



Ministry for the
Environment
Manatū Mō Te Taiao

Water Bodies of National Importance

Potential Water Bodies of National Importance for Recreation Value

Published in December 2004 by the
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10-362, Wellington, New Zealand

ISBN: 0-478-18974-5
ME number: 559

This document is available on the Ministry for the Environment's website:
www.mfe.govt.nz



Contents

Executive Summary	v
1 Introduction	1
1.1 Background	1
1.2 Purpose	1
1.3 Scope	2
2 Methodology	3
2.1 Overview	3
2.2 Targeted internet survey of recreationalists	3
2.3 Random telephone survey	4
2.4 Summary and review of existing information	5
2.5 Analysis of information	5
3 Results	6
3.1 Potential water bodies of national importance for recreation	6
3.2 Regional break-down	8
3.3 Sources of information on water bodies	9
4 Discussion	10
4.1 The recreational use of freshwater	10
4.2 National phone survey	11
4.3 Internet survey	11
4.4 Whitebaiting	11
4.5 Wetlands	12
4.6 Angling information and water conservation orders	12
4.7 Geographic coverage	12
5 Conclusion	13
Appendices	
Appendix 1: Potential water bodies of national importance for recreation	14
Appendix 2: Recreation groups targeted for internet surveying	22
Appendix 3: References and document information sources	23
Appendix 4: Current water conservation orders	24
Appendix 5: Whitebaiting information – summary of sources	25

Tables and Figures

Table 1:	Potential water bodies of national importance for recreation	6
Table 2:	Water bodies identified for potential national importance according to information source	9
Figure 1:	Regional distribution of water bodies identified in Table 1 as potentially nationally important for recreation	9

Executive Summary

This project is part of the Water Bodies of National Importance project, which is part of the Government's Water Programme of Action. This report presents a list of 105 potential freshwater bodies of national importance for recreation, including lakes, rivers and wetlands.

The study includes all forms of recreation in and around whole or parts of freshwater lakes, rivers and wetlands, where freshwater is important for recreational activity. It does not cover estuaries, ocean beaches or saltwater lakes, although we have included some freshwater-influenced estuaries if they are identified as closed off from the sea.

The list was created through surveys of active recreationalists and the general public, plus a review of existing information on recreational values of national significance, including statutory recognition provided through water conservation orders. Useful input also came from discussions with representatives of recreational groups.

Public input is now sought through consultation in 2005 on the methodology developed to identify a proposed list of water bodies identified as nationally important for recreation.

1 Introduction

1.1 Background

Recreation based around freshwater is a significant part of the New Zealand way of life. In a recent survey (BRC, 2004b), 79% of New Zealanders identified themselves as recreational users of freshwater.

However, recreational use of freshwater has not been widely studied at a national level. One survey identified only four significant reports completed since the mid-1990s (APR Consultants, 2003), although there were several comprehensive, national-level studies conducted during the 1980s focusing on recreational potential (Egarr and Egarr, 1981; National Water and Soil Conservation Organisation, 1982).

1.2 Purpose

The Water Programme of Action, co-ordinated by the Ministry for the Environment and Ministry of Agriculture and Forestry, is a project aimed at examining how we should fairly use, protect and preserve water. One of the three major components of the Water Programme of Action is to identify water bodies of national importance (WoNI). The overall aims are to:

- look at how to identify water bodies of national importance for a range of values, including natural heritage, recreation, cultural and historic heritage, irrigation, energy, industry and domestic use, and tourism
- compile a list of freshwater bodies for each of the values identified above
- secure nationally important natural, economic, social and cultural values of water bodies.

The purpose of this report is to identify potential freshwater bodies of national importance for *recreation value*. The main objectives of this project are to:

- develop a methodology to identify potential freshwater bodies of national importance for recreation
- compile a list of potential freshwater bodies for recreation.

1.3 Scope

This report, alongside the other reports for each of the seven water bodies of national importance sub-projects, is intended to provide a starting point for you to provide us with feedback on how to identify freshwater bodies that are nationally important for recreation.

Recreation means different things to different people. Our study includes all forms of recreation in and around whole or parts of freshwater lakes, rivers and wetlands where freshwater is important for recreational activity. It does not cover estuaries, ocean beaches or saltwater lakes, although we have included some freshwater-influenced estuaries if they are identified as closed off from the sea. This report does not cover areas of importance for commercial fisheries or customary fishing.

Appendix 2 lists the names of recreational organisations contacted, which indicates the types of recreation for which we specifically sought information.

2 Methodology

2.1 Overview

Recreational stakeholders were initially surveyed through phone calls to identify key freshwater recreational groups, the values important for their recreational pursuits and the specific water bodies concerned.

A project methodology was then developed comprising:

- a targeted *internet survey* of recreationalists who are members of national recreational groups (we expected this survey to provide a measure of the popularity of particular water bodies, as well as providing information about special or unique locations for particular forms of recreation)
- a random *telephone survey* of the public about their use of water bodies for specific types of recreation and recreational behaviour, and locations/destinations
- a *literature review* of existing information, including previous studies, statutory provisions, and information collected on particular forms of recreation.

We designed our surveys to obtain information from both the general public and recreational organisations. Tourist operators were not included (they are being covered by a separate WoNI project identifying tourism values). Additional information about the recreational use of wetlands and water will continue to be gathered through the 2005 consultation.

2.2 Targeted internet survey of recreationalists

A list of national recreational organisations was compiled in consultation with SPARC (Sport and Recreation New Zealand), Fish and Game New Zealand, the New Zealand Outdoor Recreation Association, and Outdoors New Zealand (see Appendix 2). These groups were also consulted on the best form of the survey. Freshwater recreational associations identified were then approached directly about their use of freshwater resources, and to gauge their interest in supporting the project.

Online surveying was identified as a relatively easy, fast and inexpensive way to collect information. An online internet survey was developed using Surveywriter¹ software and targeted at ‘active recreationalists’, national associations and groups representing recreational users of freshwater.

¹ Surveywriter online survey tool, www.surveywriter.com.

