such as multiple attribute theory to explicitly surface the value or utility of each attribute and correspondingly develop weight factors between the attributes (Carroll and Johnson, 1990). The steps in conducting a multiple attribute analysis forces the researcher (and angler in the survey process) to compare the value (or weight) between the attributes, this process is generally not part of the Fishbein model. The importance of developing a multiple attribute model for angling motivations is that it begins to surface the process involved in angler choices and behavior. While multiple attribute models do not give a detailed explanation of how decisions are made, they construct a more comprehensive and structured model than the Fishbein approach. Carroll and Johnson (1990) report that multiple attribute and weighted-additive models are the most useful analysis approaches for predicting choices. Given the need for predicting angler behavioral reactions to various fishery situations, the multiple attribute models may provide greater understanding and prediction about angler behavior.

The multiple attribute model approach to analyze angler decision-making is combined in this study with the importance/performance technique to show the value of the multiple attribute approach. The technique for importance/performance analysis is adopted from Martilla and James (1977) and Mengak et al. (1986). The basic technique is to graphically present the importance and performance measures as a means to evaluate the effectiveness of the captains in meeting customer expectations and motivations. The graph of importance/performance results in four quadrants that are described in a business management context as: (1) the lower left quadrant were importance and performance measures are low is characterized as "low priority"; (2) the upper left quadrant were importance is high and performance is low is characterized as "need to concentrate business resources here"; (3) the lower right quadrant were importance is low and performance is high is characterized as "possible overkill"; and (4) the upper right quadrant were both importance and performance are high is characterized as "keep up the good work".

The objectives of this study are to: (1) identify Lake Ontario charter fishing customer motivations during the 1991 season; (2) determine the relative importance of charter operation

characteristics to customers; (3) measure the customers' evaluation of the performance of those charter characteristics; and (4) compare customer responses to the captain's predictions of their responses.

Methods

This study of charter customers included two related surveys: (1) charter captains were surveyed to obtain customer mailing lists and to measure the ability of the captain to prediction customer motivations and performance ratings; and (2) customers were surveyed to measure their self-reported motivations and performance ratings of the overall charter experience. The survey questions were adapted from previous research of the charter fishing captains and customers in the Great Lakes states (Dawson et al., 1989).

The charter captains were randomly selected from the list of 563 charter businesses identified in a 1990 study of New York's Great Lakes charter industry. Surveys were mailed to the sample of 62 captains in September, 1991. Reminder letters were sent out and telephone calls were made up to November, 1991 in an attempt to increase the number of respondents (Dillman, 1978). Of the 62 captains selected, 2 were undeliverable, and 10 reported that they were out of business either for the year or permanently. Of the 50 still in business, 24 (48%) returned completed surveys.

All of the captains were asked to randomly select up to 15 of their 1991 customer names and addresses. The 24 participating captains provided 184 customer names and addresses for use in the customer survey. The customer surveys were sent out during September through November, 1991 and up to two reminder letters were mailed to non-respondents. Of the 184 customers sent a survey, 4 were undeliverable, and 111 were completed and returned for analysis (62% response rate).

Survey Results

Customers were asked to rate their motivations or reasons for going on their 1991 charter fishing trip using a five-point scale: (1) not important; (2) somewhat important; (3) important; (4) very important; and (5) extremely important. The average score ratings for 11 motivations are shown in Table 1 along with captains' predictions of the customers' responses and the difference between the responses (i.e., the captains' average score minus the customers' average score). Six of the 11 motivations had statistically significant differences between the mean responses of the customers and captains (i.e., T-test of means using separate variance estimates and a 2-tail probability with $P<0.05$ or 0.10).

Table 1. Motives or reasons why customers went on charter fishing trips on Lake Ontario in 1991, the captains' predictions of customers' responses, and the difference between responses.

Motives for Charter Trip	Customer	Captain	Difference
For relaxation	4.2	4.2	0.0
To enjoy nature and lake	4.0	2.8	-1.2 **
For challenge and excitement	3.9	3.5	-0.4 *
To get away	3.6	4.0	0.4 *
For companionship	3.5	3.4	-0.1
To catch trophy fish	3.0	3.3	0.3
Family togetherness	2.9	2.6	-0.3
To catch many fish	2.4	3.0	0.6 *
To catch fish to eat	2.3	2.8	0.5 *
To improve fishing skill	2.3	2.2	-0.1
To do business	1.3	1.7	0.4 *

T-test of means
** P<0.05
* p<0.10

The three most important customer motivations were relaxation, enjoy nature/lake, and challenge/excitement (Table 1). Customers reported that motives related to catching fish were not as important, on the average, compared to social and relaxation motives. Captains accurately predicted that relaxation was the most important customer motive. Captains tended to underestimate some of the customer motivations to enjoy nature and Lake Ontario, for challenge and excitement, and family togetherness; whereas, the captains tended to overestimate customer motivations related to catching many fish, catching fish to eat, and catching trophy fish.

Customers were asked to rate the characteristics or attributes important to their deciding to charter with a particular captain and boat on their 1991 charter fishing trip using a five-point scale: (1) not important; (2) somewhat important; (3) important; (4) very important; and (5) extremely important. The average score ratings for the 12 characteristics or attributes are shown in Table 2 along with the captains' predictions of the customers' responses and the difference between the responses (i.e., the captains' average score minus the customers' average score). Three of the 12 characteristics or attributes had statistically significant differences between the mean responses of the customers and captains (i.e., T-test of means using separate variance estimates and a 2-tail probability with $P<0.05$).

Table 2. Factors Characteristics or attributes important in the customer's decision to charter on a particular boat on Lake Ontario in 1991, the captains' predictions of the customers' responses, and the difference between the responses.

Attributes Used to Choose Charter	Customer	Captain	Difference
Hospitality of captain/crew	4.4	4.4	0.0
Captain's ability to locate and catch fish	4.3	3.8	-0.5 **
Safety aspects of boat	4.0	3.9	-0.1
On-board fishing equipment	4.0	3.4	-0.6 **
Fish species in area	3.7	3.5	-0.2
Appearance and cleanliness of boat	3.6	3.8	0.2
Catch rate in area	3.5	3.3	-0.2
Comfort facilities on boat	3.3	3.5	0.2
Size of the boat	3.1	3.3	0.2
Price of the charter	3.1	3.1	0.0
Recommendations from others	2.8	3.8	1.0 **
Nearness to residence or summer home	1.8	1.7	-0.1

T-test of means
** P<0.05

The four most important customer decision items (e.g., characteristics or attributes) were the hospitality of the captain and crew, the captain's ability to locate and catch fish, the safety aspects of the boat, and the fishing equipment on-board the boat (Table 2). Captains accurately predicted that hospitality was the number one customer reason for choosing a particular charter and that the price of the charter was, on the average, one of the least highly ranked items by customers. Captains tended to underestimate some of the customer decision items such as the captain's ability to locate and catch fish and the equipment on-board the charter boat; whereas, the captains tended to overestimate customer reliance on the recommendations of other customers as a decision item.

Customers were asked to compare the relative importance of 11 characteristics or attributes in their decision to charter with a particular captain and boat on their 1991 charter fishing trip.

The instructions were to distribute 100 points between these characteristics or attributes to reflect how they value each of these items (i.e., weight each attribute). The average score ratings for the 11 characteristics or attributes are shown in Table 3 along with the captains' predictions of the customers' responses and the difference between the responses (i.e., the captains' average score minus the customers' average score). One of the 11 characteristics or attributes had statistically significant differences between the mean responses of the customers and captains (i.e., T-test of means using separate variance estimates and a 2-tail probability with P<0.10).

Table 3. The weighted importance of various characteristics or attributes in the customer's decision to charter on a particular boat on Lake Ontario in 1991, the captains' predictions of the customers' responses, and the difference between the responses.

Attributes Used to Choose Charter	Customer	Captain	Difference
Captain's ability to locate and catch fish	18.9	18.4	-0.5
Hospitality of captain/ crew	14.7	15.3	0.6
Safety aspects of boat	10.8	8.6	-2.2
Appearance and cleanliness of boat	10.1	9.0	-1.1
On-board fishing equipment	8.4	7.2	-1.2
Size of the boat	8.1	9.0	0.9
Catch rate in area	8.1	7.6	-0.5
Price of the charter	6.8	10.3	3.5 *
Fish species in area	6.5	5.6	-0.9
Comfort facilities on boat	5.7	6.8	1.1
Nearness to residence or summer home	1.9	2.2	0.3
TOTAL	100.0	100.0	

T-test of means
* p<O.10

Customers were asked to rate the performance of the captain, crew, and equipment during the charter trip in 1991 on Lake Ontario using a five-point scale: (1) poor; (2) fair; (3) good; (4) very good; and (5) extremely good. The average score ratings for the 9 items are shown in Table 4 along with captains' predictions of the customers' responses and the difference between the responses (i.e., the captains' average score minus the customers' average score). Two of the 9 items had statistically significant differences between the mean responses of the customers and captains (i.e., T-test of means using separate variance estimates and a 2-tail probability with P<0.05 or 0.10).

The three most highly rated items were the performance of the captain and crew related to hospitality, the performance of the on-board fishing equipment, and the fishing assistance provided by the captain and crew (Table 4). Customers reported very high performance ratings for 6 of the items and above average ratings for the other 3 items. Captains tended to correctly predict the high customer performance ratings. The largest underestimation by the captains was of the customers high rating for the fishing assistance provided to the customer by the captain and crew.

Ninety-seven percent of the customers reported catching one or more fish on their charter trip on Lake Ontario in 1991. Overall, most (59%) of the customers were very satisfied with their 1991 charter trip on Lake Ontario. The remainder were either satisfied (27%), uncertain (8%), or dissatisfied to very dissatisfied (5%) with their trip.

Table 4. The customer rating of the performance of the captain, crew, and equipment during a 1991 charter trip on Lake Ontario, the captains' prediction of the customers' responses, and the difference between the responses.

Performance Factors to Rate Charter Experience	Customer	Captain	Difference
Hospitality of the captain/crew	4.6	4.5	-0.1
On-board fishing equipment	4.6	4.3	-0.3*
Fishing assistance provided by captain and crew	4.5	4.1	-0.4**
Appearance and cleanliness of boat	4.4	4.2	-0 2
Safety aspects of boat	4.4	4.5	0.1
Captain's ability to locate and catch fish	4.1	4.0	-0.1
Comfort facilities on boat	3.7	3.5	-0.2
Price of the charter	3.5	3.5	0.0
Catch rate	3.4	3.4	0 0

T-test of means
** P<O.O5
* p<O.10

Based on their experience, 97% of the customers reported that they will go charter fishing on Lake Ontario in the future and 91% of those who will return reported that they would charter with the same captain again. Seventy-three percent of the customers had chartered with the same captain during one to four different years over the previous four-year period (1987 through 1990): one year (18%); two years (19%); three years (11%); and four years (26%). Only 25% of the customers chartered with another captain on Lake Ontario during the five-year period of 1987-1991.

Importance/Performance Analysis

Customer satisfaction is a function of both the importance customers place on various attributes and their perception of the captain's performance. The evaluation of eight items important in the customer's decision to charter on a particular boat (Table 2) is graphed in Figure 1 with the customer's ratings of the captain's performance (Table 4). The importance items used in Figure 1 were based on the 5-point Likert type scales. All eight items are clustered in the upper right quadrant with high importance and high performance ratings. The evaluation of the ratings in the upper right quadrant is often characterized in the literature as "keep up the good work" and can be interpreted by the charter captains as an indication that no changes in management are necessary.

A second evaluation of the eight items important in the customer's decision to charter on a particular boat (Table 3) is graphed in Figure 2 with the customer's ratings of the captain's performance (Table 4). The importance items used in Figure 2 were based on the weighted total of 100 points distributed between the eleven items in Table 3. The eight items used are those that correspond with the eight items in the performance evaluation (Table 4). In this figure, only 4 of the items are clustered in the upper right quadrant with high importance and high performance ratings. The evaluation of the ratings in the upper right quadrant is characterized as "keep up the good work" and can be interpreted by the charter captains as an indication that no changes in management are necessary for these 4 items. Another 4 items are clustered in the lower right quadrant and this quadrant is characterized as being "overkill" because the importance levels are low and the performance levels are high. The additional separation of these later four items using the weighted attribute approach suggests that the charter captains could reduce their effort and expenses, to some degree, in these areas and maintain satisfied customers.

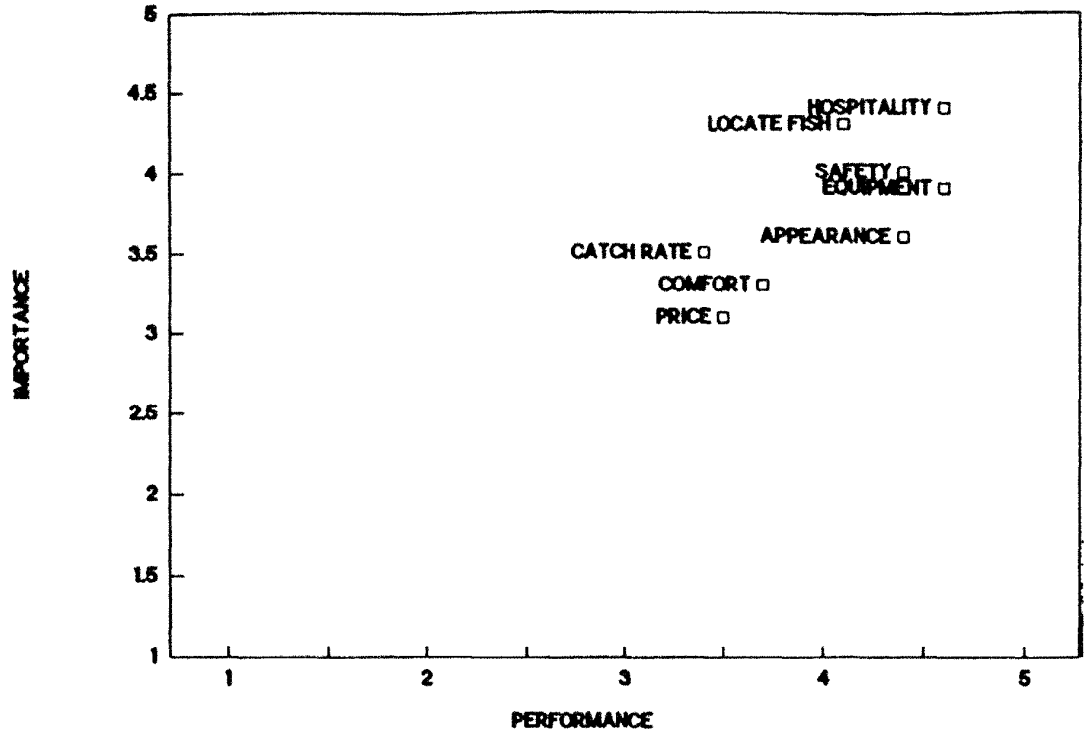

Figure 1. Importance and performance ratings of eight decision-making factors by charter customers; importance responses were 5-point Likert scales.

