

Beliefs and Attitudes toward Boating of Four Stakeholder Groups in the Saranac Lake Area

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Public natural resource management agencies work with diverse stakeholder groups such as business owners, visitors, and landowners as they implement visitor management policies. This study focuses on the attitudes and beliefs of four stakeholder groups in relation to the use of nonmotorized boats, motorized boats, and personal watercraft (e.g., Jet Skis) on water bodies in the Saranac Lakes Wild Forest of New York State's Adirondack Park. A mixed-methods approach including land

manager interviews and stakeholder surveys was used. Interview results were the basis for the questionnaire used in mail surveys of shoreline and inland landowners, business owners, and campers. Analysis of variance indicated significant differences among the four stakeholder groups concerning beliefs and attitudes toward nonmotorized and motorized boat use, but no significant differences in beliefs and attitudes toward personal watercraft use.

Introduction

The Saranac Lakes Wild Forest in New York's Adirondack Park comprises 79,000 acres of state-owned forest and water resources, and contains 142 water bodies used for motorized and nonmotorized boating, swimming, and fishing (NYSDEC, 2008; Figure 1). Four state campgrounds (three of which provide boat access) and numerous other public boat launch and trail access sites are found within the wild forest boundary. Private inholdings of local residents, business owners, and organizations are located within the region as well.

Over the past decade, differences in opinion have arisen between stakeholder groups concerning water-based recreation. In particular, differences in

the perceptions of stakeholder groups toward types of water-based recreational activities (e.g., nonmotorized boating, motorized boating, personal watercraft use) have led to increased debate over regulations concerning these activities in the Wild Forest area. In order to provide stakeholders and land managers with information about stakeholder perceptions that could be used to enhance water-based recreational experiences in the Saranac Lakes Wild Forest, a study of four stakeholder groups (i.e., shoreline landowners, inland landowners, business owners, and campers) was initiated in 2005 with funding from the Northeastern States Research Cooperative and (for the camper portion of the study) the New York State Department of Environmental Conservation.

A mixed-methods approach was utilized to explore stakeholder perceptions of water-based recreation through interviews, and then quantify these perceptions through the use of stakeholder surveys. Twenty land manager interviews were conducted to explore issues related to water-based recreation and perceived stakeholder beliefs about these issues. Issues related to nonmotorized, motorized, and personal watercraft (e.g., Jet Ski) use were identified frequently in the interviews, and thus boating became the focus of the stakeholder surveys. The first objective of the surveys was to identify similarities and differences in stakeholders' attitudes and beliefs toward

nonmotorized boat use, motorized boat use (i.e., with a gas-powered engine), and personal watercraft use. The second objective was to investigate the attitudes and beliefs of three subgroups of campers staying at Fish Creek Pond, Rollins Pond, and Saranac Lake Islands State Campgrounds. Because differences in boating preferences have been noted at these campgrounds in the past by state land managers, it was hypothesized that the attitudes and beliefs of campers at the three campgrounds would differ.

Mixed-methods research was chosen for this study because it combines the theoretical and/or technical components of quantitative and qualitative research within one study (Rocco et al., 2003; Mertens, 2005). According to Creswell and Plano Clark (2006), a mixed-methods study can provide better understanding of research problems than use of either the qualitative or quantitative approach alone. While mixed-methods research requires a knowledge of both qualitative and quantitative methods and can be more expensive and time consuming than single-method studies (Johnson and Onwuegbuzie, 2004), the benefits of obtaining a more in-depth understanding of the phenomenon being studied can outweigh the costs of time and effort (Shah and Corley, 2006). This study utilized a sequential, exploratory mixed-methods design. Using this approach was considered necessary because of the sensitive nature of the ongoing

