

SCIENCE & RESEARCH SERIES NO.97

**CANOEING AND CROWDING
ON THE WHANGANUI RIVER**

by

Gordon Cessford

Published by
Head Office,
Department of Conservation,
P O Box 10-420,
Wellington,
New Zealand

ISSN 0113-3713
ISBN 0-478-01771-5

© December 1995, Department of Conservation

Cataloguing-in-Publication data

Cessford, Gordon R. (Gordon Robert), 1962-
Canoeing and crowding on the Whanganui River / by Gordon Cessford.
Wellington, N.Z. : Dept. of Conservation, 1995.
1 v. ; 30 cm. (Science & Research series, 0113-3713 ; no. 97.)
Includes bibliographical references.
ISBN 0478017715
1. Canoes and canoeing--New Zealand--Whanganui River. 2.
Whanganui River (N.Z.)--Recreational use. I. New Zealand. Dept. of
Conservation. II. Title. III. Series: Science & research series ;
no. 97.
797.122099354 20
zbn96-006970

Keywords: canoeing, wilderness, river experiences, crowding, encounter levels, summer, Easter, user survey, Whanganui National Park

CONTENTS

PREFACE	v
ABSTRACT	1
1. INTRODUCTION	1
1.1 Study setting	1
1.1.1 Recreation on the Whanganui River	1
1.1.2 Potential management problems	3
1.2 Study objectives	5
2. METHODOLOGY	7
2.1 Visitor survey	7
2.2 Visitor counting programme	7
2.2.1 Shore counts	7
2.2.2 River patrol counts	8
2.2.3 Trip intention records	8
2.3 Application and response	8
3. VISITOR DESCRIPTION	9
3.1 Individual characteristics	9
3.2 Group characteristics	9
3.3 Indications of use trends	10
3.4 Discussion points	11
4. FEATURES OF THE TRIP EXPERIENCE	13
4.1 Reasons for choice of river	13
4.2 Importance scores for river trip features	14
4.3 Discussion points	15
5. SATISFACTIONS	16
5.1 Overall satisfactions	16
5.2 Summer and Easter canoeist satisfactions	17
5.3 Discussion points	17
6. IMPACT PERCEPTIONS	19
6.1 Overall impact scores	19
6.2 Physical impact perceptions	19
6.3 Facility/capacity impact perceptions	22
6.4 Crowding/conflict perceptions	22
6.5 Animal control impacts perceptions	23
6.6 Discussion points	23
7. CROWDING PERCEPTIONS	24
7.1 Crowding scores	24
7.2 Crowding locations	25
7.3 Encounter preferences	25
7.3.1 On-river encounters	26
7.3.2 Encounters at overnight sites	27
7.4 Discussion points	29
7.4.1 Crowding scores	29
7.4.2 On-river encounter levels	29
7.4.3 Overnight site encounter levels	30

8.	CROWDED versus UNCROWDED CANOEISTS	31
8.1	Crowded canoeists and satisfactions	31
8.2	Crowded canoeists and impact perceptions	31
8.3	Crowded canoeists and encounter preferences	32
	8.3.1 On-river encounters	32
	8.3.2 Overnight site-sharing	34
8.4	Discussion points	35
9.	DISCUSSION AND RECOMMENDATIONS	38
9.1	Carrying capacity	38
	9.1.1 Facility capacity	38
	9.1.2 Social capacity	39
9.2	Management recommendations	40
9.3	Recommendations to improve management information	41
9.4	Recommendations to reduce impacts	42
10.	ACKNOWLEDGEMENTS	44
11.	REFERENCES	45
APPENDIX 1	Visitor count results and tables	47
APPENDIX 2	Questionnaire and briefing notes	60
APPENDIX 3	Research timetable record	70
APPENDIX 4	Visitor use patterns	74
APPENDIX 5	Summary tables (impact/crowding)	81
APPENDIX 6	Crowding tables and other results	85
APPENDIX 7	Encounter level results	88
APPENDIX 8	Estimated campsite/hut capacities.	94

PREFACE

Since the research data for this study was collected over the 1991/92 summer season, there have been a number of changes along the Whanganui River. Some of these have resulted in conditions applying on the river today which were not present at the time of the survey. These changes include implementation of a new visitor charging/impact management system, development of some camping facilities and closure of others, increased awareness of cultural issues and associated management requirements, and changes in waste management. The major changes are described briefly below.

