Visitor satisfactions, impact perceptions, and attitudes toward management options on the Rakiura Track

SCIENCE FOR CONSERVATION: 80

Department of Conservation
Te Papa Atawhai

Abstract

Walkers on the Rakiura Track in Stewart Island were surveyed during January and February 1994, as part of a wider study of track users in New Zealand. Their visit evaluations were highly positive, suggesting little dissatisfaction or any need for urgent management action. Other results indicated that further improvements to visit quality would be best achieved through improving the use of space in huts. Notable dissatisfaction with track standards was indicated, although some dissatisfaction related to under-development of the track, and some related to over-development. Perceptions of crowding were low, but assessment of social and physical impact perceptions indicated that visit-experience problems would gradually emerge with future increase in use-levels, particularly because of greater hut congestion. Visitors favoured information-based management to address these increasing use-pressures rather than more regulatory controls. Current low crowding levels suggest that time is available to allow information-based approaches being applied as the main means for achieving long-term control, without more direct measures being required at present.

Executive summary

This report summarises key results from a survey of 269 walkers on the Rakiura Track. The survey was undertaken as part of a broader study of people doing overnight trips on the Great Walks. It provides information about visitor satisfactions with their visit experiences, about which aspects of visits may be detracting from the quality of these experiences, and about management options to address these issues.

Evaluation

Evaluations of the visit were very positive. Overall satisfaction scores were very high, and compared with visitors to other tracks, Rakiura visitors were considerably less crowded and saw fewer other people than they expected. The overall satisfaction measure was not linked to any other variables in the survey, which limits its practical value as a possible tool for any monitoring of the quality of visit-experiences. In particular, the lower crowding perception was not linked to higher overall satisfaction, indicating there was no relationship between these crowding perceptions and how the trip was evaluated overall. However these crowding perceptions were found to have a weak association with impact perceptions related to hut and track congestion. In general, crowding scores appear to represent a more sensitive measure of compromises to visit-experiences.

Satisfaction with facilities and services

Satisfaction with specific facilities and services was high. There were no links between the satisfaction with facilities and services, and the overall visit evaluations. Satisfaction also varied between different visitor groupings. In summary, crowded visitors and older visitors (over 40 years) were each more dissatisfied with hut conditions; older visitors who felt crowded were particularly more dissatisfied with hut conditions, extra facilities/services and track signs; and while younger overseas visitors were the most dissatisfied with track-hardening (e.g., steps, boardwalks) and information services, the older overseas visitors were those most satisfied. While quite simplified summaries of complex results, these points highlight satisfaction with hut conditions as being particularly variable, and notable distinctions emerged between different visitor groupings. Some dissatisfaction with track standards was also evident, although for some this represented dissatisfaction with track steps and for others track drainage. However, all these distinctions occurred in a context of very high satisfaction levels. Overall, these satisfaction results suggest there is no immediate need for significant management intervention. Attention to the space and facility capacity in huts appears the main area where any attention may be required.

Impact perceptions

Visitors were aware of high levels of some social and physical impacts, but the proportions of visitors bothered by these impacts rarely exceeded 30%. Both the

trampling damage to tracks and the over-development of tracks were particularly prominent impacts, suggesting different perspectives on appropriate standards for tracks and track hardening (e.g., steps, boardwalks). Social impacts related to hut congestion were also prominent, although these did not include perceptions of insufficient bunk numbers. Some types of impacts appeared to be considered as particularly unacceptable (e.g., associated with litter, toilet paper/waste, wood cutting), but these were not reported at notable levels. These impacts perceptions also varied between different visitor groupings. In summary, crowded visitors were more bothered by perceptions of hut/track congestion, over-development, conflict issues and campsite congestion; New Zealand visitors were more bothered by perceptions of campsite congestion; and New Zealand visitors who felt crowded were particularly more bothered by perceptions of physical impacts and campsite congestion. While quite simplified summaries of complex results, these points highlight the greater perception of most impacts among crowded visitors, particularly featuring hut/track congestion. These impact perception distinctions between uncrowded and crowded visitors are notable for long term management considerations, but given the high overall satisfaction, the generally consistent satisfaction with facilities and services among different visitors, and the low crowding levels, this distinction is not of immediate concern for managers. However, given the link between crowding perceptions and hut congestion impacts (e.g., too many in huts, too many on tracks, hut noise), management action to minimise any future compromises to the quality of visit-experiences should focus first on hut conditions, as should any related monitoring.

Attitudes toward management options

Visitors were most positive toward the use of information to encourage better choices of trip timing and appropriate behaviour on them. Attitudes were generally split toward options involving encouraging alternative types of visits and accommodation (e.g., camping, guided trips), and applying rationing systems (e.g., bookings, permits). Most were strongly opposed to the more direct developmental and regulatory types of management options. This attitude did vary between different visitor groupings, although these distinctions were not simple. In summary, older New Zealand visitors were most opposed to options of manipulating use-conditions and rationing use-levels; crowded older visitors were most opposed to options of manipulating use conditions and promoting alternatives; and while uncrowded New Zealand visitors were most opposed to manipulating use conditions, crowded New Zealand visitors were least opposed. While quite simplified summaries of complex results, these points highlight the greater opposition to more direct management options among particular visitor groups. Notably, crowded New Zealand visitors appeared more accepting toward options of manipulating use conditions. However, given the high overall opposition to the more direct management approaches, such complex distinctions are not important at this time.

Recommendations

While there is no urgent need for immediate management action to address current problems, the most productive directions for preventative action to minimise future compromises to the quality of visit-experiences appear to be:

- Optimising/increasing the acceptable facility capacity and bunks capacity of huts
- Optimising/reconfiguring the use of space for comfort and facility access in huts
- Some provision of information about track conditions, surfaces, and track-hardening on the Rakiura Track
- Provision of information approaches which forecast visitor numbers and hut loadings in advance, accompanied by suggestions on visit-timing and operation to minimise crowded experiences
- Consider possibilities for management options other than information use, on the Rakiura Track.

Most initial gains should be made by concentrating upon short-term physical changes to hut facilities and their operation, complemented by more long-term promotion of beneficial changes through information approaches. Appropriate research and information back-up could include:

- Identification of visitor preferences for facility, bunk and space standards in huts
- Assessing options for optimising the use of space and facilities in huts
- Assessing the effectiveness of information-based techniques in influencing visitor use
- Investigating differences in the expectations and evaluations of visits by different visitor groups, particularly relating to hut congestion and track development standards
- Investigating the greater perception of impacts by crowded visitors
- Investigating the distinctions between noticing and tolerating impacts, and being bothered by them
- Investigating the difference in attitudes between uncrowded and crowded New Zealander visitors toward management by manipulating use
- With reference to any insights from the investigations above, evaluate the outcomes of different management options on visit experiences and visit patterns on the Rakiura track

Any monitoring of the quality of the visit-experience should concentrate first upon hut congestion and conditions at key huts. Emphasis should be on a variety of approaches as simple measures of overall satisfaction are unlikely to provide a useful means to monitor changes in these conditions. Some assessment and periodic monitoring of activity patterns on the Rakiura Track and it's related tracks should be undertaken.

Acknowledgements

The overall Great Walks study covered a wide variety of different track and recreation situations, and raised a number of large operational and analytical challenges. Help and advice on statistical approaches to these analyses was provided at various times by Margaret O'Brien and Ian West of Science and Research Division, and Roger Wilkinson of Landcare Research. Data entry for the project was carried out very effectively by the Tourism Green project team of Michael Chan, Victor Keo and Sulia Aumua. Ian Mackenzie of Science and Research Division provided the overall editorial assistance for final production of the reports. Thanks are also due to other Departmental staff who viewed the draft reports and made useful suggestions on their overall approach and contents.

For this specific report, overall co-ordination was managed by Paul Wilson of Southland Conservancy Office, and staff from Stewart Island Field Centre. The actual application of the survey in the field was carried out by hut wardens and management staff on the Rakiura Track.

1. Introduction

The Rakiura Track survey was undertaken as part of a broader study of people doing overnight trips on the Great Walks. Tracks classified and managed as Great Walks are the primary locations for multi-day walking trips in the New Zealand backcountry. They are of high scenic and recreational value, and are characterised by high and increasing use-levels. This use pressure, and the need to provide for quality outdoor recreation experiences, requires that these tracks be specifically managed to provide high levels of facility and service provision without compromising the quality of the visit experience. To achieve this outcome, managers require information about visitor-satisfaction with their visit experiences, and what aspects of visits may be detracting from these experiences. On this basis, the objectives of the Great Walks study were to:

- Provide brief description of overnight visitors to the Great Walks
- Identify visitor satisfactions with the facilities and services provided
- Identify visitor perceptions of crowding and use-impacts
- Identify visitor attitudes towards management options

Departmental staff at key huts administered standardised questionnaires to visitors on each track[1] on their last trip night. Overall, 269 Rakiura Track visitors completed the survey questionnaire during the 1993/94 summer season. After data coding and entry, preliminary results were initially presented to managers as percentage tables. These descriptive results are summarised here in the questionnaire format (refer Appendix 1).

Other analyses were carried out on the database, and this report summarises the main findings derived from these descriptive and analytical results. The report presents overall evaluations by visitors of their visit experiences, and then investigates the specific aspects of facility and services satisfactions, social and physical impact perceptions, and attitudes toward different management options. Analyses are undertaken which assess how these specific responses vary between different groups of visitors, and how they relate to the overall evaluations. This approach enables any significant current or potential compromises to the quality of visit experiences to be clearly identified.

---

[1] A standardised questionnaire (Appendix 1) was developed for overnight walkers on the Great Walks system, which comprises the Abel Tasman, Heaphy, Kepler, Milford, Rakiura, Routeburn, Tongariro, and Waikaremona tracks, and the Wanganui River journey. Surveys of the Travers-Sabine and Dart-Rees track circuits were also included, although flooding prevented any work being possible on the latter. A sample of sea-kayakers was also collected in Abel Tasman National Park. Some site-specific questions were used where required, particularly for questions related to boat use on the Wanganui River and the Waikaremoana and Abel Tasman Tracks; some non-applicable questions were omitted on the Milford Track; and it was possible to survey at Easter on the Tongariro, Kepler, and Heaphy Tracks. German and Japanese translations were provided.

