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The popularity of operating chairlifts at alpine ski areas in the summer to accommodate activities such as hiking and mountain biking is growing, especially in North America. Research has been conducted on environmental impacts of summer use at ski areas, but the social aspects have received little empirical attention. This paper describes summer visitors' (1) demographics; (2) activities and other trip characteristics; (3) motivations; and (4) experiences and satisfaction with lift ticket fees, management strategies, conflicting activities, and other on-site conditions. Data were obtained from visitor surveys (n = 548) conducted from July to September 2000 at 5 separate sites at the Whistler Mountain ski area in Canada. Hikers, sightseers, and mountain bikers were the main activity groups. Overall satisfaction was high, but visitors were not satisfied with every aspect of their experience. Many were displeased with crowding, environmental impacts, lift ticket fees, lack of educational/interpretive information provided, and overflights by helicopter tours. Responses, however, differed among the sites, suggesting the need for managing each site separately. Explanations for these findings and implications for managers and researchers are discussed.

Keywords: *Behavioral approach; expectancy theory; tourism management; Recreation Opportunity Spectrum (ROS); visitor satisfaction; ski area; Canada.*

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Introduction

The influence of recreation and tourism at mountain resorts such as Aspen (USA), Chamonix (France), and Whistler (Canada) has received considerable attention (Gill and Hartmann 1992; Godde et al 2000). For example, research at mountain resorts has focused on tourism development and management (Gill and Williams 1994; Williams et al 1995; Gill 2000), service quality and characteristics of winter visitors (Klenosky et al 1993; Richards 1996; Hudson and Shephard 1998), and environmental impacts of recreation development (Tsuyuzaki 1994).

Alpine ski areas (eg Aspen Highlands, USA; Blackcomb and Whistler Mountains, Canada) are focal points of recreation and tourism at most mountain resorts. Studies have examined aspects of winter use at ski areas. For example, Williams et al (1994), Vaske et al (2000), and Thapa and Graefe (2003) examined conflict among skiers and snowboarders. Ormiston et al (1998) measured skiers' attitudes regarding service quality, lift ticket fees, and lineup length at chairlifts (ie ski lifts). Research has also focused on demographic characteristics of winter recreationists at alpine ski areas (Mills et al 1986; Holden 1998; Vaske et al 2000). In addition, environmental impacts of winter use and development (eg landscape fragmentation, soil erosion, exotic species introduction, vegetation damage) at ski areas have received research attention (Hamilton 1981; Behan 1983; Watson 1985; Thompson and Hutchinson 1986; Puntieri 1991; Bayfield 1994).

Winter use has dominated ski areas, but operating chairlifts in the summer to accommodate activities such as hiking and mountain biking is increasing in popularity, especially in North America. For example, 12% of the ski areas in British Columbia (BC), Canada had lifts operating in the summer of 1991. A decade later, summer lift operations occurred at 65% of these areas (BCAL 2000). Many ski areas worldwide now have at least 1 lift operating in the summer, with some mountains receiving over 250,000 visitors each summer (Needham 2002).

This expansion to summer use has occurred because it enables operators to maintain year-round employment, offset infrastructure and operating costs, generate profit, and provide access for people who may not otherwise be able to experience alpine settings (Saremba and Gill 1991; Needham 2002). In addition, concerns regarding the potential effects of climate change on ski areas may be offset, in part, by opportunities in the summer (Beniston 2000; Elsasser and Messerli 2001).

Price (1981), Wood (1987), and Pickering et al (2003) examined some environmental impacts (eg trail erosion, vegetation trampling) associated with summer use at ski areas. Saremba and Gill (1991) and Pickering and Buckley (2003) discussed some activities and social impacts (eg crowding) related to summer use at these areas. There has been little empirical research (eg visitor surveys), however, to examine visitors and their experiences at ski areas in the summer. This paper addresses this knowledge gap, as it applies the behavioral approach (Manning 1999) to describe the characteristics and experiences of people who visit an alpine ski area in the summer.

Conceptual background

The behavioral approach to recreation and tourism has received considerable research attention (see Manning 1999). This conceptual approach is based on expectan-

cy theory, which suggests that people partake in activities in specific settings to satisfy certain goals or needs (Lawler 1973; Fishbein and Ajzen 1975). Building from expectancy theory, the behavioral approach involves a 4-tiered hierarchy for describing and understanding recreation/tourism experiences (Manning 1999).

