

Measuring The Significance of Multi-Use Outdoor Recreation Resources: A Comparative Analysis of Three Sites in New Zealand

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Abstract

When recreation researchers are asked to identify the significance of a recreational resource they face the difficult task of assembling a wide range of data to guide what is inevitably a partly subjective assessment. Where that assessment influences planning decisions about resource development, the judgement as to whether a resource is, for example, 'nationally' or 'regionally' significant may be contentious and should be clearly justified. This paper reviews the findings of three visitor surveys in New Zealand, on the Hurunui River, Waitaki River and the Port Hills near Christchurch, and the use of a 'visitor profiling' exercise that assisted in the assessment of resource significance. The 'visitor profiles' of each resource are compared using five indicators: loyalty, total loyalty, frequency, localness and alternatives. By helping to create an accessible image of the 'average' recreational visitor for a particular activity, the profiles have proved useful in assisting assessments of significance.

Introduction

Resource consent applications require the utilisation of research data in a transparent and readily understood format. The data are often required to support assessments of resource significance that must be shown to be based on sound professional judgement. While it is relatively straight forward to use a recreation survey to show that 50% of users of a resource are, for example, walkers, it is more difficult to show how *significant* the resource is to those walkers, and therefore how serious a modification to that resource might be.

The New Zealand Ministry for the Environment publication *Flow Guidelines for Instream Values* (MfE, 1998: 76) states, 'Measuring the 'significance' of a waterway for recreation is problematic. There is no clear indicator that tells us whether a resource is highly significant or not.' It suggests using the terms 'locally, regionally, nationally or internationally significant' to classify levels of significance.

When using that advice as a guide, the researcher must gather comprehensive data to show how the characteristics of the resource, the levels and types of recreational use, the origins of users, their behaviour on site and their use of other recreation resources add up to create a justifiable description of *significance*. This is indeed problematic in an area where subjective and heartfelt descriptions of individual and group experiences of a resource are often presented in the Environment Court on both sides of an argument. The challenge is taking what is frequently a comprehensive report that might include as many as 50 tables of data and summarise it in one or two tables to clearly and succinctly represent significance.

Significance assessments were required in two studies described here: the *Hurunui River Recreation Study 2000/01* (Greenaway, 2001) conducted for Environment Canterbury to support the preparation of a Natural Resources Regional Plan; and the *Project Aqua Waitaki River Recreation Survey* (Greenaway, 2001a, 2002b) conducted for the power company Meridian Energy to assist with an assessment of recreation and community effects for a

resource consent application for a major hydroelectricity development, 'Project Aqua'. A later study on the Port Hills for the Christchurch City Council (Greenaway, 2002c) conducted as part of the process of developing a recreation strategy for the many reserves in the study area, did not require an assessment of significance, but called for a clear profile of visitors.

All three studies relied on a standard approach to 'visitor profiling' to summarise visitor attributes and to assist, where required, with assessments of significance. This paper focuses on that visitor profiling approach.

Describing the visitor to a resource is a fundamental part of recreation resource assessment. The terms 'visitor profiling' (Higham, Carr and Gale, 2001), 'aggregate profiles of visitors' (Kearsley, Russell, Croy and Mitchell, 2001), 'sample characteristics' (Kearsley *et al.*, 1998, Corbett, 2001) and 'visitor characteristics' (Cessford, 1998) are used when presenting survey data which describe resource users. These data are normally one dimensional and tabulate such facts as country of origin, gender, age, frequency and duration of visit, main activity, and various questions to satisfy a specific focus of the study, such as visitor motivations and attitudes towards the impacts of crowding. Few studies result in the development of a 'profile' of visitors as the word is defined in the *Chambers 20th Century Dictionary*, namely: 'a short biographical sketch ... an outline of the characteristic features (of e.g. a particular type of person)' – although Cessford (1998), for example, in his study of users of the Abel Tasman Track, summarises his visitor information with the statement that, 'visitor characteristics were representative of a young and international group of people, largely unfamiliar with the Abel Tasman Track and generally inexperienced at the backcountry walking activity.'

