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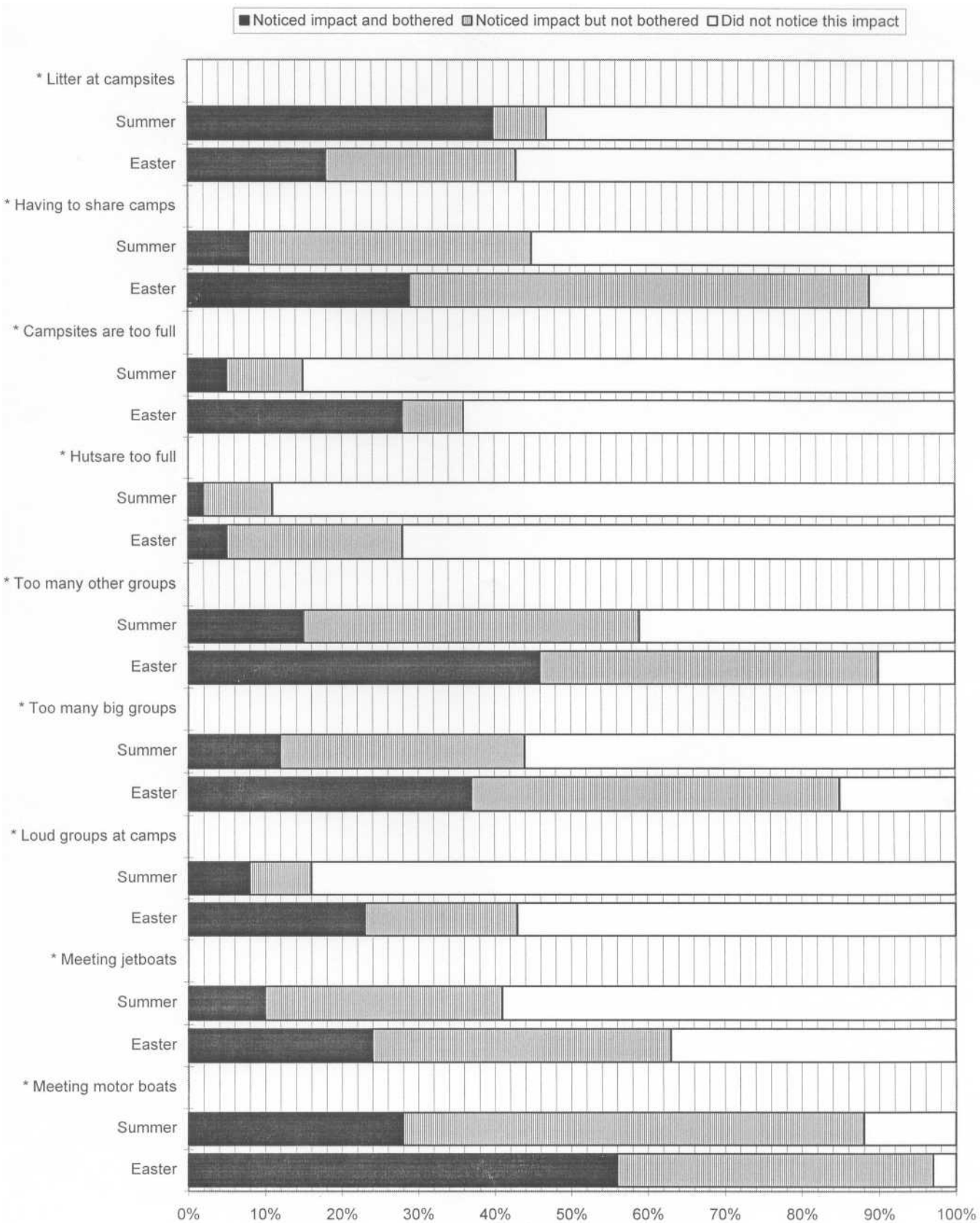

Figure 6 Summer and Easter differences in canoeists perceptions of impacts.
(Refer Appendix 5, Table A5.2 for details of percentage figures.)

6.3 Facility/capacity impact perceptions

Facility impacts comprised the over-development of facilities (huts/tracks/signs), the lack of adequate toilets and water at huts/campsites, and lack of firewood (refer Figure 5). Overall, 64% of canoeists noticed lack of toilet/water as an impact, including 23% who considered this a negative impact that bothered them. This was the greatest source of negative impacts among the 'facility' impact-type. While 63% considered that there was some over-development of facilities, most of these did not consider it a negative impact. Lack of firewood was noticed the least (27%). There were no significant differences in these impacts between summer and Easter responses.

