

Angler usage of New Zealand lake and river fisheries

Results from the 2014/15 National Angling Survey

Prepared for Fish & Game New Zealand

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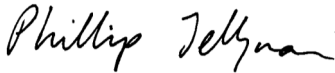
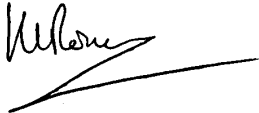
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Summary

The 2014/15 National Angling Survey was conducted by NIWA on behalf of Fish & Game New Zealand (FGNZ) and the Department of Conservation (DoC). Like its three predecessors in 1994/95, 2001/02, and 2007/08, the 2014/15 survey was designed to estimate total angling effort for all New Zealand lake and river fisheries over the 2014/15 angling season. This report describes the survey design and methodology, summarises and discusses the main results, and gives detailed results for all angling waters.

Data on angling location (name of angling water) and duration (days spent on each water) were collected via telephone sample surveys of licence holders drawn from FGNZ and DoC records for the 2014/15 season. Surveys in the 12 FGNZ regions were stratified by region, date (with the angling season divided into six two-monthly periods), and licence type (adult and family whole-season; junior whole-season; part-season; non-resident). For the DoC Taupo Conservancy adult whole-season licence holders were surveyed at two monthly intervals. The resulting data were used to estimate mean effort per licence holder for each water, and hence total effort for all waters.

Total angling effort for the 2014/15 season was 1.274 million angler-days, with 1.146 million angler-days recorded on waters under FGNZ jurisdiction, and 127,700 angler-days in the Taupo Conservancy. Overseas visitors recorded 36,600 angler-days on FGNZ waters.

Annual effort for New Zealand resident anglers fishing waters under FGNZ jurisdiction has been measured consistently in all four surveys to date, with totals of 1.155 million, 1.111 million, 1.202 million, and 1.110 million angler-days in 1994/95, 2001/02, 2007/08, and 2014/15. Over these two decades total effort has declined in the Auckland/Waikato, Eastern, Wellington, Nelson/Marlborough, and Southland regions. Total effort has increased markedly in the West Coast (from 26,000 angler-days in 1994/95 to 54,180 angler-days in 2014/15) and Central South Island regions (from 166,140 to 294,430 angler-days over the same period). Total effort in the remaining five regions (Northland, Taranaki, Hawkes Bay, North Canterbury, and Otago) has been variable but shows no consistent long-term trend.

The most distinctive long-term trend across all regions has been a steady decline in effort on lowland river fisheries, for which total effort has fallen from 259,200 angler-days in 1994/95 to 136,600 angler-days in 2014/15. This has been partially offset by a spectacular increase in effort on the upper Waitaki hydroelectric canals, from 5,500 angler-days in 1994/95 to 89,300 angler-days in 2014/15, and which is largely responsible for the increase in effort in the Central South Island region. By contrast, increased effort on the West Coast is broadly distributed, particularly south of the glaciers, with over half of the 2014/15 total associated with visitors from other regions.

The 2014/15 survey is the most comprehensive of the four surveys conducted to date, and is the first to include the Taupo Conservancy. These surveys provide FGNZ with a rich database on angler activity over two decades, and are now widely recognised by external agencies (such as the Ministry for the Environment) as a robust and credible source of quantitative data on freshwater angling. Future challenges for FGNZ are (1) to ensure that regional staff are aware of the potential of the survey database for further analyses and have the skills needed to exploit this potential; and (2) to anticipate and respond appropriately as advances in communication technology open up new methodologies for future surveys, and render old methods obsolete.

1 Introduction

1.1 Freshwater angling in New Zealand

Freshwater angling, primarily for brown trout (*Salmo trutta*), rainbow trout (*Oncorhynchus mykiss*), and Chinook salmon (*O. tshawytscha*), is a popular leisure time activity for many New Zealanders and has a distinctive place in the national culture. Following successful acclimatisation to New Zealand waters over three decades from c. 1875 (McDowall 1990, 1994), all three species soon became the basis of lively sports fisheries. Brown trout are widely distributed over the whole of the South Island, and the North Island south of Auckland (McDowall 1990); rainbow trout occur throughout the central North Island and South Island high country; and Chinook salmon are well established on the east coast of the South Island from Otago to Marlborough, and on the West Coast from northern Fiordland to Greymouth. Smaller and more localised fisheries exist for other introduced salmonids (such as brook trout *Salvelinus fontinalis*), and “coarse fish” such as perch *Perca fluviatilis* and tench *Tinca tinca* (McDowall 1994).

In all fresh waters except Lake Taupo and its inflowing tributaries, angling for acclimatised species is managed by Fish & Game New Zealand (FGNZ). For administrative purposes New Zealand is divided into 12 FGNZ regions¹, with six in each island (Figure 1-1). The Lake Taupo fishery is managed by the Department of Conservation (DOC). All persons wishing to fish for acclimatised species must purchase a freshwater fishing licence at least annually. Licences purchased from FGNZ are freely interchangeable between regions, and (for New Zealand residents) are priced and sold without regard to angler origin, i.e., residents of each region pay the same as non-residents. It is possible, therefore, for anglers to live in one region, purchase a licence from a second region, and fish in a third. The DoC Taupo Conservancy is the sole exception: FGNZ licences are not valid within the Conservancy, and Conservancy licences are not valid elsewhere in New Zealand.

¹ Throughout this report the words “region” and “regional” refer specifically to the regions as defined by FGNZ, unless otherwise stated.