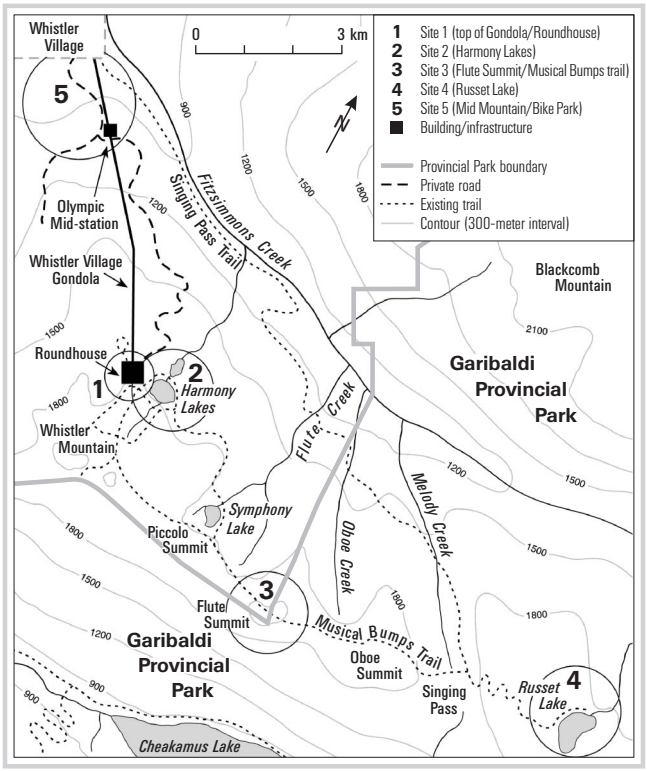
The first level of the behavioral approach specifies visitors' characteristics and the activities in which they participate. The second level represents the settings where the activities occur; different settings (eg pristine, developed) provide different opportunities. The third level specifies that visitors participate in specific activities in certain settings to fulfill their motivations. The fourth level refers to the satisfactions or benefits derived from activity participation. Satisfaction research has mainly involved general evaluations of the overall recreation/tourism experience. More recent research, however, has shown that satisfaction is a multidimensional concept requiring more specific assessments of the environmental (eg trail erosion), social (eg crowding, activity conflict), and managerial (eg level of management presence) conditions experienced. In many studies, visitors' overall trip satisfaction is very high, but evaluations of more specific aspects of the setting and experience are often much lower (Rollins and Chambers 1990; Manning 1999).

The Recreation Opportunity Spectrum (ROS) can be used as a tool to operationalize the behavioral approach (Driver et al 1987). The ROS is a planning tool for classifying areas on a broad continuum from "primitive" to "modern" based on the level of setting modification and access, as well as visitor characteristics including activities, motivations, and experiences.

The behavioral approach has informed over 75 studies that have examined the relationships between setting attributes and the characteristics, activities, motivations, and experiences of recreationists and tourists (see Manning 1999 for review). For example, Vaske et al (1996) reported that visitors' demographics, activities, and experiences (eg crowding) differed among various sites at the Columbia Icefield in Canada.

Despite this breadth of research, most studies have occurred in public parks and related areas; few have empirically applied the behavioral approach to commercial recreation and tourism settings. The present study addresses this issue, as it applies the behavioral approach to a study of summer use at different sites in an alpine ski area. Specifically, its objectives are to describe summer visitors' (1) demographics; (2) activities and other trip characteristics; (3) motivations for visiting; and (4) experiences and satisfaction with lift ticket fees, management strategies, crowding, conflicting activities, and other on-site social and environmental conditions.

FIGURE 1 Location of the 5 survey sites in the study area. Only the Whistler Village Gondola operates in the summer. There are 15 other ski lifts (not shown) that do not operate in the summer. (Map by authors)



Methods

Data for this study were obtained from summer visitors at the Whistler Mountain ski area, which is located 120 km north of Vancouver, BC, Canada (50° 07′ N, 122° 57′ W). This ski area has 16 chairlifts, but only the Whistler Village Gondola is used in the summer to shuttle visitors from the Whistler resort (652 m) to the Roundhouse lodge and restaurant area on the mountain (1809 m). Over 1 million skiers and snowboarders visit this ski area each winter, whereas 183,700 and 225,000 people visited in the summers (July-October) of 2000 and 2002, respectively. Summer activities offered include hiking, mountain biking, bear viewing, and helicopter tours.