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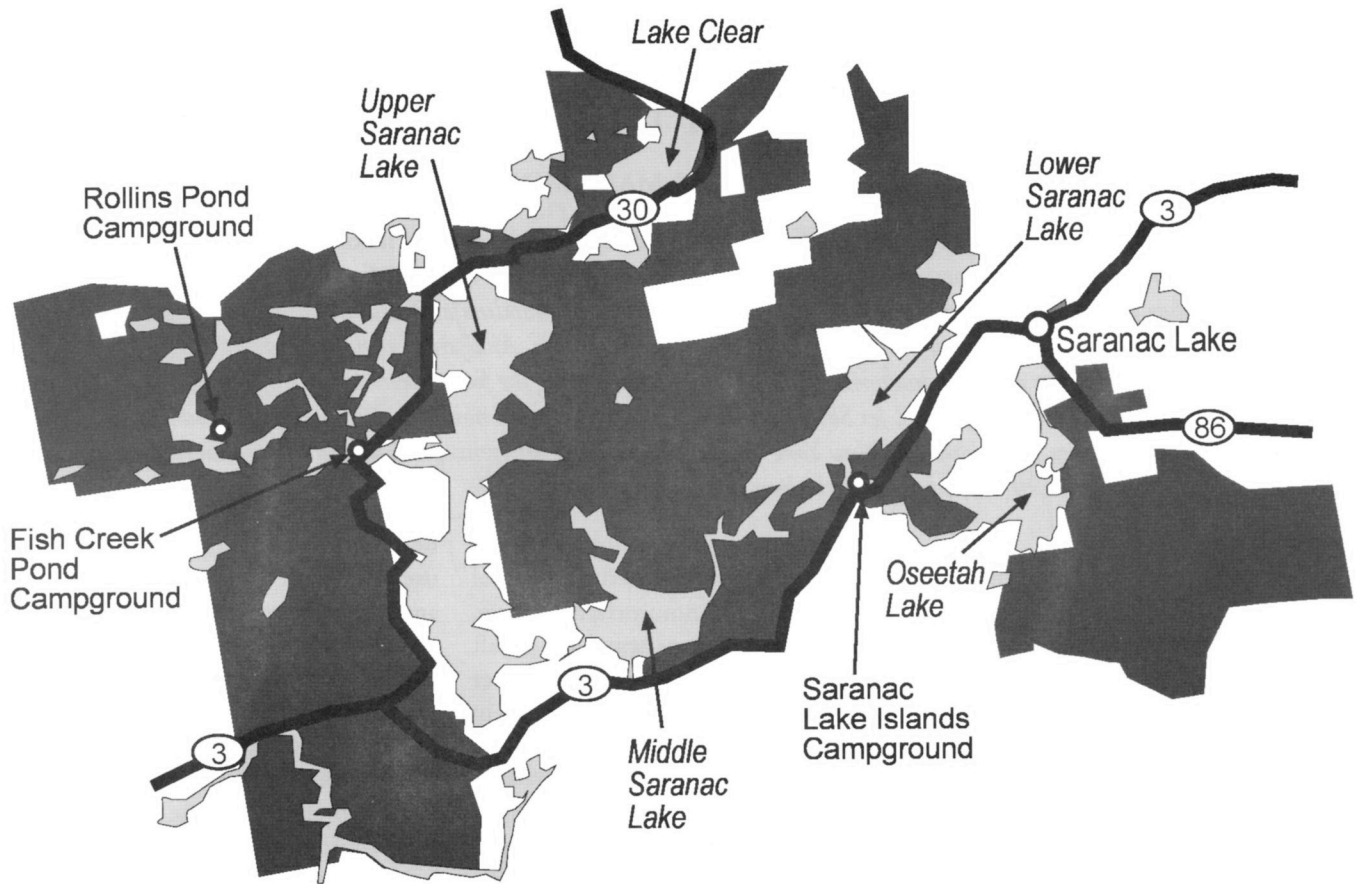


Figure 1. Map showing portion of Saranac Lakes Wild Forest (dark gray shaded areas) included in this study

debate about water-based recreation in the area and the need to hear diverse viewpoints prior to writing the questionnaire and conducting the stakeholder surveys.

The Theory of Planned Behavior (Ajzen, 1991) provided the framework for examining the perceived beliefs and attitudes of business owners, landowners, and visitors toward motorized boating, nonmotorized boating, and personal watercraft use. According to this theory, beliefs are an individual's conceptions about a specific behavior. Ajzen (1991) describes three basic types of beliefs: behavioral (i.e., beliefs about the likely consequences of a certain behavior), normative (i.e., beliefs about the expectations of others concerning a certain behavior), and control (i.e., beliefs about factors that may limit or enable a certain behavior). Beliefs influence attitudes, defined by Ajzen and Fishbein (1980) as an individual's positive or negative evaluations of performing specific behaviors. For

example, an individual's beliefs about the consequences of a specific behavior (i.e., behavioral beliefs) will influence his or her attitudes toward the behavior. Likewise, normative beliefs influence an individual's perceptions concerning the social pressure for or against a specific behavior (i.e., subjective norms; Hrubec et al., 2001), and control beliefs influence the individual's perceptions concerning the ease or difficulty of performing a specific behavior (i.e., perceived behavioral controls; Ajzen and Driver 1992). Attitudes toward the behavior, subjective norms, and perceived behavioral controls influence an individual's *intention* to carry out that behavior. Intention directly influences carrying out the actual *behavior* (Ajzen, 1991). While the full study includes the three types of beliefs (i.e., behavioral, normative, control) and attitudes (i.e., attitudes toward the behavior, subjective norms, perceived behavioral controls), this manuscript focuses only on the behavioral beliefs and

attitudes toward the three behaviors (i.e., the use of nonmotorized boats, motorized boats, and personal watercraft) in the Saranac Lakes Wild Forest area. In addition, due to budgetary limitations, only the perceptions of four stakeholder groups (i.e., shoreline landowners, inland landowners, business owners, and campers) are studied; other stakeholder groups such as anglers and day users were not included.

Interviews and Survey Design

This study comprised two phases: preliminary interviews with 20 public and private land managers (i.e., nine state agency personnel, seven nongovernmental organization directors involved with shoreline property management, and four commercial business owners who manage private shoreline areas), and three mail surveys of shoreline and inland property owners, business owners, and state campground visitors. The land managers were interviewed either

by phone or in person for their perspectives on water-based recreation on water bodies in the Saranac Lakes Wild Forest. Interviewees were asked to identify three issues related to water-based recreational activities in the Saranac Lakes Wild Forest, and their perceptions of these activities and issues. Interviews were recorded (with interviewee permission) and transcribed using Microsoft Word. The content of the interview transcripts was qualitatively analyzed to identify the issues and beliefs related to each type of water-based recreational activity mentioned.

A five-step approach was used for the qualitative analysis. First, the specific issue-related beliefs were tabulated to identify the number of interviewees indicating each. Second, beliefs were grouped according to the basic type of recreational activity (e.g., boating, swimming, fishing) to which they applied. Third, for each recreational activity, beliefs were grouped together based on similarities in content (e.g., beliefs related to social conflicts associated with boating were grouped together). Fourth, the groups of beliefs were named (i.e., coded) by identifying a term that summarized the beliefs included in each group. Finally, the definitions of behavioral, normative, and control beliefs (Ajzen and Fishbein, 1980; Ajzen, 1991) were used to identify the theoretical construct to which each group of beliefs applied.