- Management of canoeing trips on the river as the 'Whanganui Journey', as part of the national 'Great Walks' network, commenced in October 1993. This system was accompanied by designation of specific campsites for river users and improvement to water and toilet facilities. Some new campsites were formed, while many existing sites were expanded. Informal camping at ad-hoc sites along the river within the national park was prohibited.
- Camping in the Puketapu area, previously a popular campsite, was prohibited due to its wahi tapu status. Other sites are also under such consideration (Appendix 6).
- The Tieke hut and adjacent campsite was occupied by Whanganui River Iwi in late 1993, and has since been recognised as a marae by the Department. Continued use of the site by visitors, in accordance with marae protocol, has been ongoing. Other cultural issues along the river are also becoming more prominent.
- The treatment of sewage discharges from Taumaranui into the Whanganui River has been substantially improved, removing the main source of perceived river pollution and hygiene concerns.
- A High Court ruling in Electrocorp's appeal of the Planning Tribunal's decision on minimum flow levels for the Whanganui River, required that minimum water flows be increased, resulting in an improvement in water volumes and clarity.
- A hunting ban now exists for the 'Whanganui Journey' season (1 October-30 April), reducing the likelihood of seeing dead animals in or beside the river.

These changes have affected the specific trip patterns and sites used by canoeists since data were gathered. However, the bulk of the results of this study relating to canoeist experiences and crowding perceptions remain applicable.

CANOEING AND CROWDING ON THE WHANGANUI RIVER

by

Gordon Cessford

Science and Research Division, Department of Conservation, Wellington

ABSTRACT

This report summarises the results of visitor research undertaken on the Whanganui River, over the summer season, 1991/92. It describes the canoeists using the river, including their motivations, satisfactions, and perceptions of impacts and crowding. The impact and crowding perceptions indicate that, while summer use-levels and experiences are acceptable to canoeists, their recreation experiences during Easter are more compromised. The higher impact and crowding experiences at Easter indicate that the 'recreational carrying capacity' of this trip experience is being exceeded at that time. If managers wish to sustain the quality of current trip experiences for summer canoeists as their use-levels increase towards those characteristic of Easter, further management actions to counter the higher impact and crowding perceptions will be required. While a specific carrying capacity can not be specified by research alone, the results of this research suggest that the use-levels and visit-experiences characteristic of Easter conditions provide a good model to work with.

1. INTRODUCTION

1.1 Study setting

The headwaters of the Whanganui River are in the central volcanic plateau of New Zealand's North Island. Its length of 290 km makes it New Zealand's third longest river. The gentle gradient and large volume of water also make it New Zealand's longest continually navigable river, passable for a distance of 234 km. It flows through Whanganui National Park (Figure 1) for 170 km, and these central **reaches**¹ of the river are characterised by a "trench", deeply incised into soft marine sediments, surrounded largely by a rugged, forested, inaccessible and sparsely inhabited landscape. For most of its length through the national park, the Whanganui River can be considered a "wilderness" river.

1.1.1 Recreation on the Whanganui River

The Whanganui River presents a unique recreational opportunity in New Zealand. It is distinguished from other river recreation opportunities by its length, its low level of technical difficulty (e.g., lack of rapids), its cultural and historical associations as a key transport route, and in its middle reaches by its largely un-modified natural state. River