Capacity impacts comprised having to share campsites with others, having to use less desirable campsites due to others being full, and having but use limited because they were full (refer Figure 5). Over 50% of canoeists indicated they had shared campsites with others, with most indicating they were not bothered by this (41%). Some canoeists (19%) had found preferred campsites or huts to be too full to use, although only 10% were bothered by this. Overall, although a large proportion of canoeists had to share campsites, few were bothered by it, and very few appeared to have felt inconvenienced by the sites being full.

However, there were differences in summer and Easter perceptions of capacity impacts (Figure 6). In all cases the impacts were noticed more at Easter. At Easter, many more had to share a campsite (89% v 45% summer), and the proportion bothered was higher (29% v 7%). However, apparent tolerance for this was high at Easter, with 60% not bothered by this (v 37% in summer). More Easter canoeists noticed campsites which were too full (36% v 15% in summer), and more of these were bothered by it (28% v 5% in summer). And more Easter canoeists noticed huts being too full (28% v 11% in summer). These results all indicate that the Facility/capacity impacts at Easter provide some basis for the greater crowding and conflict perceptions also identified (see below).

6.4 Crowding/conflict perceptions

Crowding/conflict perceptions comprised encounters with too many others, meeting too many big groups, having noisy groups at campsites, meeting jetboats, or meeting other motorboats (refer Figure 5). Apart from encountering noisy groups, all these impacts were noticed by over half the canoeists. While most of those noticing impacts indicated they were not bothered by them, considerable proportions were bothered (e.g., 32% by jetboats; 21% by too many others, 17% by big groups).

Most of these impacts were significantly more negative for Easter canoeists (Figure 6). Almost all Easter canoeists noticed an impact of too many other users (90% v 59% summer). Almost half (46%) were bothered by this impact, which for summer canoeists was only 15%. A similar pattern was apparent for the impact of too many big groups, with 85% of Easter canoeists noticing this, compared with 44% of summer canoeists. Similarly, more Easter canoeists were bothered by too many big groups (37% v. 12% in summer). More Easter canoeists noticed noisy groups at campsites (43% v. 16% summer), and were more bothered more by this impact (23% v 8%). In addition, Easter

canoeists were more negative toward jetboats and other motorboats than were canoeists in summer.

It appears that during the higher use-level Easter period, these crowding/conflict impacts are more pronounced. It may be that as pressure from use-levels increase, general tolerance for other impacts declines. For example, the average party sizes were lower at Easter (refer Appendix 1), but Easter canoeists perceived party size more negatively than summer canoeists

6.5 Animal control impacts perceptions

These comprised seeing goats along the river, and/or seeing the dead animals resulting from control operations or domestic stock flood losses. It is clear from Figure 5 that almost all canoeists saw goats, and that most were not bothered by it. Far fewer saw dead animals, but those who did tended to be only a little more bothered by it than by seeing them alive. There were no significant summer and Easter differences.

6.6 Discussion points

Overall, almost all canoeists noticed impacts from polluted water: more than 60% noticed impacts from lack of toilets/water, too many others, and over-development; and more than 50% noticed impacts from seeing goats and dead animals, too many big groups, and having to share campsites (Figure 5). Negative perceptions of these impacts were most prominent for perception of polluted water (73%), seeing litter on the river (41 %) and at campsites (40%), meeting jetboats (32%), and seeing dead animals from control operations (29%). In most other cases, canoeists did not notice the impacts listed, and if they did notice them, were not very bothered by them.

In general, summer canoeists noticed fewer impacts and were less bothered by them (Figure 6). However, summer canoeists did appear more sensitive to litter at campsites (40% bothered *v.* 18% in Easter). Although actual daily use-levels in summer were much lower than those during the busier Easter period, it is possible that the accumulated effects of use over the longer duration of summer resulted in more obvious evidence of such physical impacts.

During Easter, more canoeists noticed impacts, and were generally more bothered by them (Figure 6). These more negative impacts emphasised accommodation capacity and crowding perceptions. Capacity impacts included having to share campsites with others, having to pass some campsites because they were full, and not being able to stay in some huts because they were too full. Crowding impacts included seeing too many other users, too many big groups, noisy groups at campsites, and seeing jetboats/motorboats. There were only minor differences among the other impacts, suggesting that the main differences here were largely due to effects of the higher Easter use levels. These may have been interpreted as being excessive for the desired recreation experiences on the Whanganui River.