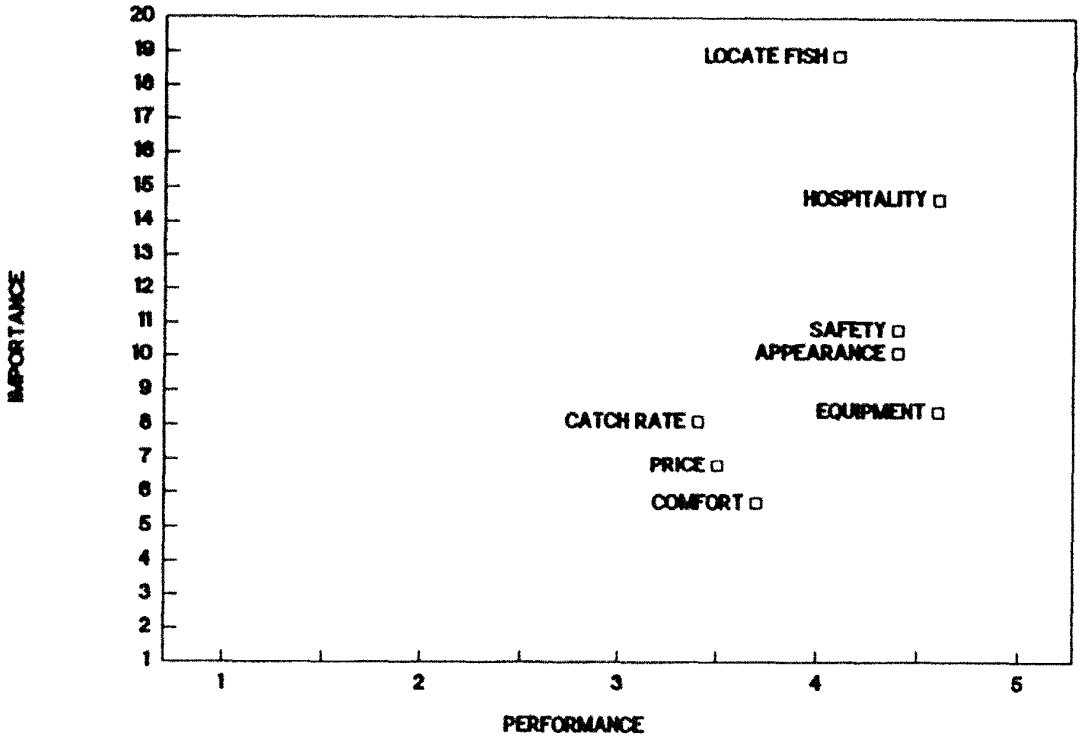

Figure 2. Importance and performance ratings of eight decision-making factors by charter customers; importance responses were weighted scales.

A discriminant analysis was performed to attempt to classify the customer's overall satisfaction according to their reported importance and performance ratings. This approach was used in an attempt to understand the relationship between the importance/performance measures and overall satisfaction and the difference in classification accuracy between the 5-point Likert scale importance measures and the weighted importance measures. The importance/performance items in both models

were standardized into Z-scores to account for the differences in variance evident between the 5-point Likert scale and the weighted scales. The four satisfaction categories were very satisfied, satisfied, uncertain, and dissatisfied to very dissatisfied.

The discriminant analysis model using the 8 items of importance and performance shown in Figure 1 (i.e., 5-point Likert scale) resulted in an 85% correct prediction or classification of the overall charter satisfaction rating. The discriminant analysis model using the 8 items of importance and performance shown in Figure 2 (i.e., weighted scale) resulted in an 82% correct prediction or classification of the overall charter satisfaction rating. The percent correctly predicted or classified and the standardized canonical discriminant coefficients suggest that both models provide a similar level of discriminatory power when attempting to predict the overall trip satisfaction level.

Discussion

The Lake Ontario charter customer motivations and the decision-making characteristics or attributes used to select a charter reported in this study are similar to those reported elsewhere in Great Lakes research studies. Similarly, the strong loyalty to a captain (i.e., the number of years a customer returns to charter with the captain) has been reported in several other Great Lakes studies. This high percentage of repeat business is one indication that customers are satisfied with the performance of the captains and their overall experience on a charter trip.

The captain's ability to accurately predict many of the angler responses is especially noteworthy and was not anticipated based on the research conducted to date on related recreational activities. The accuracy of the captains' predictions is partially related to the fact that these respondents are the captains who have survived a downturn in the industry and were willing to cooperate in this study. Thus, these captains may be more open to communication both with the researchers and their customers and more successful than average.

The importance/performance analysis suggests that the weighted attribute approach is better able than the 5-point Likert type scale to separate the relative importance of the various items and provide the charter captains with a critical evaluation of where they should use limited time and resources to satisfy customers. Both the 5-point Likert and weighted discriminant models were equally able to correctly predict or classify the overall trip satisfaction of the customers.

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USERS' PREFERENCES FOR SELECTED CAMPGROUND ATTRIBUTES[1]

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This paper examines campers' preferences for selected campground attributes, including campground fees, using conjoint analysis. The results indicate that campground fees or price is the most important attribute included in the study, followed by hot showers, flush toilets, bike paths and self-guided nature programs. However, moderate fee increases, accompanied by the addition of hot showers or flush toilets, are preferred over lower-priced campgrounds without hot showers or flush toilets.

Introduction

Because of the budget problems facing many of the states in the Northeast, state recreation agencies have fewer dollars to provide recreational opportunities. The Maine Bureau of Parks and Recreation is a case in point. It has experienced several budget cuts and two bond issues for upgrading and maintaining existing facilities have been defeated in referenda in recent years. On the other hand, several critical needs have been identified through the SCORP process. Given the current fiscal problems and the projection that the problems may continue for several more years, the Bureau is in need of information to prioritize camping needs so that it can undertake those programs that contribute most to the satisfaction of state park campground users.

One option that the Bureau could implement to obtain the revenue needed to provide additional services is to increase campsite fees at state parks. Previous research suggests that recreationists are willing to pay higher fees if they receive the services they desire (Economic Research Associates 1976) However, very little research has been done to determine how important user fees are, relative to other campground attributes, in terms of campers' level of satisfaction with a given camping experience. Consequently, the study also investigated campers' preferences toward user fees, in addition to selected other campground attributes or amenities.

Overall, the objective of the study is to determine the importance of selected campground attributes in campers' camping decisions. More specifically, we were interested in determining the campground attributes that are most important to campers and the utility values or "part-worth" utilities associated with the selected campground attributes using conjoint analysis.

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Conjoint Analysis

The theoretical foundation for conjoint analysis is based on the consumer preference approach developed by Lancaster (1966), who argued that consumers do not derive satisfaction from goods themselves, but rather from the attributes or characteristics the goods possess. In applying conjoint analysis to campgrounds, it is assumed that campgrounds possess attributes (distance from place of residence, for example) and that the level of these attributes vary among campgrounds (one-hour drive, two-hour drive, etc.). Respondents are presented with descriptions of different campgrounds with alternative combinations of attribute levels and they are asked to rank or rate the different campgrounds. Conjoint analysis then uses a decompositional rule to determine the relative importance of each attribute from respondents' overall rankings or ratings of the campground attribute bundles evaluated.

For the purpose of this study, four attributes were chosen. The attributes and attribute levels are:

Campsite fee:	$8, $12, $16 and $20;
One-way travel time:	1 hour, 2 hours, 3 hours and 5 hours;
Facilities:	Neither flush toilets nor hot showers, flush toilets only, hot showers only, and both flush toilets and hot showers;
Services:	Neither self-guided nature program nor bike path, nature program only, bike path only, and both nature program and bike path;

These attributes coincide with the services and facilities that have been identified as important campground needs in previous studies by the Bureau. For example, the one-way travel time attribute serves as a proxy for the need to develop another campground and thereby reduce travel time for residents in some areas of the state. Including price or campsite fee as an attribute allows one to determine the importance of campsite fees, relative to other attributes, to campers.

Each of the four attributes has four levels. Therefore, there are 4^4 or 256 possible combinations of attribute levels in a full-profile complete design. This is too many for campers to evaluate, so we constructed an orthogonal main-effect design, which reduces the number of combinations to be rated to sixteen (Addelman 1962). The orthogonal main-effect design assumes that the effects of each attribute on campers' utility are independent of the remaining attributes. Previous research suggests that this assumption may not be valid (Louviere and Timmermans 1990). To correct for this problem, a fractional factorial design was used that contains the orthogonal main-effect design and sixteen additional combinations of attribute bundles or "campgrounds". Consequently, the total number of combinations of attributes bundles included in the conjoint analysis is thirty-two. It is still, however, impractical to have respondents rate 32 attribute bundles in a mail survey. Therefore, a pseudo-attribute with eight levels was introduced, which established eight blocks with four campground bundles in each block. Respondents then were ask to rate the four campground attribute bundles in a block.

Data Collection Procedures

The information required for the conjoint analysis was obtained by presenting hypothetical state park campgrounds with different attribute levels to campground users. The 32 different campground attribute bundles were divided into eight sets of four campgrounds each, and respondents were asked to assign a rating between one and ten to each of the four campgrounds in the set.

The data were obtained through a mail survey of 400 campers who used the Maine state park campgrounds during 1990. The sample was selected randomly from the registration cards completed by campers when they arrive at the campgrounds.

Dillman's (1978) Total Design Method was used to conduct the mail survey, and a response rate of 91 percent was obtained.

Results

The data were used to estimate a part-worth preference model for state park campers. This model assumes that the utility of campers is affected by the attributes included in the analysis, and that the overall preference rating for a campground is the sum of the effects of each attribute on campers' utility. Based on these assumptions, the part-worth preference model estimated is:

$$\text{Campground Rating} = B_0 + B_1P12 + B_2P16 + B_3P20 + B_4Trav2 + B_5Trav3 + B_6Trav5 + B_7Show + B_8Toil + B_9Nat + B_{10}Bike + e$$

All of the attributes are categorical rather than continuous, and "effects coding" (Cohen and Cohen 1983) was used for the attribute levels; consequently, the intercept term in the estimated equation represents the mean preference rating for the 32 campgrounds and the coefficients on each independent variable is a measure of the deviation from the mean rating associated with the attribute level.

Table 1. Estimated conjoint preference model parameters.

Variable	Parameter Estimate	T-statistic
Intercept	5.2012*	76.127
P12	0.4241*	3.368
P16	-0.2582*	-2.051
P20	-1.3961*	-11.087
TRAV2	0.1959	1.602
TRAV3	0.4559*	3.727
TRAV5	-0.7835*	-6.405
SHOW	0.5517*	7.803
TOIL	0.5400*	7.085
NAT	0.0499	0.697
BIKE	0.2272*	3.181
Calculated Parameters		
P8	1.2302	$-(B_1 + B_2 + B_3)$
TRAV1	.1317	$-(B_4 + B_5 + B_6)$
NOSHOW	-.5517	$-B_7$
NOTOIL	-.5400	$-B_8$
NONAT	-.0499	$-B_9$
NOBIKE	-.2272	$-B_{10}$

R^2 = .22 F ratio = 37.31* n = 1312

*significant at the .01 level

The equation was estimated using Ordinary Least Squares (OLS) and the results are reported in Table 1. Nine of the eleven variables are statistically significant at the .05 level. The mean rating for the 32 campground attribute bundles is 5.2. Prices of $8 and $12 increase the mean rating because the coefficients on those variables are positive. In contrast, prices of $16 and $20 lower the mean rating since their coefficients are negative. Likewise, Trav3 increases the mean rating of campgrounds, while Trav5 decreases the mean value. The presence of showers, flush toilets and bike paths all increase the mean rating. Although the R^2 for the equation is only .21, the F-ratio for the equation is statistically significant.

Part-worth utility values for each attribute level are calculated from the coefficients in the estimated equation (Green and Srinivasan, 1978). These are shown in Table 2. The estimated part-worths represent the mean rating for all campground attribute bundles that contain that specific level of an attribute. The part-worths are calculated using the formulas shown in the Table.

Table 2. Estimated part-worth utility values for campground attributes.