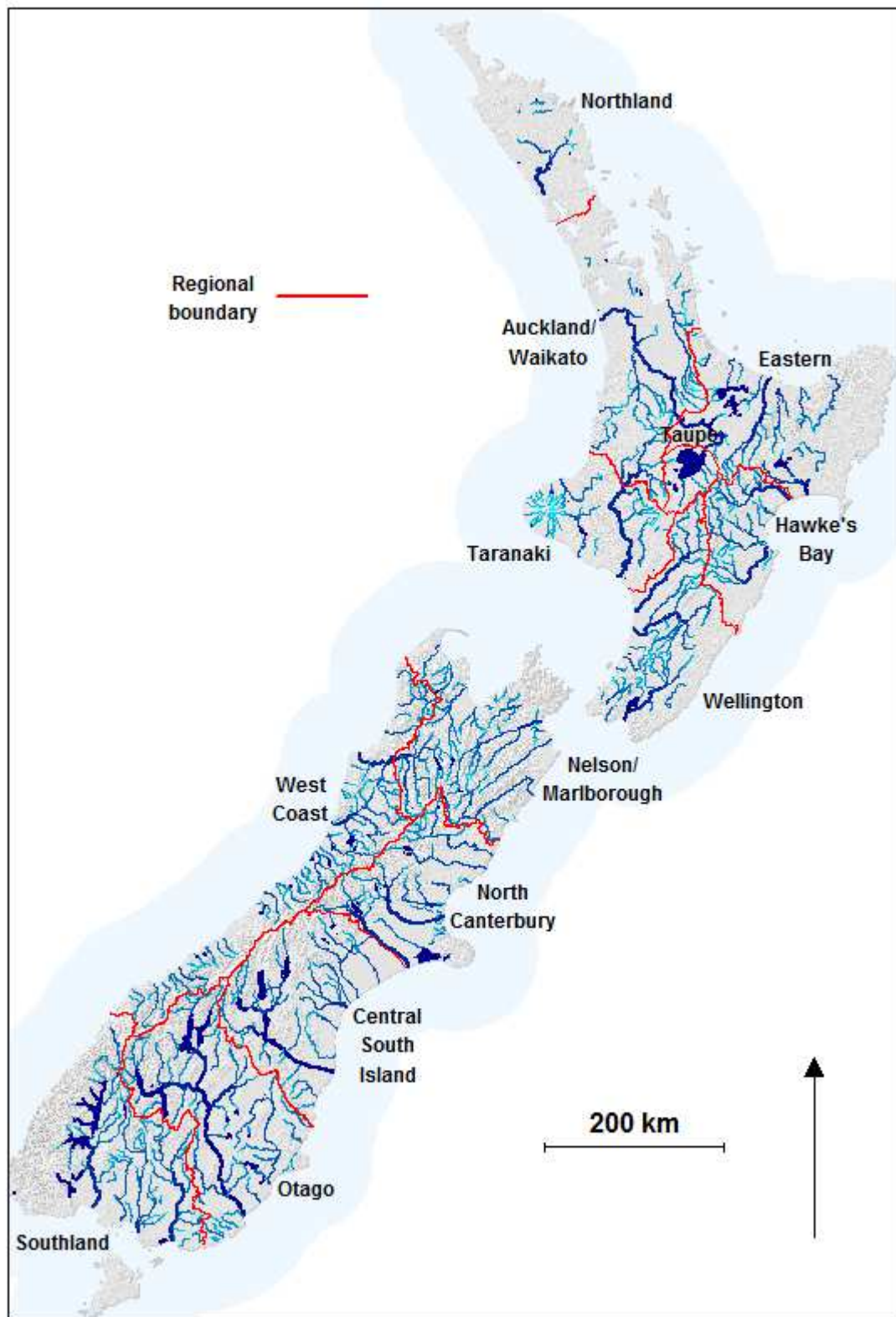


Figure 1-1: The 12 Fish & Game New Zealand regions, and the Taupo Conservancy administered by the Department of Conservation. Mapped lakes and rivers represent all angling waters identified in at least one previous FGZ survey as sustaining a viable fishery.

FGNZ management responsibilities create an ongoing need for timely and accurate data on angler use of the freshwater fisheries resource. Under the 1990 Conservation Law Reform Act, FGNZ is tasked with monitoring "... sports fish and game populations ..." and the "... success rate and degree of satisfaction of users of the sports fish and game resource ...", while also being required to "... maintain and improve the sports fish and game resource". Fulfilling this role effectively demands reliable information on angler usage. Up-to-date usage statistics are also required by FGNZ when acting as an advocate for freshwater anglers in day to day situations such as Regional Council and Planning Tribunal hearings which arise through application of the Resource Management Act.

In 1994 FGNZ conducted a survey to estimate annual angling usage for all significant freshwater sports fisheries within the 12 FGNZ regions (Unwin & Brown 1998). This survey was repeated in 2001 (Unwin & Image 2003) and 2007 (Unwin 2009), using essentially the same methodology as for the 1994 survey. By repeating these surveys at intervals of six to seven years, FGNZ seeks to compile a long-term database so that up-to-date estimates of angling usage are always available, and to allow local, regional, and national trends in use to be monitored over decadal time scales.

This report describes the fourth of these surveys, conducted by NIWA on behalf of FGNZ and DoC over the 2014/2015 fishing season. Unlike its predecessors, the 2014/15 survey included angling within the Taupo Conservancy as well as the 12 FGNZ regions, so the results presented here provide usage estimates for all significant freshwater sports fisheries in New Zealand.

2 Survey design and implementation

2.1 Scope, format, and objectives

Like its predecessors, the 2014/15 survey used a series of telephone interviews, conducted every two months during the 12 month angling season, to collect usage data for random samples of anglers drawn from records of fishing licence sales. Within each two month period (henceforth survey period) samples were further stratified by FGNZ region and licence type, so as to differentiate between whole-season and part-season (e.g., 24-hour) licences, and between adult (18 years and over on 1 October 2014) and junior (12-17 years on 1 October 2014). Respondents were asked to identify waters they had fished over the preceding two months, and the number of days on which they had fished each water. For each stratum, these responses were then used to estimate total usage for all waters fished by at least one respondent, and the resulting estimates summed across strata to yield annual totals (Section 2.6). The two month survey cycle reflects FGNZ experience that angler's ability to recall their recent fishing activity is reliable over periods of one to two months, but declines over longer periods.

FGNZ licences are available for purchase online, via authorised agents such as sports shops and fishing guides, or via an 0800 phone number. The corresponding sales records are an ideal basis for sample surveys because they provide an exhaustive listing of individuals who are legally entitled to fish; are readily amenable to selecting random sub-samples of licence holders of any specified size; and are available electronically in real-time. Information available for whole-season licence holders includes name, address, contact details (phone and email), licence type, and date of issue. In previous years the same information has also been available for part-season (i.e., 24-hour) licences, but since October 2014 (i.e., the start of the 2014/15 angling season) part-season licence holders have no longer been required to provide contact details such as telephone numbers or email addresses. This change reflects a desire by FGNZ managers to streamline 24-hour licence sales as much as possible, particularly in tourist-dominated areas such as Queenstown and Bay of Plenty where licences are often sold via fishing guides, but precludes a sampling strategy based on telephone contact. The methodology developed to overcome this limitation is detailed in Section 2.3.

A second change introduced by FGNZ for the 2014/15 season was a "non-resident" licence class for overseas visitors to New Zealand. Non-resident anglers were not surveyed in 1994/95 and 2001/02 because of the logistical difficulties associated with overseas phone calls, so that usage estimates were restricted to New Zealand resident anglers and were conservative. For the 2007/08 survey we used email to contact overseas visitors, based on random samples of licence records with a valid email address (Unwin 2009). For the 2014/15 survey we took advantage of the non-resident licence class and the almost universal availability of mobile phones to survey overseas visitors by telephone, both to align their responses more closely with the data provided by New Zealand residents, and to avoid the tendency for email-based surveys to be skewed in favour of more active anglers (Unwin 2013). A secondary objective of the 2014/15 survey was to evaluate this methodology and assess the utility of the results.