Following a pilot run of 10 recreationalists, we distributed the web link for the survey via the national representatives of recreational groups to their members and affiliates. We also advertised the survey on various web pages and in hard-copy publications, according to the best approach for each recreational organisation. The survey link was distributed to those members with email addresses.² The survey was made live for 20 days, from 27 January to 16 February 2004.

Some recreational groups are not represented in the results due to a lack of capacity to reach their members by email. Notable among these are whitebaiters and hunters, including duck shooters. Whitebaiting information has been included through existing information. The general public was not targeted for this survey.

We received 771 responses to the internet survey. The results were organised and tabulated using Surveywriter software. BRC Marketing and Social Research were contracted to analyse the data and produce a report (BRC, 2004a). A list of organisations contacted and details of this sampling method can be found in the full report (BRC, 2004a).

2.3 Random telephone survey

The telephone survey sampled the general public to obtain information about broader public views on water bodies of national importance for recreation. Much freshwater recreation in New Zealand occurs outside the activities and influence of organised groups and associations. Recreation is often 'general' in terms of how people actually interact with a water body, but the association with the water body is still crucial for the experience. We chose a nationwide random telephone survey of the public as our method.

BRC Marketing and Social Research were contracted to undertake the survey. BRC prepared a survey questionnaire based on that used for the internet survey, to allow the results to be compared. BRC piloted the questionnaire and made some minor adjustments before commencing the full survey.

For this survey, a national random sample of n=1041 freshwater recreational users³ from households with telephones were interviewed between 27 February and 7 March 2004. For statistical details of the sample and sample error, please refer to BRC 2004b. Interviewing was done by telephone from BRC's Wellington call centre.

² Privacy issues meant that these groups could not pass on membership information to the Ministry.

³ Interviewees were 15 years or older and had participated in a freshwater recreational interest or activity during the preceding two years.

2.4 Summary and review of existing information

We found existing information through internet and library searches, and through networking with other departments and recreation stakeholders. Existing information included some national and regional surveys of specific water bodies looking at general recreational values, and surveys of particular recreational activities relating to fresh water. We included information from national-level reports. Information considered but not used in this report is marked with an asterisk (*) in the references (Appendix 3).

The primary sources of information used to supplement that gathered from the surveys were:

- *Wetlands of National Importance to Fisheries* (Davis, 1987)
- *The Geography of Freshwater Angling in New Zealand: A summary of results from the 1994/96 National Angling Survey* (Unwin and Brown, 1998)
- *Angler Usage of Lake and River Fisheries Managed by Fish and Game New Zealand: Results from the 2001/02 National Angling Survey* (Unwin and Image, 2003)
- information on the most important water bodies for whitebaiting, provided by regional conservancies of the Department of Conservation and whitebaiting associations (Appendix 5)
- current water conservation orders (Appendix 4).

We have analysed this information and the results are included in the final list of freshwater bodies of national importance (Table 1).

2.5 Analysis of information

From the phone and internet survey information we included water bodies identified by 10 or more respondents. We then ranked these to identify the most used water bodies for particular activities.

The criteria used for inclusion of non-survey information were as follows:

- wetlands – those rated ‘A’ in *Wetlands of National Importance* (Davis, 1987)
- fishing – water bodies identified as having over 10,000 angler day visits in the 1994 or 2002 Fish and Game National Angling Surveys (Unwin and Image, 2003; Unwin and Brown, 1998)
- whitebaiting – the most important whitebaiting fishery water bodies as identified by Department of Conservation experts and representatives of whitebaiting associations (Appendix 5)
- water conservation orders – those specifying protection or preservation of recreational values (Appendix 4).

Information gathered through the internet and phone surveys, and relevant existing information, was then combined to produce a final list (summarised in Table 1, full table see Appendix 1) of water bodies of national importance for recreational use.

3 Results

3.1 Potential water bodies of national importance for recreation

We have identified 105 water bodies of potential national importance for recreation. The identified water bodies are listed according to region in Table 1, and then also by recreation type and information source in Appendix 1. This list includes 54 rivers, 30 lakes, and 21 wetlands, lagoons or inlets.

Table 1: Potential water bodies of national importance for recreation

Water body	Region
Kai Iwi Lakes	Northland
Kaimaumu block	Northland
Hikurangi Swamp	Northland
Pupuke Lake	Auckland
Mangaparo / Clarkes Swamp	Auckland
Mangatawhiri Swamp	Auckland
Whangamarino Swamp	Auckland
Taupo Lake	Waikato
Tongariro River	Waikato
Waikato River	Waikato
Karapiro Lake	Waikato
Tauranga/Taupo River	Waikato
Mokau River	Waikato
Motu River	Bay of Plenty
Rotorua Lake	Bay of Plenty
Blue Lake	Bay of Plenty
Rotoiti Lake	Bay of Plenty
Tarawera Lake	Bay of Plenty
Green Lake	Bay of Plenty
Rotoma Lake	Bay of Plenty
Ngongotaha Stream	Bay of Plenty
Aniwhenua Lake	Bay of Plenty
Mohaka River	Hawke's Bay
Waikaremoana Lake	Hawke's Bay
Ngaruroro River	Hawke's Bay
Pekapeka Swamp	Hawke's Bay
Tukituki River	Hawke's Bay
Wairoa River	Hawke's Bay
Ahuriri Estuary / Westshore lagoons	Hawke's Bay
Rangatikei River	Manawatu–Wanganui
Whanganui River	Manawatu–Wanganui
Manawatu River	Manawatu–Wanganui