1 Reference to the "Whanganui River" throughout this publication generally refers to this section only.

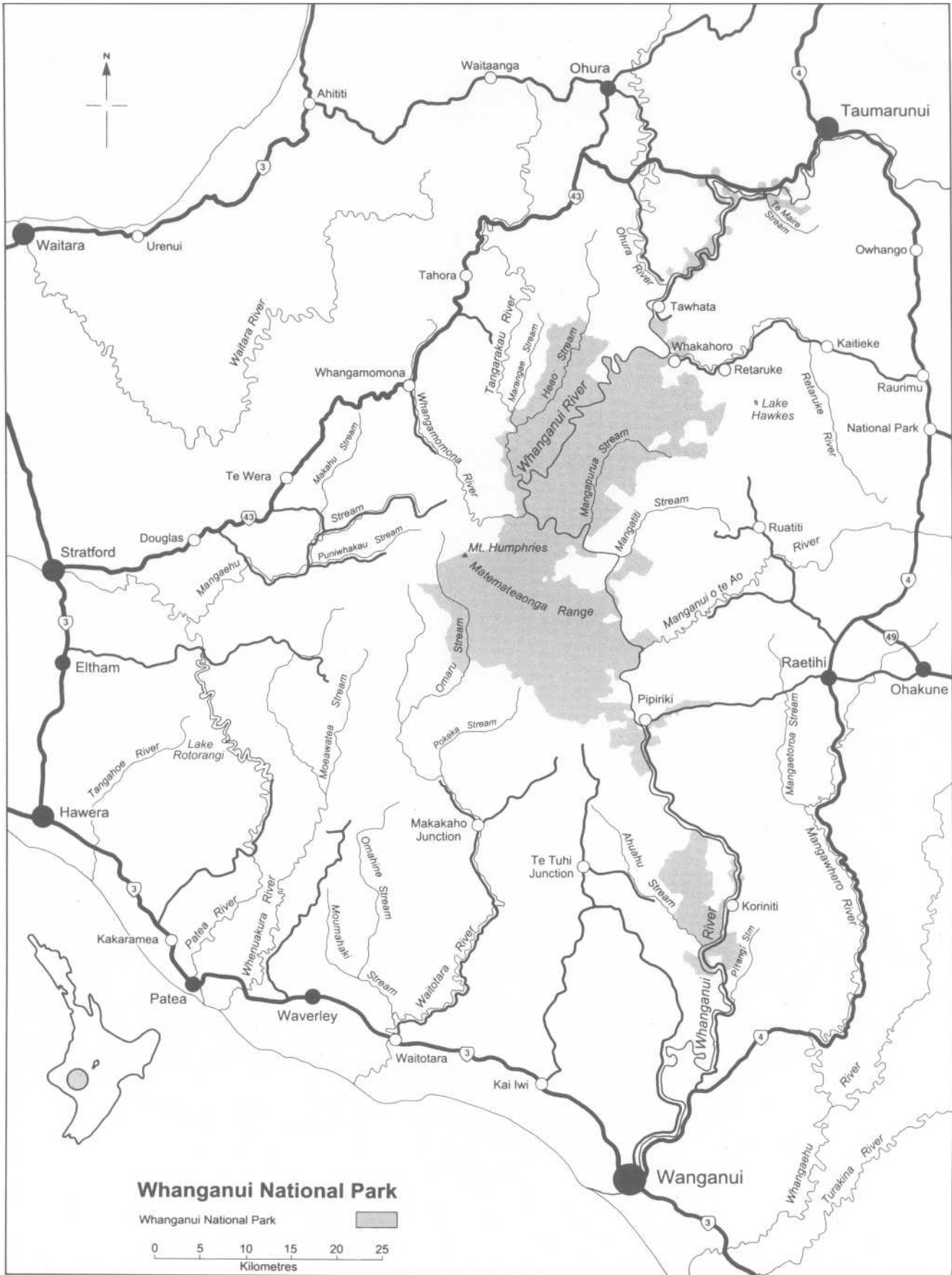


Figure 1 Whanganui National Park, and the river systems of the area.

recreation experiences here are characterised by river-travel activities (e.g., canoeing, rafting, jetboating), wilderness-type settings, and historical/cultural associations (Department of Conservation 1989). These factors have resulted in the Whanganui River becoming a popular location for multi-day trips in open (Canadian) canoes, and particularly for introducing novices to canoeing. In fact, it is considered the most canoed river in New Zealand.