Attributes & Levels	Calculation of part-worths	Estimated part-worths
Overnight campsite fee		
$8.00	$B_0 - B_1 - B_2 - B_3$	6.43
$12.00	$B_0 + B_1$	5.62
$16.00	$B_0 + B_2$	4.94
$20.00	$B_0 + B_3$	3.80
Travel time		
1 hour	$B_0 - B_4 - B_5 - B_6$	5.33
2 hours	$B_0 + B_4$	5.39
3 hours	$B_0 + B_5$	5.65
5 hours	$B_0 + B_6$	4.41
Hot showers		
showers	$B_0 + B_7$	5.75
no showers	$B_0 - B_7$	4.64
Flush toilets		
toilets	$B_0 + B_8$	5.74
no toilets	$B_0 - B_8$	4.66
Bike Path		
bike path	$B_0 + B_{10}$	5.42
no bike path	$B_0 - B_{10}$	4.97
Nature Program		
program	$B_0 + B_9$	5.25
no program	$B_0 - B_9$	5.15

The estimated part-worths are useful for two reasons. First, the magnitude of the part-worths indicate how respondents' utility ratings are affected by changes in the level of the attribute. For example, the part-worths for campsite fees decrease as the fees increase. This clearly indicates that campers prefer the lower-priced campgrounds to the higher priced alternatives, other things being equal. The part-worths for the travel time attribute suggest campers are relatively indifferent between one and two-hour travel times, and that a three-hour travel time better than the shorter travel times. However, the utility value for the five-hour travel time is lower than those associated with the shorter travel times. Hence, campers prefer to camp at campgrounds located about three hours from home. Finally, note that campgrounds containing the facilities and services have higher part-worths than the campgrounds that do not have those attributes.

Table 3. Relative importance of each campground attribute.

Attribute	Attribute Level Range	Relative Importance
Campsite fee	2.63	39.73
Travel time	1.24	18.73
Hot showers	1.11	16.77
Flush toilets	1.09	16.47
Bike path	.45	6.79
Nature program	.10	1.51
Total Range	6.62	100.00

Second, the range in the utility values for a given attribute provides an indication of the importance of one attribute relative to the other attributes. Specifically, the greater the

range in the part-worths across attribute levels, the greater the importance of that attribute to campers. The ranges for the four attributes, shown in Table 3, vary from 2.62 for campsite fees to only 0.10 for the nature program. This indicates that price is a much more important attribute to campers than are the other attributes studied. This result is reflected in the last column of the Table. The campsite fee accounts for about 40 percent of the total range over all attributes and is, therefore, the most important attribute in the analysis. Note that travel time, hot showers and flush toilets each account for 16-19 percent of the total range and are of approximately equal importance to campers. Finally, although the presence of a bike path is more important to campers than the nature program, neither of these attributes is as important as the other attributes.

Summary and Policy Implications

The overall objective of this study is to provide information that would assist the Bureau of Parks and Recreation in prioritizing the needs of state park campground users. The results from the conjoint analysis performed clearly suggest that the campsite fee is the most important campground attribute affecting campers decisions of where to camp in Maine. However, this does not necessarily mean that fees should not be increased to cover the costs of providing some of the other attributes considered in the study.

For example, assume that the current campsite fee is $8, average travel time is 5 hours, and none of the other attributes are offered in the campground. The average rating associated with this campground is 4.28. Now assume that the campsite fee is raised to $12 and hot showers are added at the campground. Other attributes remaining constant, the mean rating for this campground is 4.58, which is higher than the mean rating for the original campground. Clearly, the loss in utility associated with the fee increase is less than the utility gained by adding the hot showers. Increasing fees from $8 to $12 to cover the cost of adding flush toilets would also increase the average users' total utility for the campground.

Similarly, assume that a new campground is constructed that reduces travel time for users from five to three hours, and a fee of $12 is instituted at the campground. This campground would be preferred by the average camper over a campground that has an $8 fee and a five-hour travel time. The average rating for the new campground is 4.71 compared to the average rating of 4.28 for the same campground with a one-way travel time of 5 hours and an $8 fee.

Finally, different conclusions pertain to self-guided nature programs and bike paths. The loss in utility associated with increasing the fee from $8 to $12 is greater than the increase in utility associated with adding these services. Hence, the results indicate that fees should not be increased to pay for the provision of these services.

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OUTDOOR RECREATION
Outdoor Recreation II

HIKER CHARACTERISTICS AS AN INDICATOR OF PERCEIVED CONGESTION LEVELS IN THE SANDWICH RANGE WILDERNESS AREA

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Stewards of the Sandwich Range Wilderness Area have observed biological degradation due to overuse. Wilderness area users may be willing to modify their behavior in order to preserve the wilderness area. A survey of hikers defines characteristics which influence perceived congestion and identifies viable management schemes for the area.

Introduction

The Wilderness Act of 1964, Eastern Wilderness Act of 1975, and other resulting legislation, have been responsible for the establishment of the national wilderness preservation system within the United States. This legislation also attempts to outline specific policy guidelines for wilderness areas. As often is the case with federal policy, these policy guidelines are defined in general terms. The resulting ambiguity forces individual federal agencies charged with the management of wilderness areas to independently interpret objectives, and develop and implement plans for meeting their interpretation of objectives.

In 1984, 25,000 acres of the White Mountain National Forest were designated by Congress as the Sandwich Range Wilderness Area. New Hampshire's USFS managers were charged with developing a management plan for the Sandwich Range Wilderness Area that not only met their interpretation of policy objectives but also followed federal guidelines outlined for National Wilderness Areas. The past seven years have shown significant accomplishments regarding management within the Sandwich Range Wilderness, but there are still management concerns to be addressed.

The Sandwich Range Conservation Association (SRCA) has identified one of these concerns as significant adverse human impacts at Black Mountain Pond. Black Mountain Pond is one of only two large ponds located within the Sandwich Range Wilderness boundary of the Pemigewasset Ranger District. In June 1991, Forest Service and SRCA personnel inspected the site and deemed its deterioration to be at an unacceptable level. The reason attributed to the deterioration was overuse by hikers and campers in the area.

This inspection led to a consensus that Black Mountain Pond needs a committed management plan. Options discussed included establishment of a restricted use area, restoration of heavily trampled sites, removal or relocation of shelters, and establishment of latrine facilities, trail systems, and a wilderness education program. In addition, it was noted that information was lacking regarding public perceptions related to crowding and use. If wilderness area users have observed overuse symptoms, they may be willing to modify their behavior in order to preserve the ecology and enhance their own future wilderness experiences.

In this paper we attempt to analyze individual preferences for use levels of the Sandwich Wilderness Area. We also discuss willingness to participate in several defined management schemes. Utilizing data provided by the Sandwich Wilderness Area we will determine if present use of the area exceeds individual preference levels for number of users. By providing public impressions of crowding and potential management systems, our work may assist stewards of the wilderness area develop a practical user limitation scheme.

Literature Review

Hikers go to wilderness areas to get away from more crowded hiking trails in other areas (Manning, 1986). Yet an increase in the number of outdoor enthusiasts in general, and hikers in particular, has led to certain wilderness areas receiving the pressure they were designed to alleviate.

Researchers in certain national parks, like Yosemite and Sequoia, have found a saturation point beyond which people destroy the very solitude they seek (Van Wagtendonk, 1986). As a result, wilderness managers face the conflict of protecting the natural resource while preserving the recreational experience (Brown, 1990). If managers don't act, hikers surely will. A common coping method among hikers is "displacement" (Anderson and Brown, 1984). Displacement refers to changes in trip patterns and areas visited due to increasing use levels.

One result of research on wilderness crowding has been the use of terms such as "carrying capacity" in recreational literature when referring to hikers. In wildlife management, carrying capacity refers to the number of wildlife an area will support before vegetation is degraded or the population's health declines. In sociological terms, carrying capacity has been defined in terms of the number of acres in a wilderness travel zone, the trail miles in that zone and its ecological fragility (Van Wagtendonk, 1986).

Symptoms of overuse are easy to spot, especially at campsites: no vegetation, compacted soil, and fire rings (Kania, 1987). But sometimes, overcrowding is a matter of perception. Hikers feel crowded if they see more hikers than they expected (Shelby et al., 1983). That is, hikers who expect to encounter few others felt more crowded if their expectations are exceeded, even if the numbers of other hikers are relatively low. A traditional crowding model suggests that perceptions of crowding are influenced not only by the number of contacts one experiences, but also by how the number of individuals encountered compares to one's expectations and preferences for contacts (Graefe et al., 1986).

Certainly managers should act when the physical characteristics of wilderness areas are degraded. Permit systems and entrance fees are two methods (Stankey and Baden, 1977). Evidence suggests that wilderness users are more careful when they pay to use an area, especially if the public agency charging the fees also improves maintenance of the area (Clawson and Knetsch, 1966). But overcrowding based on visitor perceptions is harder for managers to solve. An important ingredient in wilderness management requires a forecast of future recreational demand; in a word, planning (Clawson and Knetsch, 1966). Managers, who actively seek out what users perceive as overcrowded conditions, can use education to provide a diversity of recreational opportunities (Shelby et al., 1983).

Experience of each hiker plays an important role in finding preferences and expectations. The more experienced a hiker, the more sensitive he, or she, is to crowding (Manning, 1986). Also, the size of groups allowed into a wilderness area can have an influence on what other hikers perceive as too crowded.

Visitors generally prefer meeting many small groups as opposed to one large group (Manning, 1986).

Manning (1986) found that several variables need to be accounted for when managers try to find visitor preference: type of area, preferred location of camping sites within an area, and preferred size of camping parties and environmental factors. The greater the environmental impact left by previous visitors, the higher the perceived crowding.

For New England, the problems are more acute because of fewer wilderness areas and a greater percentage of the population within a day's drive than in many of the western wilderness areas. Virtually all the wild country left in northern New England is in private hands, timber and paper companies (Wilderness Society, 1989). Until recently, local tradition in Maine and elsewhere allowed public access for recreation, but in the 1980's, companies began to sell to developers.

The U.S. Forest Service has divided the Sandwich area into four zones and developed a separate management objective for each zone. Each management objective suggests various methods for dispersing users and providing opportunities for solitude. Before Forest Service officials can disperse wilderness users, however, they first have to find out how many people are using the area, and what their points of entry are (USFS, 1989).

For the past three seasons, U.S. Forest Service personnel have been trying to count visitors in the White Mountain National Forest through the use of electronic counters. For two years, counters have been set up at designated trail heads leading into the Sandwich Range Wilderness (Smith, 1991). The counters are an "electric eye" type device that shoots a beam of infra-red light across a trail. Anytime the beam is broken, an attached counter makes note.

Elsewhere, wilderness managers have tried a variety of methods to measure actual contacts between hiking parties (Manning, 1986). Observer-reported contacts, reported contacts by visitors and diary contacts recorded during an outing have all been used.

Methods

The purpose of this study was to determine perceived congestion levels in the Sandwich Range Wilderness Area in central New Hampshire. The components of this involved determining general characteristics of hikers using the area, the level of use, and possible support for various policies to control crowding.

Hikers were contacted by personal interviews as they entered trail-heads to the Sandwich Range Wilderness Area. The interviews were conducted on two consecutive Saturday mornings in October of 1991. The site of the interviews were the Bennett St. trail-head to Flat Mountain Pond and the Livermore Rd. trail-head to Tripyramid Mountain and Greeley Pond. These trail-heads were recommended to the researchers as popular hiking locations within the wilderness area by personnel at the Sandwich Range Conservation Association in Plymouth, New Hampshire. The Sandwich Range Wilderness Management plan developed by the U.S. Forest Service identified four zones within the area. The trails from which primary data were collected are included in zones B and C, described as the more heavily used areas. This gave consideration to the season and enabled the researchers to obtain a better response rate for the survey. Regression analysis of the variables was performed to determine how various hiker characteristics affect perceived congestion levels and support for mitigation of overuse.

Data was collected by three methods in this study. The first was by the use of a survey. The survey was designed to determine general characteristics of hikers such as age, level of hiking experience, size of hiking party, and percentage of hiking done within the Sandwich wilderness, as well as level of support for different proposed policies to control use of the area. Several questions mirrored those developed by Brown (1990) regarding information provision in wilderness management at the Pemigewasset Wilderness Area.

The surveys were administered by the interviewers in an attempt to eliminate non-response bias and facilitate completion. Hikers were interviewed upon entry to trail-heads as hiker concentrations are less dispersed over time at starting points. The time of year (autumn) coupled with hunting season necessitated this condition for data collection. The U.S. Forest Service data regarding trail use in the Sandwich Wilderness Area was compared with data collected from the surveys regarding perceived congestion levels of hikers to determine if congestion is in fact a problem in terms of raw numbers of people.

Perceived congestion levels were also analyzed after personal and telephone interviews with several Forest Service personnel. Their perceptions of use and degree of hiker impact that presently affects the wilderness area were compared with hiker perceptions and counter levels.

The sample size consisted of 61 individuals ranging in age from twelve to fifty-five. A majority of the hikers were in their thirties. Brown's survey of 250 hikers in the Pemigewasset Wilderness Area produced similar results (Brown, 1990). The age distribution of both surveys are presented in Figure 1.

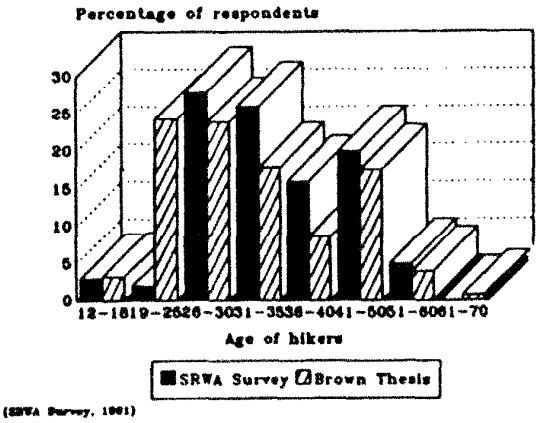

Figure 1. Age distribution.

Male/Female respondents were not differentiated between as most hiking parties included both, and parties tended to discuss survey questions before answering. Hiking party size varied from two individuals to nine which was also consistent with the Brown study (Brown, 1990). Most individuals interviewed were casual hikers, hiking approximately several time a year. Several were very experienced, hiking an average of three times per month. A majority of respondents hiked in the Sandwich Wilderness Area less than 10% of their hiking trips. About 15% of the respondents hiked there more than 50% of the time. All data was collected and analyzed to determine if congestion is a problem or if it has the potential to be a problem. In addition, potential policy recommendations to ensure that overuse does not negatively impact the wilderness area were developed and discussed.