Our third objective was to link angler usage data (for river fisheries only) with NIWA's River Environment Classification (REC) (Snelder & Biggs 2002), based on methodologies initiated in 2007/08 (Unwin 2013) and developed more fully in 2012 (Unwin 2012). The REC provides powerful tools for characterising rivers at catchment and sub-catchment scales, and hence characterising spatial and temporal variation in angler usage of rivers in terms of mesoscale catchment descriptors.

The objectives of the 2014/15 survey were therefore as follows:

- to estimate annual usage by New Zealand resident anglers, during the 2014/15 fishing season, for all lake and river fisheries managed by FGNZ and DoC;
- to develop, implement, and evaluate a telephone survey to collect corresponding usage data for overseas anglers visiting New Zealand;
- to tabulate and characterise these results at national, regional, and local scales.

2.2 Licence types and strata

2.2.1 FGNZ licences

For the 2014/2015 season, FGNZ licences were available in nine categories defined by duration (whole-season, winter, daily) and type (adult, family, junior, non-resident). Whole-season, winter, and daily licences are valid for 12 months (October-September), six months (April-September), and 24 hours, respectively. Adult and junior licences were available to New Zealand residents aged 18 years and over, or 12-17 years, respectively, on 1 October 2014. Family licences allow one person (the primary licence holder), or one person and their partner (the secondary licence holder), plus any children or grandchildren under 18 years of age, to fish together.

The raw licence data were manually groomed to detect and edit obvious errors such as incorrectly recorded country of origin (e.g., Abilene, Texas, New Zealand), date of birth (e.g., 3/03/9197), date of issue, and licence type relative to country of origin (e.g., overseas visitors recorded as purchasing a New Zealand resident licence). The main effect of these changes was to recode 663 licences originally recorded as New Zealand resident (categories “FW Adult” and “FWF Adult”) to category “FWN Adult” (non-resident adult). Licences with a recognisable address were cross-referenced to the Land Information New Zealand (LINZ) gazetteer of New Zealand place names² to facilitate analysis of the geographical distribution of licence holders, and to provide a means to differentiate between the region in which each licence holder fished (henceforth fishing region), and the region from which they brought their licence (henceforth licence region). Data from the 2013 Census, compiled using the 2013 Census Tables tool on the Statistics New Zealand web site³, were used to estimate licence sales per head of population for each region.

Samples were stratified by licence type, region, and date of issue, using date of issue as recorded in the licence database to assign each licence to the appropriate two-month survey period (beginning with October/November 2014). New Zealand resident licences were partitioned into three strata according to licence type (Table 2-1, Table 2-2). Stratum 1 represented New Zealand resident adults holding an adult whole-season, family, or winter licence (N = 62,503). Stratum 2 represented New Zealand residents holding a junior whole-season or winter licence (N = 4,306). Stratum 3 represented 24 hour licence holders irrespective of age or nationality (N = 32,861). This generated a total of 216 potential sub-strata (3 licence types x 12 regions x 6 survey periods), although six strata representing Northland junior whole season licence holders were omitted from the survey because only seven licences were sold. Finally, non-resident adult licence holders were added as a separate stratum

² <http://www.linz.govt.nz/regulatory/place-names/find-place-name/new-zealand-gazetteer-place-names>

³ http://www.stats.govt.nz/tools_and_services/nzdotstat/tables-by-subject/2013-census-tables.aspx

surveyed once at the end of the 2014/15 season (Stratum 4: N = 5,276), bringing the total number of strata to 211. Non-resident junior licence holders (N = 94) were not surveyed.

Table 2-1: 2014/15 FGNZ fishing licence sales by licence type. The right hand column shows the strata into which each licence type was grouped for survey purposes.

Country of residence	Duration	Type	Total sales	Stratum
New Zealand	Whole-season	Adult	37,028	Stratum 1
	Whole-season	Family	22,139	Stratum 1
	Whole-season	Junior	3,961	Stratum 2
	Winter	Adult	3,345	Stratum 1
	Winter	Junior	345	Stratum 2
New Zealand / non-resident	24 hour	Adult	30,856	Stratum 3
	24 hour	Junior	2,005	Stratum 3
overseas	Whole-season	Adult	5,276	Stratum 4
	Whole-season	Junior	94	Not surveyed

Table 2-2: 2014/15 FGNZ fishing licence sales by Region and stratum. Strata 1 and 2 represent long-term (whole-season or winter) licences purchased by New Zealand resident adults and juniors, respectively. Stratum 3 represents 24-hour licences irrespective of country of residence, and Stratum 4 represents non-resident adult whole-season licences. Non-resident junior licence holders were not surveyed.

Region	Stratum 1	Stratum 2	Stratum 3	Stratum 4	Non-resident junior
Northland	216	7	166	60	2
Auckland/Waikato	3,514	197	1,777	286	3
Eastern	8,194	492	7,833	494	9
Taranaki	739	79	328	37	0
Hawke's Bay	2,206	150	1,009	194	5
Wellington	3,073	224	733	111	0
Nelson/Marlborough	2,638	151	1,333	590	3
West Coast	1,588	122	882	241	4
North Canterbury	12,207	680	3,142	691	9
Central South Island	10,292	808	6,034	725	10
Otago	11,202	824	7,279	1,087	38
Southland	6,634	572	2,345	760	11
Total	62,503	4,306	32,861	5,276	94

2.2.2 Taupo Conservancy licences

Before 2014, fishing licence records for the Taupo Conservancy were not available electronically in real time, precluding a survey strategy based on randomly drawn samples at the end of each survey period. The introduction of an online licencing system at the start of the 2014/15 angling season made it possible to apply the FGZ survey methodology to the Taupo region, and hence to conduct a full national survey of New Zealand freshwater angling for the first time.

The Taupo surveys were restricted to adult whole-season licence holders, the only group for which contact details (i.e., names and telephone numbers) were consistently recorded. In addition, the DoC licencing year begins in July, three months earlier than the FGZ year, so that it was not possible to synchronise consecutive survey periods in both jurisdictions. To minimise the difference between the two schedules, each Taupo survey began one month before the corresponding FGZ survey, starting in September-October 2014 and continuing until July-August 2015. Both the FGZ and DoC surveys thus cover a full annual cycle of angling activity, but – whereas the FGZ surveys span a single licencing year – the DoC surveys span the last 10 months of the 2014/15 licencing year (September 2014 to June 2015), and the first two months of the 2015/16 licencing year (July to August 2015).

In the event, operational problems with the Taupo licence database limited the availability of usable real time data. In particular, it had not always been possible to add records derived from retail (i.e., over the counter) sales, so that the available records were skewed in favour of online rather than retail sales, and represented only 29% of whole-season licences sold over the 2014/15 season (Peter Shepherd, DoC Taupo, pers. comm.). This shortfall influenced implementation, analysis, and interpretation of the Taupo survey in three ways.