However, its popularity has resulted in increasing use levels over recent years. Estimates of up to 2,000 users per year were made quite consistently up to 1989 (Devlin et al. 1980; Baxter and Sandrey 1986; Department of Conservation 1989), but revised estimates from park managers suggest that numbers may have increased by as much as 100% since then (Hormann, Lythgoe, DoC, pers. comm.). Park managers expect use levels to continue increasing, and that an increasing proportion of future use will be from overseas visitors.

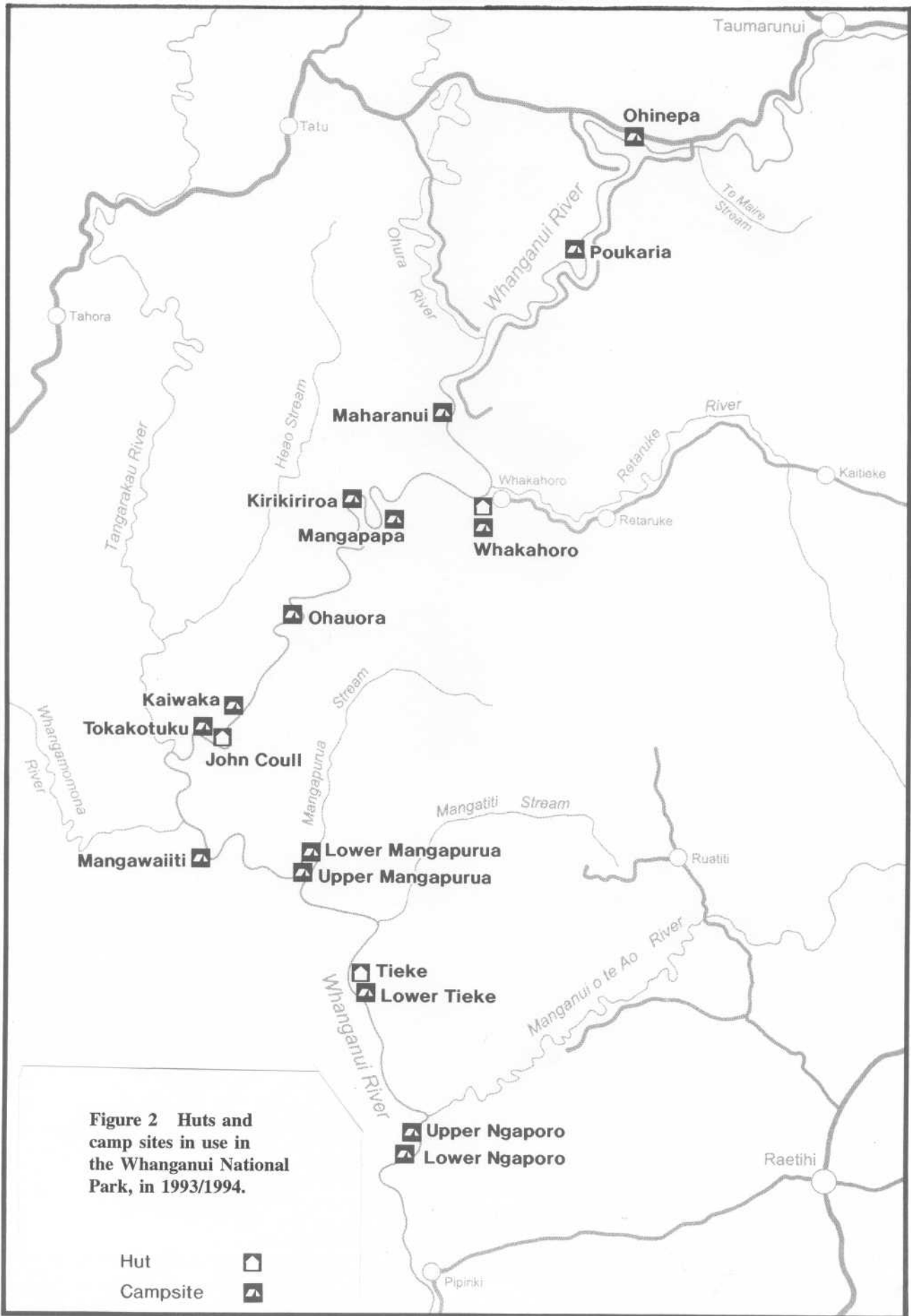
Although overseas visitor numbers have not been high to date (<10%), the combination of an 'un-discovered' unique trip opportunity (a multi-day, easy, wilderness canoe trip), and an established and growing support infrastructure (availability of rental equipment and transport links), presents an attractive addition to a New Zealand experience. This is especially the case given an overall increase in tourist numbers to New Zealand, their increasing 'independent' style of travel and activity, and the growing emphasis upon 'adventure' and 'nature' experiences.