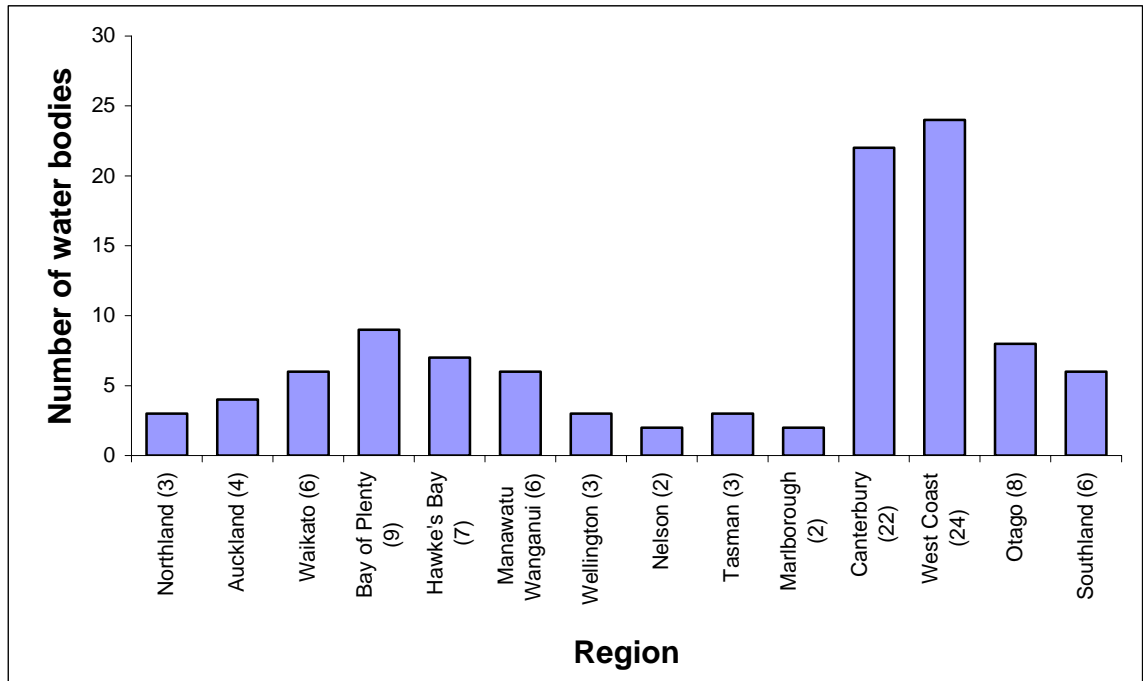
Water body	Region
Otaki River	Manawatu–Wanganui
Manganui o te Au River	Manawatu–Wanganui
Dune Lakes	Manawatu–Wanganui
Hutt River	Wellington
Kahangatera and Kohangapiripiri lakes and wetlands	Wellington
Wairarapa Lake	Wellington
Vernon lagoons	Marlborough
Wairau River	Marlborough
Delaware inlet	Nelson
Whanganui Inlet	Nelson
Nelson Lakes	Tasman
Motueka River	Tasman
Aorere River	Tasman
Tekapo Lake	Canterbury
Waimakariri River	Canterbury
Coleridge Lake	Canterbury
Avon River	Canterbury
Rakaia River	Canterbury
Rangitata River	Canterbury
Hurunui River	Canterbury
Clarence River	Canterbury
Benmore Lake	Canterbury
Waitaki River	Canterbury
Ellesmere Lake and wetlands	Canterbury
Ahuriri River	Canterbury
Opihi River	Canterbury
Hurunui River	Canterbury
Aparima River	Canterbury
George Lake and Henderson extension	Canterbury
Oreti River	Canterbury
Pourakino River	Canterbury
Wolds Swamp	Canterbury
Aviemore Lake	Canterbury
Waiau River	Canterbury
Hororata River (lower)	Canterbury
Brunner Lake	West Coast
Buller River	West Coast
Karamea River	West Coast
Landsborough River	West Coast
Perth River	West Coast
Hokitika River	West Coast
Arahura River	West Coast
Grey River	West Coast
Awarua River and Waiuna Lagoon Big Bay	West Coast
Birchfield Swamp	West Coast
Hermitage Swamp	West Coast
Okarito Lagoon	West Coast
Okura/Turnbull/ Hapuku Lagoon	West Coast
Tawharekiri Lakes complex Waita mouth	West Coast

Water body	Region
Cascade River	West Coast
Waiatoto River	West Coast
Moeraki River	West Coast
Mikohinui River	West Coast
Wanganui River	West Coast
Arawata River	West Coast
Paringa River	West Coast
Okarito Lagoon	West Coast
Owowaiti estuary and wetlands	West Coast
Saltwater Lagoon	West Coast
Wakatipu Lake	Otago
Wanaka Lake	Otago
Clutha River	Otago
Hawea Lake	Otago
Blueskin Bay	Otago
Dunstan Lake	Otago
Kawarau River	Otago
Taieri River	Otago
Hollyford River	Southland
Te Anau Lake	Southland
Mataura River	Southland
Manapouri Lake	Southland
Waituna lagoon and wetlands	Southland
Titiroa River	Southland

3.2 Regional break-down

Figure 1 shows the regional distribution of water bodies of national importance for recreation. Thirty-eight potential water bodies of national importance for recreational value were identified in the North Island and 67 in the South Island. By region, the most water bodies were identified in Canterbury (22) and the West Coast (24).

Figure 1: Regional distribution of water bodies identified in Table 1 as potentially nationally important for recreation



3.3 Sources of information on water bodies

Table 2 shows the numbers of water bodies identified from different information sources.

Table 2: Water bodies identified for potential national importance according to information source

Information source	Number of water bodies identified	Reference
Internet survey recreational organisations – water bodies identified by over 10 people	27	BRC, 2004a
Phone survey – water bodies identified by over 10 people	28	BRC, 2004b
Water conservation orders	12	Appendix 3
Whitebaiting information	29	Appendix 4
<i>Wetlands of National Importance</i>	26	Davis, 1987
2001/02 angling survey – over 10,000 angling days recorded	Single river 28 Whole catchment 4	Unwin and Image, 2003
1994/96 angling survey – over 10,000 angling days recorded	25	Unwin and Brown, 1998

4 Discussion

4.1 The recreational use of freshwater

The value of freshwater for recreation depends on the needs of various recreational activities. These range from low-cost, low-energy, low-skill-required, convenient activities that do not require specific water qualities (eg, picnicking or walking beside a lake), to activities that are relatively higher cost, require a high level of technical skill and equipment, and are more expensive and time demanding (eg, white-water kayaking). The latter activities often require more specific water body conditions, such as high water quality, rapids, gear set-up areas, or good-sized fish.

This project aimed to gather information from the full range of different freshwater recreational activities. The water bodies listed in Table 1 are from a range of information sources, intended to cover most types of freshwater recreation in New Zealand.