First, the licence records available at the end of each survey period represented only a small proportion of total sales up to that point, and were potentially biased with respect to the wider angling population compared to retail sales. This shortfall was particularly acute for the first survey period, when only 217 records were available for sample selection, with evidence of a bias in favour of urban (Auckland and Wellington) residents relative to local (Taupo) residents.

Second, the available records were insufficient to establish region of residence for all Taupo licence holders, and hence to determine licence sales per head of population (c.f. Section 2.2.1). There were also insufficient records to provide a viable sampling frame for overseas visitors, with only 35 of 93 visitor records including telephone contact details.

Third, and potentially most seriously, the 2014/15 licence records were insufficient to establish total licence sales by month, and hence determine the number of licences active (i.e., the survey population) during each survey period. The underlying problems were, however, largely resolved by the start of the 2015/16 licence year (July 2015 to June 2016), so that the 2015/16 records (which became available in July 2016) provide an essentially complete record of monthly sales for the 2015/16 season. On the assumption that the percentage of sales sold each month was similar for both seasons, it was therefore possible to use the 2015/16 data to retrospectively estimate the corresponding monthly totals for 2014/15. The resulting sub-totals were 8,205, 10,618, 11,729, 11,872, and 11,895, respectively, for the four, six, eight, ten and twelve month periods preceding the September-October, November-December, January-February, March-April, and May-June surveys, together with a total of 4,262 2015/16 licences sold over the two months covered by the July-August 2015 survey.

2.3 Sample design

2.3.1 FGZ surveys

Sample design for the 2014/15 survey was similar to its three predecessors, modified as necessary to (1) accommodate changes in the FGZ licence database since the 2007/08 survey (including the absence of contact information for 24-hour licence holders); and (2) establish a suitable sampling frame for overseas visitors.

Target sample sizes for Strata 1 and 2, taking into account the resources available for conducting telephone interviews, represented a trade-off between maximising the precision of the final usage estimates, and capturing data on as many fisheries as possible. The extent to which these two goals can be realised is sensitive to the spatial scale of interest (i.e., local, regional, national), and they are not necessarily compatible. Maximising precision tends to prioritise strata which make the largest contribution to total effort and population variance at the expense of smaller strata, whereas capturing data for as many fisheries as possible requires a more structured distribution of sampling effort across regions and strata. For example, setting a target sample size of 2,000 interviews evenly distributed across Stratum 1 licence holders ($N = 62,503$) would yield 250 – 390 interviews per stratum for the four largest regions (Eastern, North Canterbury, Central South Island, Otago), but only 7 and 23 interviews for the two smallest regions (Northland and Taranaki), respectively. Conversely, dividing 2,000 interviews evenly across the 12 FGZ regions (167 interviews per region) would yield rich data sets for Northland and Taranaki, but relatively sparse data sets for the largest regions. Such a strategy would also risk alienating licence holders in small regions because of the need for repeated calls to many of the same individuals every two months.

In practice, we used Neyman allocation (Cochran 1977, Unwin & Image 2003) to guide our choice of sample sizes for each licence type and survey period, but also used a degree of judgement when allocating sampling effort to each region. For Stratum 1 the largest samples (up to 350 interviews) were allocated to the Eastern, North Canterbury, Central South Island, and Otago regions during the peak activity period from December to March, with smaller samples outside these months. Target sample sizes for most remaining Stratum 1 samples ranged from 100 to 300, The exceptions were Northland and Taranaki, where total Stratum 1 sales were 216 and 739, respectively (c.f. Table 2-4, p. 19). Target sample sizes for Stratum 2 ranged from 10 (in Taranaki) to 40 (in North Canterbury, Central South Island, Otago, and Southland).

As noted in Section 2.1, records for most (83.1%) Stratum 3 licence holders did not include a usable telephone number, precluding a sampling strategy based on telephone contact. After reviewing alternative strategies with FGZ, it was decided to attempt a complete census of Stratum 3 licence holders by adding a new question to the online licence form asking holders to identify which water they intended to fish. This approach makes two implicit assumptions. First, it assumes that each 24-hour licence holder fishes at most one water over the 24 hours for which their licence is valid. Retrospective analysis of responses to the 2007/08 survey showed that mean effort per licence holder was 1.07 angler-days, confirming that this assumption is reasonable. Second, it assumes that the water actually fished by each licence holder was the same as their intended target water at the time of purchase. Since most 24-hour licence holders purchase their licence within 1-2 days of their intended fishing date (Kate Thompson, FGZ, pers. comm.), and tend to concentrate on high profile waters near popular tourist destinations (e.g., Lake Rotorua, Lake Tarawera, Lake Benmore, Lake Wanaka, Rakaia River, Lake Wakatipu, Clutha River), this assumption is also plausible. To maximise data accuracy, the online form included a drop-down list configured to display matching water

names as soon as the user had typed the first three characters (c.f. Section 2.4.2). An “Another water not listed here” option was provided to cater for users fishing waters new to the survey database.

Overseas visitors (Stratum 4) were surveyed once, at the end of the 2014/15 season, with a target sample size of 250. Samples were chosen so as to represent, as closely as possible, the distribution of overseas visitors relative to continent of origin, subject to the constraint that telephone interviewers with the appropriate language skills were available to survey licence holders from non-English speaking countries. The final sample represented 97.7% of overseas visitors, from Australia, North America, Europe, the UK, and Southeast Asia (Table 2-3).

Table 2-3: Distribution of overseas visitor (Stratum 4) FGNZ licence holders by origin. The figures for total sales exclude 1,201 anglers who purchased a non-resident licence but gave a New Zealand address, and hence could not be categorised by country of origin.

Origin	Total sales	% of total	Sample size	% of total
Australia / Oceania	1,890	46.4%	129	51.0%
North America	1,004	24.6%	66	26.1%
Europe	636	15.6%	31	12.3%
UK	277	6.8%	17	6.7%
Southeast Asia / Japan	175	4.3%	10	4.0%
Other	93	2.3%	0	0.0%
Total	4,075	100.0%	253	100.0%

2.3.2 Taupo Conservancy surveys

Sample sizes for the Stratum 1 Taupo surveys were fixed at 200 for all six periods. This was small relative to the 350 maximum for Stratum 1 in the larger FGNZ regions, but was based on the premise that – because the Taupo Conservancy includes only 10-15 recognised angling waters – capturing data on a broad range of fisheries was not a priority.

A similar argument suggested that the inability to sample overseas visitors was unlikely to have a significant impact on the results. In contrast to non-resident FGNZ licence holders, who can fish anywhere in New Zealand and tend to favour backcountry and headwater river fisheries (Unwin 2009), non-resident anglers fishing in the Taupo Conservancy have exactly the same 10-15 waters to choose from as local anglers. In addition, analysis of the available Taupo licence records for 2014/15 and 2015/16 indicated that overseas visitors accounted for only 2.7% of whole-season licence sales in 2014/15 (93 of 3,402 records), and 1.1% in 2015/16 (49 of 4,308 records), suggesting that any resulting bias would be small.