2. Visitor information

In summary, visitor characteristics were representative of a young and international group of people, largely unfamiliar with the Rakiura Track, and generally inexperienced in back-country walking. Short hut-based trips predominated. Some summary findings included: (refer Appendix 1 for details)

- An equal proportion of males (51%) and females (49%)
- Only 24% were from New Zealand, compared with 30% German, 11% British, 9% Swiss
- Most (75%) were aged between 20–40 years, only 10% were aged 50 or more
- Most (94%) were on a first visit to the track, 15% were on their first overnight walking trip, 47% had done from 1 to 5 similar walks, and only 12% had done more than 20 such trips
- Their group sizes averaged just over 3
- Most (82%) stayed from 2 to 3 nights, with 9% staying 5 nights of more
- Most (88%) stayed only in huts, while few (6%) used only campsites

New Zealand visitors represented a broader age-range, came on longer trips, and had more previous experience of the Rakiura Track and of overnight walks in general. Overseas visitors were more often in the 20–40 year age-range (83% *vs* 51% for New Zealand visitors), had fewer visit nights (mean of 2.4 *vs* 3.4 for New Zealand visitors), were more often on first-visits to the track (96% *vs* 85% for New Zealand visitors) and done fewer overnight walks (69% had done five or fewer *vs* 45% for New Zealand visitors). In general, experience levels appeared to be low for almost all visitors. Comparisons were also made of the of the characteristics of visitors who indicated they were either ‘crowded’ or ‘uncrowded’, but these could not be distinguished from each other on the basis of their descriptive characteristics.

3. Evaluation of the quality of visit experiences

Overall evaluation of the quality of visit experiences was assessed through four questions related to overall satisfaction and perceptions of use-levels (refer Appendix 1 for question details).

3.1 EVALUATION OF OVERALL SATISFACTION

Two questions allowed visitors to evaluate the quality of their overall visit experiences:

- An *overall satisfaction* score (how satisfied or dissatisfied with the trip — Question 5)
- An *expectation fulfilment* score (was the trip better or worse than expected — Question 4)

Positive responses from visitors to these questions represented their evaluation that they had achieved high quality recreation experiences on their visit. Figures 1 and 2 show that satisfaction on the Rakiura Track (and other tracks) was very high (91%), and most experiences were as good as had been expected, or better (89%).[2] These responses were consistent with those from other tracks. Virtually nobody indicated they were dissatisfied with their trip. The main conclusion drawn from these overall evaluations is that visitors are achieving quality experiences on the Rakiura Track that are frequently better than they expected.

Figure 1. Overall satisfaction.

Figure 2. Fulfilment of trip experience expectations.

[2] While these responses were similar in degree, they were only moderately correlated with each other (r = 0.50).

3.2 EVALUATION OF USE-LEVELS

Two further questions allowed visitors to evaluate the quality of their visit experiences in relation to use-levels:

- A score for perception of *crowding* (overall, did they feel crowded on the trip — Question 2)
- An evaluation of *expected visitor numbers* (seeing more/same/less than expected — Question 3)

Positive responses from visitors indicating low levels of crowding, and not seeing more people than expected, would have reinforced overall evaluations of achieving high quality visit experiences. However, Figures 3 and 4 show that crowding perceptions were not great, and that few visitors saw more other visitors than they expected. These crowding and expected use-level evaluations were moderately correlated with each other (r = .43), indicating those who experienced higher use-levels than they expected generally gave higher crowding scores[3]. Levels of reported crowding were much lower on the Rakiura Track (35%) than on other tracks (62%).

Other questions were asked which aimed to identify any focal points for crowding perceptions on the Rakiura Track (Question 3). Overall, 53% of visitors indicated that some places were more crowded than others, and of these visitors, 96% included hut sites in their examples while only 5% included track sections. Appendix 1 summarises other crowding information from Question 3, which indicated that visitors who indicated some focus for hut crowding (n = 138) specified North Arm Hut (49%) and Port William (43%). These results indicate that issues related to hut-use were the key to crowding perceptions, with track issues not apparent.

Figure 3. Crowding perception summary.

Figure 4. Fulfilment of visitor number expectations.

[3] In addition, an ANOVA test (F(2,220) = 24.38, signif. F = .000) showed mean crowding scores increased from those expecting more people (1.75), through those expecting the numbers seen (2.82), to those expecting fewer people (3.61). Similar analyses found no significant differences with overall satisfaction mean scores.

These low crowding perceptions could be interpreted as representing use-levels which are only at 'low normal conditions' (refer Appendix 3), suggesting there was not a problem with perceptions of excessive use-levels at the time. The low crowding scores were not significantly linked with overall satisfaction. In other words, lower crowding perceptions were not associated with higher evaluations of satisfaction with the trip, or it being considered better than expected. While few visitors indicated they did experience crowding, and many experienced lower use-levels than they expected, this did not appear to affect how they felt about their overall trip. These low crowding and high satisfaction evaluations suggest that the quality of visit-experiences was not being compromised by conditions associated with use-levels at the time of the survey (refer Appendix 3). Subsequent sections in this report present analyses which indicate where future compromises may occur in relation to satisfactions with particular facilities and services (refer Section 4.2), or with perceptions of particular social and physical impacts (refer Section 5.2).

FIGURE 5. SATISFACTIONS WITH THE FACILITIES AND SERVICES PROVIDED.

4. Satisfaction with facilities and services

Satisfaction with 28 specific facility and service items were surveyed, covering aspects of the tracks, huts, campsites, and information services provided (refer Appendix 1, Question 7). The complete list of responses, summarised in Figure 5, shows there was very high satisfaction levels, and there were few expressions of dissatisfaction. Only dissatisfaction with hut lighting (19%), track drainage (17%), hut relaxation space (17%), and steps on the track (15%) substantially exceeded the 10% dissatisfaction level. In many cases, responses were also highly neutral, indicating the facility or service was not present or not considered important. The 41% who were neutral toward hut lighting provide one example. Overall, these results indicate a high acceptance of the existing standards of services and facilities, and by inference, may be indicative of little demand for any additional provision.

4.1 EFFECTS OF AGE, GENDER, NATIONALITY, AND CROWDING PERCEPTION

4.1.1 Background to analyses

Additional analyses were required to assess whether satisfaction varied significantly according to age group, gender, nationality, and crowding perception. Because it was apparent that patterns of visitor responses were often similar across particular groups or 'clumps' of these satisfaction items, summary scales of these 'clumps' had to be constructed to allow valid statistical analyses. The resulting satisfaction scales, each containing items which had related response patterns, are listed in Table 1 and shown in Figure 6.

TABLE 1. SUMMARY SCALES FOR SATISFACTIONS WITH FACILITIES AND SERVICES (REFER APPENDIX 2).

SCALES	DESCRIPTIONS
Hut conditions	Hut and facility space, bunk numbers, water/toilet/other facilities
Track protection structures	Boardwalks, steps
Track signs	Track marking, distance/time signs, information signs
Information/advice	Map/brochure quality, visitor centre information/advice
Extra facility/service	Smooth/easy/gentle track surfaces, drainage of water, hut heating and lighting, map information in huts, advice from wardens
Campsite conditions	Includes campsite space, water/toilet/other facilities

(extra individual items — satisfaction with bridges)

These scales include one entitled Extra facility/service, which significantly loaded together a group of satisfaction items whose main similarity appeared to be the high neutral responses to them (refer Figure 6). This response pattern suggests these particular facilities and services were not perceived as being of major importance, or were not provided in general. The main link between them appears to be that they are optional extras which are 'nice' rather than 'necessary'. In addition, the campsite satisfactions which were loaded together were not included in following analyses because of the low numbers of campsite users (n = 31).

4.1.2 Significant findings

Using the SPSS MANOVA routine, a series of multivariate analyses of variance were carried out on these satisfaction scales (e.g., the dependent variables). Differences in satisfaction scales according to age-group (under and over 40 years), gender (male/female), nationality (New Zealand/overseas), and crowding perception (uncrowded/crowded) were analysed. The same approach was subsequently used for impact perception (Section 5.1) and management attitude (Section 6.1) scales. The significant effects and interactions associated with the analyses using satisfaction scales and these independent variables are summarised in Table 2. These results indicate that satisfaction with hut

TABLE 2. SIGNIFICANT EFFECTS ON SATISFACTION SCALES (HUT USERS ONLY).

SOURCE OF SIGNIFICANT EFFECT*	SIGNIFICANT SATISFACTION SCALES†	MEAN VALUES (ADJUSTED)‡		
Crowded effect	Hut conditions		Uncrowded	Crowded
F(6,190) = 3.71, p = .002	*F(1,195) = 18.51, p = .000*		2.05	2.45
Age-group effect	Hut conditions		Under 40	Over 40
F(6,190) = 2.79, p = .012	*F(1,195) = 8.61, p = .004*		2.17	2.24
	Track signs			
	F(1,195) = 3.22, p = .074		2.03	1.45
Nationality/age interaction	Track protection structures		New Zealand	Overseas
F(6,190) = 2.39, p = .030	*F(1,195) = 11.61, p = .001*	Under 40	1.89	2.25
		Over 40	2.02	1.50
	Information/advice		New Zealand	Overseas
	F(1,195) = 4.54, p = .034	Under 40	1.57	1.89
		Over 40	1.76	1.43
Crowded/age interaction	Hut conditions		Uncrowded	Crowded
F(6,190) = 2.32, p = .032	*F(1,195) = 11.34, p = .001*	Under 40	2.05	2.39
		Over 40	1.98	2.83
	Extra facilities/services		Uncrowded	Crowded
	F(1,195) = 5.45, p = .021	Under 40	2.35	2.37
		Over 40	2.14	2.37
	Track signs			
	F(1,195) = 4.04, p = .046		Uncrowded	Crowded
		Under 40	2.03	2.03
		Over 40	1.44	1.50

* The significance of overall satisfaction effects was tested using the Wilks'criterion in the SPSS MANOVA.

† A series of univariate ANOVAs in the MANOVA identified the contribution of each satisfaction scale to the overall significant effect, and identified these listed scales as being significant.

‡ Mean values for the summary scales are divided by the number of constituent items to give an interpretation using the original question categories (e.g., 1 = Very satisfied; 3 = Neutral; 5 = Very dissatisfied).