Since a boating-related issue was

mentioned by each of the 20 interviewees, the decision was made to focus the survey portion of the study on beliefs and attitudes related to boating in the Saranac Lakes Wild Forest area. Three stakeholder survey instruments were written (the shoreline and inland landowner questionnaires were identical). Each questionnaire was composed of demographic and recreation experience questions, as well as questions concerning beliefs and attitudes. Identical statements related to attitudes and beliefs were used on the three stakeholder questionnaires to enable comparisons among stakeholders. For each type of boat use (i.e., nonmotorized, motorized, and personal watercraft), a list of belief and attitude statements was included. The belief codes identified through the interviews were used to write the statements related to beliefs about boat use (Table 1). Statements related to attitudes were written to obtain respondents' positive, neutral, or negative evaluations of nonmotorized boat, motorized boat, and personal watercraft use. Respondents were asked to indicate their level of agreement or disagreement with the belief and attitude statements using a five-point scale (i.e., -2 = strong disagreement, -1 = disagreement, 0 = neutral, 1 = agreement, and 2 = strong agreement).

Questions specific to each stakeholder group were also included on each questionnaire. For the landowner survey,

questions related to property type and length of residence were included. The business owner survey asked for information about type of business and customer base. Camper survey questions asked for information on public areas used, length of stay, number of trips, and group composition. Identical questions related to experience with various types of outdoor recreation and to demographics (i.e., sex, age, years of education) were included on all three questionnaires.

A modified Tailored Design Method (Dillman, 2000) was used to mail each survey. Landowner contact information was obtained through the county property tax records for the Saranac Lake area, which comprises both Essex and Franklin counties in New York State. Specifically, residential parcels were identified using the "property code" field in the database. In order to get equal representation of both shoreline and inland property owners, shoreline parcels were identified as those having parcel centroids within 120 m of the lake or river shore prior to sample selection. In Essex County, 52 properties were classified as shoreline properties in the Saranac Lake area and the remaining 759 were classified as inland properties. In Franklin County, 634 properties were classified as containing shoreline in the Saranac Lake area and 1,807 were classified as inland. In total, 686 of the 3,252 properties (21%) in the study area were identified

Table 1. *Belief and attitude statements used in the questionnaires*

Concept	Statement included in questionnaire
Behavioral beliefs	I believe that [type of boating] is harmless to the high quality and cleanliness of the SLWF's natural resources (e.g., lakes, ponds, and forests). ^a
	I believe that [type of boating] helps maintain a natural setting in the SLWF that is free of conflicts between [type of boater] and other water body users. ^a
	I believe that [type of boating] preserves the peaceful, quiet natural setting of the SLWF. ^a
	I believe that [type of boating] benefits the economy of the SLWF area. ^b
Attitude toward behavior	I have a positive attitude towards [type of boating] in the SLWF.
	I think [type of boating], in general, is well suited to the natural setting of the SLWF area.
	I think [type of boating] is a good recreational activity to have in the SLWF.

^a Variable included in the natural/social belief factor.

^b Single variable identified as the economic belief.

as shoreline parcels. The final samples, derived using ArcGIS 9.1, consisted of 500 randomly selected owners of shoreline parcels and 500 randomly selected owners of inland parcels. Two equal samples of shoreline and inland property owners were used (instead of one sample representative of all landowners) since shoreline owners are most likely to be affected by boating and thus are likely to have different perceptions of boat use.

The mailing list of business owners was obtained from chamber of commerce listings, business brochures, and area telephone directories. Only recreation-related businesses (i.e., campgrounds, marinas, restaurants, guide services, hotels and motels, bed and breakfasts, boat tour and rental companies, and recreational outfitters) were included in the mailing. Sixty-six recreation-related businesses were identified in the Saranac Lake area, all of which were contacted for the business owner survey.

Contact information for campers was identified with the assistance of the New York State Department of Environmental Conservation (DEC). Specifically, a proportional sample of campers using three of the state-managed campgrounds in the Saranac Lakes Wild Forest in 2006 were randomly selected by the DEC as follows: 564 campers were selected from Fish Creek Pond State Campground, 366 from Rollins Pond State Campground, and 70 from Saranac Lake Islands State Campground. A total of 1,000 campers were included in the camper survey.

Nonresponse bias was examined by surveying (by certified mail) nonrespondents from each of the four stakeholder samples (i.e., 30 shoreline landowners, 30 inland landowners, 33 business owners, and 60 campers) and then identifying significant differences between the means of respondents and nonrespondents.¹ Descriptive statistics were calculated to identify stakeholder demographics. Data for belief and attitude variables were reduced into identical

¹ Two-independent-sample t-tests and z-tests were used to identify significant differences.

factors for the four stakeholder groups based on the qualitative interview results and the Theory of Planned Behavior framework.² Nine separate analyses of variance (ANOVA) were conducted to identify differences and similarities in the means of natural/social and economic behavioral beliefs, and attitudes toward each type of boat use among the four stakeholder groups. Nine additional ANOVAs were used to identify significant differences in the means among camper subgroups (i.e., campers registered at Fish Creek Pond, Rollins Pond, and Saranac Lake Islands State Campgrounds).³

Results

Land Manager Interviews

Qualitative analysis of the land manager interview data revealed specific issue-related beliefs. Beliefs mentioned by three or more interviewees were used to write the statements included on the stakeholder questionnaires, and are included in Table 2. The beliefs most frequently mentioned were related to boat use (all 20 interviewees mentioned at least one boating-related belief). Statements included on questionnaires related to beliefs toward participation in non-motorized boat, motorized boat, and personal watercraft use are listed in Table 1.