7. CROWDING PERCEPTIONS

Canoeists were asked whether they considered the river experience was crowded, where any crowding was occurring, and preferences for encounters with other users. The following sections discuss all these.

7.1 Crowding scores

Easter canoeists were much more crowded (69%) than summer canoeists (20%). Canoeists indicated how crowded they felt on their trip using a 9 point scale from 'Not at all crowded' to 'Extremely crowded' (refer Appendix 6). Figures 7 and 8 summarise these crowding scores. Table A6.1 in Appendix 6 describes a carrying capacity interpretation which can be applied to these results. The carrying capacity interpretation suggests that while capacity issues were not of major importance in summer, there are crowding problems, at Easter. Table A6.1 indicates the Easter use-levels could be considered ' more than capacity', and that management action will be required to preserve high quality river experiences.[5] It would appear that the higher use-levels occurring at Easter provide an example of what may arise in the summer season should overall use-levels increase.

Some of the ways in which these crowding perceptions arise from the higher Easter use levels are addressed by the following sections, which present results on the locations of crowding (Section 7.2), encounter levels on the river (Section 7.3.1) and at overnight stays (Section 7.3.2), and the differences in the perceptions of crowded and uncrowded canoeists (Section 8).

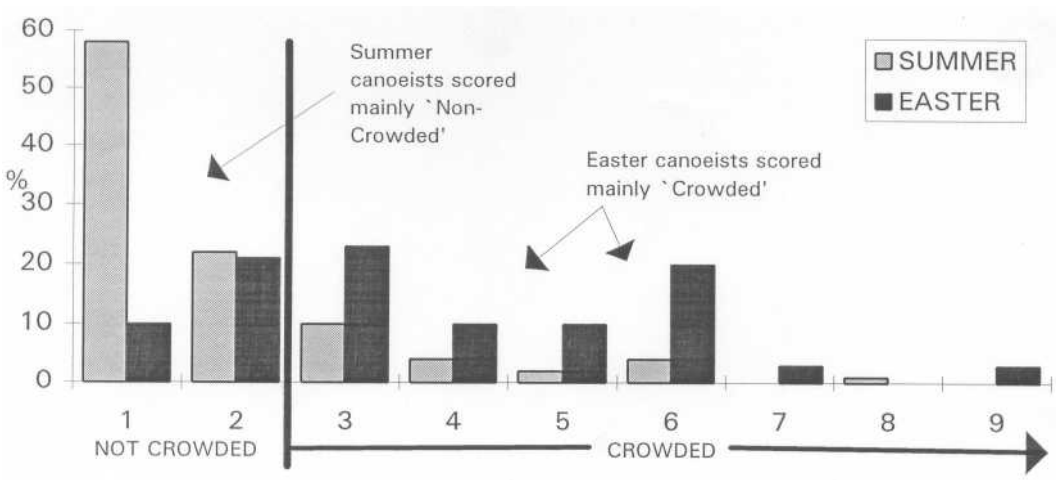

Figure 7 Crowding score results for summer and Easter canoeists.

5 In Appendix 6, Whanganui Summer and Easter crowding scores are compared with those many documented in Shelby et al (1989). This provides a good illustration the degree to which summer and Easter situations differ.

Figure 8 **Proportions of crowded canoeists in summer (*left*) and Easter (*right*).**

7.2 Crowding locations

In a question independent from that on crowding scores, all canoeists were asked whether some places on the trip were more crowded than others (Table 8). Clearly, this perception was highest among Easter canoeists, 59% of whom indicated that there were some focal points for crowding, compared with only 25% of summer canoeists.

Table 8 **Spatial variation in crowding.** (Refer Appendix 5).