From 1 July to 4 September 2000, a 10-page, 37-question survey was conducted on site with summer visitors over 16 years of age at 5 separate sites on Whistler Mountain (Needham 2002). These sites ranged from the developed (eg restaurants, ski runs) Top of Gondola/Roundhouse area (Site 1), to more remote and relatively unmodified sites such as Sites 3 (Flute Summit/Musical Bumps Trail) and 4 (Russet Lake). Site 5 (Mountain Bike Park) contains over 100 km of mountain bike trails near the base of Whistler Mountain (Figure 1).

Many survey questions asked visitors to respond "based on [their] impressions of this immediate site

TABLE 1 Demographics of summer visitors at each site. Cell entries are percentages unless specified as averages. Averages with different superscripts differ at $p < 0.05$ using post-hoc Scheffe tests.

Variables	Site 1 (Top of Gondola/ Roundhouse)	Site 2 (Harmony Lakes)	Site 3 (Flute/Musical Bumps Trail)	Site 4 (Russet Lake)	Site 5 (Mountain Bike Park)	χ^2 or *F*-value [a)]
Location of residence						228.16 ***
Whistler area	2	4	27	12	26	
Vancouver area	21	15	36	70	22	
Rest of British Columbia	5	13	0	4	12	
Rest of Canada	10	8	19	7	6	
Northwest USA (WA, OR)	12	20	7	0	17	
Rest of USA	26	21	7	0	11	
Europe	20	7	5	7	4	
Rest of world	4	11	0	0	2	
Sex						46.74 ***
Male	48	45	44	67	80	
Female	52	55	56	33	20	
Average age (years)	37.7 [a]	35.4 [a]	33.9 [a]	25.4 [b]	25.8 [b]	25.08 ***
Average annual income [b)]	97,568 [a]	88,866 [ac]	80,438 [ac]	59,036 [b]	72,667 [c]	12.45 ***

[a)] *** $p < 0.001$, effect sizes (V, η) range from 0.29 (annual income) to 0.40 (age).
[b)] Annual income values are per household in Canadian currency (CAN$), as requested in the survey.

where [they were] completing the survey." This permits a comparison of responses among the sites, which is important because visitors and their experiences can vary in a region, suggesting the need for managing different areas for various clientele groups and their experiences (Manning 1999).

Of the 651 visitors contacted, 548 completed the survey (84% response rate). Sample sizes were 187 at Site 1 (Top of Gondola/Roundhouse), 119 at Site 2 (Harmony Lakes), 59 at Site 3 (Flute Summit/Musical Bumps Trail), 57 at Site 4 (Russet Lake), and 126 at Site 5 (Bike Park).

Results

Visitor demographics

Table 1 shows that Site 1 (Top of Gondola/Roundhouse) visitors resided in various places such as the United States (US), Vancouver, and Europe. Further into the backcountry at Sites 3 (Flute Summit/Musical Bumps Trail) and 4 (Russet Lake), most of the visitors were from nearby Vancouver or Whistler. Many Bike Park (Site 5) visitors were from Whistler, Vancouver, or Washington State or Oregon (US). There was a significant ($\chi^2 = 228.16$, $p < 0.001$) difference among the sites. The Cramer's V effect size of 0.32 suggests that the strength of this difference was "typical" (Vaske et al 2002) or "medium" (Cohen 1988).

There were more males (56%) than females (44%) in the study area, but there was a significant ($\chi^2 = 46.74$, $p < 0.001$) and typical ($V = 0.29$) difference among the sites. There were slightly more females at Sites 1 (Top of Gondola/Roundhouse), 2 (Harmony Lakes), and 3 (Flute Summit/Musical Bumps Trail). Males, however, dominated Sites 4 (Russet Lake) and 5 (Bike Park).