Current recreation-use management on the Whanganui River involves the provision and maintenance of huts, campsites, tracks and information signs (Figure 2). These provide a means of minimising the impacts of use, and enhancing the quality of visitor experiences. There are three huts, 12 formal campsites (with toilets and water provided), and some opportunities for informal camping. There are two major tramping tracks adjoining the river, and numerous other small tracks leading to riverside attractions (Figure 2). The river trip is divided into two sections based upon entry and exit points. Some trips commence at or near Taumarunui and proceed to Whakahoro (Top Section). Here some may exit the river, but most continue on down to Pipiriki along with those entering at Whakahoro (Bottom Section). The whole trip generally takes between 3 to 6 days, with the bottom section alone taking between 1 to 3 days. Sightseeing stops are often made at Maraekowhai (to view historic Niu Poles); Kirikiriroa Steps (to access the viewpoint); and at Mangapurua Landing (to access the "Bridge to Nowhere"). However, part of the attraction of Whanganui River trips is flexibility in trip planning, which results in numerous other landings being made for camping and sightseeing.

1.1.2 Potential management problems

Anticipated problems in managing for increasing user numbers on the Whanganui River include:

1. **Physically limited opportunities for camping.** Riverside areas suitable for camping and facility location are limited by the lack of flat sites in the incised gorges, and the potential flood hazard to many of those sites that do exist.



2. **Problems of suitable waste disposal.** Because of the limited sites available, the current use is already concentrated. Increasing use is likely to intensify existing pressures on toilet and other waste disposal.
3. **Availability of clean drinking water.** The river carries a naturally high sediment-load, which has been increased by upstream forest and agricultural land management practices, and the diversion of many clear headwater inflows into the Tongariro River Power Development Project. Upstream towns have also in the past discharged only partially treated waste into the river², and in past studies the visitors have indicated a perception that the water was unhygienic (e.g., Devlin et al. 1980). In addition, viable campsites are not always contiguous with clean tributary water sources.
4. **Potential for user crowding and use-conflict.** Limited camping opportunities present the possibility of physical or perceived crowding, particularly in bad weather when preference for hut use is at a premium. On-river perceptions of crowding or conflict are likely to be minimal among canoeists because of the one-way nature of the journey and the limited encounter-potential this represents. However, encounters with jetboats which are able to engage in both up- and down-river travel, and whose noise, speed and wash can be obtrusive, may be negative if their numbers also increase.

1.2 Study objectives

This report concludes research undertaken to address the problems of user crowding and conflict in particular, although it also included establishment of baseline monitoring through a visitor counting programme. The original objectives of this research were:

1. To determine the current level and nature of recreational use of the Whanganui River Trench (e.g., visitor numbers, visitor profile characteristics, trip patterns, activity types).
2. To assess the degree of user satisfaction regarding the provision of recreation facilities on the river (e.g., huts, campsites, tracks).
3. To assess user perceptions of any physical and social impacts from recreation use (e.g., impact perceptions, crowding, conflict).
4. To define a sustainable recreational carrying capacity for the Whanganui River Trench and make recommendations regarding future management.

All but objective 4 were addressed specifically by this research. The carrying capacity objective differs from the others because achieving it is not just a matter of asking a traditional research question. The subjective judgement nature of social capacity levels,

² Changed sewage management at Taumaranui subsequent to the data collection for this study have reduced the actual problem.

together with the importance of an expert role for managers, mean that a consultative process is required for social impact assessments. This incorporates the interpretation of research results, and the informed judgements of researchers, managers and users. This ongoing interactive research/management approach is often referred to as 'action research' or 'research by management'.