Crowding occurring more in some places than others?	Summer	Easter
Yes – some places were more crowded than others	25	59
No – crowding was general/crowding did not occur	75	41

These results suggest greater crowding pressure at Easter, and also that a greater proportion of Easter crowding perceptions may have been based on more specific sites, rather than more general feelings about use-levels. However, when asked to specify the names of crowded sites there were no consistently identified sources of crowding perceptions, with only Tieke but being prominent (named by 19%). Locations of overnight stays were generally identified as being crowded, and while this was highest among Easter canoeists, the difference from summer was not great. There was a greater tendency for summer canoeists to identify huts as the main source of crowding, while for Easter it was campsites (detail in Appendix 6). This difference was interesting, given the greater overall use-levels and emphasis on but use and adjacent camping apparent a Easter (Appendix 4). Overall, the results showed that there was no key focus of crowding perceptions, although the accommodation area in general was important, particularly in Easter.

7.3 Encounter preferences

Shelby and Colvin (1982) and Shelby and Heberlein (1986) noted that visitors were accurate reporters of encounters when these were at lower levels (less than 6). At higher levels, visitors tended to under-estimate actual encounters by about half. Canoeists in

the Whanganui survey reported their average number of daily encounters with other groups on the river, and at overnight sites. They then indicated what levels of these encounters they would have preferred. Comparisons of the conditions actually experienced, with the conditions canoeists would be prepared to tolerate, provides some indication of links between use-levels and crowding perceptions. Shelby and Colvin (1982) and Shelby and Heberlein (1986) proposed that encounters used in this way provide an evaluative standard which may help in considerations of social carrying capacity. Figures 9 to 11 (following pages) summarise these results, with response details tabulated in Appendix 7.

7.3.1 On-river encounters

Average reported encounter levels per day at Easter (Figure 9) appeared over twice those of summer (6.1 *v.* 2.4). This pattern reflected that of the visitor counts and the crowding perception scores. Easter canoeists were also the only ones consistently reporting actual encounters at levels in excess of what they would have preferred (6.1 *v.* 4.8). This may provide some explanation for the higher crowding scores given by Easter canoeists, as it appears that canoeist tolerance of encounter levels was being exceeded. By contrast, the reported encounter levels for summer canoeists were within the levels preferred (2.4 *v.* 3.7). The higher level of preferred encounters for Easter, when reported encounters were also higher, suggests a 'shifting tolerance' for encounters. In this situation, the canoeist preferences appear influenced by the conditions encountered.

Further support for distinctive crowding results at Easter was provided from the cross-tabulation of actual encounters with preferred encounters. This enabled distinction to be made between those canoeists who reported more encounters than the maximum desirable, and those who reported less. Results derived from these cross-tabulations are summarised in Figure 10.

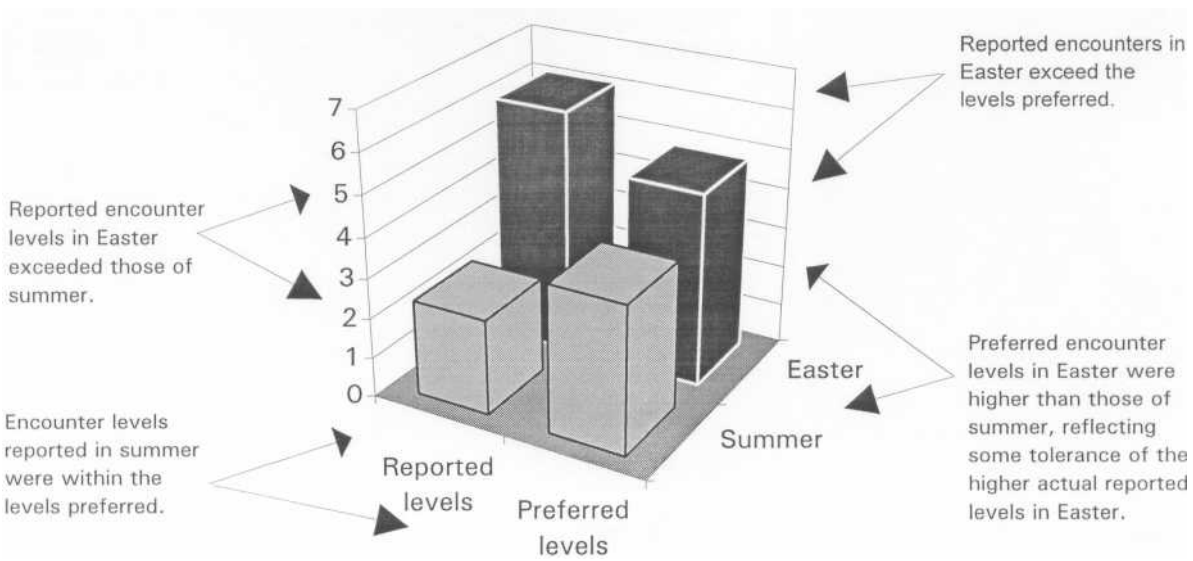

Figure 9 Reported *v.* preferred encounter levels, summer *v.* Easter (average encounters per day).