As a result, we have identified two predominant types of water bodies of national importance for recreation:

- those that are easily accessed, close to population centres, and consequently highly used
- those that are relatively isolated from population centres, difficult to access and used by few people, but which provide an exceptional recreation experience for specific forms of recreation.

These differences exist both between general types of recreation (identified through the phone survey (BRC, 2004b) and for specific forms of recreation (identified through members of recreational associations in the phone survey). For example, some people fish for relaxation at the most convenient water body, while others seek out a unique experience at remote and technically difficult locations.

These differences in the levels of expectation and appreciation of water bodies make it very problematic to produce a combined, ranked list of water bodies that reflects comparable value for all forms of recreation. A water body may be especially important for recreation for a number of reasons, but the main reasons appear to be location and type of water body.

- *Location* – water bodies located close to population centres are more highly used (eg, Taupo) than water bodies that are relatively isolated from population centres. However, although locations that are difficult to access may only be used by a few people, they may provide an exceptional recreation experience for specific forms of recreation (eg, Mokau River).
- *Type of water body* – a water body also has value for the specific type of recreation it provides, including:
 - unique water body conditions (eg, white-water kayaking can only be done on certain rivers)
 - specific in-stream water qualities (eg, salmon fishing can only be done at specific locations).

Water bodies identified through the phone and internet surveys have been ranked. Rankings are based on level of use rather than any perceptions our respondents had on their national importance. We were unable to rank water bodies identified within the full list (Appendix 1).

4.2 National phone survey

The phone survey (BRC, 2004b) provided information predominantly about the use of water bodies for low-cost, low-energy, low-skill-required, convenient activities that do not require specific water qualities. This survey therefore tended to identify water bodies close to population centres, easy to access and popular for a range of activities. Twenty lakes and 10 rivers were identified by more than 10 respondents. The most popular recreational activities identified were walking, general sightseeing, picnicking, swimming and fishing.

Lake Taupo (Waikato) was the water body most often identified in the phone survey, mentioned by 250 people as the most popular water body for a range of recreational activities (BRC, 2004b). We attribute this to its central location for a number of population centres, size, the ease of access to water in many places, its range of conditions, and the water quality required for different recreational activities. Rotorua Lake (Bay of Plenty) was the second most identified water body in this survey, and Lake Wakatipu (Otago) the third.

4.3 Internet survey

There was some overlap (10) of water bodies identified in the phone and internet surveys, but generally the surveys identified water bodies of value to different recreational user groups.

The internet survey (BRC, 2004a) provided information predominantly about the use of water bodies for activities that are relatively higher cost, require a high level of technical skill and equipment, and are more expensive and time demanding. Nineteen rivers and seven lakes were identified in this survey. The Motu River (Bay of Plenty) was the most popular water body, the Buller River (West Coast) was second most popular, and Lake Waikaremoana (Hawke's Bay) third.

Canoeists and kayakers appear to be well represented in the survey results, probably due to the high level of organisation of their national representative body and a high level of response to the opportunity to influence national policy. As a result, the water bodies identified in the internet survey strongly reflect canoeing and kayaking values.

4.4 Whitebaiting

Whitebaiting information was found through the internet and phone surveys, and through existing information. Fishers accounted for 14% of total recreationalists, both in our internet survey (BRC, 2004a) and in the phone survey (BRC, 2004b). However, 14% of the fishers identified in the internet survey were whitebaiters, while 32% of the fishers in the phone survey identified themselves as whitebaiters. We also sought additional information from Department of Conservation experts and representatives of whitebaiting associations (Appendix 5). Twelve water bodies were identified for whitebaiting only.

4.5 Wetlands

Twenty-one wetlands, lagoons or inlets have been identified for potential national importance for recreation in Table 1. We have also included additional information from the *Wetlands of National Importance to Fisheries* report (Davis, 1987). We expect consultation to strengthen our information for wetlands, particularly for the hunting of waterfowl.

4.6 Angling information and water conservation orders

Freshwater bodies important for angling, as identified in fish and game angling surveys (1994, 2002), were found to be consistent with water bodies that have water conservation orders (Appendix 4), and those identified in the phone and internet surveys. Because many of the water bodies identified from these information sources cross-match consistently, we consider the angling information to be robust.

4.7 Geographic coverage

The potential water bodies of recreational value identified through this project reflect a range of water bodies and recreation activities throughout New Zealand. The list includes rivers, lakes and wetlands from all regions except Gisborne. No water bodies were identified as meeting criteria for potential national importance for recreation in the Gisborne region. As regions have different numbers, types and sizes of water bodies, we expected water bodies identified as potentially nationally important for recreation to vary between regions.

5 Conclusion

This report identifies potential water bodies of national importance for recreation. We developed a methodology to provide primary information about a range of recreational uses of freshwater. The methodology included:

- a targeted internet survey of recreationalists who are members or affiliates to national recreational groups. We expected this survey to provide a measure of the popularity of particular water bodies as well as providing information about special or unique locations for particular forms of recreation
- a random telephone survey of the public about use of water bodies for specific types of recreation, recreational behaviour, and locations/destinations
- a literature review of existing information, including previous studies, statutory provisions and information collected by other parties on particular forms of recreation.

We have produced a list of 105 freshwater bodies that are considered to be potentially nationally important for recreation (Table 1). This list provides a starting point for consultation.