Over 57% of the visitors were 20 to 39 years old and 79% were under 50. The average age was 33 years. The majority of visitors (54%) at Site 1 (Top of Gondola/Roundhouse) were 40 years or older. At Russet Lake (Site 4), however, 58% were younger than 29 and only 18% were 40 or older. There was a significant (ANOVA $F = 25.08$, $p < 0.001$) and substantial ($\eta = 0.40$) difference in average age among the sites, as younger people visited the sites farthest from the Roundhouse (Site 1). Post-hoc Scheffe tests indicated that the average age of frontcountry visitors (eg Sites 1, 2) was significantly higher than that of visitors at the other sites. Most Bike Park (Site 5) visitors were younger than 39 (87%), with an average age of 26 years.

TABLE 2 Trip characteristics of summer visitors at each site. Cell entries are percentages unless specified as averages. Averages with different superscripts differ at $p < 0.05$ using post-hoc Scheffe tests.

Variables	Site 1	Site 2	Site 3	Site 4	Site 5	χ^2 or *F*-value [a)]
Main activity						939.23 ***
Day hiking	30	89	98	21	1	
Sightseeing/photography	60	11	0	0	0	
Mountain biking	1	0	0	0	98	
Backcountry camping	0	0	2	74	1	
All other activities	9	0	0	5	1	
Repeat/first time summer visitor						41.29 ***
First time summer visitor	72	71	42	54	42	
Repeat summer visitor	28	29	58	46	58	
Average visitor group size (# people)	4.2 [a]	2.7 [b]	2.2 [b]	2.8 [b]	2.6 [b]	2.64 *
Average duration of visit (# hours)	3.7 [a]	4.9 [a]	7.2 [a]	29.8 [b]	5.5 [a]	79.84 ***

[a)] * $p < 0.05$, effect size (η) = 0.14; *** $p < 0.001$, effect sizes (V, η) range from 0.27 (repeat/first time visitor) to 0.61 (duration of visit) to 0.71 (main activity).

Visitors were affluent, as their average annual household income was CAN$ 84,142. In fact, 22% earned $135,000 or more. There was a significant (F = 12.45, $p < 0.001$) and typical (η = 0.29) difference among the sites, with Site 1 (Top of Gondola/Roundhouse) visitors earning the most and Site 4 (Russet Lake) visitors earning the least.

Visitor activities, trip characteristics

Visitors specified the main activity in which they were participating during their summer visit to the study area. The main groups were day hikers (43%), sightseers (23%), and mountain bikers (23%). Table 2 shows that most Site 1 (Top of Gondola/Roundhouse) visitors were sightseers. Conversely, nearly all of the visitors at Sites 2 (Harmony Lakes) and 3 (Flute Summit/Musical Bumps Trail) were day hikers. Most of the visitors at Russet Lake (Site 4) were multi-day hikers that camped overnight at the site. Nearly all of the visitors at the Bike Park (Site 5) were mountain bikers. Activity groups were substantially (χ^2 = 939.23, $p < 0.001$, V = 0.71) different among the sites.

Of those who visited the area in the summer of 2000, 60% were visiting for the first time during a summer season and 40% were repeat visitors. There was a significant (χ^2 = 41.29, $p < 0.001$) and typical (V = 0.27) relationship between repeat visitation and the sites. Most of the visitors at Sites 1 (Top of Gondola/Roundhouse) and 2 (Harmony Lakes) were visiting for the first time. At Sites 3 (Flute Summit/Musical Bumps Trail) and 5 (Bike Park), the majority were repeat summer visitors.

Visitors indicated how many people, including themselves, were accompanying them on their alpine visit. Over 59% of the parties consisted of 2 people. Only 7% of the groups consisted of 5 or more people and 8% visited on their own. The average group contained 3 people. There was a significant (F = 2.64, p = 0.033), but weak (η = 0.14) difference among the sites. On average, Site 1 (Top of Gondola/Roundhouse) respondents visited in significantly larger groups.