Hvenegaard (2002), in reviewing the use of tourist typologies as a means of identifying and describing ecotourists, notes that a 'typology' appears to rely on the use of collective descriptives to group people with similar characteristics. He thus uses the terms 'knowledgeable birder' and 'generalist birder' to differentiate the 'birders', or birdwatchers, in his study of ecotourists in Thailand. Similarly the New Zealand Department of Conservation's *Visitor Strategy* (1996) uses the terms 'backcountry comfort seekers' and 'short stop travellers', amongst others, to describe different types of visitors to conservation land. Todd, Lawson and Jamieson (2001) in an analysis of New Zealanders' consumer lifestyles, rely on descriptives such as 'pragmatic strugglers' and 'educated liberals', calling them 'lifestyle segments'. In Hvenegaard (2002) and Todd *et al* (2001), the researchers derive their typologies from quantitative analysis of demographic data, motivations, respondent choice and behaviour patterns, and then define the characteristics of each identified group – similar to psychographic market segmentation (Wells, 1974) and 'leisure styles' research (see Veal, 2000).

Where typologies are used, stakeholders might be more likely to identify with the research findings. A 'backcountry comfort seeker' or a 'backcountry adventurer' is a 'human concept'. Where a standard description of visitor characteristics is given (e.g. 43% female, 16% international), there is little scope for the same level of interaction. Enabling a personal response to research data assists in any subsequent consultation process and encourages debate about the meaning of the results. This is useful when the data are being used to direct decisions about the management of the resource and clear links need to be shown between the data and the recommendations. The challenge is to take one dimensional data (origin, frequency of visit and main activity, etc) and create a visitor profile – a short biographical sketch – that affected parties can readily respond to.

Methodology

All three surveys used similar questionnaires and survey methods and a similar 'visitor profiling' approach to summarise visitor attributes and to assist, where required, with assessments of significance. All three surveys relied on interviewers intercepting respondents during their visit to a site and conducting a face-to-face interview lasting between 10 and 20 minutes. Respondents were selected using 'the next person met' principle. On both the

Hurunui and Waitaki Rivers this system worked well since visitor numbers were low and almost all visitors sighted by interviewers were approached. On the busier Port Hills, random selection was more of an issue. However, as the surveys did not cover a full year and could not possibly cover every recreational site in the study areas because they were numerous and widely dispersed, the surveys do not comprise true random samples, which is inevitable in studying such large-scale natural resources. Busy visitor times and sites were selected for the survey periods (summer for the rivers and early autumn for the Port Hills) and detailed schedules developed to ensure surveyors were rotated between specified locations at set times to achieve as high a 'strike rate' as possible, and to attempt to ensure key user groups were not missed (such as early morning anglers).

Respondents were asked to name their 'main activity' on 'this visit' to the study area, and any other activities they were also doing or planning to do. Almost all further questions related to their named 'main activity'. The questionnaires included questions on the effects of different flow regimes for the rivers, locations of activity within the study areas, perceptions of changes in the study areas over time, conflicts in use, levels of satisfaction, most important features of the study areas, preferences for development and facilities, and alternative locations for undertaking main activities.

Each study was accompanied by literature reviews to support the quantitative findings of the surveys. The reviews focused on recreation guides and previous research completed on the study areas. For example, where a national fishing guide excluded mention of a fishing resource within a study area, an inference is made that the resource might not be perceived as being of national significance.

Hurunui River study

The Hurunui River flows from Lake Sumner in North Canterbury to the sea, a distance of 106 kilometres. For the first 40 kilometres the river flows through a series of gorges. It then opens into a braided pattern which lasts until near the Pacific Ocean. It has several abstractions for irrigation but is otherwise uncontrolled, with a mean annual flow of 51 cubic metres per second (cumecs) below Lake Sumner and 71 cumecs nearer the sea. The surrounding landscape is dominated by native bush in the headwaters and farmland below – there are no major settlements nearby. The survey estimated 25,750 recreational visit days to the river annually.

Among Environment Canterbury's objectives for the study was the following:

To assess the values and recreational opportunities of the Hurunui River Catchment relative to other rivers, lakes and wetlands in the Canterbury region noting anything about the natural and amenity values or recreation experience, that is outstanding or significantly different to that which can be experienced elsewhere in Canterbury.