Results and Discussion

It was determined that hiking experience had a significant coefficient at the 95 percent level in influencing individual's crowding level. Also, that hiker's experience influenced willingness to support a user management scheme at the 95 percent level. These results support Manning's work which concluded that the more experienced a hiker, the more sensitive he, or she, is to crowding (Manning, 1986) and therefore, the experienced hiker seeks more solitude in a hiking trip. Finally,

the results show that individual's hiking in larger parties do not have a higher threshold level for other visitor contacts.

The survey was administered at the trail-head on weekend mornings. This limited interviewing to hikers who were beginning their hike, so expected number of contacts versus actual number of contacts during a day did not bias preference levels. A possible bias in the results stems from interviewing an entire hiking party at once. Often one member of the party would answer first, and others would simply confirm the first answer.

The October climate hastened our questions and hikers replies. In addition, October is not peak season for recreational use. This may have influenced hiker's perceived needs for recreational management, or their willingness to participate in such management.

Daily use data was provided by the Forest Service within the Sandwich Wilderness Area. The number of hikers was measured by an electric eye which was tripped by motion. Weekend use in the summertime had the greatest number of hikers, an average daily count of 25 hikers. During the fall period, September 15-November 15, weekend use had average daily counts of 4 hikers. The most frequent response in the survey for maximum number of other visitors encountered before feeling crowded was ten. Figure 2 represents the responses concerning perceived congestion level. Crowding levels of 25 or below were preferred by 68 percent of the hikers interviewed.

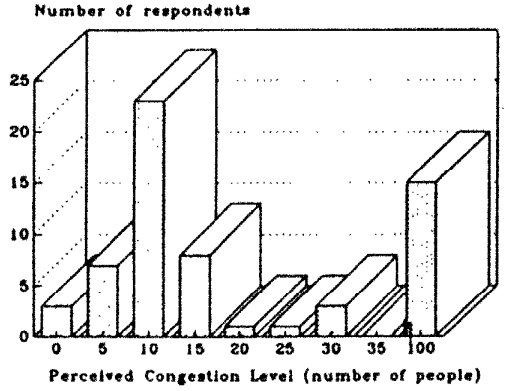

Figure 2. Perceived congestion levels.

Of the 61 respondents, 29 did not think a user control system was needed. Several qualified this answer by saying that the Sandwich Range Wilderness Area remains remote and pristine and so a management system seems superfluous. Symptoms of overuse -- fire-rings, litter, trampled vegetation -- may be uncommon, or may not be interpreted as evidence of overuse by all visitors. Many respondents, however, did support implementing a system. Respondents could support more than one policy if they so chose. There was a significant correlation at the 99 percent level with a coefficient of -4.255 between crowding threshold and support for regulation indicating that those with a lower threshold for congestion were more supportive of a management scheme to control use.

The most favored management scheme was voluntary dispersion based upon making available information of current use at each trail-head. This scheme reinforces "displacement" behavior by providing accurate information for hikers choosing unpopulated destinations. This method could also be implemented by simply posting sign-in sheets. It is effectively used by rock climbers to ensure free routes and safety without supervision by rangers.

A policy which requires hikers to obtain a permit before entering the wilderness was the second favored solution. The permits would be free and distributed on a first come, first serve basis. There would be a finite number of available permits. This solution would require regulation by the rangers. It would also provide an opportunity to disperse educational material concerning low impact use of wilderness areas.

Advanced registration and entrance fees were unpopular methods to manage use of the wilderness area. Both of these policies may be interpreted as antithetical to the wilderness experience. Wilderness land is owned by the general public and so accessibility should not be contingent upon an entrance fee. Advanced registration is a practice used for several national parks and other recreation areas, but the proximity of the Sandwich Range Wilderness Area to residential areas makes it available for day use which is often unplanned. Figure 3 presents the various levels of support for proposed management schemes.

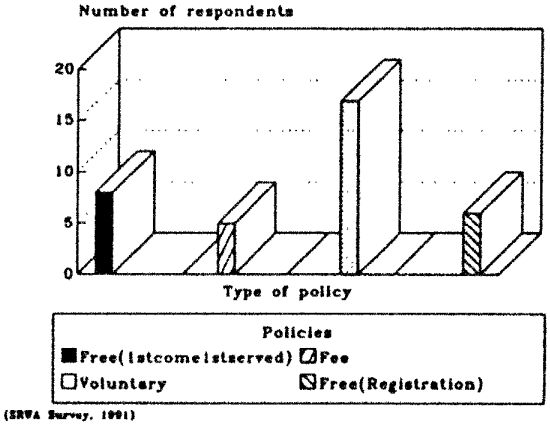

Figure 3. Support for management schemes.

Over half of the respondents perceiving no need for user management answered the crowding question with an infinite threshold for crowding. These responses correlated with hiking experience. Thirteen of the fifteen with unlimited use responses were cast by infrequent users. Possible explanatory hypotheses for protest responses are 1) that infrequent users are less aware of the impacts of overuse and 2) that infrequent users have different motivations and expectations for their wilderness experience.

The Forest Service emphasizes the ecological impact of overuse. They do not perceive a problem with diminished hiker's experience due to crowding. A management scheme which provides an educational opportunity to discuss low impact camping would therefore be most helpful. However, the results of our study illustrate three points clearly. First, that the number of users in the Sandwich Range Wilderness Area during peak use exceeds the number of visitors that most hikers prefer to see. Second, that the frequent users of the wilderness are more affected by crowding than infrequent visitors. And finally, that the frequent visitors are more willing to participate in a management scheme. These results illustrate that there is perceived congestion. The management schemes discussed would assist the Forest Service in mitigating ecological impacts of overuse in the Sandwich Range Wilderness Area.

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1990 STATEWIDE PUBLIC BOATING ACCESS STUDY

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The New York State Office of Parks, Recreation and Historic Preservation (OPRHP) and the Department of Environmental Conservation (DEC) conducted a study of 107 public boat launching sites from April-October, 1990. The study was designed to calculate total boating use of public facilities in New York and to determine use patterns, user characteristics, and perceived problems and needs of boaters at these sites. A total of 10,685 questionnaires were returned. Public access facilities support an estimated 435,000 boating trips or 1.3 million activity days. Fishing was the primary activity. New York residents accounted for 88% of the boating trips. The average size motorized boat was 16.8 feet long powered by an 83.1 HP motor. Public launch sites contributed an average of only 28% of the boats in use during the busy summer weekend and holiday period. Boaters identified 459 waters to which they desired new or expanded public access. The survey results will be used to guide future activities of OPRHP and DEC in providing recreational waterway access.

Introduction

New York State is blessed with an abundant waterway resource, including 4,000 inland lakes and ponds covering 750,000 acres, 439 miles of shoreline on Lake Erie and Lake Ontario, 190 miles of shoreline on Lake Champlain, and 1,667 miles of marine and coastal shoreline. In addition, there are 63,000 miles of permanent rivers and streams. These waterways have served as an important transportation network and contributed to the development of the state and are presently enjoyed by many for fishing, swimming, recreational boating, water supply, and aesthetic values.

DEC maintains 200 boating access facilities and OPRHP 75 sites. Public access is also available through 417 sites provided by municipalities. Commercial operators account for another 93 cartop and 1,021 ramp launch sites.(SCORP, 1988).

Funding assistance for the study was provided through the Land and Water Conservation Fund of the National Park Service, the Federal Sport Fish Restoration Fund of the U.S. Fish and Wildlife Service and the Recreational Boating Safety Financial Assistance of the U.S. Coast Guard.

Goals and Objectives

A statewide boating use survey at public access sites was jointly undertaken by DEC and OPRHP during the 1990 boating season (April 14 - October 14, 1990) to:

- provide data necessary to evaluate the amount, pattern, and types of use received by existing facilities;
- access boaters perceptions of problems and needs; and
- investigate the relative contribution of boating use attributed to state boating access sites compared with all other sources.

This information is needed to guide and support development, renovation, and maintenance of public access facilities

Methodology

The study included 107 boat launch sites across the state. This included 74 DEC sites and 33 OPRHP sites that served a range of water body sizes, from 25 acre Laurel Lake in the Adirondacks, to 2,270,000 acre Lake Ontario (New York portion), and facility capacities, from cartop sites with parking for four or five cars to large multi-launch lane facilities able to accommodate more than 150 cars and trailers. The aerial survey covered a subset of 21 lakes and the Mohawk River.

The 1990 boating season was subdivided into 6 strata for analysis of boating use and user characteristics based on season and weekday versus weekend/holiday periods. Seasons were defined as: Spring (April 14, - June 30), Summer (July 1 - September 3 (Labor Day), and Autumn (September 4 - October 14).

Data were obtained from three sources. Roving census agents counted vehicles and recorded data on lake and weather conditions at 48 sites. Boaters completed self-administered postage paid questionnaires left on vehicles (with trailers or cartop racks or other evidence of boat hauling capability) by census agents or distributed at 33 OPRHP park/access sites and 26 DEC campgrounds by entry gate personnel. DEC Division of Aviation conducted the aerial survey during each sampling frame to count all boats in use and all others docked or ashore.

Results

A total of 10,685 questionnaires were returned, including 8,009 from the 48 sites covered by DEC roving census agents, 796 from DEC Campgrounds, and 1,775 from 32 OPRHP facilities. A total of 104,854 trips were estimated from data at 48 sites covered by roving census agents. An additional 15,174 boating trips were calculated from 26 DEC campgrounds. These sites contained slightly more than 27% of the total installed public access capacity of all waterway access sites operated by DEC, OPRHP, and cooperative municipal launches. If the sites included in the survey are representative of the entire network of state waterway access sites, then the network of state sites supported approximately 435,000 boating trips in 1990. This represents 1.3 million days of boating recreation annually, based on an average of 3.0 persons per boat.

Seasonal Patterns

Statewide, summer weekends and holidays were the most popular days for boating (Figure 1) accounting for 31% of the estimated annual trips. The least popular period was autumn that experienced only 6% of the trips.

Site occupancy patterns were examined for 48 sites covered by DEC census agents. Seventy-nine (79%) of these sites filled to capacity at least once during the study, with most of these occasions occurring during the summer weekend/holiday stratum. The pattern of site occupancy relative to capacity is illustrated in Figure 2 which shows that nearly one-fourth of all census site-days in the summer weekend/holiday stratum were at or above capacity, twice that of the spring weekend/holiday stratum which was the next busiest period observed.

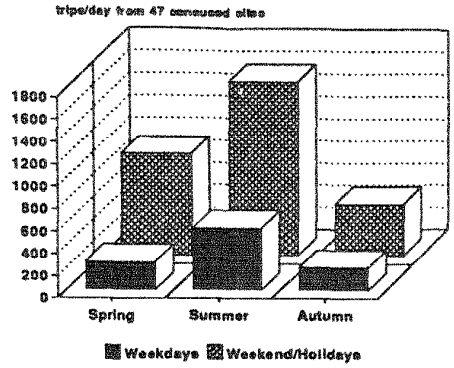

Figure 1. Number of boating trips by season and type of weekday.

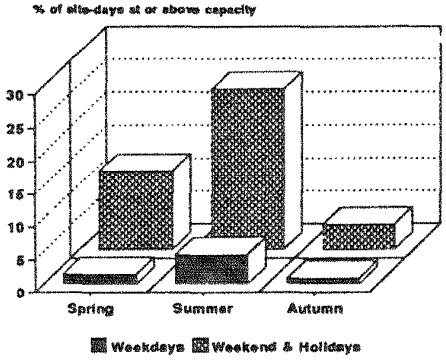

Figure 2. Number of vehicles to site capacity by season and type of weekday.

Daily Use Patterns

In general, weekends and holidays during the all three seasons experienced significantly higher use levels than weekdays. Figure 3 shows a clear and consistent relationship between day of week and use relative to capacity, with non-holiday weekdays (Monday - Friday) filling to capacity only about 2 or 3% of the time, compared with non-holiday weekend days (Saturday and Sunday) and holidays (any official holiday, regardless of day of the week), which filled between 12% and 24% of the time. Figure 4 shows a very similar pattern for the summer months, with the major difference being an across the board increase in the percentage of site-days observed at or above capacity.

A composite daily boating pattern was derived from all questionnaires reporting day trip starting and ending times. Figures 5 and 6 identify the effect of staggered starting and ending times of boating trips which likely reflects the patterns of fishing and non-fishing trips. Launch ramp activity is extremely busy between 10 a.m. and 6 p.m., both in terms of total launches and retrieves, and potential competition for launch lanes between those wishing to launch or retrieve. The peak number of boats in use occurred at 1:00 p.m. and represented approximately 53% of the total boating activity during the course of this composite day. By 2 p.m., more boaters are attempting to leave the water than launch, and retrievals continue to dominate increasingly throughout the rest of the day. For waterway access sites used near capacity, earlier-departing boaters vacate parking spaces that may then be used by late-arriving boaters, allowing greater use of the limited capacity of public sites by turning over parking spaces so that more than 1 boating trip per parking space can be accommodated each day.

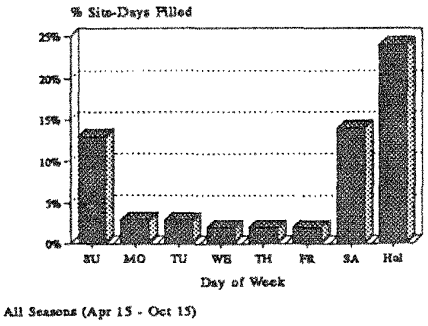

Figure 3. Relationship of day of the week to sites filling to capacity.

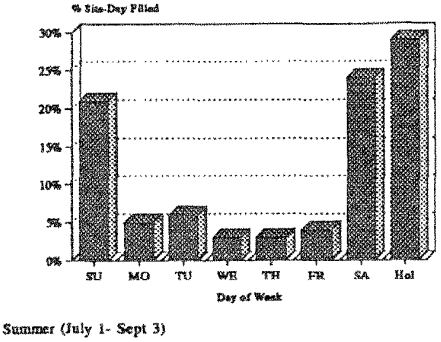

Figure 4. Relationship of day of the week to sites filling to capacity.