Over 38% of the visitors spent 3–4 hours in the study area on their trip. Fewer visitors stayed 1–2 (11%) or 7 or more hours (23%). The average time spent in the area differed substantially (F = 79.84, $p < 0.001$, η = 0.61) among the sites. On average, visitors at Sites 3 (Flute Summit/Musical Bumps Trail) and 4 (Russet Lake) stayed much longer in the alpine area compared to those at Site 1 (Top of Gondola/Roundhouse). This is predictable given that the round-trip hike from the Roundhouse to Flute Summit is 9 km long, taking 4–6 hours. Most respondents at Russet Lake camped overnight.

Visitor motivations

A principal components factor analysis with Varimax rotation was conducted on visitors' responses to 20 motivation items for visiting Whistler Mountain in the summer (Needham 2002). This produced 5 underlying factors that explain why respondents visited this area in the

TABLE 3 Factors representing respondents' reasons for visiting Whistler Mountain in the summer. Factors represent computed indexes from individual survey items. Cell entries are percentages of visitors whose responses to the indexes were classified as being "very important" or "extremely important" (to why they visited).

Factors from factor analysis	Site 1	Site 2	Site 3	Site 4	Site 5	χ^2 value [a)]
Experience the alpine area and scenery	88	89	97	88	45	106.81 ***
Recreation opportunities offered	15	27	53	56	68	114.16 ***
Ease of access to the alpine area	57	35	20	4	33	74.95 ***
Advertising/reputation of ski area	33	27	15	12	34	17.95 ***
Amenities and guided tours offered	20	8	5	7	14	15.64 **

[a)] ** $p < 0.01$, effect size (V) = 0.17; *** $p < 0.001$, effect sizes (V) range from 0.18 (advertising/reputation) to 0.35 (ease of access) to 0.46 (recreation opportunities).

summer: (1) experience the alpine area and scenery (4 items, Chronbach's alpha reliability coefficient = 0.83), (2) recreation opportunities offered (3 items, alpha = 0.62), (3) ease of access to the alpine area (3 items, alpha = 0.69), (4) advertising and reputation of the ski area (4 items, alpha = 0.73), and (5) amenities and guided tours offered (6 items, alpha = 0.78). Table 3 shows that factor 1 (to experience the alpine area and scenery) was the most important reason for respondents to visit.

Statistical differences among the sites were observed for all 5 factors (χ^2 = 15.64 to 114.16, p = 0.004 to < 0.001, V = 0.17 to 0.46). For example, the Bike Park (Site 5) visitors rated the recreation opportunities offered as the most important reason for visiting, and they rated the scenery as less important than the visitors at the other sites did. Those in the frontcountry at Site 1 (Top of Gondola/Roundhouse) rated advertising and the reputation of the area, as well as conveniences and services such as the ease of access via the gondola and the amenities and tours offered as more important than the visitors at the other sites did.

Visitor satisfaction

Over 90% of the respondents at each site were satisfied with their overall alpine visit. This does not mean, however, that they were satisfied with every aspect of their experience. Only 62% were satisfied with the environmental conditions (criticizing eg erosion). Over 83% of the visitors were satisfied with the environmental conditions at Sites 3 (Flute Summit/Musical Bumps Trail) and 4 (Russet Lake), but significantly (c^2 = 23.90, $p < 0.001$, V = 0.20) fewer (54%) were satisfied at Sites 1 (Top of Gondola/Roundhouse) and 5 (Bike Park). This is predictable because Sites 1 and 5 have been altered (eg ski runs, restaurants, hard-surfaced trails) to accommodate many people and activities in the summer and winter, whereas Sites 3 and 4 contain very little development.

Only 60% of the visitors were satisfied with the social conditions (eg noise). Less than 58% were satisfied with the social conditions at Sites 1 (Top of Gondola/Roundhouse), 2 (Harmony Lakes), and 5 (Bike Park), whereas over 81% were satisfied at Sites 3 (Flute Summit/Musical Bumps Trail) and 4 (Russet Lake). This difference was significant (χ^2 = 18.95, $p < 0.001$), but weak (V = 0.18). This is predictable because Sites 1, 2, and 5 are heavily visited and offer less opportunity for solitude and quietude than Sites 3 and 4.