A total of 96 survey-days were spent at four sites (that is, 24 survey days at each site) over peak visitor times: the summer holiday period; Waitangi weekend; Easter; four other weekends and four week days. A total of 903 completed questionnaires was analysed. Table 1 shows the number of respondents for each main activity. 'Other' included fishing (mixed river and sea species), dog walking, sightseeing, tramping, jet boating, walking, mountain biking, hunting, horse riding, driving and four wheel driving – each involving less than 5% of all responses.

Table 1: Number of respondents per activity for the Hurunui River.

<i>Main activity</i>	<i>Responses</i>
Trout fishing	170
Camping	158
Swimming	97
Relaxing / holidaying / picnic	78
Taking a break (driving)	70
Kayaking	63
Salmon fishing	53
Other	214
All	903

Waitaki River Study

The Waitaki River sits, in part, astride the regional boundaries of Otago and Canterbury, and runs in a braided pattern for 66 kilometres from the Waitaki Dam near Kurow to the sea just north of Oamaru. The river has a long history of control for hydroelectricity and runs at a mean annual flow of 372 cumecs. Unwin and Brown (1998) estimated that 34,500 angler days ($\pm 3,145$) were spent on the Waitaki River in the 1994/95 year. Several small settlements are located along the river's southern bank, but farmland dominates.

Meridian Energy's objectives for the study were to assist in identifying the recreational values of the Waitaki River, and the built and natural resources which support those activities. The wider study was designed to inform a resource consent application process.

A total of 120 survey-days were spent in the area, with five surveyors timetabled to move around 13 sites over 29 days between late November 2001 and mid-March 2002. Researchers were shifted between sites according to the weather and day of the week. A total of 398 completed questionnaires was analysed. The river was flowing at around 500 cumecs for much of the survey period.

The survey was piloted in November 2001 on whitebaiters, as their fishing season is limited and the opportunity to capture this visitor group would otherwise have been lost (one question was removed from the survey as a result). This approach, and the general methodology for the Waitaki River survey, means the relative proportions of user groups, shown in Table 2, cannot be considered representative.

Table 2: Number of respondents per activity for the Waitaki River.

<i>Main activity</i>	<i>Responses</i>
Trout fishing	81
Salmon fishing	74
Trout/salmon fishing	69
Whitebaiting	30
Taking a break (driving)	26
Picnicking	23
Viewing river	15
Jet boating	15
Swimming	13
Other	52
All	398

Port Hills study

The Port Hills provide the visual backdrop to Christchurch City. For this study they were considered to stretch from Godley Head at the mouth of Lyttelton Harbour to Gebbies Pass at

the harbour's head. They are the northern flank of the two extinct volcanoes which make up Banks Peninsula. Approximately 2,400 hectares of the Port Hills are in public ownership (16.5% of the total area), making up a mosaic of reserves that are administered by the Christchurch City Council (CCC), the Department of Conservation, Banks Peninsula District Council, Selwyn District Council and a number of private trusts. The CCC is the main land manager and operates a ranger service, which estimates 300,000 visits are made to the Port Hills annually (Paul Devlin, Chief Ranger, pers comm.).

The Christchurch City Council's objectives for the study were to assist in identifying the recreational values of the Port Hills, and the built and natural resources which support those activities. The data were collected to advise the development of a recreation strategy and an asset management plan, including a ten-year operations, maintenance and development budget.

A total of 40 survey-days were spent in the area, with four surveyors timetabled to visit 17 sites during the first half of April 2002. A total of 397 completed questionnaires was analysed. Table 3 shows the number of respondents for each main activity.

Table 3: Number of respondents per activity for the Port Hills.