² A confirmatory factor analysis (using EQS software) was used to validate factor structures for all stakeholder groups except business owners (the limited number of responses ($n = 25$) of business owners prevented this type of analysis). The factor structure implemented for the landowners and campers was utilized for the business owner data to enable comparisons between all stakeholder groups.

³ Each ANOVA was checked for homogeneity of variance between stakeholder groups using Levene's test. Because the variances of the groups were not found to be homogeneous, the robust Welch test statistic was used to identify significance instead of the F statistic. The results of the ANOVAs were examined for significant within-group and between-group differences. For those analyses that showed a significant difference between groups, Post Hoc Tamhane-T2 tests were used to specify the groups between which the differences were occurring.

Mail survey

Response rates. Of the 500 questionnaires mailed to shoreline landowners in the Saranac Lake area, 75 were undeliverable or sent to individuals who no longer owned property in the area. Of the qualified sample of 425 individuals, 251 shoreline property owners returned the completed questionnaire for a response rate of 59%. For inland property owners, 60 questionnaires were undeliverable or sent to individuals who no longer owned property in the area. The response rate of 39% for inland property owners (172 responses out of 440 in the qualified sample) was lower than that of the shoreline property owners. Sixteen inland and 12 shoreline nonresponding landowners completed and returned the short, one-page questionnaire used to check for nonresponse bias.⁴ Of the 66 surveys mailed to the complete census of recreation-related business owners, 58 composed the qualified sample. Twenty-five business owners responded, for a response rate of 43%. Thirteen nonresponding business owners completed and returned the short, one-page nonresponse questionnaire; no significant differences in beliefs, attitudes, or demographics were identified. The response rate for campers was 47% (442 completed questionnaires out of the qualified sample of 950). Eighteen nonresponding campers completed and returned the short, one-page nonresponse questionnaire; no significant differences in beliefs, attitudes, or demographics were identified.

Landowner demographics and property characteristics. Responding shoreline and inland landowners both had resided in the Saranac Lake area for an average of 31 years. While shoreline landowners lived in the area an average of 6 months

⁴ The only significant difference ($p \leq 0.05$) found for the landowner groups was between shoreline respondents and nonrespondents for the number of years of residence in the Saranac Lake area ($p = 0.03$). Shoreline nonrespondents are likely to have resided for a longer period of time in the area (44 years on average) than respondents (31 years on average)

Table 2. Number of interviewees indicating each concept related to behavioral belief codes

Behavioral belief codes	Concepts	Number of interviewees			
		Business owners (n = 4)	Association directors (n = 7)	Public land managers (n = 9)	Total (n = 20)
Impact on natural resources	Gas-powered boats affect water quality (oil/fuel leakage, spread of invasives)	1	4	4	9
	Boat wakes disturb wildlife and shorelines	0	2	1	3
Peaceful, quiet setting	Gas-powered motorboat use affects the peace and quiet of the natural setting	1	3	3	7
	Personal watercraft use affects the peace and quiet of the natural setting	1	4	2	7
Social conflicts	A balance between motorized and nonmotorized boat use is needed to reduce social conflicts	0	1	6	7
	Responsible (safe) use of water resources by boaters is necessary to prevent accidents	0	6	2	8
Economic impacts	Boating is important to the local economy	4	5	4	13

out of the year, inland landowners stayed an average of nearly 10 months out of the year. The average age of shoreline respondents was 62 years, while that of inland respondents was 59 years. Responding shoreline landowners were 68% male and 32% female, while inland property owners were 72% male and 28% female. The two groups varied slightly with regard to race with 98% of shoreline owners and 94% of inland owners being Caucasian.⁵ Shoreline respondents had an average of 17 years of education (i.e., 12 years of high school plus 5 years of college or vocational training); inland respondents had an average of 16 years of education. Shoreline property owners participated in most water-based recreational activities to a greater extent than inland property owners did (i.e., 92% and 83% of shoreline and inland property owners, respectively, had participated at least once in swimming in 2005; 88% and 69% in motorboat use; 85% and 68% in canoeing; 56% and 43% in kayaking; and 13% and 6% in personal watercraft use); nearly equivalent percentages of the two groups par-

ticipated in fishing (63% and 59%, respectively).

Sixty-nine percent of the respondents of both landowner groups owned one parcel of land; 19% of shoreline respondents and 22% of inland respondents owned two parcels, and 6% of both groups owned three. Many respondents indicated that their property was used for residential purposes (79% of shoreline and 85% of inland owners), had a landscaped backyard (32% and 44%), and included undeveloped forest land (24% and 19%) and/or undeveloped wetlands (9% and 7%). The majority of shoreline respondents (70%) used their property as a secondary home, while 72% of inland owners used it as a primary residence. Of the shoreline landowners, 85% indicated that they had a boat dock on their property, 33% used a portion of their shoreline area to launch nonmotorized boats, and 7% had a boat launch suitable for either motorized or nonmotorized boats.