Appendix 1: Potential water bodies of national importance for recreation

Water body	Region	User numbers phone survey	Rank: user numbers phone survey	User numbers internet	Rank: user numbers internet	Activities ranked phone survey	Activities ranked internet survey	Other existing information
Kai Iwi Lakes	Northland	31	8			Canoeing or kayaking 6 Caving or potholing 1 Fishing 15 General sightseeing 11 Picnicking 6 Swimming 2 Tramping 1 Walking 17 Water skiing, wake boarding 6		
Kaimaumau block	Northland							Wetland of national importance to Fisheries
Hikarangi Swamp	Northland							Wetland of national importance to Fisheries
Pupuke Lake	Auckland	13	25			Fishing 24 General sightseeing 8 Jet skiing 1 Swimming 19 Walking 17 Other 5		
Mangaparo/ Clarkes Swamp	Auckland							Wetland of national importance to Fisheries
Mangatawhiri Swamp	Auckland							Wetland of national importance to Fisheries
Whangamarino Swamp	Auckland							Wetland of national importance to Fisheries
Taupo Lake	Waikato	250	1	18	11	Canoeing or kayaking 1 Fishing 1 Scuba diving / snorkelling 1 Water skiing, wake boarding 1 Yachting 1 Bird watching 1 General sightseeing 1 Jet boating 1 Jet skiing 1 Picnicking 1 Swimming 1 Tramping 1 Waka ama paddling 1 Walking 1 Yachting 1 Other 1 Mountain biking 1	Canoeing or kayaking 20 Fishing 11 Rowing 1 Scuba diving / snorkelling 1 Tramping 9 Water skiing, wake boarding 1 Windsurfing 1 Yachting 3	Angling 1994 (1) (entire catchment)
Tongariro River	Waikato	16	20	10	25	Canoeing or kayaking 11 Fishing 4 Swimming 14 Rafting 1 Tramping 2 Walking 27	Canoeing or kayaking 15 Fishing 11 Swimming 2	Angling 1994 (10)

Water body	Region	User numbers phone survey	Rank: user numbers phone survey	User numbers internet	Rank: user numbers internet	Activities ranked phone survey	Activities ranked internet survey	Other existing information
Waikato River	Waikato	36	5			Canoeing or kayaking 11 Caving or potholing 1 Fishing 24 General sightseeing 11 Jet boating 5 Picnicking 2 Scuba diving / snorkelling 2 Swimming 5 Tramping 6 Walking 6 Yachting 2 Other 1		Whitebaiting (100) Angling 2002 (7) entire catchment
Karapiro Lake	Waikato	18	18			Canoeing or kayaking 2 Fishing 24 Picnicking 6 Rowing 1 Tramping 12 Waka ama paddling 1 Walking 17 Water skiing, wake boarding 2		
Tauranga / Taupo River	Waikato							Angling 1994 (24)
Mokau River	Waikato							Whitebaiting (100)
Motu River	Bay of Plenty			44	1		Canoeing or kayaking 1 Fishing 8 Hunting 1 Swimming 2 Tramping 9	Water conservation order (1984)
Rotorua Lake	Bay of Plenty	55	2			Bird watching 2 Canoeing or kayaking 6 Fishing 3 General sightseeing 4 Jet boating 5 Picnicking 2 Swimming 3 Tramping 12 Waka ama paddling 1 Walking 4 Water skiing, wake boarding 6 Other 1		Angling 1994 (5), Angling 2002 (6)
Blue Lake	Bay of Plenty	34	6			Bird watching 2 Canoeing or kayaking 11 General sightseeing 8 Jet skiing 1 Picnicking 2 Swimming 4 Tramping 12 Walking 9 Water skiing, wake boarding 2		
Rotoiti Lake	Bay of Plenty					Canoeing or kayaking 11 Fishing 2 General sightseeing 18 Jet skiing 1 Swimming 8 Tramping 2 Walking 21 Water skiing, wake boarding 6 Windsurfing 1 Yachting 8		Angling 1994 (4), Angling 2002 (5)

Water body	Region	User numbers phone survey	Rank: user numbers phone survey	User numbers internet	Rank: user numbers internet	Activities ranked phone survey	Activities ranked internet survey	Other existing information
Tarawera Lake	Bay of Plenty	28	10	10	25	Canoeing or kayaking 11 Fishing 4 Water skiing, wake boarding 4 Yachting 2 General sightseeing 24 Mountain biking 2 Picnicking 13 Scuba diving/ snorkelling 2 Swimming 14 Tramping 6 Walking 11 Water skiing, wake boarding 4 Yachting 2	Canoeing or kayaking 19 Fishing 11 Water skiing/ wake boarding 2 Yachting 4	Angling 1994 (6), Angling 2002 (4)
Green Lake	Bay of Plenty	10	28			Bird watching 2 Canoeing or kayaking 11 General sightseeing 24 Picnicking 12 Swimming 14 Tramping 12 Walking 21		
Rotoma Lake	Bay of Plenty							Angling 2002 (33)
Ngongotaha Stream	Bay of Plenty							Angling 2002 (19)
Aniwhenua Lake	Bay of Plenty							Angling 1994 (26), Angling 2002 (27)
Mohaka River	Hawke's Bay			22	5		Canoeing or kayaking 12 Fishing 3 Jet boating 2 Rafting 2 Tramping 6 Other 3	Water conservation order (2004)
Waikaremoana Lake	Hawke's Bay	34	6	30	3	Canoeing or kayaking 11 Fishing 8 General sightseeing 4 Hunting 1 Swimming 9 Tramping 2 Walking 11 Water skiing, wake boarding 6 Waka ama paddling 1 Jet skiing 1 Picnicking 6	Canoeing or kayaking 12 Fishing 17 General sightseeing 1 Hunting 1 Swimming 5 Tramping 1 Walking 1 Water skiing, wake boarding 2 Yachting 4 Other 3	Angling 1994 (15), Angling 2002 (16)
Ngaruroro River	Hawke's Bay			11	23		Canoeing or kayaking 15 Fishing 11 Jet boating 2 Tramping 14 Water skiing, wake boarding 2	Whitebaiting (100)
Pekapeka Swamp	Hawke's Bay							Wetland of national importance to Fisheries
Tukituki River	Hawke's Bay							Whitebaiting (100), Angling 1994 (21), Angling 2002 (21)
Wairoa River	Hawke's Bay							Whitebaiting (100)
Ahuriri Estuary / Westshore lagoons	Hawke's Bay							Wetland of national importance to Fisheries
Rangatikei River	Manawatu-Wanganui			22	5		Canoeing and kayaking 10 Fishing 3 Tramping 9 Other 1	Angling 2002 (25) Water conservation order (1993)