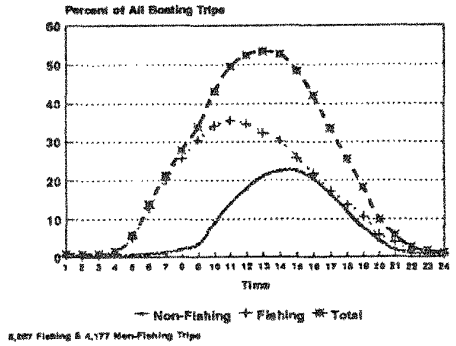

Figure 5. Distribution of boating activity by hour and purpose of trip.

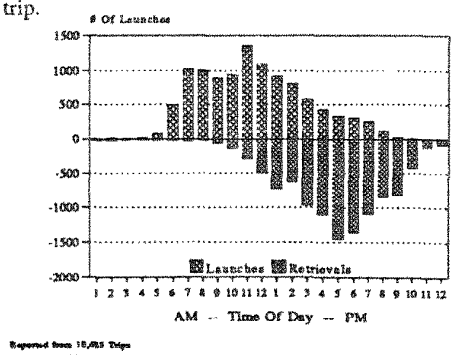

Figure 6. Boat launchings and retrievals by hour.

Purpose of Trip
Fishing was the activity identified by the most respondents in all seasons and types of weekdays, ranging from 47% during the summer weekends and holidays to 64% during the spring weekdays (Figure 7). Overall, 58% of boating trips were primary for the purpose of fishing. Of the non-fishing activities, pleasure boating was the activity named by the most respondents in all seasons and types of weekdays. Boaters identified swimming or water skiing on 12% and 11% of their boating trips, respectively, during the summer weekend/holiday stratum. There was considerable variation among sites, from 9% whose primary purpose was fishing at Rollins Pond Campground in the Adirondacks to 97% at the Mexico Point OPRHP access facility on Lake Ontario.

Type of Boat
Boats powered by outboard motors were the most frequently used type of craft statewide (58% of all boating trips) and on each of the size classes of water bodies. Inboard/outboards were the next most commonly used type of boat accounting for 22% of the trips. This type was used by 31% of boaters on lakes greater than 25,000 acres, but only 4% on lakes less than 1,000 acres and small rivers. Canoes were the third most frequently used type of boat, accounting for nearly 11% of all boating trips at the sites covered by this study. This type was used by 32% of boaters on lakes less than 1,000 acres and smaller rivers, and by 10% of boaters on lakes between 1,000 and 25,000 acres. Slightly more than 5% of canoeists reported using a motor on their canoe, with an average rating of 3 HP. Rowboats were used by approximately 2% of boaters statewide, but nearly 10% of boating trips on lakes less than 1,000 acres and small rivers were in rowboats. All other types of watercraft were used less than 3% of the trips.

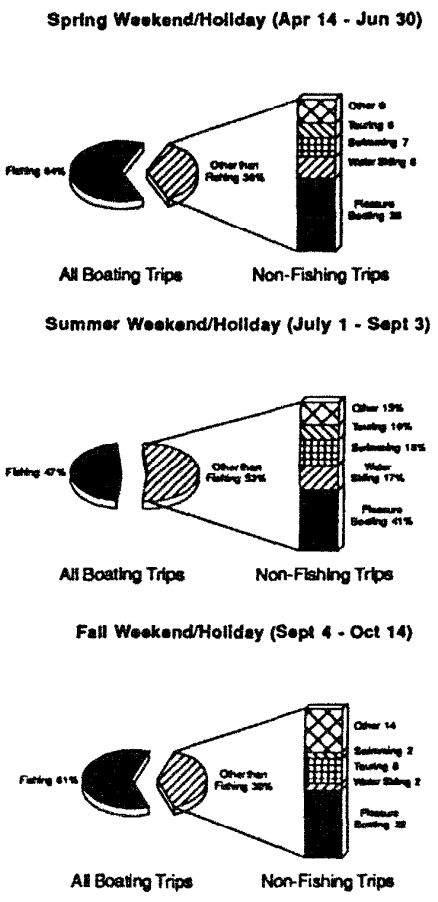

Figure 7. Primary purpose of boating trips.

The average motorized boat was 16.8 feet long and was powered with an 83.1 HP motor. As would be expected the size and horse power of the boat increased as the size of the water body increased.

Use of waterway access sites by non-boaters varied at the 48 sites covered by the census agents. Non-boater vehicle use ranged from 8% of all vehicles at Black Lake to 80% at Lake Superior. Overall this use accounted for 30% at all the sites. This was primarily caused by the multiple use of the site for other activities such as picnicking, temporary mooring, and shoreline fishing.

Site Amenities
Boaters were provided a list of 11 items and given the opportunity to indicate those items which needed to be provided (if not available) or improved. Parking capacity was most often selected (26%) by the respondents, followed closely by restrooms (25%). Docks (19%) and launch ramps (16%) were also frequently mentioned. Fish cleaning stations were noted as a desirable improvement by 14% of respondents. Since the responses logically reflected the boaters assessments of conditions at each individual site, which varied greatly in the range and condition of improvements provided, these statewide summaries are not as valuable or meaningful as individual site data. Another indication of the need for improvements is the number of sites at which more than 25% of the respondents selected a particular item (25% was selected as a threshold response rate above which an item was considered seriously deficient). From this perspective, of the 60 sites for which 40 or more completed questionnaires were returned, restrooms were the most frequently cited amenity (30 sites), followed by parking capacity (22 sites), docks (18 sites), and launch ramps (17 sites). Fish cleaning stations were mentioned rarely at inland sites, but were noted more than 25% of the time at 6 of 8 sites along the Great Lakes and St. Lawrence River.

Boater Use of Public and Private Boat Launching Sites
Boaters reported visiting the site at which they received the questionnaire an average of 13.4 to 14.4 days per year. Other public sites were visited 12.9 to 14.0 days per year, and private and commercial launch sites 5.6 to 6.0 days per year.

New York residents accounted for 88% of the boating trips, and the majority of trips (78%) originated from home. Overall, 61% of water access site users lived in the same or adjoining county as the location of the site. This indicates a preference of the boater to use a single site which is likely located within a reasonable distance from their home.

Public Site Contribution to Whole-Lake Boating Activity
Public sites contribute a relatively small proportion (28%) of all boats in use on lake during peak periods (summer weekends and holidays), and a smaller number but relatively greater proportion of boats in use during spring and fall seasons (Table 1). The aerial count data showed that the larger number of boats observed in use during the summer weekend and holiday period are attributable to the greater proportion of boats from non-public sources (riparian owners, clubs, marinas) that are being used during these times.

The Springtime frame was generally characterized by very light levels of use. Number of boats present and boat densities were low on all waters studied, probably a reflection of spring weather conditions and the absence of many seasonal camp-owners and marina-based boats. There was considerably greater use of public access sites on weekend and holiday days than weekdays (occupancy 37% vs. 12%, respectively), greater densities of boats in use 129 acres/boat vs. 467 acres/boat, respectively), and greater proportional use of all boats present (9% vs. 2%, respectively). Public boat access facilities contributed 40% of the boats observed in actual use on the water surface on weekends and holidays during the season.

The summertime frame was characterized by the highest levels of use. Numbers of boats present and boat densities reached peak observed levels on all waters. Weekends and holidays saw more than double the use of public access sites than weekdays (occupancy 89% vs. 39%, respectively), greater densities of boats in use (48 acres/boat vs. 78 acres/boat, respectively) and greater proportionate use of all boats present (11% vs. 6%, respectively). Public boat access facilities contributed 28% of the boats observed in actual use on the water surface on weekends and holidays and 21% on weekdays during the summer period. Boats originating from public access facilities contributed a smaller proportion of whole-lake use in the summer than in spring or fall because seasonal camp owner and marina-based boats fluctuated in numbers, reaching a peak in the summer, while the fixed capacity of public access facilities limit the maximum number of boats originating from this source.

Table 1. Public access site contribution to whole-lake boating activity.

	SITE OCCUPANCY	DENSITY (AC/BOAT)	ALL BOATS PRESENT	BOATS IN USE
SPRING	37% (12%)	129(467)	9%(2%)	40%
SUMMER	89%(39%)	48(78)	11%(6%)	28%
FALL	54%(8%)	110(499)	6%(6%)	52%

N = Weekend/Holiday, (N) = Weekday
Based on Aerial Survey of 21 Lakes
1990 Boat Access Survey

The fall time frame was characterized by very light levels of use, similar to spring levels. Numbers of boats present and boat densities decreased dramatically form summer numbers, as camp owners and marinas closed up for the season. Weekend and holiday days again saw considerably greater use of public access sites than weekdays (occupancy 54% vs. 8%, respectively), greater densities of boats (110 acres/boat vs. 499 acres/boat), and greater proportional use of all boats present (6% vs. 2%, respectively). Public boat access facilities contributed 52% of the boats observed in actual use on the water surface on weekends and holidays, and 30% on weekdays during this period.

Boaters Perception of Need to Expand Public Access

Survey respondents provided a great deal of information on waters that they felt needed new or improved public access. More than 48% of the completed questionnaires nominated one or more waters needing additional public access, resulting in a total of nearly 9500 nominations for 459 water bodies. The top 50 water bodies (Table 2) tended to be the largest waters with the most existing public access development.

Conclusion

Results of the 1990 statewide boating facilities use survey provide the first overall assessment of the public boating access program. The goals and objectives of the study were fully met. Given the type and scope of facilities surveyed, and the fact that all the sites studied combined represented 37% of the total installed public boating capacity in the state, the results constitute an excellent representation of the overall picture statewide.

The existing network of waterway access sites maintained by DEC and OPRHP is popular with boaters for fishing and general recreational access. Overall, fishing is the single most important boating activity supported by these sites, but a great deal of seasonal and site-by-site variation was observed in the relative importance of various boating activities. Local residents were the predominant users of sites, but many sites attracted visitors from elsewhere in the state as well as 27 other states and 2 foreign countries. Boaters contacted at these public launch sites reported using public launch facilities an average of 26-28 days per year and using private or commercial launch sites approximately 6 days per year. While the sites are intended to support day-use boating, many riparian owners reported using the public site to launch and retrieve their boats for the season.

Table 2. Top 50 waters needing new or expanded access as identified by boater.

1	Lake Ontario	26	Honeoye Lake
2	Lake George	27	Caroga Lake
3	Lake Erie	28	Round Lake
4	Otsego Lake	29	Erie Barge Canal
5	Hudson River	30	Raquette Lake
6	Oneida Lake	31	Chazy Lake
7	Great Sacandaga	32	Conesus Lake
8	Marine District	33	Chautauqua Lake
9	Delaware River	34	Genesee River
10	Mohawk River	35	Sacandaga Lake
11	St. Lawrence River	36	Lake Clear
12	Lake Champlain	37	Red Lake
13	Skaneateles Lake	38	Black River
14	Seneca Lake	39	Raquette River
15	Keuka Lake	40	Brant Lake
16	Saratoga Lake	41	Eagle Lake
17	Cayuga Lake	42	Peconic River
18	Otisco Lake	43	Silver Lake (Wyoming Co.)
19	Blue Mountain Lake	44	Lake Pleasant
20	Owasco Lake	45	White Lake
21	Ballston Lake	46	Black Lake
22	Cazenovia Lake	47	Swinging Bridge Reservoir
23	Niagara River	48	Muskelunge Lake
24	Canandaigua Lake	49	Lake Bonaparte
25	Moon Lake	50	Salmon River

The results of the survey will provide valuable information to help guide the rehabilitation, improvement and expansion of public waterway access sites in New York State. The information will be utilized in the development and updating of statewide, regional and site specific plans such as the Statewide Comprehensive Outdoor Recreation Plan, the Great Lakes 25-Year Plan and the Strategic Plan for Moderation of the Department of Environmental Conservation Waterway Access Facilities in New York State.

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MULTIPLE VERSUS SINGULAR PATTERNS OF OUTDOOR RECREATION USE

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The purpose of this study was to determine whether there were differences among various groups in the number of activities pursued during their visit to parks. Data were drawn from three in-park surveys of users of Cleveland Metroparks, a regional park district in Northeast Ohio. It was found that some groups of users pursued a multiple style of use, while others pursued a more singular style of use.

Introduction

In the last 15 years, a great deal of research has focused on the kinds of experiences recreationists seek while visiting outdoor recreation areas. Numerous studies have documented that people seek different combinations of experiences (Driver, 1976; Knopf, 1983). The kinds of outcome sought are related to prior experience with the resource, the type of activity pursued, prior involvement in the activity, the social group accompanying the recreationist, and the extent to which specific activities and experiences are dependent on environmental conditions present (Bryan, 1977; Schreyer and Knopf, 1984).

Most studies tend to assume that the experiences people pursue occur within the context of a single activity (e.g., camping, hiking, boating, etc.). In actuality, people may pursue many activities when they visit recreation areas (Field, 1976). Yet current research generally ignores the range of activities that people pursue while visiting such places. Consequently, little is known about the number of activities people participate in while visiting outdoor recreation areas. The purpose of this study was to determine whether distinct groups differ in the number of activities they participant in while visiting parks administered by Cleveland Metroparks, a regional park district in Northeast Ohio.

Study Area Characteristics

Cleveland Metroparks consists of over 19,000 acres of land in 12 different reservations (parks). Facilities and features operated by the Park District include hiking, bridle, and all purpose trails, golf courses, swimming beaches, nature centers, interpretive programs, picnic areas, play fields, wildlife sanctuaries, and boating and fishing areas. Overnight camping is provided on a very limited basis. Therefore, day-use is the primary mode by which people use Cleveland Metroparks.

The Study

Trained interviewers conducted on-site interviews during three-week intervals in the spring (N=1231), summer (N=2558), and fall (N=1084) of 1991. Interviews were conducted in parks in approximate proportion to the rate of attendance. Interviews were conducted on random days on both weekdays and weekends. Groups and visitors were interviewed using a random selection process.