The perceived crowding scale (1 "not at all crowded" to 9 "extremely crowded") was used to measure visitor crowding at each site (Shelby et al 1989). Overall, 55% of the visitors felt crowded (3–9 on scale), but there was a significant (χ^2 = 27.99, $p < 0.001$) and typical (V = 0.23) difference among the sites. Over 72% felt crowded at Site 2 (Harmony Lakes), 56% felt crowded at Sites 1 (Top of Gondola/Roundhouse) and 4 (Russet Lake), and less than 40% felt crowded at Sites 3 (Flute Summit/Musical Bumps Trail) and 5 (Bike Park).

Visitors were also asked if they were satisfied with the gondola fees they paid to access the area. Summer fees were $22 for adults, $19 for youths and seniors, and $29 for Bike Park riders (Canadian currency). Over 52% of the visitors were satisfied with these prices, but 33% were not. Significant relationships were found between satisfaction with the fees and site (χ^2 = 29.80, $p < 0.001$, V = 0.17), residence (χ^2 = 25.60, $p < 0.001$, V = 0.15), and income (χ^2 = 37.77, $p < 0.001$, V = 0.19). Affluent American and European frontcountry visitors (eg Sites 1, 2) were more satisfied with the fees (67–82%) compared to the locals (eg Whistler, Vancouver) at the backcountry sites (24–43%).

The snowmobile tours, which operated in July while snow remained in the alpine area, detracted the greatest number of summer visitors (49%). In addition, 47% were detracted by the helicopter tours operating on the mountain. Table 4 shows that the helicopters detracted many visitors at Sites 2 (Harmony Lakes), 3 (Flute Summit/Musical Bumps Trail), and 4 (Russet Lake). This is predictable, as the helicopters flew over these sites

TABLE 4 Extent to which other main summer activities detracted visitors at each site. Cell entries are percentages of visitors that reported being "somewhat detracted" or "significantly detracted" by each activity.

Detracting activities	Site 1	Site 2	Site 3	Site 4	Site 5	(χ^2) value [a]
Snowmobile tours	33	66	87	86	22	131.74 ***
Helicopter tours	29	62	75	67	23	86.99 ***
Mountain biking	20	38	53	53	2	88.46 ***
Bear viewing tours	8	9	17	21	11	8.85
Day hiking	6	8	9	9	18	10.14 *
Picnicking	5	14	14	9	7	8.91
Backcountry camping	6	12	7	9	11	4.52
Sightseeing/photography	9	4	3	12	10	7.30
Rock climbing/mountaineering	2	2	5	4	4	2.51

[a] * $p < 0.05$, effect size (V) = 0.14; *** $p < 0.001$, effect sizes (V) range from 0.40 (helicopter tours) to 0.49 (snowmobile tours).

every 10–15 minutes. These visitors experienced interpersonal/goal interference conflict because the helicopters interfered with their experiences (Vaske et al 2000). The snowmobile tours, however, used routes out of sight and sound and stopped operating in July. Many visitors, especially those surveyed in August and September, never observed or heard the snowmobiles. This is an example of social values conflict. Knowing that snowmobile tours operated in the ski area in the summer was enough to initiate perceptions of conflict regardless of contact between activity groups. Statistical differences among the sites were observed for 4 of 9 activities (χ^2 = 10.14 to 131.74, p = 0.038 to < 0.001), but most activities did not detract many visitors.

Visitors rated their support for direct and indirect strategies for managing summer use at each site. Indirect strategies (eg signage) try to influence visitor behavior, whereas direct strategies (eg prohibit activities) act directly on visitors leaving no freedom or choice (Manning 1999). Although signage and tours are already provided, there was vast support for providing more educational information at each site (Table 5). Visitors supported more interpretive signage and staff presence at Site 1 (Top of Gondola/Roundhouse), more trails in the Bike Park (Site 5), banning helicopter over-flights at Site 3 (Flute Summit/Musical Bumps Trail), and prohibiting mountain bikers at Sites 2 (Harmony Lakes) and 4 (Russet Lake). Visitors were divided on restricting use and operating more chairlifts in the summer. There was little support for other direct actions such as increasing lift ticket prices. There were statistical differences among the sites for 12 of 17 strategies (χ^2 = 9.35 to 185.81, p = 0.005 to < 0.001), but most of these were weak (ie small effect sizes).