FIGURE 6. SATISFACTION RESPONSES ORDERED IN SUMMARY SCALE STRUCTURE. (THIS IS SIMPLY A RE-ORGANISATION OF MATERIAL PRESENTED IN FIGURE 5.)

conditions, track protection structures, track signs and extra facilities/services are particularly important for management attention. To minimise a data constraint associated with missing values, satisfaction analyses separated those not using huts from those not using camps. Analysis in Table 2 refers only to hut users as no significant satisfaction results occurred for campsite users.

Crowded effect

Crowded visitors were significantly less satisfied with facilities and services than uncrowded visitors. This difference was based most upon their lower satisfactions with hut conditions. However, this finding must be seen in context of the generally high levels of satisfaction, where their mean scores remain within the 'satisfied' category. This means that crowded visitors were really only less strongly satisfied rather than being more dissatisfied. Additional exploration[4] of the hut conditions scale (refer Figure 6) indicated that the crowded and uncrowded visitors differed most particularly in their satisfaction with the space to relax in huts, and the water supply, and to a lesser extent in satisfaction with space and facilities for washing-up and drying gear. Differences in their satisfaction with the numbers of bunks in huts were not prominent.

Age-group effect

Satisfaction also varied significantly according to age-group. This difference was based most on older visitors being relatively less satisfied with hut conditions. Exploration of the hut conditions scale emphasised space to relax, water supply, and toilet facilities as the most prominent individual items. To a lesser extent, the greater satisfaction of older visitors with track signs also contributed to the overall difference. Exploration of the track signs scale indicated older visitors were consistently more satisfied with all items (e.g., track marking, distance/time signs, information signs).

Nationality/age-group interaction

This significant interaction, based most on satisfactions with track protection structures and information/advice, featured lowest satisfaction among younger overseas visitors, and highest satisfaction among older overseas visitors. By contrast, the difference between older and younger New Zealand visitors was smaller, and featured lower satisfaction among the older visitors. Additional exploration of the 'track protection structures' and 'information/advice' scales found that all constituent items in each scale contributed to the interaction at similar levels. The strong distinction between the satisfactions of younger and older overseas visitors, and the contrasting direction of satisfactions between New Zealand and overseas visitors provide the main finding from this interaction. Relative to younger visitors, older overseas visitors are more positive toward these facilities and services, while older New Zealand visitors are more negative.

---

[4] Comparison of response to the dependent variable, for each item comprising the significant scales, was carried out mainly using the Mann-Whitney test. This provided a conservative test to identify the items which appeared to contribute most to the overall effect. Multiple ANOVA tests were also run which supported Mann-Whitney test findings. This complementary approach was applied to the constituents of all significant scales identified in this report.

Crowded/age-group interaction

This significant interaction, based mostly upon satisfactions with hut conditions, extra facilities/services, and track signs, featured lower satisfaction among crowded visitors in general, but this was particularly more negative among the crowded visitors who were older. This distinctly lower satisfaction by older crowded visitors was strong enough to provide an additional significant result on top of the main crowded effect and age-group effect already noted (above). Additional exploration of the 'hut conditions' scale, which contributed most to this interaction, featured space in huts, water supply and toilets facilities as the most prominent items. Exploration of the other significant scales indicated that no individual items were particularly prominent, and that all items contributed to the interaction at similar levels.

4.2 RELATING SATISFACTION SCALES TO OVERALL TRIP EVALUATIONS

None of the satisfaction scales were significantly associated with the overall satisfaction or use-level evaluations (e.g., crowding). No notable correlations or significant relationships (using SPSS Multiple Regressions) were found. The state of facilities and services experienced on the Rakiura Track did not appear to contribute at all to how the overall trip was evaluated. In particular, the lack of any notable relationships between the overall satisfaction score and any of the facility and service satisfaction scales indicates these questions represent distinctly different visitor perspectives on visit satisfaction. This is an important distinction to acknowledge. Simply applying a single overall evaluation of satisfaction appears unlikely to highlight any specific-issue satisfaction problems until they are of an order where visit quality may be already highly compromised, and the problems more difficult to manage.

FIGURE 7. IMPACT PERCEPTION RESPONSES.

5. Visitor perceptions of impacts

Perceptions of 26 specific impact items were surveyed, covering social impacts, physical impacts, and impacts associated with the facilities and services (refer Appendix 1, Question 5). Visitors were asked to respond to each item using the options of not experiencing the impact, experiencing it but not being bothered, being bothered a little, and being bothered a lot. The complete list of responses, as summarised in Figure 7 (and Figure 8), shows that in the main most visitors did not experience most of these impacts. This may be because the impacts did not occur, or because they were not noticed by the visitor.

The most prominent impacts reported here are indicated through combining the responses of those who were 'bothered' by impacts, and those who simply 'noticed' them. These 'impact aware' responses often represented a majority of the visitors. The main examples of these more prominent impacts, which were apparent to over half the visitors, included track trampling/widening (81%), over-development of tracks (59%), seeing too many in huts (54%), and uncertain water hygiene (52%). These were the most prominent impacts noticed by those surveyed on the Rakiura Track, although it should be remembered that there is a clear distinction between the impacts being noticed and tolerated, and being seen as negative. What contributes to the progression from noticing and tolerating an impact, to becoming bothered by it (e.g., it becomes negative) represents an important question for future research.

The most negative impacts, representing those which most bothered the visitors, appear to emphasise track conditions related to track trampling/ widening (39%) and over-development of tracks (31%). This represents different negative perceptions of both the problem (e.g., track damage) and the management solution (e.g., track development). Greater perception of over-development of tracks was related to greater dissatisfaction with steps and boardwalks[5]. For social hut conditions, visitors were most bothered by seeing too many in huts (22%) and noise in huts (20%), while the more congestion-oriented impacts of insufficient bunks in huts (8%) and rushing for bunks (4%) were inconsequential. Many visitors were also bothered by uncertain water hygiene (26%), this was a response to the statement "uncertainty about the water always being safe to drink". From consultations with managers, it can be concluded that this response most often represents general caution about water quality, rather than being a direct reaction to hygiene problems experienced on the visit. It was not clear if this caution was related to all water sources on the trip, or just those in trackside streams.

When visitors did notice impacts, many were not bothered by them. This response could be considered tolerance of the impacts. For example, only 41% of visitors were bothered by track trampling/widening, compared with 40% who

[5] Over-development of tracks was moderately correlated with satisfactions with steps (r = .47) and boardwalks (r = .39), and mean dissatisfaction scores for both increased with higher perceptions of overdeveloped tracks.

FIGURE 8. IMPACT PERCEPTION RESPONSES ORDERED IN SUMMARY SCALE STRUCTURE.

noticed the impact, but were not bothered by it (e.g., indicating tolerance). It is clear from Figure 7 that many other impacts were noticed, but were tolerated, including, for example 'too much development of signs', which was noticed by 42% of visitors of whom most were not bothered by it (36% *vs* 7% bothered). However, when most of those noticing an impact were bothered by it, it could be considered to show high 'intolerance' and unacceptability of the impact source. From Figure 7, impacts indicative of inappropriate behaviour by others appeared least acceptable to visitors (also see Figure 8). These included littering of huts, campsites and tracks, seeing toilet paper and waste, and wood cutting damage. However, while these appear to represent the least acceptable types of impacts, they were not highly reported here.

5.1 EFFECTS OF AGE, GENDER, NATIONALITY, AND CROWDING PERCEPTION

5.1.1 Background to analyses

Additional analyses were required to assess whether these impact perceptions varied significantly according to age group, gender, nationality and crowding perception. Figure 8 and Table 3 show the impact perception scales which were created for these analyses (refer Section 4.1.1).

TABLE 3. SUMMARY SCALES FOR SOCIAL AND PHYSICAL IMPACT PERCEPTIONS (REFER APPENDIX 2).

SCALES	DESCRIPTIONS
Physical damage	Litter/waste, vegetation damage, track trampling/damage
Hut/track congestion	Insufficient bunks, too many on track/hut, noise, toilets
Conflict issues	Big groups, guided groups, rush for bunks
Over-development	Excessive levels of huts, tracks, signs, campsites
Campsite congestion	Too many people, noise, rush for sites, campsite wear
Water supply	Inadequate water supply, water hygiene doubts
(extra individual items —	plane noise)

5.1.2 Significant findings

Differences in these impact scales according to age-group (over and under 40 years), gender (male/female), nationality (New Zealand and overseas), and crowding perception (uncrowded/crowded) were analysed (refer Section 4.1 for method). The significant effects and interactions associated with the analysis using these independent variables are summarised in Table 4, where the mean values show that while the perceptions of impact were not high (means < 2), some differences were apparent between the different groups.

TABLE 4. SIGNIFICANT EFFECTS ON IMPACT SCALES.

SOURCE OF SIGNIFICANT EFFECT	SIGNIFICANT IMPACT SCALES		MEAN VALUES (ADJUSTED)*	
Crowded effect *F(6,178)=4.01, p=.001*	Hut/track congestion *F(1,183)=18.33, p=.000*		Uncrowded 1.38	Crowded 1.88
	Campsite congestion *F(1,183)=10.43, p=.001*		1.09	1.15
	Over-development *F(1,183)=4.80, p=.030*		1.55	1.84
	Conflict issues *F(1,183)=4.66, p=.032*		1.13	1.33
Nationality effect *F(6,178)=2.65, p=.022*	Campsite congestion *F(1,183)=2.34, p=.033*		New Zealand 1.18	Overseas 1.09
Nationality/crowded interaction *F(6,178)=2.39, p=.037*	Campsite congestion *F(1,183)=13.27, p=.000*		New Zealand	Overseas
		Uncrowded	1.07	1.09
		Crowded	1.42	1.08
	Physical damage *F(1,183)=5.72, p=.018*		New Zealand	Overseas
		Uncrowded	1.50	1.46
		Crowded	1.97	1.48

* Mean values for the summary scales are divided by the number of constituent items to give an interpretation using the original question categories (e.g., 1 = Not noticed, 2 = Not bothered, 3 = Bothered a little, 4 = Bothered a lot).