Respondents were shown a card with 24 activities and asked simply to name those activities they planned to participate in while visiting. The dependent variable for this study was the total number of activities respondents said they planned to pursue. While three of the activities are actually experiences (relaxation, solitude, and to be alone with someone special), they were treated here as activities. Two activities (picnicking and group picnicking) were merged and treated as one activity.

Independent variables for this study included season of the year, park visited, patterns of use (frequency of visit, length of visit, travel time to park, number of others in party, number of children in party), demographic characteristics of visitors (gender, age, race, and level of income), and the type of activities pursued during one's visit.

Results

On the average, visitors participated in 2.29 activities during their visit. The range was 20. More than a third said they would participate in only one activity. One-quarter said they planned to participate in two activities. Less than 20 percent said they would participate in three activities. Less than one in ten said they planned to participate in four activities. Provided below are results of one-way analysis of variance for the relationships of different use and demographic variables to the number of activities people said they would participate in during their visit.

Season of the Year

Table 1 shows that the number of activities people engage in while visiting a park was significantly related to season of the year. Summer visitors pursued the most activities (Mean = 2.48), followed by spring visitors, (Mean = 2.27), with fall visitors engaging in the fewest activities (Mean = 2.06).

Table 1. Relationship of season of the year to number of activities pursued during visit.

Season	N	Mean Number of Activities	
Spring	1232	2.27	b
Summer	2558	2.48	c
Fall	1084	2.06	a

$F = 29.19$, $df = 2, 4871$, $p \leq .0001$

Means with different subscripts are significantly different at .05.

Park Visited

The number of activities people participate was also related to the park visited (Table 2). Visitors to Mill Stream Run reported participating in significantly fewer activities (Mean = 1.80) than visitors to most other parks. In contrast, visitors to Hinckley participated in significantly more activities (Mean = 2.66) than visitors to four other parks. Facilities and opportunities available at these parks differ markedly. Primary opportunities available at Mill Stream Run include hiking, bicycling, running, and picnicking. While Hinckley offers each of these opportunities, swimming and boating are also available.

Table 2. Relationship of park visited to number of activities pursued during visit.

Park	N	Mean Number of Activities	
Bedford	404	2.20	ab
Big Creek	332	2.61	ac
Bradley Woods	392	2.26	abc
Brecksville	370	2.41	ac
Euclid Creek	437	2.32	ac
Garfield Park	338	2.12	ab
Hinckley	458	2.66	c
Huntington	414	2.43	ac
Mill Stream Run	369	1.80	b
North Chagrin	406	2.59	ac
Rocky River	554	2.32	ac
South Chagrin	400	2.19	ab

$F = 9.68$, $df = 11, 4862$, $p \leq .0001$

Means with different subscripts are significantly different at .05.

Gender
The number of activities pursued was significantly related to gender (Table 3), with females participating in more activities (Mean = 2.54) than males (Mean = 2.16).

Table 3. Relationship of gender to number of activities pursued during visit.

Gender	N	Mean Number of Activities	
Females	2222	2.54	b
Males	2652	2.16	a

F = 77.16, df = 1, 4872, p ≤ .0001
Means with different subscripts are significantly different at .05.

Age
Age was found to be negatively related to the number of activities pursued (Table 4). In general, younger visitors reported participating in more activities than their older counterparts.

Table 4. Relationship of age to number of activities pursued during visit.

Age	N	Mean Number of Activities	
16-24	554	2.39	cd
25-44	2309	2.53	e
45-54	646	2.26	bcd
55-64	592	2.05	ab
65-74	508	1.94	a
75 +	103	1.82	ac

F = 21.71, df = 5, 4706, p ≤ .0001
Means with different subscripts are significantly different at .05.

Race
There was no significant relationship between race/ethnicity and number of activities pursued (Table 5).
Table 5. Relationship of race to number of activities pursued during visit.

Race	N	Mean Number of Activities	
Black	447	2.38	a
White	4324	2.32	a
Other	73	2.55	a

F = 1.05, df = 2, 4871, p ≤ .3502
Means with different subscripts are significantly different at .05.

Income
As evident from Table 6, there was no significant differences among income groups in the number of activities pursued.

Table 6. Relationship of family income to number of activities pursued during visit.

Family Income	N	Mean Number of Activities	
Less than $15,000	565	2.36	a
$15,000-$24,999	826	2.30	a
$25,000-$34,999	852	2.40	a
$35,000 +	1910	2.37	a

F = .65, df = 3, 4169, p ≤ .5842
Means with different subscripts are significantly different at .05.

Frequency of Visitation
As evident from Table 7, those who visit more than once a month participated in significantly fewer activities (Mean = 2.15) than those who visit about once a month (Mean = 2.46) or those who visit less than once a month (Mean = 2.52).

Table 7. Relationship of frequency of visitation to number of activities pursued during visit.

Frequency of Visitation	N	Mean Number of Activities	
More than once a month	1350	2.52	b
Once a month	649	2.46	b
Less than once a month	2311	2.15	a

F = 29.84, df = 2, 4307, p ≤ .0001
Means with different subscripts are significantly different at .05.

Travel Time
Number of activities pursued was positively related to the amount of time it takes to get to the park Table 8). Visitors who said they live within 15 minutes of the park participated in the fewest activities (Mean = 2.19), followed by those who live within 15-30 minutes (Mean = 2.48), with those who live more than 30 minutes from the park participating in the most activities (Mean = 2.72).

Table 8. Relationship of travel time to reservation to number of activities pursued during visit.

Travel Time	N	Mean Number of Activities	
Less than 15 minutes	2799	2.19	a
15-30 minutes	1486	2.48	b
More than 30 minutes	430	2.72	c

F = 33.29, df = 2, 4712, p ≤ .0001
Means with different subscripts are significantly different at .05.

Duration of Stay
A strong, positive relationship was evident between duration of stay and number of activities pursued during one's visit (Table 9). People who stayed for a short duration (less than 1 hour) participated in relatively few activities (Mean = 1.88). As duration of stay increased, so does the number of activities pursued.

Table 9. Relationship of length of stay to number of activities pursued during visit.

Length of Stay	N	Mean Number of Activities	
Less than 1 hour	1622	1.88	a
1-2 hours	1797	2.39	b
2-3 hours	619	2.54	b
4 hours or more	704	3.11	c

$F = 121.20$, $df = 3, 4778$, $p \leq .0001$
Means with different subscripts are significantly different at .05.

Number of Others in Group
While number of activities pursued was positively related to the number of others in group, this relationship was not significant at .05 (Table 10).

Table 10. Relationship of number of others in group to number of activities pursued during visit.

Others in Group	N	Mean Number of Activities	
None	520	2.27	a
1-3	3388	2.32	a
4 or more	957	2.43	a

$F = 2.46$, $df = 2, 4862$, $p \leq .0858$
Means with different subscripts are significantly different at .05.

Number of Children in Group
The number of activities people participate in at the park was strongly and positively related to the number of children they bring along to the park (Table 11). Those who visited with four or more children participated, on the average, of over three activities. The mean score for those who visited with one to three children was 2.79. The mean score for those visiting without children was 2.06.

Table 11. Relationship of number of children in group to number of activities pursued during visit.

Children in Group	N	Mean Number of Activities	
None	3529	2.06	a
1-3	1112	2.79	b
4 or more	315	3.09	c

$F = 145.98$, $df = 2.4953$, $p \leq .0001$
Means with different subscripts are significantly different at .05.

Type of Activities Pursued
As evident from Figure 1 (see next page), the total number of activities pursued differed for participants and non-participants of different activities. For almost all activities, participants were significantly more likely than non-participants to engage in a greater number of other activities. This patterns was strongest for two activities: photography (Mean = 3.82) and league sports (Mean = 3.69). The same pattern was evident for a number of activities, including being alone with someone special (intimacy), visiting a nature center, and pleasure driving, informal sports, horseback riding, and waxing cars, fitness (par) course, playing with children, and solitude, observing nature, swimming, picnicking, and relaxation.

However, pursuit of four activities - golfing, fishing, bicycling, jogging - meant a lower level of participation in other activities. Golfers reported participating in fewer activities than participants in all other activities (Mean = .89).

People who came to walk/hike or walk their dog did not differ significantly from non-participants in the number of other activities pursued.

Discussion

These data suggest that park visitors pursue either a singular style of use or a multiple style of use. In its truest form, a singular style of use is characterized by the pursuit of a single activity during one's visit. As its name suggests, a multiple style of use is characterized by the pursuit of multiple activities during one's visit.

In this study, a singular style of use was most characteristic of fall visitors; parks lacking distinguishing facilities or opportunities; males; older visitors; frequent visitors; visitors who live within close proximity of the park; visitors who stay for a short period of time; visitors who are not accompanied by small children; and golfers, runners/joggers, bicyclists, and, to a lesser extent, walkers/hikers.

In contrast, a multiple style of use was evident among summer visitors; parks offering distinguishing facilities or opportunities (e.g., swimming facilities); females; younger visitors; infrequent visitors; visitors who live relatively far away from the park; visitors who stay for a long period of time; visitors who are accompanied by small children; and picnickers, swimmers, visitors of nature centers, visitors seeking relaxation, solitude and intimacy, and visitors engaging in photography, league and informal sports, and children's games.

An understanding of multiple and singular styles of outdoor recreation use has implications for the marketing and planning of outdoor recreation services. In terms of marketing, it is helpful to know what groups are most likely to be attracted to one style of another. Information may be targeted to these groups that explain what kinds of opportunities are available and where. From a planning point of view, potential conflict may be managed by locating trails and other facilities that take into consideration different styles of use. For example, it makes no sense to provide opportunities for a singular style of use near existing facilities where a multiple style of use is dominant.

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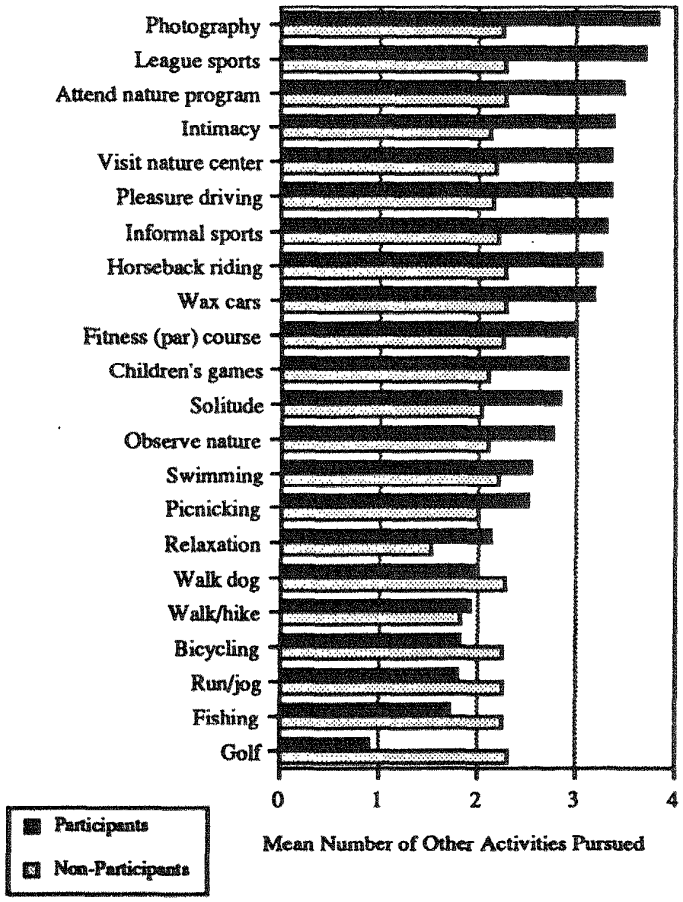

Figure 1. Relationship of activity to number of other activities pursued during visit.

PUBLIC INVOLVEMENT IN DEVELOPING PARK AND OPEN SPACE RECREATION MANAGEMENT STRATEGIES

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In a time of budget cuts, increased scrutiny and accountability of public agencies by the general public, increasing diversity of needs and demands by service users, and increasing grassroots involvement by some segments of the public, it is becoming increasingly important that public input and involvement be solicited during planning and policy development phases. This is true for state park and forest system managing agencies too. A survey of western Massachusetts residents was conducted to determine their state park use patterns, their perceptions of budget cut-related service changes, their perceptions of and current involvement with public meetings, and their interest in participating in an alternative form of public workshop dealing with state park management issues.

Introduction and Significance of Study

The Commonwealth of Massachusetts has a patchwork pattern of public open space and park lands providing watershed protection, wildlife habitat, sports fields, skiing/hiking trails, campgrounds and a variety of other recreation opportunities. They are managed by a complex variety of agencies, including local conservation commissions and recreation departments, private non-profit land trusts, the Metropolitan District Commission, the Department of Environmental Management, and others. Some trails and access sites cross private lands, sometimes with legal easements, sometimes simply as a result of traditional use.

Rapid growth in the Connecticut River Valley (Yaro et al. 1988), a three-county region of Massachusetts located along the Connecticut River corridor and I-91, has resulted in increased demands on and use of the area's land, including its park and recreation resources. With this growth have come new residents, often with different needs, lifestyles and expectations than those of long-time residents, thus further complicating the demands on the area's resources. Accompanying increased development and changes in land use have been physical and aesthetic impacts on the natural environment. The declining economic base of the region has led to budget cuts which have resulted in park and recreation facility, service and site maintenance reductions, thereby exacerbating the negative impacts and increasing the potential for recreation conflicts and changes in park use patterns by residents and other visitors. Efforts to promote economic recovery and development, while simultaneously preserving the New England character and providing outdoor recreation opportunities, often create controversy. Additionally, the variety of regulations governing use of park and recreation lands can be confusing to the general public. As budget cuts necessitate closing of many areas, and force reduced maintenance, staffing and patrolling of other areas, this confusion can be increased. Former uses are restricted, creating user dissatisfaction. Users desiring different experiences, now displaced to remaining, and often overcrowded park sites, come in contact with each other, frequently resulting in conflict. Reduced and deferred maintenance, as well as reduced surveillance, can lead to increased vandalism and overuse damage, and to reduced safety (or at the least, reduced perceived safety) for visitors.