Business owner demographics and business characteristics. The average age of responding business owners was 55 years with a range of 29 to 75 years. Sixty-four percent were males and 36% females; 100% were Caucasian. Respondents had an average of 15.2 years of education (i.e., 12 years of high school plus 3.2

years of college or vocational training on average). The majority of business owners participated in swimming (88% of respondents), nonmotorized boat use (84%), motorized boat use (68%), and fishing (64%); 4% of business owners participated in personal watercraft use.

Thirty-two percent of responding business owners owned a fishing, hunting, or other type of guide service, 32% a bed and breakfast or inn, 20% a hotel or motel, 12% a sporting goods store, 12% a restaurant, 8% a marina, and 28% some other type of recreation business; nine businesses were highly diversified, fitting into more than one category and, thus, creating overlap between categories. The average business owner respondent had owned or managed the business for 17.2 years, and 18 of the 24 operated their business year-round (the remainder were open 11 months of each year). When asked about their customer base, 71% of business owners indicated that their customers participated in nonmotorized boating; 42% had customers that participated in motorized boat use and 13% had customers who were personal watercraft users.

Camper demographics and trip characteristics. The average age of responding campers was 51 years with a range of 23 to 84 years. Sixty-three percent

⁵ Small proportions of both groups were of Native American descent (2% of shoreline owners and 4% of inland owners); approximately 1% of the inland property owners were of Hispanic or Asian origin.

Table 3. Factor/variable means for stakeholder groups

Concept	Boating type	Factor/variable means for stakeholder groups			
		Shoreline landowners (n = 234)	Inland landowners (n = 165)	Business owners (n = 25)	Campers (n = 423)
Natural/social behavioral beliefs	Nonmotorized boating	0.92	0.89	0.81	1.31
	Motorized boating	-0.47	-0.67	-0.87	-0.96
	Personal watercraft use	-1.24	-1.28	-1.44	-1.32
Economic behavioral belief	Nonmotorized boating	1.12	1.16	1.48	1.30
	Motorized boating	1.38	1.18	1.12	0.84
	Personal watercraft use	0.02	-0.12	-0.44	0.15
Attitude toward behavior	Nonmotorized boating	1.44	1.42	1.51	1.67
	Motorized boating	0.75	0.52	0.33	-0.15
	Personal watercraft use	-1.07	-0.92	-1.24	-1.02

were males and 37% females; 96% were Caucasian, 3% were of Native American descent, and less than 1% each were of African American or Asian origin. Respondents had an average of 15.7 years of education (i.e., 12 years of high school plus 3.7 years of college or vocational training). The average group size with which respondents camped was approximately 5 people (including the respondent). Most groups consisted of family (42%), friends (6%), or both (48%); 9% camped in groups of 10 or more. Eighty-nine percent had visited the Saranac Lakes Wild Forest for recreational purposes before 2006. The average camper made 2.5 trips to the SLWF in 2006, an average of 1.8 of which were camping trips; the average trip was 4 days long.

Campers participated in a diversity of recreational activities while in the Saranac Lake area. A large majority of campers participated in swimming (89% of respondents participated at least once in 2006), hiking (88%), nonmotorized boating (i.e., canoeing and kayaking; 86%), and fishing (60%); 39% of campers participated in motorized boat use and 8% in personal watercraft use.

Factor analysis results. The factor

analyses confirmed similar factor structures for the shoreline landowner, inland landowner, and camper samples. Specifically, one belief factor (i.e., natural/social beliefs related to boat use) and one attitude factor (i.e., attitude toward boat use) were validated for each of the three types of boat use. While the economic belief variable (i.e., "I believe that [type of boating] benefits the economy of the SLWF area"; Table 1) was originally included in the natural/social belief factor (based on interview results), it was removed from this factor due to factor analysis results⁶ and is thus presented as a separate variable. Reliability (as measured by Cronbach's alpha) was calculated for the natural/social belief and attitude factors and found to be above the acceptable level of 0.70 for each (Hair et al., 1998). Factor/variable means are presented in Table 3.

ANOVA results. Differences and similarities were identified among the four stakeholder groups for beliefs and attitudes toward participation in the three types of boating.

⁶ Factor groupings showed poor fit with the economic belief variable included in the natural/social belief factor.

Nonmotorized boating. For all four stakeholder groups, the means of natural/social beliefs, economic beliefs, and attitudes toward nonmotorized boat use were positive (Table 3). Shoreline landowners, inland landowners, and business owners had positive, moderate factor means for natural/social beliefs toward nonmotorized boating (0.92, 0.89, and 0.81, respectively); the factor mean for campers was moderately high (1.31). These results indicate that the average responding stakeholder believes that nonmotorized boating does not negatively affect local natural resources, the peace and quiet of the natural setting, or conflicts among water-based recreationists. Similarly, the average respondent in each of the four stakeholder groups believes that nonmotorized boat use has a moderately high, positive influence on the local economy (variable means ranged from 1.12 for shoreline landowners to 1.48 for business owners). The factor means for attitudes toward nonmotorized boating were all high and positive, indicating that the average responding shoreline and inland landowner, business owner, and camper has a positive attitude toward nonmotorized boating.