2. METHODOLOGY

Data collection employed a visitor counting programme and a questionnaire-based visitor survey. When combined these covered the data requirements of this study. Appendix 1 documents the counting programme, and Appendix 2 presents the counting forms and survey questionnaire.

2.1 Visitor survey

Previous recreation surveys on the Whanganui River used postal-questionnaire samples drawn from 'Intentions Book' registrations (e.g., Devlin *et al.* 1980; Baxter and Sandrey 1986). Limitations inherent in achieving a representative sample and an adequate response rate from postal surveys have been reduced here, with questionnaires being administered and collected on-site by volunteer but wardens located at a key overnight site.

People staying overnight at Tieke but (Figure 2), where approximately 70% of river-trip visitors spend the last night of their trip (Lythgoe, DoC, pers. comm.), were given questionnaires to complete and return. The volunteer but wardens were given instructions to include all but users and nearby campers in the survey each night. Each individual was required to complete the questionnaire (group or group-leader responses were not acceptable). Selective sampling techniques were not practical given the demands this would have made upon the volunteer staff, and given the need to achieve an adequate number of responses during the three-month survey period (January-March, Easter).

In summary, the visitor survey questionnaire:

- was applied at Tieke but (last overnight stop on river)
- was administered to all but users on every night possible
- provided information on visitor profiles, trip patterns, motivations, satisfactions, impact and crowding perceptions and management preferences

2.2 Visitor counting programme

Two approaches were used to collect the necessary information on visitor numbers and their group characteristics. Results and discussion of these are presented in Appendix 1.

2.2.1 Shore counts

Other than a few users who exited the river upstream at Whakahoro (Figure 2), all passed by John Coull but on their trip. As well as having a less impeded view of the river than at Tieke hut, John Coull but was a common site for groups to stop for a break, if not actually staying overnight (Hormann, DoC, pers. comm.). Volunteer but wardens were asked to count users seen each day, recording details of group size, craft type and time seen. These counts provided a continuous daily record of those canoeists seen passing this point on the river.

Another part of the counting programme was based at Tieke hut. As well as administering the questionnaire to hut occupants each evening, Tieke volunteer wardens were requested to record the numbers of people seen bypassing the hut. This would indicate how many river users were being missed by the questionnaire approach, and would provide extra information for estimating total-use estimates on the river from Tieke hut records. However, Tieke hut is in an unfavourable position for viewing the river, and resulting count records were expected to be more intermittent than those at John Coull hut.

In summary, the shore counts:

- included a continuous daily count of users seen passing by John Coull but
- included a count of users seen bypassing Tieke but (when counts were possible)
- provided information on visitor numbers and group characteristics

2.2.2 River patrol counts

Departmental staff do twice-weekly river patrols by jetboat to check facilities and river condition, resupply huts, and move staff as required for tasks on the River. On each patrol day, usually Tuesday and Friday, one boat travels downstream from Taumarunui, and another upstream from Pipiriki (Figure 2). This provides coverage of the entire river section contained within Whanganui National Park. On these patrols, Departmental staff recorded user numbers, group sizes, craft types and numbers, and made general observations on the recording forms provided. These counts provided a regular periodic census of all river users. These data allowed estimates of total use to be made, and add to the interpretation of data collected through the shore based counts.

In summary, the river patrol counts:

- counted and described all river-users on the river
- represented a regular census of users
- provided information on visitor numbers and group characteristics

2.2.3 Trip intention records

In addition to the visitor counting programme, use-level monitoring was also possible from the "Intentions" forms filled in by canoeist groups at Cherry Grove, Taumaraunui. These forms record the group's size and trip duration.

2.3 Application and response

The structure and timetable of the research programme is summarised in Appendix 3. The overall study period covered 91 days, comprising 87 during summer (6 December-8 March), and 4 during Easter (17-20 April). Peak-use periods occur over the holiday period of summer (26 December-31 January), and in a short intense peak during Easter. Questionnaires were distributed on 39 days, resulting in a final sample size of 331 respondents, including 64 at Easter. Counts at John Coull but were made on 70 days (3 at Easter), at Tieke but on 24 days (3 at Easter), and during complete river patrols on 23 days.