<i>Main activity</i>	<i>Responses</i>
Walking	160
Mountain biking	67
Sightseeing	39
Running	38
Dog walking	17
Exercising	13
Other	63
All	397

Sampling error

A feature of the three surveys is a the high number of different types of 'main activities' undertaken by respondents. For example, 42 different main activities were recorded for the Hurunui River. This means that while the margin of error for the total sample is low (up to $\pm 3.3\%$ for the Hurunui with 903 respondents, and up to $\pm 5.0\%$ for the Waitaki River and the Port Hills with almost 400 respondents each), the error margin for each analysis of activity is higher. For example, 160 walkers were questioned on the Port Hills, with a margin of error of up to $\pm 7.9\%$ for analysis of that sub-sample. As it is difficult to survey sufficient respondents from each visitor group to gain a common low level of error, it is necessary to support the research with literature reviews, stakeholder interviews and interviews with relevant agency representatives.

Visitor profile variables

Five variables were devised to develop the visitor profiles. This section describes each variable using an example from each study area, and then concludes with a comparison of all the variables. All analysis is completed for the respondents' main activity on 'this visit'. The five variables are:

- *Loyalty* – proportion of all activity time spent in the study area;
- *Total loyalty* – an important subset of loyalty, being the proportion of respondents who do their main activity only within the study area;
- *Frequency* – number of visits to the study area over the preceding 12 months;
- *Alternatives* – average number of alternative locations named by respondents who use other locations for their main activity; and
- *Localness* – the proportion of respondents for each activity who live in the 'local' area.

Loyalty and Total loyalty

Table 4 shows for the Waitaki River that respondents whose main activity was ‘viewing the river’ were the most *loyal* with 89% of their activity time spent on the Waitaki River. Jet boaters spent 43% of their activity time on the river. All fishing activities were shown to be quite *loyal* with between 73% and 84% of activity time on the Waitaki.

Table 4. Loyalty: Waitaki River: visits in preceding 12 months

<i>Activity</i>	<i>Visits to all rivers</i>	<i>Visits to Waitaki River</i>		<i>n</i>
	Mean No. of visits	Mean No. of visits	%	
Viewing river	52	46	89%	15
Swimming	23	19	84%	13
Salmon fishing	41	35	84%	74
Whitebaiting	30	24	80%	30
Trout fishing	48	36	74%	81
Trout / salmon fishing	74	54	73%	68
Break	11	6	54%	26
Picnicking	17	8	46%	23
Jet boating	37	16	43%	15
All (inc ‘other’)	47	32	68%	397

Table 5 shows the proportion of Port Hills respondents who carried out their main activity on only the Port Hills - that is, those respondents who are *totally loyal*. Dog walkers had the highest level of *total loyalty* at 24%. All those respondents who described ‘exercising’ as their main activity also use other locations for that activity (none was *totally loyal*). Note that the activities of ‘exercising’ and ‘running’ and ‘walking’ could be the same; however, the respondents’ preferred description has been used.

Table 5. Total Loyalty: % engaging in main activity only the Port Hills.

<i>Activity</i>	<i>Use only the Port Hills</i>	<i>Also use other locations</i>	<i>n</i>
Dog walking	24%	76%	17
Walking	20%	80%	160
Sightseeing	19%	81%	39
Mountain biking	12%	88%	67
Running	11%	89%	38
Exercising	0%	100%	13
All (inc ‘other’)	17%	83%	397

Frequency

Frequency is simply the mean number of visits to the study area made by respondents for their main activity over the preceding 12 months. This is the figure shown in the central column in Table 4. Although loyalty is a function of frequency, and low frequency suggests low loyalty, frequency indicates a lot about the accessibility and/or significance of the site. Frequency is calculated by asking respondents the number of visits they have made to the site in the past 12 months. Clarity is required when asking the question to ensure, for example, that anglers who stay in a nearby holiday home for a week record their daily visit to the river as a separate trip and do not record the entire week as one visit. This ensures comparability with visits made by proximate permanent residents.

Alternatives

Respondents in all studies were asked to name the alternative locations where they also undertook their main activity. Those who were *totally loyal* to the location (that is, did not use any other location for their main activity) were naturally not included in this analysis. While the actual alternative locations were of interest, the *number* of alternatives identified was used as an indicator, as shown in Table 6. This number was generated by dividing the total number of alternatives named for each main activity by the number of relevant respondents.