Crowded effect

Visitors who felt crowded had higher perceptions of most types of impacts. While mean values indicate that, overall, the level of impacts was low, crowded visitors had higher perceptions of impacts associated with hut congestion in particular. Additional exploration of the hut congestion scale indicated that while crowded visitors perceived greater levels of most impacts, seeing too many others in the hut and on the track were the most prominent individual items. Insufficient bunk numbers made the least contribution to the overall crowding effect. The emphasis here on seeing too many other people rather than having insufficient bunk space or experiencing hut noise and rushing for huts, suggests that it may be a negative interpretation of the numbers of people seen rather than direct physical effects of these people that is contributing most to the crowding perception.

Perceptions of campsite congestion were also particularly greater among crowded visitors. Over-development of campsites and seeing too many others at campsites were the most prominent individual items. However so few visitors used campsites (12%) or were bothered by any campsite impacts (< 5%) that these results add little to the interpretation of the overall crowding effect.

Crowded visitors did have higher perceptions of impacts from over-development and social conflict issues. Exploration of the over-development scale indicated all items made similar contributions to the overall difference (e.g., too much development of tracks, huts, signs). Exploration of the conflict issues scale indicated that seeing too many big groups of people and having to rush for bunks in huts contributed most prominently to this difference. Seeing guided groups did not contribute at all as none were present, and most visitors indicated they did not experience these. However in both cases, these perceptions made much less contribution to the overall crowding effect than did hut congestion.

Nationality effect

Despite hut use dominating the overnight stays on the Rakiura Track, this nationality-based difference in impact perceptions was largely based upon a greater perception of campsite congestion impacts among New Zealand visitors. Around 22% of New Zealand visitors used campsites on at least one night of their visit, compared with 10% of overseas visitors (12% overall). Given that this difference appears based predominantly on the relatively minor use of campsites, these findings suggest there are few important differences between the impact perceptions of New Zealand and overseas visitors.

Nationality/crowded interaction

A significant interaction between nationality and crowding was based largely on perception of campsite congestion and physical impacts. In both cases, the impact perceptions were very similar between those New Zealand and overseas visitors who did not feel crowded. However, among the visitors who did feel crowded, the perceptions of New Zealand visitors were considerably more negative. In the campsite congestion scale the perceptions which featured most frequently included: seeing too many at campsites, wear of informal campsites, and campsite over-development. In the physical impacts scale the perceptions which featured most frequently included: littering of campsites and tracks, and seeing shortcuts trampled off the main trails. In the other scales the interaction was minimal.

5.2 RELATING IMPACT PERCEPTION SCALES TO OVERALL TRIP EVALUATIONS

None of these impact scales were statistically associated with overall satisfaction, indicating that no specific social or physical impact perceptions were related to how the trip was evaluated. However, significant associations were found between impact perceptions and the overall crowding evaluation. An SPSS multiple regression ($F(2,210) = 33.96$, signif. $F = .0000$) identified an association (adjusted $r^2 = .265$) between the impact scales (independent) and Crowding (dependent). The hut/track congestion scale ($\beta = .391$, $t=5.22$, $p = .0000$) was the most important predictor of crowding. To a lesser extent the conflict issues scale ($\beta = .193$, $t = 2.76$, $p = .0061$) also provided some additional prediction of crowding. That is, being more bothered by the social impacts of hut/track congestion (and conflict-issues), was weakly associated with feeling more crowded. This interpretation was supported by the moderate correlations between crowding and both hut/track congestion ($r = .46$) and conflict issues ($r = .38$).

The most important individual items correlated with crowding from the hut/track congestion scale were: seeing too many in the hut ($r = .49$); and seeing too many on the track ($r = .42$). The most prominent individual item correlated with crowding from the conflict issues scale was: seeing too many big groups ($r = .40$). The prominence of these individual items emphasises the importance of social impacts to crowding perceptions. Notably, the impact associated with insufficient bunk numbers was not prominent, reinforcing the notion that crowding related more to how numbers were interpreted rather than their levels.

FIGURE 9. MANAGEMENT PREFERENCE RESPONSES.

6. Visitor attitudes towards management options

Attitudes toward 18 options for managing future increases in track use-levels were surveyed, with visitors indicating the degree to which they agreed or disagreed. These options included: increasing the capacity of accommodation, dispersing use pressures, imposing use-limits, and providing pre-walk information (refer Appendix 1, Question 8). The complete list of responses, as summarised in Figure 9, indicates a variety of visitor attitudes. The only management approach attracting consistently high support was that associated with using pre-walk information to influence visitor choices about making track visits. Over 60% of visitors agreed with these approaches while less than 5% disagreed. More direct control methods such as reducing facilities and services in order to discourage use, allowing more camping freedom, making peak times cost more for visits, or making the track one-way were highly out of favour, with over 70% of visitors disagreeing with these. Development options such as building more huts, providing more bunks in huts, or allowing more guided trip opportunities were also unpopular, with over 50% of visitors disagreeing with these. For many of the other options, the proportions of visitors either for or against were more similar. For example, the options related to rationing use through permits and booking systems for huts and campsites were opposed by around 45% the visitors, and supported by around a 35%. This split response has important implications for management as booking systems are being considered for many of the Great Walks, and the high proportion of opposition suggests there may be considerable visitor concern.

Overall these results indicate a pattern of preferences by visitors for different management options (also refer Table 5 and Figure 10). Indirect information-based approaches are clearly most favoured by almost all visitors. Providing alternative opportunities for undertaking the walking activity and applying allocation/rationing systems are options which tend to split visitors more evenly for or against. And more direct actions to control and channel use or develop accommodation options/facilities are clearly least favoured.

6.1 EFFECTS OF AGE, GENDER, NATIONALITY, AND CROWDING PERCEPTION

6.1.2 Background to analyses

Additional analyses were required to assess whether these management items varied significantly among the visitors according to age group, gender, nationality and crowding perception. Table 5 and Figure 10 show the attitudes to management scales created for these analyses (refer Section 4.1.1).

TABLE 5. ATTITUDES TO MANAGEMENT SUMMARY SCALES (REFER APPENDIX 2).

SCALE	DESCRIPTION
Rationing/use-limits	Booking systems for huts/campsites, limited track permits
Information management	Encourage use elsewhere, promote low-impact behaviour
Increase accommodation	More hut/camp capacity, guided options
Manipulatee use	Facility reduction, high peak costs, one-way track
Promote alternatives	Cheaper alternatives, other tracks, smaller groups

FIGURE 10. ATTITUDE TO MANAGEMENT RESPONSES IN SUMMARY SCALE STRUCTURE.

6.1.2 Significant findings

Differences in these management scales according to age-group (over and under 40 years), gender (male/female), nationality (New Zealand and overseas), and crowding perception (uncrowded/crowded) were analysed (refer Section 4.1 for method). The significant effects and interactions associated with the analysis using these independent variables are summarised in Table 6. These results indicate significant differences in attitudes towards management options do occur according to interactions between nationality, age-group and crowded perception.

TABLE 6. SIGNIFICANT EFFECTS ON ATTITUDE TO MANAGEMENT SCALES.

SOURCE OF SIGNIFICANT EFFECT	SIGNIFICANT ATTITUDE SCALES	MEAN VALUES (ADJUSTED)*		
Nationality/age-group interaction	Manipulate use		New Zealand	Overseas
F(5,200)=2.59, p=.027	*F(1,204)=9.40, p=.002*	Under 40	3.99	3.87
		Over 40	4.10	3.68
	Rationing/use-limits		New Zealand	Overseas
	F(1,204)=4.02, p=.046	Under 40	3.30	3.30
		Over 40	3.70	2.89
Age-group/crowded interaction	Manipulate use		Uncrowded	Crowded
F(5,200)=2.39, p=.039	*F(1,204)=7.53, p=.007*	Under 40	3.94	3.79
		Over 40	3.84	3.96
	Promote alternatives		Uncrowded	Crowded
	F(1,204)=4.80, p=.029	Under 40	2.95	2.72
		Over 40	2.96	3.06
Nationality/crowded interaction	Manipulate use		New Zealand	Overseas
F(5,200)=2.10, p=.067	*F(1,204)=9.99, p=.002*	Uncrowded	4.16	3.86
		Crowded	3.78	3.84

* Mean values for the summary scales are divided by the number of constituent items to give an interpretation using the original question categories (e.g., 1 = Strongly agree; 3 = Neutral; 5 = Strongly disagree).

Nationality/Age-group interaction

A significant interaction between nationality and age-group was based largely on attitudes to the management options of manipulating use and rationing use. In both cases, the attitudes were very similar between younger New Zealand and overseas visitors, but among older visitors the attitudes of New Zealand visitors were considerably more negative while those of overseas visitors became slightly more positive. The attitudes of older New Zealanders emerge as distinctly most negative towards these management options, while those of older overseas visitors are most positive. In the 'manipulate use' scale, the options of making peak times more expensive and making tracks one-way only appeared to most reflect this interaction. The option of reducing facilities to discourage use was generally opposed by all the visitors. In the 'rationing/use-limits' scale, all options reflected the interaction, although it appeared most apparent for the option of booking for campsites.

Age-group/crowded interaction

A significant interaction between age-group and crowded perception was based largely on attitudes to the management options of Manipulating use and promoting alternatives. The attitudes were very similar between uncrowded younger and older visitors, but among crowded visitors the attitudes of older visitors were considerably more negative while those of younger visitors became slightly more positive. The attitudes of older crowded visitors emerge as most negative towards these management options, while those of younger visitors are most positive. In other words, these results suggest that when crowded, younger visitors become more accepting of more direct management controls while older visitors become less accepting. In the 'manipulatee use' scale, all the individual management items reflected this interaction at similar levels. In the 'promote alternatives' scale, the options of making other track options cheaper and providing more alternative tracks most reflects this interaction.

Nationality/crowded interaction

An interaction of limited significance (p=.067) between age-group and crowded perception was based largely on attitudes to the management option of Manipulating use. Among those who were uncrowded, New Zealand visitors were more negative than overseas visitors towards management manipulation. However, among those who were crowded, New Zealand visitors were more positive. This suggests that when crowded, New Zealand visitors become particularly more accepting of management options while the attitudes of overseas visitors remain largely consistent. In the 'manipulate-use' scale, the option of making tracks one-way most reflects this interaction.