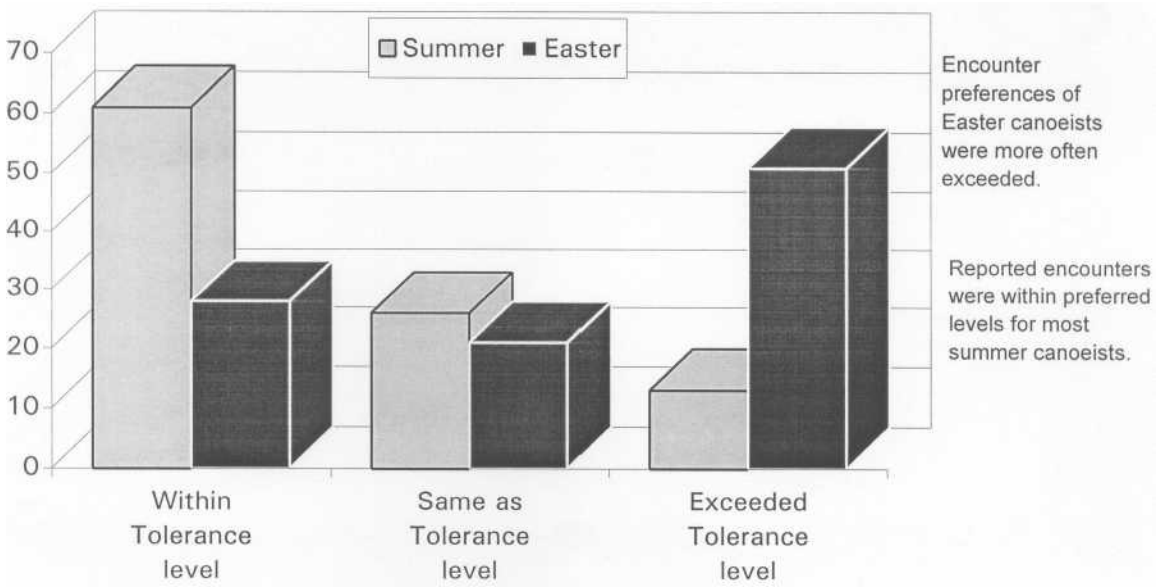

Figure 10 Achievement of on-river encounter preferences.

At Easter, 51% of canoeists indicated they experienced on-river encounters at levels higher than they would have preferred (*v*. 13% in summer). In summer, 61% of canoeists experienced encounters at levels within those they would have preferred (*v.* 28% at Easter). Again, higher crowding perceptions are indicated for Easter canoeists, and support the generalisation from the crowding score interpretive table (Appendix 6) that Easter conditions were ' more than capacity'.

7.3.2 Encounters at overnight sites

Canoeists were also asked about their encounters with others at their overnight sites (e.g., huts, campsites). This included the number of trip nights spent on the river, the number of nights these sites were shared, and the numbers of nights such sharing would have been preferred. Figure 11 summarises these results, and provides further indication of greater crowding conditions in Easter.

For summer canoeists, an average trip lasted 3.7 nights. Most (57%) indicated they had to share some overnight sites, and this occurred on an average of 1 night per trip. On this basis, it was calculated that on an average trip, sharing took place on 27% of trip nights (dividing shared nights by trip nights). Using this pattern of interpretation, average Easter trips were shorter (2.8 nights), and almost all (97%) indicated they shared sites. And when sharing did occur in Easter, it included up to 75% of trip nights.

The potential for crowding and conflict perceptions appears much higher in the Easter period, and may explain the high Easter crowding scores and reported encounters. As indicated by Lythgoe (DoC, pers. comm.), Easter canoeists, on their very limited 'time budgets', were more likely to start trips at similar times and their use of overnight sites would overlap. Hence, their site sharing frequency would be higher.