3. VISITOR DESCRIPTION

3.1 Individual characteristics

The descriptive profile of Whanganui River canoeists (Table 1) displays those features generally characteristic of active outdoor recreation groups (e.g., over-representation of young ages/males/high status types of occupations/students/urban **dwellers**)³. But here, some of these distinctive outdoor recreationist characteristics are less pronounced than is usually the case for other activity types. While Whanganui River canoeists are distinct from the national population, they are more representative of that population than are other outdoor activity groups (e.g., walkers on the Great Walks, Figures 1 and 2).

3.2 Group characteristics

Group sizes on the river were higher than those observed on most tramping tracks. Table 2 shows over 60% of canoeists were in groups of more than 5 people, with median group size being between 6-10 people. The counting programme also identified an average group size of 6-10 people (refer Appendix 1).

Approximately half (56%) of the groups comprised families and/or friends, with 25% also stating there were children included in their groups. There were also 22% (n = 73) who indicated that they were on guided trips. This represented only 10% of all those doing guided trips during the study period (763 recorded, Hormann, DoC, pers. comm.), indicating that a high proportion of guided trips used campsites rather than huts. Many guided canoeists were missed since the survey sampling site was a hut.

Table 1 Visitor profile characteristics.

Age (years)	%	Gender	%
Under 20	24	Male	64
20-29	27	Female	36
30-39	18		
40-49	20	Nation	%
50-59	8	New Zealand	88
Over 60	3	Overseas	12
Occupation	%	NZ Home	%
Professional/Technical	28	Auckland City	33
Student	24	Manawatu/Horowhenua	21
Labour/Transport	11	Wellington	11
Agriculture/Forestry	10	Taranaki	11
Other work	15	Waikato/Bay of Plenty	7
Home Duties	4	Central North Island	6
Retired	3	Other Auckland	4
Other	5	Wairarapa/Hawkes Bay	4
		South Island	3

³ These are consistent with the overseas and New Zealand results reviewed in Chapter 3 of Cessford (1987), and Section 8.8.2 of Shultis (1991).

3.3 Indications of use trends

Comparison of 1992 results with earlier studies in 1978 (Devlin et al. 1980) and 1985 (Baxter and Sandrey 1986), and later data from the 1993/94 Whanganui River summer season,⁴ indicates some change in the types of canoeists present. These comparisons are summarised in Table 3, and in Figures 3 and 4.

These results suggest that the Whanganui River canoeist population has become more diverse in the last 14 years. Overall, it does appear that canoeist age-ranges have broadened, more females are participating, more children are being carried, craft type has shifted to predominantly use of Canadian canoes, and overseas visitors are

Table 2 Visitor group characteristics.

Group size	%	Group children	%
2	11	Yes	25
3-5	22	No	75
6-10	34		
11-15	22	Craft type	%
> 16	11	Canadian Canoe	53
		Canoe and Kayak	37
Group type	%	Kayak only	6
Friends only	33	Motor Boat	2
Guided Group	22	Other	1
Family/Friends	15		
Family only	8	Hire craft	%
Work trip	6	Yes	79
Couple	5	No	21
Other	11		

Table 3 Comparisons with previous canoeist characteristics.

Age	1978	1985	1992	1994	Children	1978	1985	1992
z 20	23	15	24	29	Yes	14	-	25
20-29	42	33	27	16	No	86	-	75
30-39	16	21	18	18				
40-49	13	22	20	23	Craft			
> 50	6	9	11	13	Kayak only	48	-	6
Gender					Canoe only	36	-	53
Male	84	77	64	62	Kayak/Canoe	13	-	37
Female	16	23	36	38	Motorboat	3	-	2
Nation					Other	4	-	1
N.Z.	100	100	88	86				
Other	0	0	12	14				

⁴ Another visitor survey was undertaken on the Whanganui River as part of the 'Great Walks' visitor study (Cessford, in press).