Water body	Region	User numbers phone survey	Rank: user numbers phone survey	User numbers internet	Rank: user numbers internet	Activities ranked phone survey	Activities ranked internet survey	Other existing information
Whanganui River	Manawatu–Wanganui	16	20			Canoeing or kayaking 2 Fishing 24 General sightseeing 18 Picnicking 13 Rowing 1 Swimming 19 Tramping 12 Walking 21 Water skiing, wake boarding 14		Whitebaiting (100)
Manawatu River	Manawatu–Wanganui	12	26			Canoeing or kayaking 11 Fishing 20 General sightseeing 24 Hunting 1 Picnicking 13 Swimming 12 Walking 24 Water skiing, wake boarding 14		Angling 2002 (23) Angling 1994 (23)
Otaki River	Manawatu–Wanganui	10	28			Canoeing or kayaking 11 Fishing 15 General sightseeing 24 Swimming 14 Tramping 12 Walking 24		
Manganuioteau River	Manawatu–Wanganui							Water conservation order (1989)
Dune Lakes	Manawatu–Wanganui							Wetland of national importance to Fisheries
Hutt River	Wellington	27	11			Bird watching 2 Canoeing or kayaking 11 Fishing 12 General sightseeing 18 Mountain biking 2 Picnicking 13 Swimming 6 Tramping 6 Walking 8		Angling 1994 (16)
Kahangatera and Kohangapiripiri lakes and wetlands	Wellington							Wetland of national importance to Fisheries
Wairarapa Lake	Wellington							Water conservation order (1989)
Vernon Lagoons	Marlborough							Wetland of national importance to Fisheries
Wairau River	Marlborough							Wetland of national importance to Fisheries, Angling 2002 (31)
Delaware Inlet	Nelson							Wetland of national importance to Fisheries
Whanganui Inlet	Nelson							Wetland of national importance to Fisheries
Nelson Lakes	Tasman	21	16	13	17	Canoeing or kayaking 11 Fishing 20 General sightseeing 8 Mountain biking 2 Picnicking 6 Swimming 9 Tramping 12 Walking 14 Water skiing, wake boarding 14	Canoeing or kayaking 24 General sightseeing 1 Tramping 2 Waka ama paddling 1 Yachting 4	
Motueka River	Tasman							Angling 1994 (29), Water conservation order (2004)
Aorere River	Tasman							Whitebaiting (100)

Water body	Region	User numbers phone survey	Rank: user numbers phone survey	User numbers internet	Rank: user numbers internet	Activities ranked phone survey	Activities ranked internet survey	Other existing information
Tekapo Lake	Canterbury	26	13			Fishing 20 General sightseeing 6 Jet boating 5 Picnicking 6 Swimming 19 Tramping 6 Walking 7 Water skiing, wake boarding 6 Windsurfing 1 Other 5		
Waimakariri River	Canterbury	23	14	13	17	Fishing 15 General sightseeing 18 Jet boating 5 Picnicking 6 Swimming 7 Tramping 12 Waka ama paddling 1 Walking 9	Canoeing or kayaking 15 General sightseeing 3 Mountaineering 1 Rafting 2 Tramping 4	Whitebaiting (150), Angling 1994 (2), Angling 2002 (3)
Coleridge Lake	Canterbury	14	24			Canoeing or kayaking 11 Fishing 12 General sightseeing 18 Jet boating 5 Picnicking 13 Swimming 19 Tramping 12 Walking 27 Water skiing, wake boarding 6		
Avon River	Canterbury	10	18			Birdwatching 2 Canoeing or kayaking 11 General sightseeing 24 Picnicking 6 Walking 14		Whitebaiting (150)
Rakaia River	Canterbury	10	28	13	17	Fishing 15 Tramping 6 Picnicking 13 Swimming 19 Walking 24 Water skiing, wake boarding 14	Canoeing or kayaking 20 Fishing 8 General sightseeing 3 Hunting 1 Mountaineering 1 Swimming 4 Tramping 9	Water conservation order (1988), Angling 1994 (8), Angling 2002 (12)
Rangitata River	Canterbury			17	13		Canoeing or kayaking 10 Fishing 8 Jet boating 2 Tramping 14	Water conservation order (2004), Whitebaiting (90), Angling 1994 (7) Angling 2002 (30)
Hurunui River	Canterbury			12	21		Canoeing or kayaking 23 Fishing 5 Jet boating 1 Rafting 2 Swimming 4	Angling 2002 (32) entire catchment Whitebaiting (70)
Clarence River	Canterbury			24	4		Canoeing or kayaking 3 Fishing 17 Jet boating 2 Mountaineering 1 Rafting 2 Tramping 14 Other 3	

Water body	Region	User numbers phone survey	Rank: user numbers phone survey	User numbers internet	Rank: user numbers internet	Activities ranked phone survey	Activities ranked internet survey	Other existing information
Benmore Lake	Canterbury	22	15			Canoeing or kayaking 11 Fishing 10 General sightseeing 11 Jet boating 5 Jet skiing 1 Swimming 19 Walking 17 Water skiing, wake boarding 4 Yachting 2 Other 5		Angling 2002 (11) Angling 1994 (22)
Waitaki River	Canterbury	17	19			Birdwatching 2 Canoeing or kayaking 11 Fishing 6 General sightseeing 11 Jet boating 2 Tramping 12 Walking 27 Other 5		Angling 2002 (9) Angling 1994 (9)
Ellesmere Lake and wetlands	Canterbury							Water conservation order (1990), Wetland of national importance to Fisheries
Ahuriri River	Canterbury							Water conservation order (1990)
Opihi River	Canterbury							Angling 1994 (18), Angling 2002 (24)
Hurunui River	Canterbury							Wetland of national importance to Fisheries, Angling 1994 (19)
Aparima River	Canterbury							Whitebaiting (100), Angling 1994 (27)
George Lake and Henderson extension	Canterbury							Wetland of National Importance to Fisheries
Oreti River	Canterbury							Angling 1994 (11), Angling 2002 (14) Whitebaiting (40)
Pourakino River	Canterbury							Whitebaiting (100)
Wolds Swamp	Canterbury							Wetland of national importance to Fisheries
Aviemore Lake	Canterbury							Angling 2002 (26)
Waiau River	Canterbury							Angling 2002 (22)
Hororata River (lower)	Canterbury							Wetland of national importance to Fisheries
Brunner Lake	West Coast	15	22	11	23	Canoeing or kayaking 2 Swimming 19 Yachting 2 General sightseeing 18 Jet boating 2 Jet skiing 1 Picnicking 13 Tramping 6 Walking 27	Canoeing or kayaking 24 Fishing 6 Swimming 2 Yachting 2	
Buller River	West Coast			43	2		Canoeing or kayaking 2 Fishing 2 Hunting 1 Jet boating 2 Swimming 1 Tramping 14 Walking 1 Other 3	Water conservation order (whole catchment) (2001), Whitebaiting (100+) Angling 2002 (29) entire catchment
Karamea River	West Coast			21	7		Canoeing or kayaking 7 Fishing 6 Rafting 1 Tramping 14	Whitebaiting (100+)