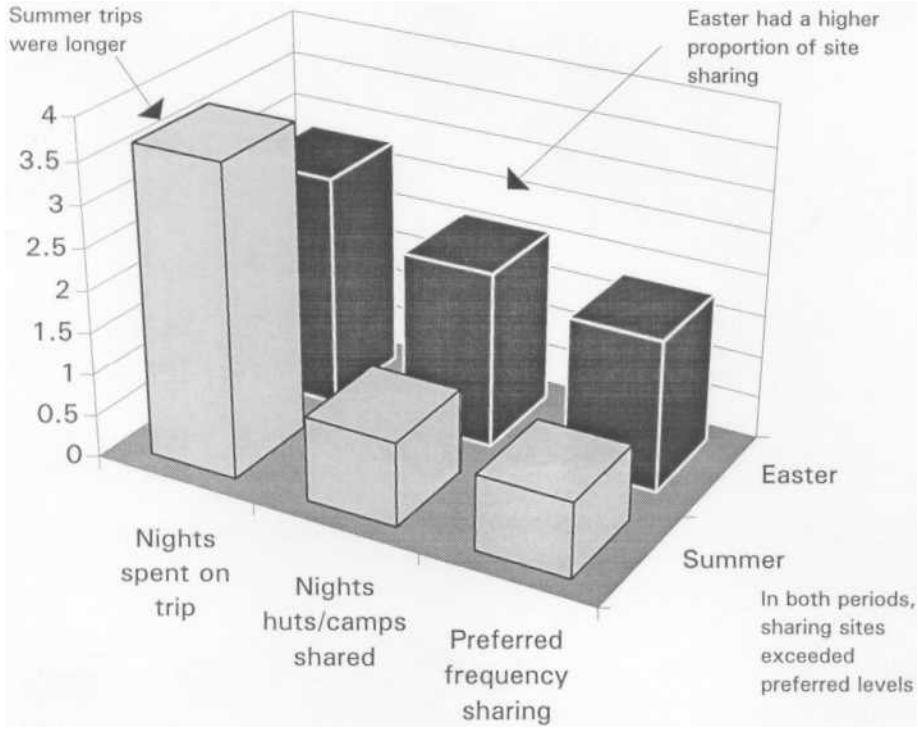

Figure 11 Reported *v.* preferred site sharing, summer *v.* Easter
(average nights sites shared per trip).

When canoeist preferences for sharing sites were considered, only 38% of Easter canoeists indicated they preferred not to share sites. Summer canoeists appeared less tolerant of sharing, with 68% preferring not to do so. This is an interesting contrast, as Easter canoeists appear more tolerant of sharing sites, despite consistently indicating higher crowding perceptions. Preference for sharing sites appeared linked to the actual nights shared, with tolerance levels apparently rising as actual use-level encounters rose. This would suggest some acceptance of the particular conditions experienced by canoeists as being the 'norm', around which preferences would be formed. This Easter site use situation is similar to the type of 'shifting tolerance' suggested as occurring for on-river encounters.

However, despite this apparently enhanced tolerance for site sharing at Easter, other results demonstrate that greater perceived crowding effects at Easter are occurring. Figure 12 presents a summary of results from cross-tabulations of the number of nights that sites were shared, by the number of nights the canoeists would have preferred to share them.

These results showed that during Easter in particular, canoeists actually shared overnight sites (huts and/or campsites) more often than they would have preferred (55 *v.* 27%). Summer canoeists were more likely to feel the number of nights they actually shared was the ideal number. This again suggests that Easter conditions have induced greater crowding perceptions.