ANOVA identified significant

differences among the means of stakeholder groups with regard to their natural/social beliefs and attitudes toward nonmotorized boating (Table 4). Additional testing revealed significant differences ($p \leq 0.002$) in the natural/social beliefs and attitudes toward non-

motorized boat use between shoreline landowners and campers, and between inland landowners and campers.⁷ An im-

⁷ A post hoc Tamhane-T2 test was used to identify differences between stakeholder groups.

portant (but not significant) difference was also found between business owners and campers ($p = 0.088$) for the natural/social belief. These results indicate that the perceptions of campers are likely to be different (and slightly more positive) than those of the average landowner

Table 4. ANOVA results for stakeholder groups

Concept	Boating type		Sum of Squares	df	F ^a	Significance	
Natural/social behavioral beliefs	Nonmotorized boating	Between groups	35.986	3	16.655	< 0.001	
		Within groups	604.761	843			
		Total	640.747	846			
	Motorized boating	Between groups	38.487	3	12.302	< 0.001	
		Within groups	870.849	843			
		Total	909.336	846			
	Personal watercraft use	Between groups	1.352	3	0.554	0.647	
		Within groups	716.394	843			
		Total	717.746	846			
	Economic behavioral beliefs	Nonmotorized boating	Between groups	7.446	3	2.864	0.040
			Within groups	703.576	843		
			Total	711.022	846		
Motorized boating		Between groups	45.635	3	20.678	< 0.001	
		Within groups	667.794	843			
		Total	713.429	846			
Personal watercraft use		Between groups	15.616	3	3.082	0.031	
		Within groups	1298.679	843			
		Total	1314.295	846			
Attitude toward behavior		Nonmotorized boating	Between groups	11.276	3	7.036	< 0.001
			Within groups	443.281	843		
			Total	454.557	846		
	Motorized boating	Between groups	139.887	3	33.692	< 0.001	
		Within groups	1166.113	843			
		Total	1306.000	846			
	Personal watercraft use	Between groups	3.503	3	0.837	0.476	
		Within groups	1127.412	843			
		Total	1130.915	846			

^a Welch statistic used.

(and possibly business owner) with regard to non-motorized boat use.

Subgroups of the camper group (i.e., Fish Creek Pond, Rollins Pond, and Saranac Lake Islands campers) were also examined for similarities and differences in their beliefs and attitude toward nonmotorized boating. Means for the natural/social and economic beliefs, and attitude toward nonmotorized boating were strongly positive for campers of each of the three campgrounds (Table 5). ANOVA revealed significant differences among the three subgroups with regard to the attitude and beliefs toward nonmotorized boat use ($p \leq 0.05$). Further post hoc testing of the natural/social behavioral belief toward nonmotorized boat use revealed no significant differences between subgroups, although a slight difference ($p = 0.081$) was identified between the factor means of Fish Creek Pond (mean = 1.24) and Saranac Lake Islands (1.48) campers. For the economic behavioral belief, a significant difference was identified between Fish Creek Pond and Rollins Pond campers (means = 1.19 and 1.44, respectively; $p = 0.011$). Significant differences between the means of Fish Creek Pond campers (1.52) and both Rollins Pond and Saranac Lake Islands campers (1.86 and 1.78, respectively) were found for attitudes toward nonmotorized boat use ($p < 0.001$ and $p = 0.019$, respectively).

Motorized boating. The factor/variable means of beliefs and attitudes of shoreline and inland landowners, business owners, and campers toward motorized (i.e., gas-powered) boat use varied. For example, the means for natural/social behavioral beliefs were moderate and negative for respondents of each of the stakeholder groups, indicating disagreement with the natural/social belief statements included in the questionnaire (Table 3). However, the average responding shoreline landowner, inland landowner, and business owner believes that motorized boat use has a moderately high and positive impact on the local economy (means = 1.38, 1.18, and 1.12, respectively), while the average respond-

Table 5. Factor means for camper subgroups

Concept	Boating type	Factor means for camper subgroups		
		Fish Creek Pond (n = 227)	Rollins Pond (n = 155)	Saranac Lake Islands (n = 41)
Natural/social behavioral beliefs	Nonmotorized boating	1.24	1.38	1.48
	Motorized boating	-0.68	-1.40	-0.89
	Personal watercraft use	-1.11	-1.58	-1.45
Economic behavioral beliefs	Nonmotorized boating	1.19	1.44	1.39
	Motorized boating	0.98	0.63	0.90
	Personal watercraft use	0.30	-0.02	-0.02
Attitude toward behavior	Nonmotorized boating	1.52	1.86	1.78
	Motorized boating	0.21	-0.69	-0.14
	Personal watercraft use	-0.72	-1.37	-1.31

ing camper believes that motorized boat use has a positive but lower impact on the economy (mean = 0.84 for campers). The means of the attitudes of the stakeholder groups varied, with moderate means for the attitudes of both the average shoreline and inland landowner (0.73 and 0.51, respectively), a low mean for business owners (0.33), and a near-neutral mean for campers (-0.16).

ANOVA revealed significant differences for natural/social belief, economic belief, and attitude toward motorized boating among the four stakeholder groups (Table 4). Further analysis identified a significant difference between the factor/variable means of shoreline landowners and campers, and inland landowners and campers for natural/social beliefs ($p < 0.001$ and $p = 0.011$, respectively), economic beliefs ($p < 0.001$ for both comparisons), and attitudes toward motorized boat use ($p < 0.001$ for both). These results indicate that the perceptions of the average camper are likely to be different from those of the average landowner with regard to motorized boat use, but similar to those of the average business owner. The lack of significant differences among the factor/variable means of shoreline landowners, inland landowners, and business owners

indicates that these three resident groups are likely to have similar attitudes and beliefs toward motorized boating.