Table 6: Hurunui River study: alternative rivers named by respondents

<i>Main activity</i>	<i>Average number of alternatives per activity</i>	<i>n = number of respondents who named alternatives</i>
Trout/salmon fishing	2.2	33
Kayaking	2.1	59
Salmon Fishing	2.1	42
Mountain Biking	2.0	11
Trout Fishing	1.9	147
Tramping	1.9	15
Jet boating	1.8	13
Relaxing / holidaying / picnic	1.7	61
Camping	1.6	118
Swimming	1.2	70
All (including 'other')	1.7	723

Localness

The origin of visitors to a recreation resource is a very helpful indicator when considering the significance of the resource for a particular activity. In an assessment it is necessary to carefully define what 'local' is, as in some remote resources the local population may be quite small, or in the case of a river, dispersed over a large distance. Significant population centres that are not immediately adjacent to the resource may need to be included. In the Waitaki River study the towns of Oamaru and Waimate, as well as residents of the Waitaki Valley, were considered 'local', as indicated in Table 7. This judgement should reflect how the resource users consider themselves.

Table 7: Waitaki River study: respondents who live 'locally' by main activity

<i>Main activity</i>	<i>Place of residence</i>				<i>Total (n)</i>	<i>% Local</i>
	<i>Oamaru</i>	<i>Waitaki valley</i>	<i>Waimate</i>	<i>Other</i>		
	<i>Sample nos.</i>					
Whitebaiting	11	7	3	9	30	70%
Trout/salmon fishing	21	11	3	34	69	51%
Trout fishing	22	16	1	42	81	48%
Salmon fishing	14	9	5	46	74	38%
Picnicking	3	2	3	15	23	35%
Break (driving)	5	1	2	18	26	31%
Other	12	6	1	22	41	46%
All (inc 'other')	98	70	20	210	398	47%

Visitor Profiles

The visitor profiles are used to develop what are essentially 'market profiles' or 'visitor profiles'. As with any 'market profile' there are members of each population that fit only partly into each profile. Nevertheless, the profiles give an accessible image of the 'average' recreational visitor.

Waitaki River

Table 8 shows a variety of profiles for activity groups in the Waitaki River study.

- While a third of swimmers use only the Waitaki River (low *total loyalty*), their *loyalty* is high at 84% (they spent most of their activity time on the Waitaki River), they named few *alternatives* (1.3 per respondent who swam at other locations also) and many (60%) are *locals*. The average profile for a swimmer is therefore a local who spends most of their swimming time at the Waitaki, but is known to use an alternative site or two only a few times a year.
- The average salmon angler is very *loyal* (they fish mostly on the Waitaki), travel to the site from outside the immediate area, and occasionally access a couple of *alternative* sites once or twice a year.
- Jet boaters are less *loyal*, less *totally loyal* and are likely to travel from outside the immediate area, and also access a relatively high number of *alternative* rivers. That is, the average jet boater in this study accesses several rivers annually, but spends about half their time on the Waitaki River.

Table 8: Visitor profile indicators for Waitaki River

	<i>Loyalty</i>	<i>Total loyalty</i>	<i>Frequency</i>	<i>Alternatives</i>	<i>Local</i>
<i>Main Activity</i>	%	%	<i>No.</i>	<i>No.</i>	%
Viewing river	89%	53%	46	3.1	60%
Salmon fishing	84%	61%	35	1.9	38%
Swimming	84%	38%	19	1.3	61%
Whitebaiting	80%	53%	24	1.4	70%
Trout fishing	74%	37%	36	2.5	48%
Trout/salmon fishing	73%	35%	54	2.5	50%
Taking a break (driving)	54%	46%	26	1.6	21%
Picnicking	46%	17%	8	2.1	35%
Jet boating	43%	33%	16	3.3	34%
All (inc 'other')	68%	43%	32	2.1	47%

In terms of an assessment of resource significance, the area rates highly for salmon fishing since: a relatively small proportion of salmon anglers are *local* (that is, they tend to travel from outside the immediate area); they are more likely to use only the Waitaki River for their main activity (*totally loyal*); they spend a high proportion of their main activity time on the river (*loyal*); and they name few *alternatives*.