2.4 Interview procedures

2.4.1 Protocol and general technique

Telephone interviews for Strata 1, 2, and 4 were conducted by call centre staff at the Southern Institute of Technology (SIT) in Invercargill. For each stratum, SIT was provided with a randomly sorted list of licence holders with at least one viable landline or mobile phone number. Most interviews to New Zealand residents (88.6%) were conducted in the evening between 5:00 and 9:00 p.m., but daytime interviews (between 9:00 a.m. and 5:00 p.m.) were used as necessary to contact

licence holders who had been unavailable for an evening call. Interviews began as soon as possible after the end of each two month survey period so as to minimise the recall period. All interviews were completed within 2-27 days, with a median of 11 days. Stratum 4 interviews were timetabled so as to coincide with early evening in the target country based on local time zones.

Up to three attempts were made to contact each licence holder over successive weekday evenings, after which the individual concerned was dropped in favour of the next available licence holder. SIT maintained records of each call outcome, so that licence holders who could not be contacted or did not wish to take part in the survey could be excluded from samples drawn for any following survey periods. Of 25,902 Stratum 1 and 2 interviews attempted during the survey 14,204 were ultimately successful, representing a mean success rate of 54.8%. Licence holders who did not wish to participate in the survey accounted for 199 (0.8%) of the attempted interviews.

Interviews were conducted according to standard SIT call centre protocols, which include a requirement for interviews with junior licence holders (under the age of 18) to proceed only after obtaining parental permission. Interview outcomes were entered directly into an online database, developed specifically for the survey by Global Office Ltd. in Christchurch using a system developed for a 2013 FGNZ survey as a starting point (Unwin 2013). Key components of this software were a database of selected fields from FGNZ's licence database, including names and telephone numbers, together with a master list of known angling waters representing the pooled results of the 1994/95, 2001/02, 2007/08, and 2013 surveys.

Interviewers began each call by entering the licence number of the target licence holder into the survey website, which responded by displaying their name, licence region, home town, licence number, licence type, and telephone number. After ensuring that they were talking to the intended target, the interviewer identified themselves as representing the FGNZ region matching the licence region; e.g., interviewers would continue with "I'm calling on behalf of Fish & Game Southland" rather than "I'm calling on behalf of Fish & Game New Zealand". This approach was motivated by previous FGNZ experience indicating that anglers were more receptive to calls from their local FGNZ region than from a more anonymous national body.

2.4.2 Identification of waters fished

Anglers were then asked whether they had fished over the previous two calendar months. If they had not, the interviewer recorded this on the survey web site, thanked the licence holder for their cooperation, and closed the interview (Section 2.4.4). Just over half (7,477 of 14,204; 53%) of the interviews ended in this way.

Anglers who had fished over the survey period were then prompted to name all the waters they had fished. The interviewer's priority at this stage was to record the name of each water as accurately as possible, based on their understanding of the angler's response. The survey website was configured to display plausible matches as soon as three characters had been entered; thus, entering "wana" was sufficient to identify "Lake Wanaka" as the only matching candidate. The web site also displayed a brief description of each matching water, so as to (1) minimise ambiguity arising from duplicate or near-duplicate names, and (2) identify subsections of 31 large mainstem rivers which were subdivided into contiguous sections where the character of the fishery differed significantly along the river's length. For example, on hearing "Waiau River", and entering "waiau", the interviewer would immediately see a drop-down list displaying possible matches such as "Waiau River (North Canterbury; salmon)"; "Waiau River (North Canterbury; trout)"; "Waiau River (Southland; Te Anau - Manapouri)"; and "Waiau River (Southland; below Mararoa)". The interviewer would then ask for

clarification as necessary to resolve any remaining ambiguity. This facility virtually eliminated errors resulting from misidentified waters, which were a persistent problem in previous surveys (Unwin 2009). If the interviewer was unable to find a plausible match, the website allowed them to enter a “custom water” based on their best guess as to the name of the nominated water, creating a record which could be checked retrospectively for the most likely match. In practice 146 of the 158 records originally recorded as representing a custom water were attributable to simple spelling errors (e.g., Hearts Creek for Harts Creek in North Canterbury), and were easily resolved. The remaining 12 records, including four which represented marine fishing (e.g., Momorangi Bay in the Marlborough Sounds) could not be matched against any known lake or river in the LINZ gazetteer and were discarded.

As far as possible subject to the availability of call centre staff, SIT attempted to assign interviewers to regions they were familiar with, and to use the same interviewers for successive surveys in each region. This had the dual advantage of making use of the interviewer’s local knowledge, and allowing them to become increasingly familiar with the most common local water names as the survey progressed.

Overseas visitors (Stratum 4) were surveyed in October 2015, immediately after the end of the 2014/15 fishing season, and asked to identify all waters they had fished at any time during their New Zealand visit. No attempt was made to partition the responses by survey period, on the assumption that international visitors who were sufficiently motivated to buy a whole season licence would have little difficulty remembering where they had fished even up to a year after the event. Otherwise, interviewers used essentially the same methodology as for calls to New Zealand residents, although only one attempt was made to contact each licence holder before moving to the next available record. This reflected the difficulty of running interviews across multiple time zones, and the relatively high proportion (11%) of incorrect or unusable telephone numbers. The overall success rate (253 completed interviews out of 1,108 attempted calls; 23%) was therefore substantially lower than for New Zealand licence holders, averaging 29% for Australia (131 out of 457 attempts); 17% - 21% for North America, the UK, Europe, and Japan (116 out of 600 attempts); and 11% - 13% for Southeast Asia and Oceania (6 out of 51 attempts).

2.4.3 Angling effort

After establishing all waters fished during the survey period, the interviewers final task was to prompt the respondent for the number of days spent on each water. Interviewers were instructed to use the phrasing “On how many days did you fish [River/Lake X]?”, so as to record effort in units of angler-days⁴. This question was repeated for each nominated lake or river, and was potentially time-consuming for respondents who had fished multiple waters. In practice this was rarely the case: of the 6,474 respondents who had fished, 5,392 (83.3%) fished no more than two waters, and only 99 (1.53%) fished more than five, with a maximum (for six respondents) of 11. For family licence holders the interviewer also recorded the same information for each secondary licence holder, using the names as recorded in the master licence database to prompt for each person. At all times during this phase of the interview it was possible to add additional waters if the respondent suddenly remembered one they had overlooked during the previous phase.

⁴ i.e., one angler visiting a lake or river on one day, irrespective of the number of hours fished.

2.4.4 Closing the interview

Call centre staff concluded each interview by thanking the respondent for their help, and alerting them to the possibility that they may be contacted again if their licence number was drawn in the random sample for one or more future two-month survey periods. In practice a total of 10,865 individual licence holders were interviewed during the survey, of whom 8,435 (77.6%) were contacted once; 2,006 (18.5%) were contacted twice; and 424 (3.9%) three to five times. Repeat interviews were most common in regions with the smallest licence sales, particularly Northland, Taranaki, and West Coast, reflecting the increased likelihood of a randomly selected licence holder appearing in multiple samples.