Water body	Region	User numbers phone survey	Rank: user numbers phone survey	User numbers internet	Rank: user numbers internet	Activities ranked phone survey	Activities ranked internet survey	Other existing information
Landsborough River	West Coast			20	8		Canoeing or kayaking 5 General sightseeing 3 Tramping 4	
Perth River	West Coast			18	11		Canoeing or kayaking 7 Jet boating 1 Rafting 2 Tramping 9	
Hokitika River	West Coast			16	14		Canoeing or kayaking 9 Fishing 17 Hunting 1 Other 3	Whitebaiting (100+)
Arahura River	West Coast						Canoeing or kayaking 5	
Grey River	West Coast							Water conservation order (1991), Whitebaiting (100), Angling 2002 (13) entire catchment
Awarua River and Waiuna Lagoon Big Bay	West Coast							Whitebaiting (100+), Wetland of national importance to Fisheries
Birchfield Swamp	West Coast							Wetland of national importance to Fisheries
Hermitage Swamp	West Coast							Wetland of national importance to Fisheries
Okarito Lagoon	West Coast							Wetland of national importance to Fisheries
Okura/Turnbull/Hapuku Lagoon	West Coast							Wetland of national importance to Fisheries, Whitebaiting (100+)
Tawharekiri Lakes complex Waita River mouth and Pakihi	West Coast							Wetland of national importance to Fisheries
Cascade River	West Coast							Whitebaiting (100+)
Waiatoto River	West Coast							Whitebaiting (100+)
Moeraki River	West Coast							Whitebaiting (100+)
Mikohinui River	West Coast							Whitebaiting (100+)
Wanganui River	West Coast							Whitebaiting (100+)
Arawata River	West Coast							Whitebaiting (100+)
Paringa River	West Coast							Whitebaiting (100+)
Okarito Lagoon	West Coast							Wetland of national importance to Fisheries
Owowaiti Estuary and wetlands	West Coast							Wetland of national importance to Fisheries
Saltwater Lagoon	West Coast							Wetland of national importance to Fisheries
Wakatipu Lake	Otago	52	3			Canoeing or kayaking 6 Fishing 6 General sightseeing 2 Jet boating 2 Picnicking 2 Swimming 9 Tramping 12 Walking 3 Water skiing, wake boarding 6 Windsurfing 1 Other 5		Water conservation order (Kawarau, 1997), Angling 1994 (14), Angling 2002 (20)

Water body	Region	User numbers phone survey	Rank: user numbers phone survey	User numbers internet	Rank: user numbers internet	Activities ranked phone survey	Activities ranked internet survey	Other existing information
Wanaka Lake	Otago	47	4	19	10	Canoeing or kayaking 6 Fishing 10 Jet boating 5 Tramping 12 Water skiing, wake boarding 6 Yachting 2 General sightseeing 3 Picnicking 12 Swimming 12 Walking 2	Canoeing or kayaking 20 Fishing 11 Jet boating 2 Tramping 6 Water skiing, wake boarding 2 Windsurfing 2 Yachting 1 Other 1	Angling 1994 (12), Angling 2002 (10)
Clutha River	Otago	16	20	13	17	Canoeing or kayaking 2 Fishing 15 General sightseeing 11 Picnicking 13 Walking 24 Water skiing, wake boarding 14 Yachting 8 Other 1	Canoeing or kayaking 12 Fishing 11 Swimming 5	Whitebaiting (200), Angling 1994 (20)
Hawea Lake	Otago	12	26			Fishing 20 General sightseeing 11 Picnicking 12 Tramping 12 Walking 14		Angling 1994 (17), Angling 2002 (8)
Blueskin Bay	Otago							Wetland of national importance to Fisheries
Dunstan Lake	Otago							Angling 1994 (13), Angling 2002 (15)
Kawarau River	Otago							Water conservation order (1997)
Taieri River	Otago							Whitebaiting (150), Angling 1994 (25), Angling 2002 (18)
Hollyford River	Southland			20	8		Canoeing or kayaking 4 Rafting 2 Tramping 6	
Te Anau Lake	Southland	27	11	15	15	Fishing 8 General sightseeing 6 Picnicking 13 Swimming 19 Walking 4 Yachting 2	Canoeing or kayaking 15 Tramping 3 Walking 1 Water skiing, wake boarding 2 Yachting 4 Other 3	Angling 1994 (28), Angling 2002 (28)
Mataura River	Southland			12	21		Fishing 1 Walking 1	Water conservation order (1997), Whitebaiting (200), Angling 1994 (3) Angling 2002 (2)
Manapouri Lake	Southland	20	17			Canoeing or kayaking 6 Fishing 12 General sightseeing 11 Picnicking 13 Swimming 14 Walking 13 Yachting 8 Other 5		
Waituna lagoon and wetlands	Southland							Wetland of national importance to Fisheries
Titiroa River	Southland							Whitebaiting (110)

Note: Internet survey = BRC, 2004a; phone survey = BRC, 2004b.