Hurunui River

As shown in Table 9, Hurunui River users show quite a different set of visitor profiles. Recreational visitors are less likely to be *local* (defined here as residents of the Hurunui local authority district), and they are also more likely to use other locations and visit less *frequently*. While their level of *loyalty* is lower than for activities on the Waitaki, the proportion of activity time spent on the river for salmon fishing is still high. Swimmers were the most *local* group of visitors and, although they named only a few *alternatives*, they spent 50% of their activity time on the Hurunui River. Kayakers were rarely *totally loyal*, were the least *local*, named several *alternatives*, but still spent over 40% of their activity time on the river.

Table 9: Visitor profile indicators for Hurunui River.

	<i>Loyalty</i>	<i>Total loyalty</i>	<i>Frequency</i>	<i>Alternatives</i>	<i>Local</i>
<i>Main Activity</i>	%	%	<i>No.</i>	<i>No.</i>	%
Salmon fishing	61%	21%	14	2.1	8%
Swimming	52%	28%	14	1.2	33%
Camping	51%	25%	3	1.6	6%
Trout/salmon fishing	49%	18%	22	2.2	23%
Relaxing / holidaying / picnic	48%	22%	4	1.7	9%
Kayaking	43%	6%	5	2.1	6%
Trout Fishing	41%	14%	6	1.9	12%
All (inc 'other')	32%	20%	7	1.7	13%

Port Hills

The Port Hills is a peri-urban recreation resource, being on the doorstep of a city with a population of over 300,000 people, and the visitor profile, as shown in Table 10, reflects this with low *total loyalty*, high *loyalty* and high *frequency*. *Local* in this case was defined to include Christchurch City and the residents of Lyttelton and Governors Bay – the Port Hills' immediate settlements. The most *loyal* group was mountain bikers at 71%. Interestingly, mountain bikers are reported to be the most readily accessed volunteer group for work on the hills (Paul Devlin, Chief Ranger, pers comm.).

Frequency of visit is high generally, and is highest for dog walkers, which makes an interesting comparison with walkers. The latter visit the Port Hills around half as frequently as do dog walkers, but have the same levels of *loyalty* and *total loyalty*, which suggests dog ownership does increase walking frequency, but possibly reduces the number of *alternative* sites visited (1.6 compared with 2.2 for walking).

Table 10: Visitor profile indicators for Port Hills.

<i>Main Activity</i>	<i>Loyalty</i>	<i>Total loyalty</i>	<i>Frequency</i>	<i>Alternatives</i>	<i>Local</i>
<i>Main Activity</i>	%	%	<i>No.</i>	<i>No.</i>	%
Mountain biking	71%	12%	63	2.3	96%
Walking	55%	20%	56	2.2	90%
Dog walking	53%	24%	108	1.6	100%
Running	52%	11%	81	2.1	92%
Sightseeing	38%	19%	11	2.4	74%
Exercising	34%	0%	54	1.8	92%
All (inc 'other')	56%	17%	52	2.2	89%

Discussion

The variables with the greatest variation are *total loyalty*, *localness* and *frequency*. The Waitaki River had a relatively high level of *total loyalty* at 43% compared to 17% for the Port Hills, but had closer levels of *frequency* at 32 and 52 respectively (the Hurunui was very low at 7). Conversely, the Port Hills had a very high level of *localness* at 89% and the Waitaki had a lower level at 43% (the Hurunui was lowest at 13%). High *total loyalty* in itself suggests that the resource is 'significant' in some way, in that the resource is able to satisfy all the demands for an activity for a large proportion of users. Salmon fishing on the Waitaki River is a good example, with 61% of respondents *totally loyal*. However, when high *total loyalty* is coupled with low *localness*, that significance is underscored. Many salmon anglers on the Waitaki are willing to travel some distance to the site, frequently, and to only that site (partly

due to low a low number of *alternatives*). The origin of those salmon anglers who travel to the Waitaki River suggests the resource is at least regional, and probably national, in significance for salmon fishing.