Discussion

Implications for researchers

This paper has described summer visitors and their experiences at the Whistler Mountain ski area. Results showed that most of the visitors at the developed (eg buildings, hard-surfaced trails) sites such as Site 1 (Top of Gondola/Roundhouse) were sightseers from various countries around the world who were motivated to visit this ski area to see the alpine scenery. They were likely to be first-time visitors who were older and more affluent than those at the other sites. Compared to visitors at the other sites, these frontcountry visitors were less satisfied with social (eg crowding, noise) and environmental (eg erosion) conditions. Conversely, the visitors at the more pristine backcountry sites (eg Sites 3, 4) were mostly younger hikers or campers from nearby Whistler or Vancouver. Visitors were generally very satisfied with the conditions at these sites. Nearly all of the visitors at the Bike Park (Site 5) were male mountain bikers from Whistler or Vancouver who were motivated to visit this ski area because of the recreation opportunities offered.

These findings have implications for researchers. For example, they support the behavioral approach for describing and understanding recreation and tourism experiences. This suggests that visitors pursue specific activities in certain settings to fulfill their motivations (Manning 1999). The distribution of summer activities on Whistler Mountain is at least partially contingent on the settings in which these activities are offered, as well as on visitors' characteristics and motivations for participation. The behavioral approach, therefore, can be applied to commercial recreation and tourism settings.

TABLE 5 Visitor support for potential management strategies for summer use at each site. Cell entries are percentages of visitors that "somewhat supported" or "strongly supported" each potential strategy.

Potential summer management strategies	Site 1	Site 2	Site 3	Site 4	Site 5	χ^2 value [a]
Indirect strategies						
More education/information	85	78	83	70	75	8.16
More interpretive signage	64	51	46	46	43	16.49 **
More rangers/staff presence	59	46	49	47	43	9.28
More trails	45	38	39	44	64	20.01 ***
Operate more chairlifts	47	43	31	22	54	14.94 **
More garbage containers	53	24	15	18	49	60.26 ***
More toilets/outhouses	31	17	29	23	37	13.86 **
More campsites	26	19	25	47	27	14.67 **
Provide backcountry huts	27	18	31	37	22	9.35 *
Upgrade trail conditions	32	19	14	16	22	13.31 **
Direct strategies						
Different fee per activity	56	54	53	51	55	0.49
Separate activities by zone	51	55	61	37	50	7.69
Restrict use with a quota	51	49	39	26	41	13.69 **
Prohibit mountain biking	28	69	54	63	1	185.81 ***
Prohibit helicopter tours	27	44	67	47	17	55.42 ***
Increase lift ticket prices	9	8	7	7	5	2.39
Prohibit hiking	7	4	0	0	17	24.70 ***

[a] * $p < 0.05$, effect size (V) = 0.13; ** $p < 0.01$, effect sizes (V) are either 0.16 or 0.17; *** $p < 0.001$ effect sizes (V) range from 0.19 (more trails) to 0.53 (prohibit mountain biking).

These results also support the Recreation Opportunity Spectrum (ROS) planning tool (Driver et al 1987). For example, the Roundhouse area (Site 1) may be considered "modern" because it is developed, easily accessible, accommodates many activities, and contains social (eg crowding) and environmental (eg clear-cut ski runs) impacts (Figure 2). Site 3 (Flute Summit/Musical Bumps Trail) is more "primitive," as it contains little impact and offers solitude and quietude for hikers (Figure 3).

Findings also showed that almost all of the respondents were satisfied with their overall alpine visit. Visitors, however, were far less satisfied with more specific setting and experiential attributes. This is consistent with previous research showing that satisfaction is a multidimensional concept influenced by many environmental, social, and managerial variables (Rollins and Chambers 1990).

In addition, the site-specific results presented here highlight the importance of tailoring survey questions to specific sites within a management area. This is important because recreation and tourism research has typically employed trailhead or mail surveys that ask general questions, which compel visitors to average their experiences within a park or management area (Manning 1999).