Extreme responses

Because visitor attitudes were often substantially split both for and against the management options (refer Figure 13), additional exploration of these data were undertaken. The top and bottom 25% of scores for each of the management option scales were selected, representing the more 'extreme' attitudes of those who most strongly agreed or disagreed with the options. Differences were apparent according to gender, nationality, and crowding perceptions. Females with these extreme attitudes towards management options were more negative than males toward promoting alternatives (64% *vs* 47%), toward manipulating use (53% *vs* 38%), and towards increasing accommodation options (54% *vs* 41%). New Zealand visitors with these extreme attitudes were more negative than overseas visitors towards manipulating use (60% *vs* 40%) and promoting alternatives (64% *vs* 54%)[6]. And in a result suggestive of greater acceptance of control among crowded visitors, those with extreme attitudes were more positive than uncrowded visitors toward Manipulating use (64% *vs* 49%) and promoting alternatives (56% *vs* 39%). No differences were apparent for the 'rationing/use-limits' and 'information management' options.

---

[6] Among all nationalities, Germans disagreed most with increasing accommodation options (63% *vs* 47% total mean) and information management (60% *vs* 50% total mean). Apart from New Zealanders, other nationalities were at low frequencies here.

6.2 RELATING MANAGEMENT PREFERENCE SCALES TO OVERALL TRIP EVALUATIONS

There were no significant links between the overall visit evaluations (e.g., satisfaction and crowding), and any scales of the attitudes towards management options. These results suggest that preferences for different management options were unaffected by any experiences on the track visit.

7. Summary and discussion

7.1 OVERALL VISIT EVALUATIONS

Overall, levels of dissatisfaction were negligible, and very few considered the experience was below their expectations. In addition, perceptions of crowding were at low levels, and few visitors saw more people than they expected. These findings suggest that no major use-level issues are apparent on the Rakiura Track at present, and visitors are having highly positive visit-experiences.

However, some caution is required when interpreting these satisfaction findings, particularly as most visitors to the Rakiura Track are on a first visit. There is a tendency for such visitors to give approval to the status-quo of social and environmental conditions they experience on a visit. They lack previous experience of the site, and usually have no strong expectations as to what might constitute appropriate and acceptable conditions which may occur there. With changing use conditions over time, the overall satisfactions of such visitors can remain consistently high despite considerable changes in visit experiences. Those first-time visitors with strong, but inaccurate, expectations of social and physical conditions, or repeat-visitors with expectations based on previous conditions, are those most likely to indicate overall dissatisfaction. These visitors are also the ones most likely to be displaced to different sites, times, or activities, and are more likely to give negative feedback about their experiences to others. However, other visitors may recognise that while elements of the visit-experience may not be what they would prefer, they are prepared to rationalise some of their preferences in the interests of an enjoyable overall visit. All these considerations suggest that reliance on overall satisfaction measures as a monitor of visit-experience quality can be misplaced. Should considerable levels of dissatisfaction emerge in future, it is likely that major problems will be already well-established. Clearly this was not the case on the Rakiura Track, at the time of the survey.

7.2 SATISFACTION WITH FACILITIES AND SERVICES

No notable levels of dissatisfaction were apparent for any of the facilities and services on the Rakiura Track. The high level of satisfaction across all the facilities and service types indicated a lack of any specific visitor problems with track management infrastructure, and suggested there were no immediate needs for management interventions beyond normal maintenance. The only concerns with hut conditions which may require attention related to dissatisfactions with hut lighting and space in huts for relaxing. In addition, some visitor concerns with track standards were also indicated from the dissatisfactions expressed with track drainage and steps. All these were only minor sources of dissatisfaction (around 15%) and do not appear to warrant high priority on the basis of dissatisfaction levels alone.

While overall satisfaction scores did not highlight any important dissatisfaction issues, the significant differences identified between the satisfactions of different visitor groupings did highlight issues relating to crowding perceptions (uncrowded/crowded), age-group (under 40/over 40 years), and nationality (New Zealand/overseas). In summary, crowded visitors and older visitors (over 40 years) were each more dissatisfied with hut conditions; older visitors who felt crowded were particularly more dissatisfied with hut conditions, extra facilities/services, and track signs; and while younger overseas visitors were the most dissatisfied with track hardening structures and information services, the older overseas visitors were the most satisfied. While quite simplified, these summary points highlight hut conditions as an area where satisfactions were particularly variable.

Satisfactions with hut conditions were notably lower among crowded visitors and older visitors in general, and among those older visitors who felt crowded, in particular. In each case, these lower satisfactions emphasised space in huts for relaxing, facilities, and space in huts for washing-up and drying gear, and hut water supplies. Issues related to the number of bunks in huts were not prominent. This suggests that these dissatisfactions related more to how the space in huts was being used rather than simply the congestion from high user numbers. The basic management and research question to be addressed on this issue concerns how huts might be reconfigured to optimise the use of hut space. Given the likely increases in use-levels, and the ageing of visitor groups in the future, these issues could assume some priority.

Satisfactions with track hardening structures (e.g., steps and boardwalks) were notably lower among younger overseas visitors. By contrast, older overseas visitors were most highly satisfied with these. New Zealand visitors did not differ as much, although those older were a little less satisfied than the younger. The main finding apparent here is the suggestion of a lower tolerance among younger overseas visitors for track hardening using steps and boardwalks. This finding, and the contrast with the views of older overseas visitors, raises key questions for any additional research which may be undertaken. Given the predominance of younger overseas visitors to this track (and other tracks), this question may be important if the option of track hardening is to be more widely used.

Satisfactions with information/advice were also notably lower among younger overseas visitors and higher among older overseas visitors. New Zealand visitors had the opposite pattern, with the younger being more satisfied and the older being less satisfied. The main finding here is that the information needs of younger overseas visitors and older New Zealand visitors may not be being as well fulfilled by the information and advice received (e.g., from visitors centres). Overall satisfaction levels are high, indicating that this apparent deficiency is not a major concern. If improvements to information services are given priority in the future, these results indicate that some focus on the information expectations and needs of different visitors may be required.

Satisfactions with track signs were notably higher among older visitors. This included greater satisfaction with track marking, time/distance signs, and information signs by the track. The relatively lower satisfaction among younger visitors may require additional research to provide some explanation. There was

also some indication that older visitors who felt crowded were relatively less satisfied than older uncrowded visitors. The perception of crowding may contribute to more negative evaluation of facilities and services in general. Overall, it is not clear if these relative dissatisfactions reflect perceptions of too many signs, too few, or inadequate information.

Satisfactions with extra facilities/services were notably lower among older visitors who felt crowded, relative to older visitors who did not feel crowded. These satisfactions relate to a variety of facilities and services, The only link or common factor between them appears to be the possibility that they are relatively unimportant on the Rakiura Track. Why the older crowded visitors should be more dissatisfied across this diversity of facilities and services may relate to a general tendency of lower satisfaction evaluations among any visitors who felt crowded. However, such a tendency cannot be confirmed here because no significant difference in satisfactions with extra facilities/services were found, according to crowding perception. This may represent an area for further investigation, although it is not of major importance to track management at this time.

Overall, these findings suggest that while overall levels of satisfaction with facilities and services were high, hut conditions related to relaxation space and facility access will become a more prominent issue in situations where higher use-levels are anticipated. It appears that these will represent the first areas where compromises to the quality of visit experiences may occur. The pattern of lower satisfaction with track-hardening and information/advice indicates a current compromise to the quality of visit-experiences among younger overseas visitors in particular. However, their relatively lower scores for these satisfaction scales occur within a context of high over-all satisfaction levels, suggesting that these are not priority issues for these visitors.

7.3 PERCEPTIONS OF IMPACTS

The physical condition of the track was the source of the impacts that most bothered visitors. Widening and trampling of tracks around wet or rough areas bothered 39% of visitors, and was noticed by an additional 41%. Only 20% did not notice this impact at all. However, visitors were also bothered by the management actions undertaken to address this trampling impact. Over-development of tracks bothered 31% of visitors, and was noticed by an additional 28%. Only 41% of visitors did not notice this as an impact at all. This apparently negative evaluation of the extensive track hardening undertaken on the Rakiura Track was reinforced by moderate correlations between perceptions of overdeveloped tracks, and dissatisfactions with steps and boardwalks. This appears almost as much of a perceived impacts as the trampling damage it removes. Most other physical damage impacts were not noticed by most visitors, and if they were noticed, the majority of visitors noticing them were not bothered by them.

Among the hut/track congestion impacts, over 20% of visitors were bothered by seeing too many people in huts and experiencing noisy people in huts. The more direct congestion impacts of experiencing insufficient bunk numbers, or

having to rush for bunks were far less prominent. These impact findings, and the low overall crowding scores, indicate that the social impacts experienced on the Rakiura Track were not primarily related to use-levels and the bunk capacity of huts. Perceptions of what levels of visitor numbers are acceptable, and what behaviour types are appropriate, appear to be important here.

Many visitors were also highly aware of other impacts such as inadequate toilets, inadequate water supply, and perceived over-development of huts and signs. But these visitors were more often tolerant of these impacts rather than being bothered by them. Understanding the distinction between simply noticing these impacts and being specifically bothered by them appears an important research issue. Visitors also appeared to have very little tolerance of particular types of impacts which very visibly represent inappropriate behaviour (e.g., seeing litter, toilet paper/waste, and wood cutting). While these were not prominent impacts overall, they do suggest particular visitor sensitivity to such 'inappropriate' behaviour in natural settings.

While overall impact perceptions highlighted the physical impact issues and hut/track congestion issues, the significant differences identified between the impact perceptions of different visitor groupings did highlight issues relating to crowding perceptions (uncrowded/crowded) and nationality (New Zealand/ overseas). In summary, crowded visitors were more bothered by perceptions of hut/track congestion, over-development, conflict issues and campsite congestion; New Zealand visitors were more bothered by perceptions of campsite congestion; and New Zealand visitors who felt crowded were particularly more bothered by perceptions of physical impacts and campsite congestion. While quite simplified, these summary points highlight the greater perception of most impacts among crowded visitors.