2.5 Data auditing

2.5.1 Telephone interviews (Strata 1 and 2)

The survey website included a facility for downloading raw data as each round of interviews proceeded, allowing for real time auditing of the responses. This facility was used at the end of each survey to compile tables of the most frequently fished waters, and circulate this to each region so that local FGZ staff could look for any obvious errors associated with misidentified rivers or lakes. As a result of this it became apparent, by the end of the third (February-March 2015) survey, that results for at least two FGZ regions (Auckland/Waikato and Eastern), and the Taupo Conservancy, were characterised by suspiciously high levels of activity on waters that had been rarely if ever fished in previous surveys, and were considered by staff familiar with the region to be of only minor interest to anglers. Further investigation of the raw data, taking into account the identity of the call centre person responsible for each record (which was automatically recorded by the survey website) confirmed that all such anomalies were associated with the same interviewer, and also uncovered similar (but less obvious) discrepancies in the North Canterbury region. On raising these findings with SIT, it was confirmed that the staff member concerned had been fabricating the data, and that none of the recorded interviews had taken place. All affected records were therefore discarded from the survey database, and the interviewer responsible removed from survey duties.

Removing the discredited interviews reduced the effective sample size in all affected strata. In many cases interviews were shared among multiple staff, so that the lost interviews represented only a relatively small proportion of the total. For example, the discarded interviews represented 12.5% (25 of 200) of the target sample in Auckland/Waikato for October-November 2014, and 9.6% (24 of 250) of the target sample in North Canterbury for February-March 2015 (Table 2-4). More substantial losses occurred in the Eastern region and the Taupo Conservancy, where target sample sizes for the first three survey periods were reduced by approximately 50%; in Taranaki, where the February-March 2015 sample was reduced from 150 to 53; and in Northland, where all 20 interviews for December-January were discarded (Table 2-4). For junior licence holders (Stratum 2) interviews for two strata were discarded: Taranaki in December-January (10 records); and Otago in October-November (30 interviews). Results for all other strata, including Hawkes Bay, Wellington, Nelson/Marlborough, West Coast, Central South Island, Otago, Southland, and for the final six months of the survey (April-May, June-July, August-September) were unaffected.

Table 2-4: Total licence sales, target sample sizes, and actual sample sizes for Stratum 1 by Region and survey period. Successive figures for each Region and period are total licence sales to the end of that period (bold, first row); and target / actual sample size (second row).

Region	Survey Period					
	Oct-Nov 2014	Dec 2014 – Jan 2015	Feb – Mar 2015	Apr – May 2015	Jun – Jul 2015	Aug – Sep 2015
Northland	104	146	163	191	213	216
	20 / 14	20 / 0	20 / 20	20 / 20	20 / 20	20 / 20
Auckland/Waikato	2,082	2,860	3,128	3,394	3,490	3,514
	200 / 175	300 / 299	250 / 174	150 / 150	150 / 148	150 / 189
Eastern	4,929	6,695	7,183	7,927	8,149	8,194
	250 / 121	350 / 172	350 / 179	250 / 250	250 / 250	200 / 200
Taupo	8,205	10,618	11,729	11,872	11,895	4,262
	200 / 94	200 / 96	200 / 106	200 / 200	200 / 201	200 / 197
Taranaki	514	638	691	728	739	739
	150 / 150	150 / 149	150 / 53	100 / 98	50 / 50	50 / 46
Hawkes Bay	1,473	1,925	2,004	2,139	2,198	2,206
	150 / 148	200 / 197	150 / 150	100 / 99	100 / 99	100 / 98
Wellington	1,950	2,749	2,881	3,018	3,063	3,073
	150 / 151	250 / 245	150 / 149	150 / 150	100 / 100	100 / 99
Nelson/Marlborough	1,799	2,301	2,491	2,599	2,627	2,638
	150 / 150	200 / 200	150 / 149	150 / 151	100 / 100	100 / 99
West Coast	941	1,366	1,528	1,574	1,584	1,588
	150 / 149	200 / 200	150 / 149	100 / 100	100 / 99	100 / 100
North Canterbury	8,172	1,1129	11,802	12,114	12,174	12,207
	250 / 249	350 / 349	250 / 226	250 / 249	150 / 146	150 / 150
Central South Island	6,692	9,543	9,960	10,207	10,261	10,292
	300 / 297	350 / 328	300 / 299	200 / 200	150 / 150	150 / 151
Otago	7,333	10,400	10,836	11,090	11,163	11,202
	200 / 200	350 / 348	200 / 203	200 / 200	150 / 148	150 / 151
Southland	4,909	6,347	6,528	6,608	6,623	6,634
	300 / 301	350 / 347	300 / 301	200 / 200	150 / 149	150 / 149
Total, all Regions	49,103	66,717	70,924	73,461	74,179	66,765
	2,470 / 2,199	3,270 / 2,930	2,620 / 2,158	2,080 / 2,067	1,670 / 1,659	1,620 / 1,649

With the exception of the three strata where all data were lost, the reduced sample sizes lower the precision of the resulting usage estimates (in inverse proportion to the square root of the sample size; c.f. Section 2.6) but have no systematic effect on their accuracy. The loss of precision for the affected two-month survey periods ranged from 7-20% in Auckland/Waikato; 40-44% in Eastern and the Taupo Conservancy; 68% in Taranaki; and 5% in North Canterbury. For the four regions with the most significant losses (Auckland/Waikato, Eastern, Taupo Conservancy, Taranaki), these effects are analysed in more detail under the corresponding subheadings in Section 3.4.

2.5.2 Intended target waters (Stratum 3)

Raw data for Stratum 3 (24-hour) licence holders were obtained directly from FGNZ's licence database, so were unaffected by the discarded Strata 1 and 2 interviews. However, audit checks identified systematic discrepancies in the data depending on whether the licence had been purchased online or over the counter via a retail agent. These discrepancies were apparent in three ways. First, the number of licence holders who identified "Another water not listed here" as their intended target represented 77.0% (8,124 of 10,547) of over the counter respondents, compared to 9.3% (2,067 of 22,200) of online respondents. Second, reported target waters for counter sales were skewed in favour of lake rather than river fisheries, with lakes representing 73.5% (1,780 of 2,423) target waters for counter sales compared to 51.5% (10,372 of 20,123) of online sales. Third, the target lakes identified in counter sales were further skewed in favour of high-profile tourist destinations such as Lakes Rotorua, Wakatipu, Wanaka, and Te Anau, at the expense of equally popular but less charismatic lakes such as Tekapo, Coleridge, Brunner, and Dunstan.