Appendix 2: Recreation groups targeted for internet surveying

Federated Mountain Clubs of New Zealand
Fish and Game New Zealand
Forest and Bird New Zealand
Girl Guides Association of New Zealand
Jet Boating New Zealand
New Zealand Alpine Club
New Zealand Canoeing Federation
New Zealand Freshwater Anglers Federation
New Zealand Hydrological Society
New Zealand Jet Sports Boating Association
New Zealand Power Boat Association
New Zealand Rafting Association
New Zealand Recreation Association
New Zealand Recreational Canoeing Association
New Zealand Speleological Society (Inc)
New Zealand Trampers Association
New Zealand Underwater Association (Inc)
New Zealand Water Ski Association
New Zealand Water Ski Racing Association
Outdoors New Zealand
Rowing New Zealand
Scouting New Zealand
SPARC New Zealand
Swimming New Zealand
Triathlon New Zealand
Trailer Yachting New Zealand
Waka Ama New Zealand
Windsurfing New Zealand
Women's Outdoor Pursuits
Yachting New Zealand

Appendix 3: References and document information sources

(Note: references marked with an asterisk (*) were considered but not used.)

APR Consultants. 2003. *Freshwater Recreation in New Zealand*. Prepared by APR Consultants for the Ministry for the Environment.*

BRC Marketing and Social Research. 2004a. *Freshwater Recreational Users: Internet Survey of Freshwater Use in New Zealand*. Prepared for the Ministry for the Environment by Ken Fink-Jensen, Mark Johnson and Michelle Simpson-Edwards, BRC Marketing and Social Research.

BRC Marketing and Social Research. 2004b. *Freshwater Recreational Users: Survey of Freshwater Use in New Zealand*. Prepared for the Ministry for the Environment by Ken Fink-Jensen, Mark Johnson and Michelle Simpson-Edwards, BRC Marketing and Social Research.

Davis SF. 1987. *Wetlands of National Importance to Fisheries*. New Zealand Freshwater Fisheries Report No. 90. Freshwater Fisheries Centre, MAFFish, Christchurch.

DoC Tongariro, Taupo Conservancy. 1994. *Tongariro River Recreation Study. Volume 1*. Prepared by Kay Booth, Tourism Resource Consultants and Harry Keys, Department of Conservation.*

Egarr GD, Egarr JH. 1981. *New Zealand Recreational River Survey: An investigation into the recreational potential of New Zealand's inland waterways*. Prepared for the New Zealand Canoeing Association by the National Water and Soil Conservation Organisation.*

Mclean G, Dedual M, Rowe D, et al. 2003. *The Taupo Fishery: A review of the science*. www.taupoinfo.org.nz*

National Water and Soil Conservation Organisation. 1982. *A Draft for a National Inventory of Wild and Scenic Rivers. Part 1: Nationally important rivers*. Water and Soil Division, Ministry of Works and development, Wellington.*

Robertson CM. 1986. *Recreational Use of Marlborough Rivers*. Marlborough Catchment Board and Regional Water Board, Blenheim.*

Sutherland-Downing V, Elley R, revised by Daly A. 2003. *Draft Inventory of Recreation Values for Rivers and Lakes of Canterbury New Zealand*. Report U03/66. Environment Canterbury, Christchurch.*

Teirney LD, Unwin MJ, Rowe DK, et al. 1982. *Submission on the Draft Inventory of Wild and Scenic Rivers of National Importance*. Fisheries Environmental Report No. 28. Fisheries Research Division, Ministry of Agriculture and Fisheries, Christchurch, New Zealand.*

Unwin M, Brown S. 1998. *The Geography of Freshwater Angling in New Zealand: A summary of results from the 1994/96 National Angling Survey*. NIWA for Fish and Game New Zealand.

Unwin M, Deans N. 2003. *Travel Distance as an Index of Angling Value: A preliminary study based on the 2001/2002 National Angling Survey*. NIWA client report CHC2003-113. National Institute of Water and Atmospheric Research Ltd, Christchurch.

Unwin M, Image K. 2003. *Angler Usage of Lake and River Fisheries Managed by Fish and Game New Zealand: Results from the 2001/02 National Angling Survey*. NIWA client report CHC2003-114 December. National Institute of Water and Atmospheric Research Ltd, Christchurch.

* Indicates information used in developing methodology, but not included in Table 1.

Appendix 4: Current water conservation orders

Water body	Region	Date granted
* Motu River	Bay of Plenty	February 1984
* Rakaia River	Canterbury	October 1988
* Lake Wairarapa	Wellington	March 1989
* Manganuioteao River	Manawatu–Wanganui	March 1989
* Lake Ellesmere	Canterbury	July 1990
* Ahuriri River	Canterbury	July 1990
* Grey River	West Coast	July 1991
Rangitikei River	Manawatu–Wanganui	February 1993
Kawarau River (entire catchment)	Otago	March 1997
Mataura River	Southland	July 1997
Buller River (entire catchment)	West Coast/ Tasman	June 2001
Buller River – application for variation on the Gowan River	Tasman	Currently being considered by Special Tribunal November 2004
Mohaka River	Hawke's Bay	November 2004
Motueka River	Tasman	August 2004
Rangitata River	Canterbury	Environment Court awaiting final report November 2004
Wanganui River	Manawatu–Wanganui	On hold

* Granted under the Water and Soil Conservation Act 1967. All others granted under the Resource Management Act 1991, section 21.

Appendix 5: Whitebaiting information – summary of sources

Initial discussion and email

Chris Richmond, Department of Conservation, Head Office

Lindsay Chadderton, Department of Conservation, Northern Regional Office

Department of Conservation conservancies, via email

Jane Goodman, East Coast, Hawke's Bay

Bruce Dix, Gisborne Area Office

Sjaan Chateris, Canterbury

Graeme Crump, Raukapuka Area Office

Anita Spencer, North Canterbury Area Office

Angela Murray, Waikato

John Gumbley, Waikato

Ken Murray, Southland

Rosemary Miller, Taranaki

Dean Caskey, Stratford Area Office

Martin Rutledge, Nelson Marlborough

Nadine Gibbs, Wellington

Hans Rook, Napier Area Office

Malcolm Smith

Martin Rutledge

Chris Allendale

Jim Campbell

Vivian Nicholls

Murray Nelson

Personal communications

Audrey McKelvey, Southland Recreational Whitebaiters Association, Invercargill

Betty Adams, Tainui Whitebaiters Association

Philippe Gerbeaux, West Coast Conservancy