While most impacts were perceived more negatively among crowded visitors, those impacts related to hut/track congestion represented the most prominent differences. Contrary to what might be expected among visitors who felt crowded, these differences featured seeing too many in huts and on the track, rather than experiencing insufficient bunk numbers. This suggests that crowding perceptions on the Rakiura Track may reflect the attitudes of visitors toward the numbers of other people seen, rather than simply reflecting their direct congestion effects. Other impacts more prominent among crowded visitors included: all perceptions of over-development (huts, tracks, campsites and signs), perceptions of conflict issues related to seeing big groups and rushing for bunks, and perceptions of campsite congestion. These results indicate that perceptions of crowding are related to a variety of impact perceptions which go beyond issues of simple hut capacity, but which remain based most strongly on perceptions related to hut/track congestion. It appears that most types of impacts will be perceived more negatively by visitors if they feel crowded.

Crowded visitors and New Zealand visitors were each more bothered by perceptions of campsite congestion, but this finding is of little immediate importance because the use of campsites was very low and these results add little to explanation of the overall effects. In similar fashion, the greater perceptions of campsite congestion among New Zealand visitors were also of little importance.

The greater perception of physical impacts among New Zealand visitors who felt crowded suggested that they were making different interpretations of these impacts compared with overseas visitors and uncrowded visitors. This distinction is notable because it represents the only difference identified between visitor groups in their perceptions of physical impacts, which were so prominent in the overall assessments of impact perceptions. However, the prominent track trampling and over-developement impacts were not especially featured among these higher perceptions of physical impacts among crowded New Zealand visitors.

7.4 ATTITUDES TOWARD MANAGEMENT OPTIONS

When considering management options for addressing future increases in visitor use-levels, most visitors were highly positive toward information management. That is, they favoured the strategic use of information to better match visitor expectations with likely experiences, and to give prospective visitors a better basis to choose a visit time and location that better suits their preferred visit experiences. This may be a particularly important component of any general improvements undertaken in visitor information services. These results indicate clearly that such information management approaches were considered the most preferred among all types of visitors surveyed. The main question this poses for managers is whether such information management approaches represent an effective tool of practical value. This is an area where additional investigation should be encouraged, as it offers the possibility of developing management approaches with much higher degrees of visitor (and public) support.

Attitudes were more evenly split toward the options of promoting alternative sites, or visit types (e.g., cheaper alternatives, new tracks, small group sizes), and applying allocation or rationing systems (e.g., bookings, permits). Booking systems for huts (and campsites), which have been considered as management options for controlling visitor numbers on many of the Great Walks, were opposed by around 50% of the walkers overall. The proportion of visitors in favour of booking systems was around 30%, while the remaining 20% were neutral. These analyses do not provide any explanation of this more negative orientation of attitudes, and it is clear that specific investigation is required to address the way booking systems are perceived by visitors, and what happens to visitor patterns when such systems are imposed.[7]

A large majority of visitors were highly negative toward options of manipulating use to channel or reduce visitor numbers (e.g., peak pricing, one-way walk, reduce facilities), and toward development of options to increase accommodation capacity (e.g., campsites, hut capacity, guided trip huts). The strength of apparent opposition to these types of approach indicates a

[7] Inferences have been drawn from simple comparisons between independent studies undertaken before and after implementation of a booking system on the Routeburn Track, but these have not been part of any specifically designed assessment.

considerable background research and consultation with visitor-groups would be required before they could be implemented ahead of the more acceptable options.

There were no simple distinctions between the attitudes of different visitor groups, but there were interactions according to nationality, crowding perception, and age-group. In summary, older New Zealand visitors were most opposed to options of manipulating use conditions and rationing use-levels; crowded older visitors were most opposed to options of manipulating use conditions and promoting alternatives; and while uncrowded New Zealand visitors were most opposed to manipulating use conditions, crowded New Zealand visitors were least opposed.

Differences in visitor attitudes toward management options identified through an interaction of age-group and nationality responses featured visitor attitudes towards manipulating use conditions and regulating use. In both cases, the older New Zealand visitors and younger overseas visitors surveyed were more opposed. While opposition to both these options was high overall, these results indicate the visitor groupings where this opposition appears particularly acute. The options of manipulating use conditions, making the track one-way, and making peak times more expensive were the options most reflecting these differences. Among the options of rationing/use-limits, all reflected the distinguishing response pattern at similar levels.

Differences in visitor attitudes toward management options identified through an interaction of age-group and crowding perception responses featured visitor attitudes toward manipulating use conditions and promoting alternatives. In both cases, the older crowded visitors and younger uncrowded visitors were more opposed. While attitudes opposing the manipulation options were high overall, and attitudes were more positive toward the promoting alternative options overall. In both cases here, these results indicate that there are issues relating to age-group and crowding perception which highlight more acute opposition by particular visitor groupings. However, explanation of these differences will require specific investigation, should this be considered a priority.

Differences in visitor attitudes toward management options identified through an interaction of nationality and crowding perception responses featured visitor attitudes toward manipulating use conditions. Here, the main difference appeared among the New Zealand visitors, where the uncrowded visitors were the most opposed to options of manipulating use, while the crowded visitors were the least opposed. While attitudes opposing the manipulation options were high overall, these results, and the examination of extreme positive and negative responses indicate that New Zealand visitors in particular may become more accepting of these options when they feel crowded.

These constitute a complex series of interactions, but they do illustrate various combinations of visitor-groupings which show differences in visitor attitudes towards management options. Overall, the results appear to highlight both the most and least resistant groupings among the visitors. The differences may be an important component of any investigations undertaken to consider the implementation of different management options, and to evaluate their effects.

7.5 CONCLUSIONS AND RECOMMENDATIONS

While there appeared to be no urgent need for immediate management action to address current problems, visitor responses indicated that there were some effects on visit experiences, mainly associated with track conditions, hut congestion, and general perceptions of crowding. These effects appeared to be largely tolerated, with many visitors indicating they were not bothered by them. However, results linking crowding with perceptions of hut/track congestion impacts in particular, indicated that some of these evaluations are likely to become more negative at higher use-levels. Overall, these results indicate that some consideration of preventative actions to minimise future compromises to the quality of visit-experiences may need to begin soon, but that, given the relatively low use-levels, limited crowding perceptions, and relatively slow growth in visitor numbers on the track, these are not critical at present. The most important focus for any such action appears to be on the configuration of facilities and space in huts, and on perceptions of track damage and development.

If management control is required, visitors indicated a preference for such actions to be based most upon information use to guide visitor choices, rather than any more direct regulation/manipulation approaches to limit or channel visitor opportunities. Initially some development of long-term information approaches could be undertaken, as stringent controls do not yet appear necessary. However, some groupings of visitors were less supportive of many management options, and any consideration of proposed action may need to evaluate the importance assigned to the attitudes of such visitors. In many cases, these differences may be inconsequential, and the overall pattern of management preferences may be all that requires consideration. In summary, the main management actions which could be undertaken include:

- Optimising/increasing the facility capacity and bunk capacity of huts to standards more acceptable to visitors, but subject to management requirements
- Evaluating and optimising the use of hut space for relaxation and for access to facilities within and around the huts
- Provision of information to prepare people for the track conditions they will experience on the Rakiura Track, and to explain the requirement for track hardening where it has been undertaken
- Provision of information which forecast visitor numbers and hut loadings in advance, indicating where and at what times 'bottlenecks' might occur, and general suggestions on visit-timing and organisation to minimise the possibility of having any crowded visit experiences
- Identifying the possibilities for applying management options other than those based on information, in the context of the Rakiura Track and its location

Most initial gains should be made by concentrating upon making whatever simple improvements are possible in the use of space in huts. The information option requires generating more long-term behavioural and perceptual change among the visitors. However, given the relatively low levels of crowding on the

Rakiura Track at present, the validity of using more long term information approaches is enhanced. In addition, this also represents an opportunity to use approaches more favoured by visitors before any more direct and potentially unpopular management is required. Since most are first-time visitors to the Rakiura Track, and repeat-visits do not seem common, any approaches should be based largely on pre-visit information. Any consideration of these approaches will require additional investigations to assess the potential effectiveness of information use as a practical management tool. Investigations of the facility and service expectations of different visitor groups will be important, particularly emphasising hut conditions, and to a lesser extent the perceptions of track damage and development. General investigation of visitor expectations of their visit experiences would also be important.

While more regulatory management options were not highly favoured, and they may not be necessary on the Rakiura Track for some time, they may still be required if urgent control is eventually required. Investigations of the consequences of applying more regulatory and direct approaches need not be undertaken in relation to the Rakiura Track in particular, but the wider management options available could be assessed, and any research findings from other situations should be considered.

Monitoring of the quality of visit experiences should not rely on overall visit satisfaction scores. Crowding scores offer a more sensitive overall measure. Any specific monitoring of visit-experience quality should concentrate first upon hut congestion conditions at key huts. For the Rakiura Track this could initially concentrate upon visitor experiences at either the North Arm or Port William Huts. Some additional investigation of the trip patterns undertaken on the Rakiura Track and it's related tracks may be appropriate. Any monitoring should address the wider elements of hut congestion that relate to the use of huts and their facilities rather than simply bunk occupancies. Reference to the perceptions of track damage and development levels would also seem appropriate for the Rakiura Track.

Appendix 1

Summary of Rakiura questionnaire responses (n = 269)

This presents the basic response percentages for the questions asked in the survey. These percentages are presented in the format of the original questionnaire, although some lists of responses are attached where their format is incompatible with this approach. Where appropriate, some distinction is also made between the responses of hut and campsite users.

These responses are presented here as they do not fit the questionnaire format used in this appendix.

A. Question 1. Nationality breakdown

NATIONALITY	No's	%
New Zealand	62	24
Germany	79	30
Great Britain	29	11
United States	16	6
Australia	11	4
Switzerland	24	9
Netherlands	6	2
Canada	6	2
Denmark	4	1
Israel	4	1
Japan	11	4
Other Europe*	10	4
Other Asia	0	0
Other (South Africa)	1	0

* 7 Austria, 2 Sweden, 1 France

B. Question 1. Nights on trip and at huts/camps

(i) Trip Duration on the Rakiura Track

No. of nights

	1 nights	2 nights	3 nights	4 nights	5+ nights
% trips of this duration	6	68	14	2	9

(ii) Nights at Huts and/or Campsites

Overnight accommodation

	Huts only	Hut & 1 camp	Multiple huts/camps	Camps & 1 hut	Camps only
% trips	88	1	4	1	6

C. Question 3. Locations of crowding focus

Overall, (53%) of visitors (n = 143) considered some places on the visit were more crowded than others. They were asked to indicate in general terms whether this occurred in huts, at campsites, on the track or elsewhere, and then relative to these, specifically where. These specific responses are summarised here. Note that multiple responses were allowed for.