The means for natural/social behavioral beliefs toward motorized boat use were moderate to high and negative for campers at Fish Creek Pond (factor mean = -0.68), Rollins Pond (-1.40), and Saranac Lake Islands (-0.89). The means of economic behavioral beliefs toward motorized boat use were moderate and positive for all camper subgroups (0.98, 0.63, and 0.90, respectively). The means of attitudes toward motorized boat use varied from near neutral for Fish Creek Pond and Saranac Lake Islands campers (0.21 and -0.14, respectively) to moderately negative for Rollins Pond campers (-0.69).

The ANOVA for the camper subgroups revealed significant differences among the means of subgroups for the natural/social and economic beliefs, and attitude toward motorized boat use ($p \leq 0.05$). Further post hoc analysis revealed significant differences between Rollins Pond campers and campers at both Fish Creek Pond ($p < 0.001$) and Saranac Lake Islands ($p = 0.045$) with regard to the natural/social belief toward motorized boat use. Significant differences were identified between Fish Creek

Pond and Rollins Pond campers for the economic behavioral belief ($p = 0.002$) and for attitude toward motorized boat use ($p < 0.001$).

Personal watercraft use. The means of the natural/social beliefs of the average responding shoreline and inland landowner, business owner, and camper toward personal watercraft use were strongly negative (means ranged from -1.44 to -1.24), while the means of the economic beliefs were negative and low to near neutral (a range of -0.44 to 0.15 ; Table 3). These results indicate that, in general, the average responding landowner, business owner, and camper believes that personal watercraft use may negatively affect local natural resources, the peace and quiet of the natural setting, and conflicts among water-based recreationists, and does not contribute greatly to the local economy. The means for attitudes toward personal watercraft use were strongly to moderately negative (ranging from -1.24 to -0.92), indicating that the average responding stakeholder had a negative attitude toward personal watercraft use. ANOVA results (Table 4) indicate that there are no significant differences between the natural/social beliefs and attitudes of the four stakeholder groups toward personal watercraft use ($p = 0.647$ and $p = 0.476$, respectively). A significant difference among stakeholder groups was, however, identified for economic beliefs toward personal watercraft use ($p = 0.031$). A post hoc test of the economic belief toward personal watercraft use revealed a slight (but not significant; $p = 0.084$) difference between inland landowners and campers.

Campers at Rollins Pond and Saranac Lake Islands State campgrounds had strongly negative natural/social beliefs toward personal watercraft use (means of -1.58 and -1.45 , respectively), while campers staying at Fish Creek Pond had moderately negative natural/social beliefs (-1.11). The means for economic behavioral beliefs toward personal watercraft use were near neutral for Rollins Pond and Saranac Lake Islands camp-

ers (-0.02 for each) and low for Fish Creek Pond campers (0.30). Attitude toward personal watercraft use ranged from moderately negative among Fish Creek Pond campers (mean = -0.72) to strongly negative for Rollins Pond and Saranac Lake Islands campers (-1.37 and -1.31 , respectively).

ANOVA revealed significant differences among the three camper subgroups with regard to their natural/social beliefs, economic beliefs, and attitudes toward personal watercraft use ($p < 0.05$). Further analysis revealed that significant differences exist for the natural/social behavior beliefs toward personal watercraft use between Fish Creek Pond and Rollins Pond campers ($p < 0.001$), and between Fish Creek Pond and Saranac Lake Islands campers ($p = 0.034$). Attitudes toward personal watercraft use were also significantly different between Fish Creek Pond respondents and respondents of both Rollins Pond and Saranac Lake Islands ($p < 0.001$ and $p = 0.001$, respectively). A significant difference was identified for the economic beliefs toward personal watercraft use between Fish Creek Pond and Rollins Pond campers ($p = 0.035$).

Discussion

The first objective of this study was to identify similarities and differences among four different stakeholder groups with regard to their beliefs and attitudes toward three types of boating in the Saranac Lakes Wild Forest area. Although the average respondent of each stakeholder group had a positive view of nonmotorized boat use overall, there were significant differences among the four stakeholder groups for natural/social beliefs and attitudes toward nonmotorized boat use. These differences indicate that campers may have a slightly more positive perception of nonmotorized boat use than local residents (i.e., landowners and business owners), even though high percentages of each stakeholder group participated in nonmotorized boat use. Regarding perceptions of the economic impact of nonmotorized boat use in the

area, the four stakeholder groups appear to be in consensus since there were no significant differences between the economic beliefs of the four stakeholder groups.

Slightly different results were obtained for stakeholder perceptions toward motorized boat use. While similarities in the natural/social beliefs and attitudes toward motorized boat use were identified between business owners and campers, differences were identified between landowners and campers (campers were less favorable toward motorized boats). All four stakeholder groups had moderately to highly positive economic beliefs concerning motorized boat use, with significant differences between landowners and campers. These results suggest that business owners and campers (some of whom are likely the customers of the businesses) appear to perceive motorized boat use similarly. While responding stakeholders appear to believe (on average) that motorized boat use has both positive economic and negative natural and social impacts, positive to neutral attitudes toward motorized boat use indicate that motorboats are perceived favorably overall by local residents. Qualitative data collected from the surveys through open-ended questions indicate that local landowners greatly rely on motorboats for transportation to their residences and for recreation; this finding is supported by the fact that 88% of responding shoreline property owners and 69% of inland property owners participated in motorboat use in 2005. Thus, although both positive and negative beliefs exist concerning motorized boat use, the importance of motorized boats for the quality of life of local residents and the recreational experiences of both residents and campers is shown.