During the past two years, particularly during the spring and summer peak seasons, there has been public outcry against the budget-related closing of local recreation areas. It is assumed this dissatisfaction will increase as more closings and operations reductions result from spiraling budget cuts. It also is assumed that, in the New England tradition, residents will want to voice their opinions and make suggestions for the management of their park, open space, and other recreation lands. It is imperative that residents' opinions and suggestions for management of their park and open space lands are heard and incorporated into the decision making process. Depending on how it is conducted, the public input process either can incite more controversy and antagonism or can provide opportunities for compromise, problem solving and constituency building.

Historical Use of Public Process

Since the 1620s, town meetings have been an integral part of town governance in New England. This is particularly true for towns in the western part of the state. Local town meetings have provided a direct avenue for public input into town management, the budgeting process, and policy-making decisions.

More recently, and on the national level, with the enactment of the National Environmental Policy Act (NEPA) in late 1969, another channel for public input was mandated. Among the purposes of the act are to "encourage productive and enjoyable harmony between man and his environment [and] to promote efforts which will eliminate damage to the environment and biosphere and stimulate health and welfare of man" (Orloff and Brooks 1980, p. 16). As part of the assessment and planning process of NEPA, Environmental Impact Statements (EISs) are to be written for any major federal actions that may significantly affect the quality of the human environment (natural and social). The assessment process mandated for developing an EIS is to include opportunities for public comment and response to proposed actions. In fact, "both the Council of Environmental Quality (CEQ) and the courts have interpreted the Act as imposing a fairly strict duty on agencies to respond to comments by private citizens" (Orloff and Brooks 1980, p. 425). These comments should be carefully considered and evaluated in the decision process. To ensure careful consideration, draft statements are to be circulated before the first major point of decision so responses are used to make informed decisions rather than to support decisions already made. Section 1500.7 of NEPA stipulates that draft statements should be made available to the public at least 15 days prior to public hearings, then at least 45 days allowed for public comment. More specific guidelines for public involvement are provided in Section 1506.6 of the CEQ Regulations, Implementing 102(2) of NEPA, November 29,1978.

Following the national example, state and local governments have enacted their own versions of environmental impact assessment and open space planning legislation. State Comprehensive Outdoor Recreation Plans (SCORPs) and local open space master plan processes usually require or recommend that some form of public comment be included in the planning process (Smith et al. 1988; Division of Conservation Services 1982). A major concern, however, is that although the "letter of the law" may be followed in providing public comment opportunities, often the "spirit of the law" is not achieved. Additionally, EISs are conducted prior to development of new areas rather than in situations of site closings and reduced maintenance or operating levels. Such non-pre-development

situations have no legal mandate or process for public input. Lack of public input may result in loss of pertinent information, creation of antagonism among constituents, building of barriers between agencies and the public, creation of "battle lines" between various special interest groups, and loss of support and public trust for managing agencies.

Numerous guidebooks and articles provide suggestions for conducting effective public meetings and mediating public controversy (Burns 1981; Dunsing 1978; Howard and Crompton 1980; Ibrahim 1987; Mater 1984; Vander Stoep 1989; Willey and Boynton 1977). Literature in communications and social psychology identifies social facilitation, group behavior, silent language and other communications variables that can either promote or create barriers against effective public communications (Deaux and Wrightsman 1984; Fabun 1968; Fazio and Gilbert 1986). Recently a new computer software program, EZ-Impact, has been developed (Bonnicksen 1990) for use in a workshop format with representatives of multiple special interest groups to develop effective management strategies. The program can be used to assess alternative futures and evaluate strategies for achieving desired goals within current constraints, assess environmental impacts, assess risks involved with uncertain future events, and build consensus on acceptable action plans for resolving conflict.

Purposes and Significance of Study

The purposes of this study are to:

1. identify park, recreation and natural resource use issues of concern to residents of the Connecticut River Valley (three counties) in Massachusetts, particularly relative to provision of other government-funded services in an environment of recent and projected budget cuts;
2. assess Connecticut River Valley residents' use patterns of state parks and forests;
3. identify changes in resident use patterns of state parks and forests as a result of recent budget cuts and reduced services;
4. assess resident participation patterns in public meetings or other public input processes dealing with issues affecting recreation and natural resource site management;
5. identify barriers to resident participation in public process related to issues affecting recreation and natural resource site management;
6. identify factors affecting perceptions of effectiveness of public meeting participation;
7. solicit resident participation in an alternative format public process workshop;
8. compare cultural (Anglo, Hispanic, Black) participation patterns as well as changes in participation patterns before and after major budget cuts over the past year;
9. compare cultural (Anglo, Hispanic, Black) differences in perceptions of and participation in public process.

Results of this study have both theoretical and applied implications. Theoretically, they can help identify which social facilitation, group behavior and communications variables have the greatest perceived influence on respondents' public process participation levels and their evaluation of public meeting effectiveness when dealing with controversial public land management issues. From an applied perspective, the results can be used to plan and implement EZ-Impact-facilitated workshops (computer-aided workshops which integrate and assess interactions between numerous variables), in this case with the Department of Environmental Management (DEM). Such workshops can involve resource managers in using alternative public input processes which work toward consensus rather than conflict.

Effective public involvement strategies can increase public participation, increase the public's awareness of the complexity of resource management issues, and improve relations among various special interest groups as well as between them and managing agencies. Additional benefits include:

- reduction of residents' (and park users') antagonism toward and legal action against management decisions;
- improved consideration of multiple issues during the decision-making process;
- increased public commitment to and support for final action plans; and
- improved public image of land management agencies.

This study used a mail survey to identify park, recreation and open space issues of concern to Massachusetts residents. Survey results are to be used ultimately to develop and conduct a pilot workshop with DEM staff and interested publics, using the EZ-Impact software package with the goals of achieving at least some of the benefits described above.

Methods

This study involves a mail questionnaire sent to a stratified random sample of 1,609 Connecticut River Valley residents living in communities in Franklin, Hampshire and Hampden counties. Communities were assigned to one of four size categories: 1) small town/rural (population < 15,000), 2) large town (population between 15,000 and 37,999), 3) suburban (population between 38,000 and 65,000), and 4) urban (Springfield and West Springfield, population approximately 185,000). Though population size was a primary determinant in categorizing towns, other variables and characteristics also were considered in determining the nature of the environment. Other factors considered included crime rates, number of rental housing units relative to single-family-owned units, multi-cultural versus homogenous makeup of the community, median income and percent of families below the poverty line, and "general town character" assessment by long-time residents.

A systematic random sample, with one quarter of the total drawn from each size category, was drawn from NYNEX directories of the selected communities. Categories 1, 2 and 3 were selected by NYNEX directory-based data base by Cole Publications, a commercial mailing list firm having data bases current to within the past year. Because this company has dropped the urban zip codes from its data base, the 400 Springfield/West Springfield (category 4-urban) sampling units were hand-selected (systematic random sample) from a NYNEX directory.

A mail survey was used to solicit park-related responses from residents. The survey contained both closed and open ended questions regarding state park use patterns, changes in park use as a result of budget cuts, perceptions about changes in provision of services and maintenance as a result of budget cuts, patterns in public participation processes (particularly related to park and recreation issues), and demographic information. Knowing that a large Hispanic population resides in the category 3 and 4 communities, and wanting good representation from the Hispanic community as well as from the elderly and infirm populations, a separate note (printed on blue paper) was inserted in the cover letter which provided instructions for obtaining either Spanish or large print versions of the survey for those needing them.

The survey was implemented using a modified version of Dillman's (1978) Total Design Method (TDM). Reminder postcards and a third mailing (reminder letter plus duplicate copy of survey instrument) were sent to non-respondents. Due to budget constraints, no certified letters were mailed.

The closed question responses were analyzed using the SYSTAT statistical package. Open ended responses were content analyzed and coded (Labaw 1980), then entered with responses to closed-ended questions into a database for statistical analysis. The intent is to use the survey results as a basis for developing a pilot project to implement a non-traditional public input process, using EZ-Impact software, to work toward consensus on complex park/open space management issues. Based on systems theory, this software package allows participants to use their varied and collective knowledge and experiences to anticipate and evaluate

consequences of different management alternatives. Participants will include those survey respondents who indicated their interest on a separate postcard which was included with the survey mailing. Major benefits of the process include fostering of communication between diverse groups and provision of a detailed picture of relationships involved in a complex issue.

Results

Of 1,609 surveys originally mailed, 144 (9%) were returned as undeliverable, either due to incomplete mailing address, lack of forwarding address or death. Of the deliverable surveys (total of 1,465), 452 (31%) were returned. Of these, 362 (85%) were usable. The other 15% returned their surveys not completed either because their health precluded their use of parks, death, disinterest in the survey, or because they had moved out of the area (yet still had received the survey). Fifty-seven people (15.7% of those who returned usable surveys) returned postcards indicating their interest in participating in a public workshop on state park management.

One large-print survey was requested and sent, but was not returned. No Spanish versions of the survey were requested, though one telephone inquiry by a Spanish sur name respondent was received.

While the purposes of the entire study are several, the results discussed in this paper will focus on the descriptive information related to respondent park use patterns and their involvement in public process. This information is derived primarily from the close-ended questions in the survey. Open-ended questions are still undergoing analysis. Results of the follow-up workshop will be the focus of a future paper. One other note of caution: typically about 35-39% of the respondents did not answer any given question, though the non-respondents were not consistently the same people.

Respondent Demographic Characteristics

Forty percent of the survey respondents were female, while 55% were male (the rest did not respond to the item). Nearly half (48%) were between the ages of 25 and 44, with 15% aged 45-54, 11% aged 55-64, and 18% aged 65 or older. In general, respondents tended to be white, with 64% self-identifying as some form of Anglo (27% did not answer the question and another 4.4% identified themselves simply as American). Respondents tended to be highly educated, with nearly 38% having at least a bachelors degree and almost 26% having one or more years of graduate study. Another 27% had completed their high school education. Only about 5% had less than a high school education.

Sixty percent of the respondents were employed full time, another 20% were retired or semi-retired. The rest (total of 16%) were either unemployed, employed part time, or were students (4-5% did not answer the question). Annual salaries for 45% of the respondents ranged between $20,000 and $50,000. Almost 15% earned less than $20,000 and 23% earned more than $50,000 annually (17.5% did not respond to this item).

Approximately 78% of the respondents have lived in western Massachusetts 10 years or more, with 57% of these having lived in the area all or almost all of their lives. Though 25% of the surveys were mailed to residents of each of the four town size/ type categories, 34% of the returned usable surveys were from residents of small towns. Twenty-four percent were from suburban areas while almost 21% were from each of the categories "large town" and "city."

State Park/Forest Use Patterns

The first major section of the survey dealt with respondents' use of state parks and forests. Of those responding to the questionnaire, 62% indicated that they had used state parks or forests within the year preceding the survey while only 6-8% used either the DEM skating rinks or swimming pools.

Because the focus of this survey was users of state parks and forests, surveys of respondents who indicated use of ONLY skating rinks and/or swimming pools were not included in the analysis.

Respondents used state parks and forests a variable number of times throughout the year and with extremely variable seasonal use patterns; however, the highest percent (22%) used them 3-5 times per year. Infrequent users (one to two times during the year) accounted for 11.5%; 12% used them six to ten times during the year; and almost 16% used them more than 10 times during the year. (Thirty-eight percent did not answer the question.) While 26% of respondents used parks primarily during summer months, almost 14% indicated consistent use frequencies across all four seasons. Another 14% indicated a variety of two- or three-season use patterns (10 different season combinations). Only 10% used the parks primarily during one non-summer season.

Of the 44 activities listed as participated in by respondents (36 of which were listed on the questionnaire, the others were added in "other" spaces), the following were identified most frequently: walking, picnicking, sightseeing, swimming in a pond or lake, relaxing or hanging out, day hiking, viewing wildlife, and driving for pleasure. See Table 1 for a more complete list of activity participation (except for activities participated in by less than 5% of the population: playing sports, riding bikes on trails, backpacking, playing cards, attending nature/history talks, snowmobiling, motorboating, skateboarding, riding horses, sailing, downhill skiing, windsurfing, jet skiing, informal gambling, rock hunting and geology, participating in special events/training/conferences, running, photography, ice skating, feeding ducks, riding ATVs).

Table 1. Activities participated in during visits to Massachusetts state parks and forests.

Activity	Percent
walking	44.4%
picnicking	34.7%
sightseeing	31.3%
swimming (ponds or lakes)	24.3%
relaxing/hanging out	24.3%
day hiking	23.8%
viewing wildlife	22.2%
driving for pleasure	20.6%
visiting with friends/family	18.5%
taking self-guided nature walks	17.0%
fishing	15.7%
taking children to playground	13.6%
camping	13.0%
birdwatching	12.5%
playing catch	9.1%
cross-country skiing	8.4%
reading	8.4%
hunting	7.8%
canoeing/kayaking	7.0%
listening to music	6.8%
riding bikes on roads	6.3%
swimming (pool)	6.0%

Personal automobiles were the preferred mode of transportation to state parks (55%), while other modes (walking, bicycling, motorcycling, using public transportation, snowmobiling, horseback riding, using other motorized vehicles) received extremely minimal use. (Again, 37% did not answer the question.)

Use of parks tends not to be by nearby (within walking distance) residents. Approximately 10% travel one to five miles to get to a park or forest, 17% travel six to ten miles,

15% travel 11-20 miles, and 12% travel more than 20 miles (37% did not answer the question). Day use rather than overnight camping is the most prevalent. About 20% stay at a park for only a couple of hours, 26% stay about 1/2 day, and 10% stay all day. Only about 5% indicated an overnight stay of one or more nights. (37% did not answer the question.)

Though there is some organized group (e.g., community, church, youth) and solo use of parks and forests, the great majority of people visit with some combination of family and friends (11% of these visit as couples and 18% clearly indicate inclusion of children, though other response categories probably also include children).