Figures for *loyalty* are similar across the three sites when all responses are aggregated (Hurunui, 49%; Waitaki, 56%; Port Hills, 55%). However, variation between individual activities indicates differences between user groups. The 84% *loyalty* of salmon anglers on the Waitaki and their 61% *loyalty* on the Hurunui are both high and are a feature of salmon angling behaviour – anglers at both sites are reported to camp on-site for several weeks during the season. Fishing cribs (holiday homes) are a feature of the Waitaki River. The peri-urban resource of the Port Hills features similar levels of *loyalty* as the two rivers, but shows lower *total loyalty* and high *frequency*, which reflects its accessibility.

The Hurunui River results reflect the lack of a local population (13% *local*), but the level of *loyalty* is as high as the other study areas, and the level of *total loyalty* is similar to that of the peri-urban Port Hills. The number of *alternatives* is average to relatively low and *frequency* is very low. This suggests that the river, although relatively remote and relatively infrequently visited, has a high level of significance to recreational visitors. In reality it offers some highly valued trout fishing opportunities and its upper reaches offer perhaps one of the best whitewater kayaking experiences in Canterbury. Just over 50% of respondents in the Hurunui River study were Christchurch residents (approximately 100 kilometres to the south).

The value of the visitor profiling exercise is greatest in describing a particular recreation group. Although market profiles are, by definition, generalisations, where they are well supported by transparent data and parallel research (such as stakeholder interviews and literature reviews) they are more defensible. For example, there is a clear difference between the profiles of jet boaters and whitebaiters on the Waitaki River. The data suggest that ‘average’ whitebaiters on the Waitaki River are local (70% *localness*) and spend the majority of their activity time on the Waitaki River (80% *loyalty*). However, they are as likely to visit one or two other rivers for their activity only occasionally (1.9 *alternatives*), as they are to only ever go whitebaiting on the Waitaki (53% *total loyalty*). In comparison, jet boaters on the Waitaki are more likely to travel some distance to the river (34% *localness*) and spend over half of their activity time (43% *loyalty*) on several other rivers (3.3 *alternatives*). Whitebaiting on the Waitaki River is likely to be of local significance, but be very important to that user group. Jet boating is likely to be of at least regional significance, be one of several alternative sites, but have a core group of focused users. The river is, in fact, used for international jet boating events (that the survey would not identify) and has a unique feature – a ‘big water’ experience – that attracts users from outside the local area.

There is the potential to develop a more detailed ‘biography’ for each user group considering additional data – such as age, gender and ethnicity – by adding the relevant columns to the summary tables. For the purpose of the three studies, however, these data do not assist greatly in an assessment of significance, but they may assist in providing greater detail in other studies and should be considered as potential cross-tabulations.

Conclusions

Any one of the variables looked at in isolation tells us very little about the significance of a recreation resource. For example, frequency of visit by itself means very little when comparing two resources where one is remote and the other local. The survey result will probably be self-evident. However, when the variables are considered as a group, they offer a transparent means of describing the user population and supporting an assessment of significance. While it is not sensible to rely on only the above indicators for making an assessment of resource significance (literature review and stakeholder interviews are very important), the visitor profiling process is an effective way of turning quantitative research findings into informative prose and assisting in decision making processes:

'Classifying people into groups and considering their common characteristics and needs is not ... to deny their individuality; in fact, it has been the failure of providers to consider the common needs of some groups which has, in the past, denied members of such groups their individuality. As a result of campaigns, regulations, research and the spread of ideas such as 'market segmentation' and 'niche marketing', some of these problems are now beginning to be overcome.' (Veal, 2002: 249).

The visitor profiling process is most useful when making an assessment of resource significance and when comparing the use profile of different resources for management planning programmes. Identifying the visitor profiles of, for example, the major recreational rivers in one region, would provide a clear understanding of the value of each resource and how their attributes affect use.

Further studies using this profiling technique would assist in the development of broad regional recreation resource profiles. Using New Zealand examples, it would be informative to complete the same study in a relatively remote national park setting (such as Mount Aspiring National Park), a high profile international tourism destination (such as Franz Josef), a large multi-use urban park (Hagley Park in Christchurch or the Auckland Domain) and a high-use angling resource (such as the Tongariro River). A spread of such studies would provide a set of benchmarks against which other recreation resources could be compared.

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