These differences suggest that, whereas online licence-holders attempted to identify their intended target water as honestly as possible, retail agents either used the "Another water not listed here" option merely as a time-saving measure when completing the licence receipt, or simply picked the first water that came to mind. This interpretation is consistent with anecdotal but widespread reports from regional FGNZ staff that the target water question was very unpopular with retail agents, who saw it as an unnecessary detail.

2.5.3 Analysis of Stratum 3 usage data was therefore limited to the 22,200 records for online sales, which represented 67.8% of total sales (Cross-boundary fishing)

Cross-boundary fishing, i.e., licence holders from one region fishing in another region, is legitimate and relatively common among the 12 FGNZ regions, but can legally occur between the FGNZ regions and the Taupo Conservancy only when an individual holds licences for both jurisdictions. This consideration was ignored during data collection so as to avoid adding further complexity to the interview dialogue, thereby eliciting a few responses from FGNZ licence holders who had fished within the Taupo Conservancy, and from Taupo licence holders who had fished in one or more FGNZ regions.

Table 2-5). After excluding the 2,067 online responses who chose the "Another water" option, the remaining 20,143 usable records represents an overall Stratum 3 response rate (i.e., sampling fraction) of 61.5%. Median response rate across the 66 sub-strata (11 regions x 6 periods) was 65.0%, ranging from 31.2% (142/455; Southland, October-November) to 93.3% (322/345; Central South Island, June-July). This falls short of the original goal of obtaining a complete census of Stratum 3 licence holders, but represents a much more complete sample than in any of the three previous surveys for which the corresponding sampling fractions were less than 10% (e.g., Unwin 2009).

2.5.4 Cross-boundary fishing

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Table 2-5: Sample sizes and total licence sales for Stratum 3 by region and survey period. The two figures for each region and period show the actual sample size (after discarding records for retail sales), and the total number of active licences. Stratum 3 licence holders in the Taupo Conservancy were not surveyed.

Region	Survey Period					
	Oct-Nov 2014	Dec 2014 – Jan 2015	Feb – Mar 2015	Apr – May 2015	Jun – Jul 2015	Aug – Sep 2015
Northland	17 / 30	25 / 36	29 / 39	10 / 14	25 / 33	12 / 14
Auckland/Waikato	238 / 362	255 / 401	278 / 428	193 / 259	115 / 177	116 / 150
Eastern	898 / 1,504	1,197 / 2,232	1,044 / 1,920	680 / 1,168	414 / 663	268 / 346
Taranaki	27 / 66	41 / 113	43 / 87	21 / 33	10 / 15	11 / 14
Hawkes Bay	70 / 158	233 / 337	149 / 264	95 / 141	39 / 55	50 / 54
Wellington	48 / 131	129 / 281	84 / 154	57 / 86	21 / 42	24 / 39
Nelson/Marlborough	92 / 191	247 / 456	256 / 428	115 / 179	27 / 39	34 / 40
West Coast	84 / 139	151 / 237	244 / 339	68 / 106	18 / 22	33 / 39
North Canterbury	487 / 648	794 / 1020	700 / 872	263 / 347	57 / 81	157 / 174
Central South Island	924 / 1,136	1,861 / 2,071	1,127 / 1,331	641 / 733	322 / 345	376 / 418
Otago	449 / 1,155	942 / 2,410	662 / 1,594	382 / 864	201 / 419	495 / 837
Southland	142 / 455	292 / 745	285 / 694	97 / 271	57 / 78	84 / 102
Total, all Regions	3,476 / 5,975	6,167 / 10,339	4,901 / 8,150	2,622 / 4,201	1,306 / 1,969	1,660 / 2,227

Assuming the individuals concerned held a licence from both jurisdictions their responses are a legitimate record of their angling activity during the relevant two month period. However, this activity makes no additional contribution to estimated total usage for each region; FGNZ licence holders fishing in the Taupo Conservancy are implicitly included in the Taupo survey population by virtue of holding a Taupo licence, and Taupo licence holders fishing waters under FGNZ jurisdiction are implicitly included in the survey population for the corresponding regions. The duplicated information is nevertheless potentially useful, as it provides some insight into the number of respondents who were dual licence holders (Section 3.5.3). A final auditing step was to flag these records so that they could be excluded from the data sets used to estimate total usage of each angling water, but recalled as necessary when relevant to the analysis at hand.

2.6 Data analysis

To derive usage estimates for each stratum, we assumed that the respondents represented a simple random sample of all licence holders in that stratum. Essentially, this is equivalent to the assumption

that those individuals who could not be contacted (Strata 1, 2, and 4), or had purchased a 24-hour licence over the counter (Stratum 3), had the same fishing characteristics, on average, as those who were contacted. Responses for family licence holders were summed across all individuals fishing on that licence, to ensure that the licence (rather than the individual) remained the basic sampling unit across all strata. For all angling waters fished by at least one respondent ($N = 1,209$) we then estimated the mean effort per respondent, and hence the estimated total effort for the whole stratum, as

$$E_{ij} = N_j \times \left(\sum_{k=1}^{n_j} D_{ijk} \right) / n_j = N_j \times \bar{D}_{ij} / n_j$$

where

- i denotes the i^{th} angling water or reach thereof ($i = 1 - 1,209$);
- j denotes the j^{th} stratum ($j = 1 - 208$);
- N_j denotes the population size (i.e., number of active licences) in stratum j ;
- n_j denotes the sample size for stratum j ;
- k denotes the k^{th} respondent in a given stratum ($k = 1, n_j$);
- D_{ijk} denotes the number of days spent on angling water i by respondent k in stratum j ; and
- \bar{D}_{ij} denotes the mean number of days per respondent spent on angling water i in stratum j ,

with variance given by

$$s^2_{ij} = N_j \times \left(\sum_{k=1}^{n_j} (D_{ijk} - \bar{D}_{ij})^2 \right) / (n_j - 1)$$

and standard deviation s_{ij} . Estimates of total annual effort E_i for angling water i , taking into account possible contributions from all 208 extant strata, were then obtained by summing E_{ij} over all j , and similarly for the estimated variance s^2_{ij} . By restricting the sum to selected subsets of the full set of strata, we were able to generate usage estimates for a specified survey period, licence stratum, licence region, fishing region, or any combination of these.

For summarising and reporting purposes, these estimates were merged with metadata for each angling water, such as catchment number (Anon. 1956), water type (c.f. Unwin & Brown 1998), and REC class (Snelder & Biggs 2002), to provide additional opportunities for cross-tabulation. Waters were assigned to one of three main classes: lakes, rivers, and canals⁵. Lakes were further subdivided into natural lakes and artificial reservoirs. Rivers were subdivided by flow source using a modified version of the original REC classification scheme, defined for the purposes of this report as mountain (50% of mean annual catchment rainfall above 1000 m elevation); hill (50% of mean annual catchment rainfall between 400-1000 m elevation); lowland (50% of mean annual catchment rainfall < 400 m elevation); and lake-fed (as defined by Snelder & Biggs 2002). Rivers were also grouped according to the dominant catchment land cover, defined here as natural (indigenous forest, tussock, scrub, bare ground); exotic forest; pasture (including cropland); and urban. Finally, the results were

⁵ Canal fisheries included structures such as the upper Waitaki hydroelectric canals, and artificially maintained flood control channels such as the Wairau Diversion and Roses Overflow in the lower Wairau Valley.

appended to the existing results for the three preceding surveys, so as to facilitate analysis of temporal trends over the two decades since the 1994/95 survey.

