■ Was bothered   □ Not bothered   ▓ Not noticed

SUMMARY SCALE	**SEEING LITTER**
Campsite litter	
Litter on water/beach	
Litter on the track	
Litter around huts	
SUMMARY SCALE	**PHYSICAL DAMAGE**
Seeing toilet paper/waste	
Track trampling/widening	
Woodcutting damage	
Track trampling/shortcuts	
Informal camping wear	
SUMMARY SCALE	**HUT CONGESTION**
Noise in huts	
Insufficient bunks in huts	
Too many in huts	
Rushing for bunks	
SUMMARY SCALE	**WATER/TOILET/HYGIENE**
Uncertain water hygiene	
Inadequate water supply	
Inadequate toilets	
SUMMARY SCALE	**BOAT DISTURBANCE**
Motorboats on the water	
Motorboats at huts/camps	
SUMMARY SCALE	**OVERDEVELOPMENT**
Overdeveloped huts	
Overdeveloped signs	
Overdeveloped camps	
Overdeveloped tracks	
SUMMARY SCALE	**OVERALL CONGESTION**
Too many camping	
Seeing big groups	
Noise at campsites	
Rushing for campsites	
Seeing guided groups	
Seeing too many on river	
EXTRA ITEMS	**INDIVIDUAL ITEMS**
Noise from aircraft	

0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%

(Tracks references relate to riverside paths used at huts/camps/attractions).

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

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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/overseas), and crowding perception (uncrowded/crowded) were analysed (refer Section 4.1 for method). The significant effects associated with the analysis of these impact scales using these independent variables are summarised in Table 3, where the mean values show that while the perceptions of impact were generally not high (means <2), some differences were apparent between the different groups. These results indicate that the variations in the perceptions of most impacts, and particularly those social impacts related to overall congestion, boat disturbance and but congestion are particularly important for management attention.

TABLE 3. SIGNIFICANT EFFECTS ON IMPACT SCALES.

SOURCE OF SIGNIFICANT EFFECT'	SIGNIFICANT IMPACT SCALESt	MEAN VALUES (ADJUSTED)*	
Crowded effect	Overall congestion	Uncrowded	Crowded
$F_{(7,487)} = 7.99$, p =.004	$F_{(1, 493)} = 48.28$, p =.000	1.41	1.93
	Boat disturbance	Uncrowded	Crowded
	$F_{(1, 493)} = 17.93$, 1 _ .000	1.87	2.25
	Hut congestion	Uncrowded	Crowded
	$F_{(1, 493)} = 12.09$, p =.000	1.23	1.58
	Water/toilet/hygiene	Uncrowded	Crowded
	$F_{(1, 493)} = 7.52$, p = .006	1.98	2.31
	Physical damage	Uncrowded	Crowded
	$F_{(0, 493)} = 5.15$, p = .024	1.14	1.37
	Over-development	Uncrowded	Crowded
	$F_{(1, 493)} = 4.33$, p = .038	1.4o	1.61

* 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 a interpreted 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 impacts, and most particularly of those social impacts related to overall congestion, disturbance from boats, and but congestion. Impacts related to perceptions of water/toilet/ hygiene were also important, while physical damage related to impacts on facilities and settings, and perceptions of facility overdevelopment were notable to a lesser extent. Overall, these results indicate that crowded visitors perceived higher levels of most impact types, although the emphasis was on the social congestion impacts.

Additional exploration of the overall congestion scale indicated that crowded visitors perceived greater levels of all the impact items, although seeing too many at campsites, on the river, and in big groups were most prominent. Additional exploration of the boat disturbance scale indicated that crowded

visitors perceived similarly greater levels of disturbance by motorboats while on the river and at overnight camps/huts. Additional exploration of the but congestion scale indicated crowded visitors perceived greater levels of all impact items, although simply seeing too many in the huts was more prominent than insufficient bunk space, having to rush for huts or but noise. Additional exploration of the water/toilet/hygiene scale indicated crowded visitors perceived greater levels of all items, although highlighted toilet impacts more particularly than water supply and uncertain water hygiene. Additional exploration of the physical damage scale indicated crowded visitors perceived higher levels of all items. And additional exploration of the over-development scale indicated that crowded visitors perceived greater levels of all over-development of facilities, although perceptions of sign over-development appeared particularly prominent.