Huts — 138 specified huts as a focus of crowding (96% of 145). Of these, the specific focus responses highlighted the following main sites:

49% — North Arm Hut 42% — Port William Hut

Campsites — 3 specified campsites as a focus of crowding (2% of 143).

On track — 7 specified areas along the track as a focus of crowding (5% of 143).

Other —1 specified 'other' areas as a focus of crowding (0% of 143).

Appendix 2

Details of Rakiura principal components analysis

Principal Component Analysis (PCA) was carried out upon selected subsets of response-list items from 269 respondents to the Rakiura Track sample from the Great Walks survey. These subsets related to response lists for visitor perceptions of impacts (Q. 5), visitor satisfactions (Q. 7), and visitor preferences for possible management responses (Q. 8) to increasing visitor numbers. The PCA defined a reduced number of summary scales which could then be used for more complex analytical procedures. The following material describes the summary scales, and demonstrates the degree to which they are representative of their component variables. Items were included in the scale if their removal reduced the value of the scale reliability co-efficient (Kronbachs alpha).

SATISFACTION SCALES (from Question 7)

SCALE NAME	RELIABILITY (Kronbachs Alpha)	COMPONENT LIST VARIABLES (from original questionnaire Q. 7 lists)	LOADINGS (from PCA)
Hut conditions	0.8498	Hut cooking space/facilities	0.805
		Hut washing up space/facilities	0.780
		Hut drying space/facilities	0.753
		Space to relax in huts	0.729
		Water supply at huts	0.637
		Toilets at huts	0.629
		Number of bunks in huts	0.579
Track protection	0.6568	Boardwalks over wet/fragile areas	0.788
		Steps	0.743
Track signs	0.7467	Information signs by the track	0.799
		Distance/time signs	0.756
		Track marking	0.693
Information/ advice	0.8190	Material from visitor centres	0.801
		Advice from visitor centres	0.800
		Quality of maps/brochures	0.790
Campsite facilities	0.9380	Camp cooking space/facilities	0.925
		Water supply at campsites	0.859
		Rain shelters at campsites	0.838
		Camp washing up space/facilities	0.812
		Toilets at campsites	0.808
Extra facility/ service	0.7437	Drainage of water	0.667
		Smooth/easy surfaces	0.653
		Gentle slopes/not steep	0.626
		Hut heating facilities	0.611
		Hut lighting facilities	0.564
		Maps/brochures in the huts	0.441
		Advice from wardens	0.358
Extra items		Bridges over rivers	

IMPACT PERCEPTION SCALES (from Question 5)

SCALE NAME	RELIABILITY (Kronbachs Alpha)	COMPONENT LIST VARIABLES (from original questionnaire lists)	LOADINGS (from PCA)
Physical damage	0.7360	Seeing shortcuts off tracks	0.705
		Litter on track	0.661
		Litter around campsites	0.659
		Seeing trampling around wet areas	0.612
		Litter around hut	0.584
		Seeing human waste/toilet paper	0.489
		Seeing where wood cut for fires	0.450
Hut/track congestion	0.6936	Noisy people in huts at night	0.687
		Too many people in hut	0.607
		Insufficient bunk space in huts	0.586
		Inadequate toilet facilities	0.561
		Seeing too many on the track each day	0.427
Conflict issues	0.7125	Seeing too many big groups of people	0.711
		Seeing people on guided trips of track	0.661
		Having to rush for bunk in huts	0.514
Over-devlopment	0.7206	Too much development of signs	0.801
		Too much development of tracks	0.749
		Too much development of huts	0.622
Campsite congestion	0.7160	Too many others at campsites	0.757
		Noisy people at campsites	0.719
		Too much development of campsites	0.598
		Having to rush for campsite space	0.584
		Seeing where campsites have formed	0.410
Water supply	0.3080	Inadequate water supply	0.668
		Uncertainty in water hygiene	0.636
Extra items		Plane noise	

MANAGEMENT PREFERENCE SCALES (from Question 8)

SCALE NAME	RELIABILITY (Kronbachs Alpha)	COMPONENT LIST VARIABLES (from original questionnaire lists)	LOADINGS (from PCA)
Rationing/ use-limits	0.8893	Bookings for bunks in huts	0.921
		Bookings for spaces at campsites	0.910
		Require permits, and limit these	0.841
Information management	0.7944	Provide inf. on physical impacts	0.814
		Provide inf. on crowding conditions	0.789
		Provide inf. on social impacts	0.755
		Provide inf. on different track options	0.738
Increase accommodation	0.6803	Provide more campsite/camping facilities	0.758
		Build more huts	0.702
		Allow more guided trips/facilities	0.607
		Increase freedom for camping by tracks	0.601
		Provide more bunks in huts	0.567
Regulate use	0.4628	Remove some facilities to discourage use	0.722
		Make peak use times more expensive	0.671
		Make track one-way only	0.515
Promote alternatives	0.5001	Make other track options cheaper	0.641
		Encourage small groups/discourage large	0.612
		Provide more alternative tracks	0.529

Appendix 3

Details of Rakiura crowding scores

Crowding was assessed using a widely used nine-point crowding scale (Question 2), and Table A3.1 presents the responses from Rakiura Track visitors.

TABLE A3.1. RAKIURA TRACK CROWDING SCORES.

DEGREE OF CROWDING	(scores)	TOTAL % (n=269)
NOT CROWDED	(1)	20
	(2)	14
	(3)	17
CROWDED — slightly	(4)	8
	(5)	9
CROWDED — moderately	(6)	16
	(7)	8
CROWDED — extremely	(8)	6
	(9)	2

Shelby *et al*. (1989)[1] summarised and evaluated the accumulated results from this method, and developed an interpretation method to highlight the management significance of these responses. These interpretations, which can be considered carrying capacity judgements related to the quality of visitor experiences, apply to the 'crowded' respondents (e.g., those scoring 3 or more). Table A3.1 shows that the proportion of 'crowded' visitors on the Rakiura Track was 35%.

Table A3.2 (next page) presents a range of results from the other Great Walks and from studies summarised by Shelby *et al.* (1989). Accompanying these results are the interpretations applied to different crowding scores. The interpretation of 35% crowding on the Rakiura Track is that use is at 'low normal conditions', where no problem situation associated with use-levels currently exists. Currently these crowding levels suggest unique low-density recreation experiences are being maintained. These interpretations represent informed, but subjective guidelines based upon extensive accumulated knowledge.

Comparing the Great Walk crowding scores in Table A3.2 and Figure A3.1 (following page) indicates that crowding is relatively very low on the Rakiura Track, and preventative management to serious effects from increasing use will be required first on other tracks.

---

[1] Shelby, B.; Vaske, J.J.; Heberlein, T.A. 1989. Comparative Analysis of Crowding in Multiple Locations: Results of 15 Years of Research. *Leisure Sciences* 11: 269–291.

TABLE A3.2 DIFFERENT LEVELS OF 'CROWDED' RESPONSES. (AFTER SHELBY *ET AL.* 1989)

CROWD (%)	POPULATION	RESOURCE	STATE OR COUNTRY	RESOURCE CONDITIONS	CARRYING CAPACITY JUDGEMENT
100	Boaters	Deschutes River	Oregon	Weekends section 1	**Much more than capacity**
94	Anglers	Colorado River	Arizona	Thanksgiving weekend	(80 – 100%)
91	Boaters	Raystown Lake	Pennsylvania	On the lake	Manage for high density recreation
89	Pheasant hunters	Bong Hunting Area	Wisconsin	Opening day	experiences, or treat as a 'sacrifice area',
88	Boaters	Deschutes River	Oregon	Weekdays section 1	allowing quantity of activity to compromise
87	Riparian landowners	Lake Delavan	Wisconsin	Overall rating	quality of experiences. Could be a localised
86	Goose hunters	Grand River Marsh	Wisconsin	Firing line	compromise to reduce pressure on other areas.
85	Pheasant hunters	Public Hunting Area	Wisconsin	Opening day	
*** 76 ***	**Walkers (GW)**	**Routeburn Track**	**New Zealand**	**Summer**	**More than capacity**
76	Trout anglers	Gun Powder River	Maryland	Opening day	(65 – 80%)
75	Salmon anglers	Waimakariri River	New Zealand	At river mouth	Studies and management are necessary to
75	Boaters	Raystown Lake	Pennsylvania	At attraction sites	preserve recreation experiences, especially if
74	Salmon anglers	Rakaia River	New Zealand	At river mouth	low visitor impacts (social/physical) are
73	Canoers and boaters	Boundary Waters C.A.	Minnesota	Moose Lake	important components. Immediate
72	Rafters	Grand Canyon	Arizona	1985 Summer	management to control use-levels at around
70	Anglers	Klamath River	California		65% level of crowding conditions may be
70	Climbers	Mt. McKinley	Alaska		considered as an option. Research may be
*** 69 ***	**Walkers (GW)**	**Abel Tasman Track**	**New Zealand**	**Summer**	needed to establish more long-term solutions.
69	Boaters	Door Country	Wisconsin		
*** 68 ***	**Walkers (GW)**	**Tongariro Crossing**	**New Zealand**	**Summer (Easter 86%)**	
68	Rafters	Rogue River	Oregon		
68	Rock climbers	Seneca Rocks	West Virginia		
66	Boaters	Raystown Lake	Pennsylvania	At put-in location	
*** 63 ***	**Walkers (GW)**	**Kepler Track**	**New Zealand**	**Summer (Easter 86%)**	**High normal conditions**
63	Boaters	Raystown Lake	Pennsylvania	At take-out location	(50 - 65%)
*** 62 ***	**Walkers (GW)**	**Milford Track**	**New Zealand**	**Summer**	Should be studied if increased use is expected,
62	Deer hunters	Sandhill	Wisconsin	1988 High-density hunt	allowing management to anticipate problems.
61	Goose hunters	Fishing Bay	Maryland	Firing line	Represents the best time to establish more
61	Floaters	Wolf River	Wisconsin		long-term management, as once higher
59	Salmon anglers	Rakaia River	New Zealand	All anglers	crowding perceptions exist, there is difficulty
*** 58 ***	**Sea Kayakers (GW)**	**Abel Tasman Coast**	**New Zealand**	**Summer**	in managing use 'down' to levels more