Implications for managers

The findings presented here also have several applied implications for managers. First, visitors who shared the same site tended to have more uniform characteristics than all visitors in the study area considered together. This suggests the need for managing each site separately to ensure that opportunities are avail-

FIGURE 2 The Roundhouse and top of the gondola area (Site 1). This is the most heavily developed and visited site in the Whistler Mountain ski area. (Photo by Mark Needham)

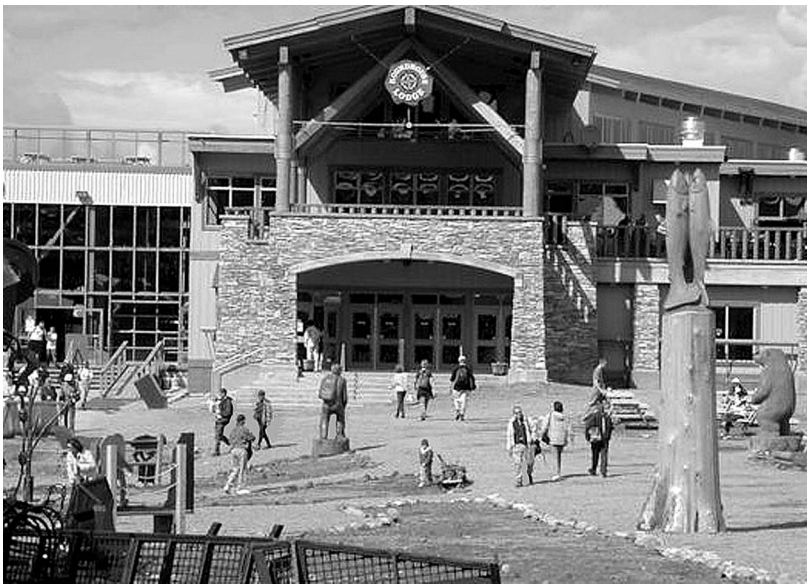


FIGURE 3 Many visitors are motivated to hike along the Musical Bumps Trail to experience the alpine area and scenery, which includes this view from Flute Summit (Site 3) of the surrounding glaciers and Cheakamus Lake. (Photo by Mark Needham)

able for the different clientele groups that visit the ski area in the summer.

Second, the amenities (eg restaurants) and motorized activities (eg helicopter tours) did not lure many visitors. This is important because many ski area operators, including those at Whistler, are advertising and adding summer attractions such as helicopter tours, hoping that they will draw more visitors. Since most respondents visited this area to view the scenery and to hike or mountain bike, it may be wise to market the natural setting more than the contrived amenities and tours.

Third, there was immense support for providing summer visitors with more interpretive and educational information at each site. Additional interpretive signage and staff presence were supported, but these could be supplemented with more guided hiking tours and brochures/maps. Orientation sessions and interpretive videos may also be useful at some of the sites.

Fourth, the majority of visitors were satisfied with the summer lift ticket prices, but there was little support for increasing the fees even though the survey stated that any increase would improve visitor services and area maintenance. Fee increases garner more visitor support if they are retained by the collecting agency and reinvested in recreation and tourism facilities and services (Manning 1999). Study findings, however, suggest that the fees represent a threshold for visitors regardless of revenue dispensation. In addition, visitors from Whistler and Vancouver were less satisfied with the fees, suggesting that "locals prices" may be needed at this alpine ski area.

Fifth, visitors felt crowded at some sites, especially Harmony Lakes (Site 2). However, direct alternatives such as restricting use (quota) or prohibiting hikers were not well supported. Indirect options such as implementing directional trails and increasing visitor education may be more feasible for reducing crowding at some of the sites.

Finally, the helicopter tours detracted summer visitors at the backcountry sites. Many visitors at the Roundhouse (Site 1), however, were not detracted even though this is where the helicopters take off and land. Flight paths and/or minimum altitudes may be required to ensure that the backcountry visitors' experiences are not compromised. Although overall visitor satisfaction was high, minimizing crowding, monitoring the helicopters, providing more educational information, reducing fees for local residents, and managing sites separately may improve visitor experiences and ensure more sustainable summer use at the Whistler Mountain ski area.

In conclusion, there has been little empirical research to (1) examine summer visitors and their experiences at alpine ski areas, and (2) apply the behavioral approach to commercial recreation and tourism settings. This paper has helped to address both of these knowledge gaps. The findings presented here, however, are limited to a single alpine ski area and may not generalize to all ski areas where chairlifts operate in the summer. The applicability of these findings to other ski areas and commercial recreation and tourism settings remains a topic for further empirical investigation.

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