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 ($F_{(3,527)} = 86.98$, signif. F = .0000) identified an association (adjusted r_z = .327) between the impact scales (independent) and Crowding (dependent). The overall congestion scale (P = .552, t = 12.36, p = .0000) was the most important predictor of crowding.' That is, being more bothered by the social impacts from overall congestion, was weakly associated with feeling more crowded. This interpretation was supported by the moderate correlation between crowding and the overall congestion scale (r = .52). The most important individual items correlated with crowding from the overall congestion scale were `seeing too many at campsites' (r = .49), seeing too many big groups' (r = .46), `seeing too many on the river' (r = .43) and `having to rush for campsites' (r = .41). The prominence of these individual items emphasises the importance of camp-based social impacts to crowding perceptions on the Whanganui Journey. Also particularly important are the numbers of big groups encountered and the simple numbers of other canoeists seen on the river each day. While a moderate correlation was also found between crowding and but congestion (r = .37), this appeared to be of secondary importance.

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[4] **In addition, a temporary variable composed of the extreme high and low crowding scores was used in a separate multiple regression analysis to test this association further, and demonstrated a stronger association with the overall congestion scale (e.g., r^2 = .417; a (overall) = .591).**
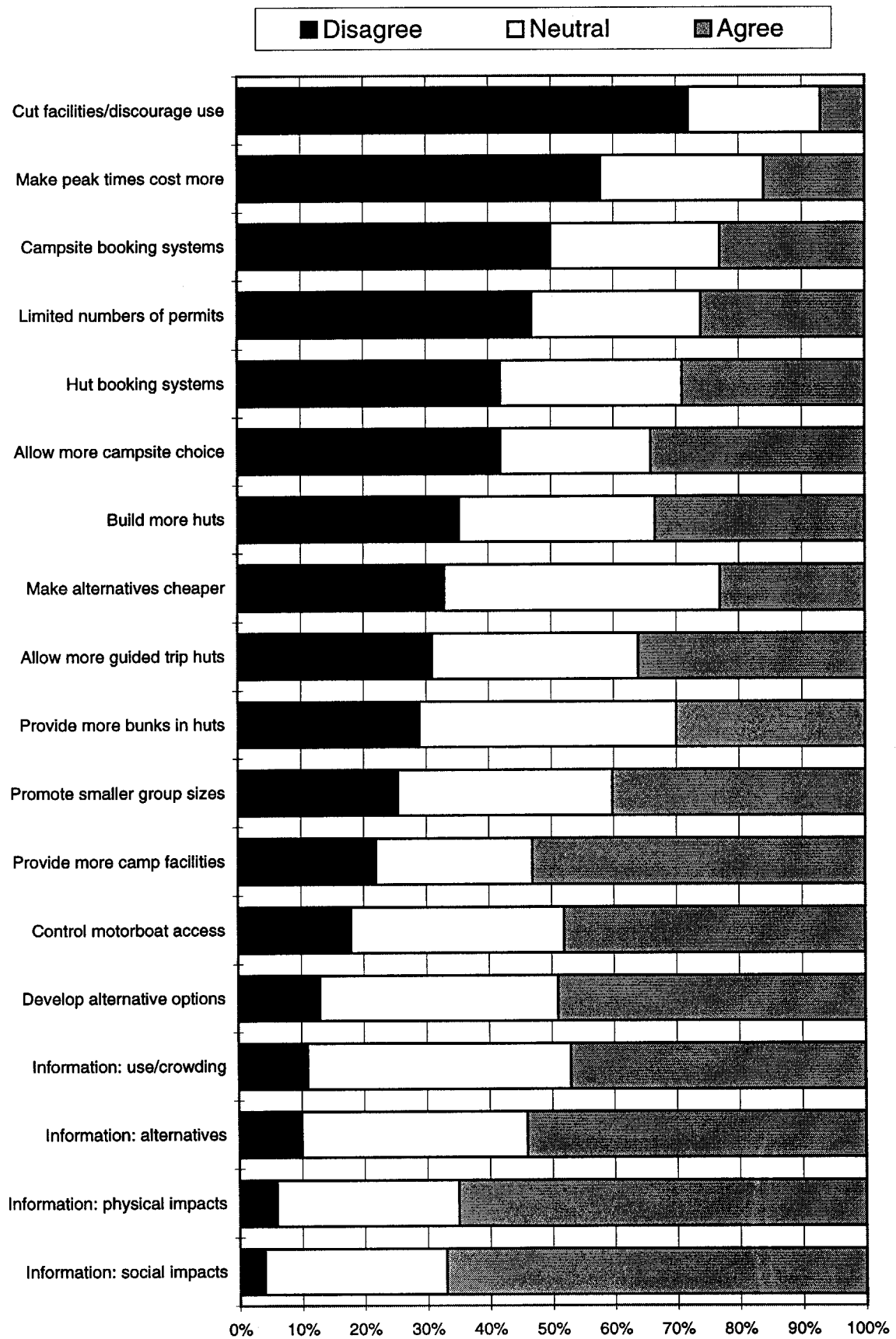
FIGURE 9. MANAGEMENT PREFERENCE RESPONSES.