Changes in Services Noticed as a Result of Budget Cuts

While the above results provide some indication of park use, we wanted to know if park users had noticed any changes or reductions in park services and, more importantly, if they had changed their park use patterns as a result. The second section of the survey addressed this issue. Twenty-five percent of respondents said they had noticed budget cut-related changes in service (40% did not answer the question), but fewer indicated these changes actually changed their personal park use patterns (9% changed ***when*** they visited parks; 8% changed the ***frequency*** of their visits; 11% changed the ***actual sites*** visited; 8% changed their ***activities*** while visiting a park or forest). Further analysis of why and how park users altered their visits, and impacts of service changes on users' enjoyment and safety while visiting parks will be included in analysis of open-ended questions, which is not yet complete.

Types of Services/Facilities to Fund

Almost invariably, when an agency is faced with budget cuts, managers must make decisions about which services to keep and which to reduce or cut (in lieu of alternative funding or service provision strategies). In the third section of the survey, respondents were asked to indicate, for a variety of park services and facilities, which they believed to be very important to fund, nice to have provided, which did not particularly matter to them one way or another, and those which they believed should NOT be funded. Of the services and facilities visitors believed should be funded, those listed in Table 2 were rated as "very important" or "nice to have" by more than 55% of the respondents.

Table 2. Services and facilities rated as "Very Important" or "Nice to Have" by more than 55% of survey respondents.

Service/Facility	Percent
trash collection	87% *
hiking/walking trails	85% *
directional signs	84% *
park info/maps	83% *
picnic tables	83%
ranger presence	80% *
flush toilets	79%
wheelchair access	78% *
law enforcement	78% *
lifeguards	69%
bicycle trails	68%
tent camping facilities	68%
cross country ski trails	64%
swimming facilities	61%
interpretive programs	58%

* indicates more than 45% marked this service/facility as "very important"

When respondents were asked further to identify what they believed to be the 1st, 2nd, and 3rd most important services and facilities to fund, the following were identified consistently by the largest percent of respondents, though answers overall were extremely varied: provision and maintenance of hiking/walking/generic trails; law enforcement; ranger presence; restroom facilities (with many indicating a clear preference for flush toilets, not pit toilets); and trash collection.

Services and facilities indicated as those that DEM should not fund included motorcycle trails (55%), snowmobile trails (43%), and campgrounds for recreational vehicles (RVs) (15%).

Given a choice between having a few fully operational parks or many limited service parks when budgets cannot maintain full operations of all parks and forests, respondents overwhelmingly preferred the opening and maintenance of many limited service parks (64%) to the full operation of a limited number of parks (20%). Preliminary analysis of related open-ended questions appears to indicate the reason for preferring many parks to be open, even with limited services, is to provide parks which are relatively near to users across the state. Basic access to parks appears to be more important that provision of full services.

Respondents' Participation in Public Process

The fourth, and most central, section of the survey dealt with residents' perceptions of and participation in a variety of public process/public input activities, primarily focused on their involvement in park-related issues. Thirty percent of the respondents had attended some type of public meeting dealing with a single issue (as differentiated from traditional town meetings still conducted in many smaller New England communities).

Of a variety of issue-based actions listed (writing letters to the editor, voting based on an issue, participating in service projects, working as a volunteer, contributing money, being a Friends Group member, participating in single-issue public meetings), the most frequently engaged in behaviors related to parks and recreation issues were voting based partly on park and recreation issues (31%), contributing money to support some aspect of park management (25%), participating in park-related service projects (23%), and being a member of a park Friends Group (14%). Only about 9% had ever attended a single-issue public meeting related to state parks.

Attitudes about public meetings were varied, with respondents being about equally split between positive attitudes (public meetings providing an avenue for expressing personal needs/concerns, providing opportunities to make a difference, and being a way to learn about issues) and negative comments (an outlet for venting frustration, a waste of time because decisions are already made, a battlefield for special interest groups). The most frequent responses were that public meetings are "the best way to learn about issues" (22%) and "a waste of time because officials already have made decisions" (20%). Hand written comments, while infrequent but insightful, indicated that "there are more important things in life [than public meetings dealing with parks]," people are "unsure about how to comment during public meetings," people "care [about the issues] but don't want to get involved," people simply "don't get involved," some felt that "this type of polling [the survey] was more effective," and "public meetings vary." Other handwritten comments indicated that some people are unaware of meetings, do not know they are "invited," and they don't know how to comment or get involved.

When asked about the likelihood of attending a public meeting some time in the future, four percent said "extremely likely" while 51% said "possible" and 34% said "not at all likely."

For those who might attend, their participation would be based primarily on the specific issue (37%), the scheduled time (40%), and the convenience of the place (35%), but also would be affected by the specific park(s) involved (29%). (This may indicate that people may be more likely to become involved with a park relevant to their use.) The meeting length and a variety of other factors were much less important in affecting their decision to attend.

A "one evening" workshop format was the most preferred meeting structure (41% indicating "yes" or "maybe" they would attend such a follow-up workshop) while quite a few were willing to spend as much as 1/2 day (27%) or 2-3 evenings (24%) discussing an issue if they believed it was relevant or important.

When asked who, in addition to survey respondents, should attend a public workshop dealing with state park management issues, respondents generally were in agreement (more than 50% indicating "yes") that the following groups of people (or representatives) should participate:

park users	73%
DEM park rangers	65%
DEM administrators	59%
government representatives	52%
environmental experts	52%
special interest group representatives	52%

They were less enthusiastic about participation by sport/activity club members (37%), representatives from the Governor's office (38%), local business owners (24%), and special need groups such as the physically challenged (< 1%).

Discussion and Implications

Based on analysis of demographic data, it is clear that responses to the survey are biased. They are not representative of the entire population of the Connecticut River Valley Study area because some groups are much more strongly represented than others, showing a demographic distribution much different from the actual demographic profiles of the communities.

Though 25% of the surveys were mailed to residents of each of the four town size/type categories (small town, large town, suburban communities, cities), 34% of the returned usable surveys were from residents of small towns. In general, respondents tended to be ***white***, with 64% self-identifying as Anglo (27% did not answer the question and another 4.4% identified themselves as American, with ethnic origin unknown), ***highly educated*** (with nearly 38% having at least a bachelors degree and almost 26% having one or more years of graduate study), and ***working full time*** (with annual salaries ranging between $20,000 and $50,000). Clearly these demographics are not representative of the western Massachusetts population, particularly of residents in some of the suburban and city communities. Despite efforts to facilitate responses by Spanish-speaking residents (Spanish version of the survey was available upon request), no identifiable Hispanic responses were received. Attempts were made to obtain funding to approach minority groups face-to-face via local community organizations, but they were unsuccessful.

Because the collection of returned surveys is highly biased, the responses to other questions in the survey should be considered with the understanding that they are not truly representative of ALL residents. (Additional efforts should be made to gather input from other resident groups.) Because of the bias in the respondent sample, many of the responses reflect a "traditional" white, educated, middle-to-upper class attitude about parks and park use. These users tend to be able to drive easily to park sites. They tend to participate in passive and non-motorized while using the parks. They tend also to exhibit a concern for the protection of the "natural" environment (as opposed to extensive development of facilities, particularly when they service motorized recreational use), even to the extent of expressing a desire to exclude users of such facilities (RV campers, snowmobilers, ATV users, and motorcyclists).

Not surprisingly, some activities often associated with other ethnic and cultural groups (such as large group use of picnic facilities, listening to music, playing sports and games) were not mentioned frequently, but this does not mean that opportunities for such activities should not be provided if, in fact, such residents do wish to use state parks. It should be noted that other activities [such as jet skiing, backpacking, horseback riding, attending nature or history talks, bike riding on trails, and snowmobiling] also were mentioned infrequently. Some of the reasons may be that 1) these activities are engaged in in other places, 2) appropriate resources or facilities (such as large open water bodies for jet skiing) do not exist, 3) some of these activities may be prohibited, or 4) people who engage in these activities simply were not represented in the surveys.

Perhaps the most important result relative to general park management is that park users overwhelmingly prefer that many parks be open to residents, even if that means reduction in services or the implementation of fees (again, probably a function of the respondent bias). However, it seems that users are very clear in their desire for visible, sufficient numbers of rangers and law enforcement staff...and lifeguards...(somehow differentiated by respondents) to be present in the parks to ensure safety and to answer questions. Additionally, they expect that trash be collected and flush toilet restrooms maintained, and that there be adequate information (maps, brochures, directional signs, etc.) for them to use the parks easily. Wheelchair access also is rated highly. (NOTE: The survey was conducted before enaction of the American Disabilities Act.) Overall, trails are by far the most desirable recreational facility to be provided and maintained. This is reflective of both the current national interest in trail use and development, and of the temporal patterns of use possible for many residents (short, less-than-a-day outings as opposed to multiple-day trips, or short daily exercise or relaxation activities engaged in in park settings).

While our main interest in the survey was to determine attitudes about public meetings, more specifically public meetings dealing with park and recreation issues, and to determine residents' interest in participating in an alternative form of public process (different from the typical public meeting or public hearing, often conducted in response to a policy or management decision rather than as part of the initial planning), it was important first to have an understanding of how the respondents used parks. After establishing a connection with parks in the minds of respondents, we could move to questions dealing with their participation in public process.

We were surprised that attitudes toward public meetings were so mixed (particularly that so many people expressed positive feelings about them). We had anticipated a much more negative response. Perhaps this is due, once again, to respondent bias. Respondents reflected predominantly the views of those most likely to participate in public meetings (white, educated, middle-to-upper class), and who feel most able to make a difference; those residents who feel less empowered, who feel that government is inaccessible to them, and who would have been most likely to express frustration with public meetings as a tool of "the system," probably did not return their questionnaires. (Perhaps they did not even respond to the survey because they believed their views and comments in the survey would not be listened to or responded to. Perhaps they feel just as intimidated by and alienated from academics as they do from government officials.)

Nevertheless, we were surprised by the number of people who expressed an interest in participating in alternative forms of public input. A majority of the respondents (55%) indicated that it was possible or extremely likely that would participate in a park issue-related public forum some time in the future. In fact, 57 postcards were received from respondents indicating that they would like to be invited to attend the public workshop...if time and scheduling permitted. (Lack of time seems to be the biggest barrier to participation, regardless of desire or interest, particularly when people must choose between many civic activities and causes when juggling them with work and family obligations, particularly in a time of economic stress.) This means that any public forums must be easily accessible to residents (time, scheduling, place), the issues must be highly relevant, and residents must truly believe that their voice will be heard and will have an impact. Other factors mentioned (handwritten comments) that influence participation include direct relevance of the issue (often an activity) to the potential participant, personal notification of such forums (in contrast with newspaper announcements of meetings), having someone to go with, and belief of a real opportunity for making a difference.

Though we expected the majority of willing respondents to favor a single evening workshop format (which was the case, with 41% of all survey respondents indicating preference for a single evening), we were surprised by the number who were willing to spend half a day (27%), two to three evenings (24%), or even a whole day (12%)...again with time and scheduling permitting. Again, it appears that if people believe that an issue is relevant, and that they can really make a difference, they are willing to at least consider spending a fair amount of time participating. This means that agencies should pay careful attention to the details of planning and facilitating a public forum, and to ensuring that participants' responses will REALLY be used, and to letting participants know the session results and HOW their input actually was used or incorporated in planning or management decisions.

Respondents seemed eager to include representatives of a variety of groups in a public forum which would allow all participants to talk and work with each other. However, there was less enthusiasm for participation by three groups: sport/activity club representatives, representatives from the Governor's office, and local business owners. Hesitancy about including representatives of sport and activity clubs (such as hunting and snowmobiling clubs) probably was a reflection of the respondent bias against motorized and consumptive uses of park resources. Respondents were willing to include government officials, but less willing to include representatives from the Governor's office. Perhaps some believed that such representatives would stifle their input, or somehow direct the discussion. Only one quarter of the respondents believed that local business owners should participate. Perhaps they simply didn't see the relevance, though there is no indication of possible reasons.

Conclusion

While there were constraints on the survey results (most notably dealing with respondent bias, as discussed previously), the results about park use can be used as one information source about park users and the impacts they have noticed as a result of budget cuts. However, this should not be the ONLY source of user information. Efforts must be made to target specifically minority user groups, particularly in large towns and cities, as these were the groups most underrepresented in this survey.

If planned, facilitated and conducted properly, with a real desire to gather and use public input, it appears that non-traditional public forums can attract participation, at least by some segments of the population. However, there are still major barriers which must be overcome to ensure open participation and to incorporate input into management decisions, not the least of which involve changing attitudes. One nedd is changing the public's attitudes that their input may really be valued and used (also realizing that there are many different publics, with many different viewpoints). Another need is changing agency attitudes 1) that the public may really have some valuable input and insights, 2) that their professional opinions and expertise should not be threatened by honest public input (when collected in a non-adversarial environment), and 3) that there may be long term benefits from gathering public input to counterbalance what may be perceived as short term hassles and nuisances of actually involving the public.

More analysis of survey results (correlations of closed questions and analysis of open-ended questions) needs to be done. Some of the anticipated analyses (such as identifying differences in park use and participation in public meetings between different ethnic or cultural groups), however, will be impossible due to lack of responses from these groups. Therefore, other, more targeted and personal efforts, should be made to gather their input.

It is only with everyone working together, hearing and understanding the ideas and perspectives of those different from themselves, and exchanging ideas in a non-adversarial, non-threatening environment that progress toward inclusive, probably also compromising, decisions can be made. If public land agencies are to manage for the people, and if they are to receive long term support for their efforts (legislatively, financially, in volunteer support, in lack of destructive behavior), they MUST manage for ALL the people, and must include the opinions and needs of all those groups in their decisions. This does not mean that they should try to be all things to all people, or to make decisions counter to agency missions or policies; it means simply that their decisions should acknowledge and be sensitive to diverse needs, and that people's input should be facilitated rather than inhibited.

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