* **55** *	**Walkers (GW)**	**Heaphy Track**	**New Zealand**	**Summer (Easter 71%)**	appropriate for the main recreation
55	Wildlife photographers	Sandhill	Wisconsin		experiences desired.
54	Recreationists	Lake Delavan	Wisconsin	One-day visit	
53	Anglers	Brule River	Wisconsin	1975	
53	Rafters	Grand Canyon	Arizona	1985 Winter	
53	Rafters	Snake River	Oregon	In Hell's Canyon	
53	Backpackers	Mt. Jefferson	Oregon		
52	Canoers	Brule River	Wisconsin	High-use period	
50	Deer hunters	Sandhill	Wisconsin	1982 High-density hunt	**Low Normal Conditions**
49	Backpackers	Eagle Cap Wilderness	Oregon		(35 - 50%)
48	Pheasant hunters	Bong Hunting Area	Wisconsin	Late season	A problem situation does not exist at this time.
46	Deer hunters	State-wide	Wisconsin	No specific resource	As with the above category, these may offer
45	Salmon anglers	Rakaia River	New Zealand	Upstream	unique low-density recreation experiences.
44	Turkey hunters	State-wide	Maryland	No specific resource	These are likely to change with any increase
43	Tubers	Brule River	Wisconsin		in social or physical impacts resulting from
* **43** *	**Walkers (GW)**	**Travers-Sabine Track**	**New Zealand**	Summer	increasing numbers of users, or from changes
* **42** *	**Canoeists (GW)**	**Wanganui River**	**New Zealand**	Summer	in activity types.
* **42** *	**Walkers (GW)**	**Waikaremoana Track**	**New Zealand**	Summer	
42	Sail-boaters	Apostle Islands	Wisconsin	Summer 1985	
41	Tourists and drivers	Stockings Park	Michigan	Presidential Range	
39	Backpackers	White Mt. Nat. Forest	New Hampshire		
38	Floaters	Klamath River	California	1985 Low-use period	
37	Canoers	Brule River	Wisconsin		
* **35** *	**Walkers (GW)**	**Rakiura Track**	**New Zealand**	**Summer**	**Suppressed Crowding**
32	Anglers	Colorado River	Arizona	Midweek	(0 - 35%)
31	Hikers	Dolly Sods Wilderness	West Virginia	Low-use period	Crowding here is limited by certain
27	Goose hunters	Tuckahoe State Park	Maryland	Low-density hunt	management or situational factors, which
26	Rafters	Illinois River	Oregon		allow particular low-density recreational
25	Trout anglers	Savage River	Maryland	Low use period	experiences. These are likely to be unique,
24	Backpackers	Great Gulf Wilderness	New Hampshire	Low use period	and managers should be concerned with
24	Deer hunters	Sandhill	Wisconsin	1982 Low-density hunt	maintaining them. Changes likely to increase
23	Trout anglers	Gunpowder River	Maryland	Late season	visitor numbers/impacts should be considered
20	Canoeists	Wanganui River	New Zealand	Summer (Easter 68%)	carefully.
17	Goose hunters	Grand River	Wisconsin	Managed hunt	
12	Deer hunters	Sandhill	Wisconsin	1988 Low-density hunt	

* * and bold type identify the crowding responses for the tracks included in New Zealand's Great Walks.

FIGURE A3.1 DIFFERENT LEVELS OF 'CROWDED' RESPONSES ON GREAT WALKS.

TABLE A3.2 DIFFERENT LEVELS OF 'CROWDED' RESPONSES. (AFTER SHELBY *ET AL.* 1989)

CROWD (%)	POPULATION	RESOURCE	STATE OR COUNTRY	RESOURCE CONDITIONS	CARRYING CAPACITY JUDGEMENT
100	Boaters	Deschutes River	Oregon	Weekends section 1	**Much more than capacity**
94	Anglers	Colorado River	Arizona	Thanksgiving weekend	(80 – 100%)
91	Boaters	Raystown Lake	Pennsylvania	On the lake	Manage for high density recreation
89	Pheasant hunters	Bong Hunting Area	Wisconsin	Opening day	experiences, or treat as a 'sacrifice area',
88	Boaters	Deschutes River	Oregon	Weekdays section 1	allowing quantity of activity to compromise
87	Riparian landowners	Lake Delavan	Wisconsin	Overall rating	quality of experiences. Could be a localised
86	Goose hunters	Grand River Marsh	Wisconsin	Firing line	compromise to reduce pressure on other areas.
85	Pheasant hunters	Public Hunting Area	Wisconsin	Opening day	
* **76** *	**Walkers (GW)**	**Routeburn Track**	**New Zealand**	**Summer**	**More than capacity**
76	Trout anglers	Gun Powder River	Maryland	Opening day	(65 – 80%)
75	Salmon anglers	Waimakariri River	New Zealand	At river mouth	Studies and management are necessary to
75	Boaters	Raystown Lake	Pennsylvania	At attraction sites	preserve recreation experiences, especially if
74	Salmon anglers	Rakaia River	New Zealand	At river mouth	low visitor impacts (social/physical) are
73	Canoers and boaters	Boundary Waters C.A.	Minnesota	Moose Lake	important components. Immediate
72	Rafters	Grand Canyon	Arizona	1985 Summer	management to control use-levels at around
70	Anglers	Klamath River	California		65% level of crowding conditions may be
70	Climbers	Mt. McKinley	Alaska		considered as an option. Research may be
* **69** *	**Walkers (GW)**	**Abel Tasman Track**	**New Zealand**	**Summer**	needed to establish more long-term solutions.
69	Boaters	Door Country	Wisconsin		
* **68** *	**Walkers (GW)**	**Tongariro Crossing**	**New Zealand**	**Summer (Easter 86%)**	
68	Rafters	Rogue River	Oregon		
68	Rock climbers	Seneca Rocks	West Virginia		
66	Boaters	Raystown Lake	Pennsylvania	At put-in location	
* **63** *	**Walkers (GW)**	**Kepler Track**	**New Zealand**	**Summer (Easter 86%)**	**High normal conditions**
63	Boaters	Raystown Lake	Pennsylvania	At take-out location	(50 - 65%)
* **62** *	**Walkers (GW)**	**Milford Track**	**New Zealand**	**Summer**	Should be studied if increased use is expected,
62	Deer hunters	Sandhill	Wisconsin	1988 High-density hunt	allowing management to anticipate problems.
61	Goose hunters	Fishing Bay	Maryland	Firing line	Represents the best time to establish more
61	Floaters	Wolf River	Wisconsin		long-term management, as once higher
59	Salmon anglers	Rakaia River	New Zealand	All anglers	crowding perceptions exist, there is difficulty
* **58** *	**Sea Kayakers (GW)**	**Abel Tasman Coast**	**New Zealand**	**Summer**	in managing use 'down' to levels more

* **55** *	**Walkers (GW)**	**Heaphy Track**	**New Zealand**	**Summer (Easter 71%)**	appropriate for the main recreation
55	Wildlife photographers	Sandhill	Wisconsin		experiences desired.
54	Recreationists	Lake Delavan	Wisconsin	One-day visit	
53	Anglers	Brule River	Wisconsin	1975	
53	Rafters	Grand Canyon	Arizona	1985 Winter	
53	Rafters	Snake River	Oregon	In Hell's Canyon	
53	Backpackers	Mt. Jefferson	Oregon		
52	Canoers	Brule River	Wisconsin	High-use period	
50	Deer hunters	Sandhill	Wisconsin	1982 High-density hunt	**Low Normal Conditions**
49	Backpackers	Eagle Cap Wilderness	Oregon		(35 - 50%)
48	Pheasant hunters	Bong Hunting Area	Wisconsin	Late season	A problem situation does not exist at this time.
46	Deer hunters	Statewide	Wisconsin	No specific resource	As with the above category, these may offer
45	Salmon anglers	Rakaia River	New Zealand	Upstream	unique low-density recreation experiences.
44	Turkey hunters	Statewide	Maryland	No specific resource	These are likely to change with any increase
43	Tubers	Brule River	Wisconsin		in social or physical impacts resulting from
* **43** *	**Walkers (GW)**	**Travers-Sabine Track**	**New Zealand**	Summer	increasing numbers of users, or from changes
* **42** *	**Canoeists (GW)**	**Wanganui River**	**New Zealand**	Summer	in activity types.
* **42** *	**Walkers (GW)**	**Waikaremoana Track**	**New Zealand**	Summer	
42	Sailboaters	Apostle Islands	Wisconsin	Summer 1985	
41	Tourists and drivers	Stockings Park	Michigan	Presidential Range	
39	Backpackers	White Mt. Nat.Forest	New Hampshire		
38	Floaters	Klamath River	California	1985 Low-use period	
37	Canoers	Brule River	Wisconsin		
* **35** *	**Walkers (GW)**	**Rakiura Track**	**New Zealand**	**Summer**	**Suppressed Crowding**
32	Anglers	Colorado River	Arizona	Midweek	(0 - 35%)
31	Hikers	Dolly Sods Wilderness	West Virginia	Low-use period	Crowding here is limited by certain
27	Goose hunters	Tuckahoe State Park	Maryland	Low-density hunt	management or situational factors, which
26	Rafters	Illinois River	Oregon		allow particular low-density recreational
25	Trout anglers	Savage River	Maryland	Low use period	experiences. These are likely to be unique,
24	Backpackers	Great Gulf Wilderness	New Hampshire	Low use period	and managers should be concerned with
24	Deer hunters	Sandhill	Wisconsin	1982 Low-density hunt	maintaining them. Changes likely to increase
23	Trout anglers	Gundpowder River	Maryland	Late season	visitor numbers/impacts should be considered
20	Canoeists	Whanganui River	New Zealand	Summer (Easter 68%)	carefully.
17	Goose hunters	Grand River	Wisconsin	Managed hunt	
12	Deer hunters	Sandhill	Wisconsin	1988 Low-density hunt	

* * and bold type identify the crowding responses for the tracks included in New Zealand's Great Walks.