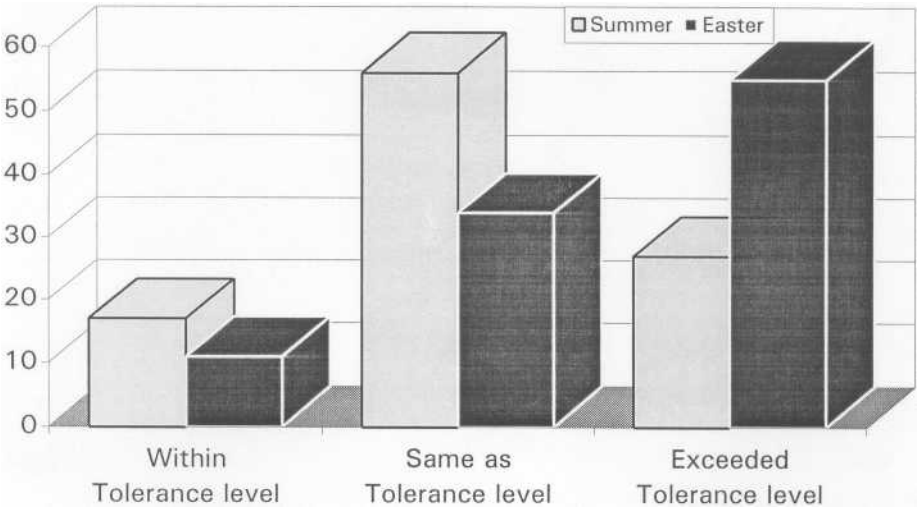

Figure 12 Achievement of site-sharing encounter preferences
(% of respective summer and Easter canoeists responding in each way).

7.4 Discussion points

7.4.1 Crowding scores

It is clear that different crowding problems were being perceived between summer and Easter. At the higher crowding level at Easter (69%), interpreted as ' more than capacity', the associated recommendation was for research into how the use levels were exceeding capacity, and for some management action to preserve the recreation experiences. This research goes some of the way toward addressing these requirements, and management actions appear necessary should summer use-levels regularly begin to approach those found during Easter. Consideration of management options to mediate impacts and potentially control use should begin with consultation between managers and researchers on identifying key monitoring needs, and the means to fulfil them.

7.4.2 On-river encounter levels

On the river, average Easter encounter levels were almost three times those of summer and most canoeists were experiencing encounters at levels exceeding their preferences. Given the higher crowding scores at Easter, this suggests that on-river encounters represent an important component of overall crowding perceptions.

In summer, where crowding perceptions were much lower, average encounters were mostly within the levels considered preferable. However, at some point between the summer and Easter situations, despite the occurrence of 'shifting tolerance' in encounter preferences, it appears that for most canoeists, some threshold was reached beyond which encounters with others exceeded their tolerance. Shelby and Heberlein (1986) termed such thresholds as 'break-points', where a sudden rapid decrease in satisfaction or tolerance begins to occur as use or encounter levels increase. They proposed that such points would provide useful capacity indicators. The apparent relationship between reported and preferred encounters in this study did suggest that such a 'break-point' was occurring between summer and Easter conditions.

However, no significant relationships between crowding scores, reported encounter levels and preferred encounter levels were apparent from the analyses undertaken.' These analyses indicated that an increase in encounter levels was not necessarily associated with an increase in crowding scores. The conclusion reached from this result was that factors other than use-levels were important contributors to crowding perceptions. For example, the higher perceptions of impacts by crowded canoeists from jetboats, motor boats and large groups suggests the occurance of recreation conflict perceptions. However, despite these complications, it is clear that in the transition from summer to Easter conditions, a major change in canoeist perceptions of crowding does occur, and that an apparent 'break-point' had occurred.

7.4.3 Overnight site encounter levels

As with on-river encounters, the encounter rates recorded by the frequency of sharing of overnight sites were highest at Easter. In summary, 97% of Easter canoeists had to share sites, and this occurred on approximately 75% of trip nights. By contrast, only 57% of summer canoeists had to share sites, and did so on approximately 27% of nights. Clearly the potential for site-based crowding was much higher at Easter. And with regard to entry point, top-entry canoeists had to share sites more often, but the difference was not great.

The patterns of preferences for the number of nights canoeists were prepared to share sites reflected the suggestion that encounter tolerance appeared to increase along with higher use-levels. Easter canoeists, who had the greatest frequencies of site sharing, also appeared to have the greatest tolerance for such sharing. They were least likely to indicate preference for not sharing any sites at all. Summer canoeists, who actually shared sites less often, appeared least tolerant of doing so. Again there appeared to be some relationship between actual and preferred conditions, where tolerance levels shifted up with actual levels. This suggests some degree of acceptance by canoeists of the conditions experienced as being the 'norm', and therefore the appropriate level for preferences.

Analysis of the proportion of times canoeists encountered others at overnight sites more often than they preferred, re-emphasised the apparent crowding focus during Easter. During Easter, a much higher proportion of canoeists reported sharing sites on more nights than they would have preferred. Summer canoeists were more likely to consider the actual number of nights they shared as being the ideal number. This would suggest that even given the effects of a 'shifting-tolerance' situation, greater crowding conditions were apparent during Easter.

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6 Correlation coefficients were calculated (Pearsons r), and the data were also plotted, but showed no significant associations.

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