Consensus was identified for responding stakeholder groups with regard to their natural/social beliefs and attitudes toward personal watercraft use. While the ANOVA revealed a significant difference among groups in general for the economic belief concerning personal watercraft use, additional statistical tests

did not reveal any significant differences between specific groups. Natural/social beliefs and attitudes were moderately to strongly negative, while economic beliefs were near neutral. Interview results and open-ended question results from the surveys suggest that the negative natural/social beliefs and attitudes may be primarily related to noise and safety concerns associated with personal watercraft by some respondents. However, for each stakeholder group, correlations between level of personal watercraft use and attitudes toward personal watercraft use were strongly positive (r -values were greater than 0.3 and significant; Kuehn and Schuster, 2008), indicating that personal watercraft users have positive attitudes toward this type of boat use. With 10% of local responding landowners participating in personal watercraft use in 2005 and 13% of businesses having customers who are personal watercraft users, developing consensus about personal watercraft use in the Saranac Lakes Wild Forest will be a challenge for stakeholders and land managers in the future.

The second main objective of this study was to identify similarities and differences among the subgroups of campers concerning their beliefs and attitudes toward the three types of boat use. Significant differences were identified among all camper subgroups for each type of boating. Campers at all three campgrounds were favorable to non-motorized boat use, the average Rollins Pond and Saranac Lake Islands camper tending to be more favorable than the average Fish Creek Pond camper. Fish Creek Pond respondents were more favorable to motorized boat use than were campers at either Rollins Pond or Saranac Lake Islands, likely because lower percentages of campers at Rollins Pond (17%) and Saranac Lake Islands (42%) used motorized boats in 2006 as compared with campers at Fish Creek Pond (54%). All camper subgroups were moderately to strongly negative in their attitudes toward personal watercraft use, likely due to the low percentages of re-

sponding campers who participated in this activity in 2006 (13% of Fish Creek Pond, 2% of Rollins Pond, and 0% of Saranac Lake Islands respondents) and respondents' concerns about the noise and safety of personal watercraft use (as indicated by campers through open-ended survey questions; Kuehn and Schuster, 2008). Overall, these results indicate that many responding campers at all three campgrounds are seeking recreational experiences that involve non-motorized boat use. In addition, many campers enjoy having motorboats as part of their camping experience and, in the case of Saranac Lake Islands campers, may depend on it for access to their campsite.

Conclusion

Knowledge of both similarities and differences in perceptions of different recreational activities is essential for stakeholders and land managers as they make decisions regarding natural resource management, recreation-related regulations, and local quality of life. This study provides insight into the perceptions of four stakeholder groups in the Saranac Lakes Wild Forest in order to provide stakeholders and managers with information that can be used in decision-making.

Differences were noted between responding residents and campers with regard to both nonmotorized and motorized boat use. While both campers and residents were favorable to non-motorized boat use, campers were more favorable toward it. Local residents were more favorable to motorized boat use. Because of their short-term stay in the Saranac Lake area, campers (who boat primarily for recreational purposes) are likely to have different perceptions of boating than landowners (who depend on it for both recreation and transportation). Consideration of the views of these stakeholder groups is essential in order to both maintain the quality of life of residents and provide the recreational experiences sought by campers.

Additional differences were noted

between campers at the three campgrounds. For example, responding campers at Fish Creek Pond were more favorable to motorized boat use than campers at Rollins Pond (who favored nonmotorized boat use). These perceptions are likely related to the types of boating permitted in the water bodies adjacent to each campground. Based on these results, future management decisions within the Saranac Lakes Wild Forest will likely be needed on a campground-specific basis.

Consensus for future decision-making can be sought among stakeholders where similarities in perceptions toward boat use were identified. Specifically, similarities were noted in regard to the economic beliefs related to all three types of boat use. Since all responding stakeholder groups realize the importance of boating in the Saranac Lake area to the local economy, future management discussions could begin with this point of agreement.

Similarities in the perceptions of responding stakeholders toward personal watercraft use were also evident. Creating a balance between personal watercraft use and use of the Saranac Lakes Wild Forest for other recreational pursuits will likely be necessary in future discussions among stakeholders and Saranac Lakes Wild Forest managers. Continuing to provide this type of recreation to the users who enjoy it, while reducing some of the perceived negative social and environmental impacts indicated by responding stakeholders, will be a challenge for stakeholders and managers.

The theoretical framework used by this study (i.e., the Theory of Planned Behavior) was a valuable mechanism for examining the beliefs and attitudes included. The use of four stakeholder groups, however, does not reveal the true complexity of all stakeholder groups in the Saranac Lakes Wild Forest area. For example, day users and anglers were not included in this study due to funding limitations. In addition, use of property tax records for drawing the landowner samples excludes local residents who

rent (rather than own) property within the area. Although these delimitations were necessary to make implementation of this study possible, future studies are needed that include a greater diversity of stakeholder groups. In addition, mixed-methods studies such as this one are necessary to truly understand stakeholder perceptions since they reveal insights that cannot be revealed through quantitative means alone.

In summary, this study provided insight into stakeholder perceptions toward boat use in the Saranac Lakes Wild Forest. Similarities and differences revealed in the perceptions of stakeholder groups make it necessary for future planning efforts to be inclusive of all stakeholders. The insights provided by this study can form the basis for consensus among stakeholders and land managers as they seek to maintain the high quality of life in the area, provide positive recreational experiences for both residents and visitors, and ensure the health of the natural resources of the Saranac Lakes Wild Forest for both wildlife and local residents.

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Middle and Upper Saranac lakes from Ampersand Mountain

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