3 Results

3.1 Angler demographics

Age and gender data were available for 104,944 (99.9%) of 2014/15 FGZ licence sales. Males accounted for 91.4% of this total, and were particularly dominant among adult whole season and family licences for which 94.7% of holders were males. The proportion of female anglers was highest for 24-hour licences (14.7% of total sales), and junior whole-season licences (13.0% of total sales). By contrast, females accounted for 16.4% of whole-season licence sales in the Taupo Conservancy, based on the 3,402 2014/15 licence records for which gender data were available.

Median age (as of 1 January 2015) for FGZ anglers was 52 years for adult whole-season (Stratum 1) licence holders, for New Zealand resident and non-residents alike, but somewhat lower (40 years) for 24-hour licence holders. Female anglers tended to be slightly younger than their male counterparts, with median ages of 49 and 52, respectively, for Stratum 1; and 36 and 41, respectively, for Stratum 3. No such differences were apparent in the Taupo Conservancy, where the median age was 54 for both males and females. Comparison with age data for the 2007/08 licencing year suggests that the FGZ angling population is aging. Median ages for adult whole-season licence holders at the time of the 2007/08 survey (Unwin 2009) were 47 for females and 50 for males, i.e., two years younger than for the 2014/15 year.

Table 3-1: Sales of FGZ whole-season fishing licences for the 2014/2015 angling season in relation to population figures from the 2013 Census, by FGZ region. Successive columns show the adult male population (N_{male}), the number of licences bought by adult male residents of each region (N_{lic}), and the percentage of males holding a licence (% uptake). These figures do not include licences sold by the Taupo Conservancy, and underestimate participation rates in the central North Island.

Region	Adult		
	N_{male}	N_{lic}	% uptake
Northland	55,500	268	0.5%
Auckland/Waikato	703,400	6,627	0.9%
Eastern	57,600	4,281	7.4%
Taupo Conservancy (DoC)	13,500	347	2.6%
Taranaki	54,600	738	1.4%
Hawkes Bay	52,700	2,099	4.0%
Wellington	239,900	3,354	1.4%
Total, North Island	1,177,100	17,714	1.5%
Nelson/Marlborough	56,800	2,287	4.0%
West Coast	14,500	1,242	8.5%
North Canterbury	174,900	13,760	7.9%
Central South Island	42,300	7,810	18.5%
Otago	79,300	9,870	12.5%
Southland	36,400	6,287	17.3%

Region	Adult		
	N _{male}	N _{lic}	% uptake
Total, South Island	404,200	41,256	10.2%
Total, New Zealand	1,581,300	58,970	3.7%

Analysis of licence sales by region of residence (Table 3-1) showed similar geographic trends to those reported in 2001/02 (Table 4; c.f. Unwin & Image 2003) and 2007/08 (Unwin 2009). These figures do not include licences sold by the Taupo Conservancy and hence underestimate participation rates in the central North Island (c.f. Unwin & Image 2003), but broadly reflect national trends. Per capita sales of adult whole-season fishing licences remain markedly higher in the South Island than in the North Island, particularly in Central South Island (18.5% of adult males), Otago (12.5%), and Southland (17.3%). To give one specific example, more 2014/15 FGNZ whole-season licences were held by residents of Invercargill (population 47,898; 3,127 licences) than by residents of metropolitan Auckland (population 1,381,790; 2,323 licences)⁶.

Of the 14,280 respondents to the telephone survey (i.e., Strata 1, 2, and 4), 6,802 (47.6%) had fished during the survey period of interest. Taking FGNZ family licences into account the fishing activities of 14,282 principal licence holders who fished during at least one survey period were recorded, comprising 10,142 individuals who purchased a single-person licence, and a further 13,685 individuals fishing on 4,140 family licences. Total effort for these individuals was 47,439 angler-days. Stratum 3 licence holders contributed a further 20,132 days on 454 waters, bringing the total for all survey respondents to 68,007 angler-days, by 43,970 individuals, on 821 recognised lake and river fisheries. As in previous surveys Stratum 3 licence holders fished a more restricted range of waters than whole-season licence holders, fishing 443 individual lakes and rivers but expending over half (51%) of their total effort on just twelve waters.

3.2 Usage of river and lake fisheries

3.2.1 Data sets and analyses

In Sections 3.2.2 - 3.4.13, which form the core of this report, the 2014/15 results are summarised and discussed at a national level, and – where appropriate – at regional level. No attempt has been made to analyse results for every angling water recorded during the survey, partly because of the enormity of the task, but primarily because such analyses are better left to FGNZ staff familiar with the rivers and lakes in their own region.

Two complementary data sets derived from the 2014/15 survey and its predecessors underpin these results. The first (Appendix A) is a complete listing of all waters identified during the 2014/15 survey, and gives total estimated usage, by survey period, summed across all strata including overseas visitors. This representation of the data provides a full summary of angler activity for the 2014/15 season, but gives no insight into temporal trends. The second data set (Appendix B) is limited to fisheries under FGNZ jurisdiction, and gives total annual usage for all lakes and rivers recorded in the four surveys conducted to date. To maintain consistency over time, the estimates in Appendix B exclude overseas visitors (who were first surveyed in 2007/08), this representation of the data

⁶ Population data are from <http://www.citypopulation.de/NewZealand.html>

accurately characterises temporal trends, but is conservative with respect to the 2014/15 usage estimates in Appendix A.

3.2.2 National and regional totals

Total estimated angling effort during the 2014/15 angling season was 1.274 ± 0.021 million angler-days (Appendix A), with $747,850 \pm 15,900$ angler-days (58.7% of the total) expended on 597 river fisheries in 167 catchments, and $526,290 \pm 14,260$ angler-days (41.3% of the total) expended on 190 lake fisheries in 57 catchments (Table 3-2,). This comprised 1.146 ± 0.020 million angler days (90.0% of the total) in the 12 FGNZ regions, and $127,700 \pm 7,560$ angler-days in the Taupo Conservancy. The distribution of effort by fishing region was highly variable, with six regions (Eastern, the Taupo Conservancy, North Canterbury, Central South Island, Otago, and Southland) collectively accounting for 1.067 million days (83.8% of the total effort). Lake fishing was even more limited in geographic terms, with 81.0% of the total (425,760 angler-days) recorded in four regions: Eastern, the Taupo Conservancy, Central South Island, and Otago.

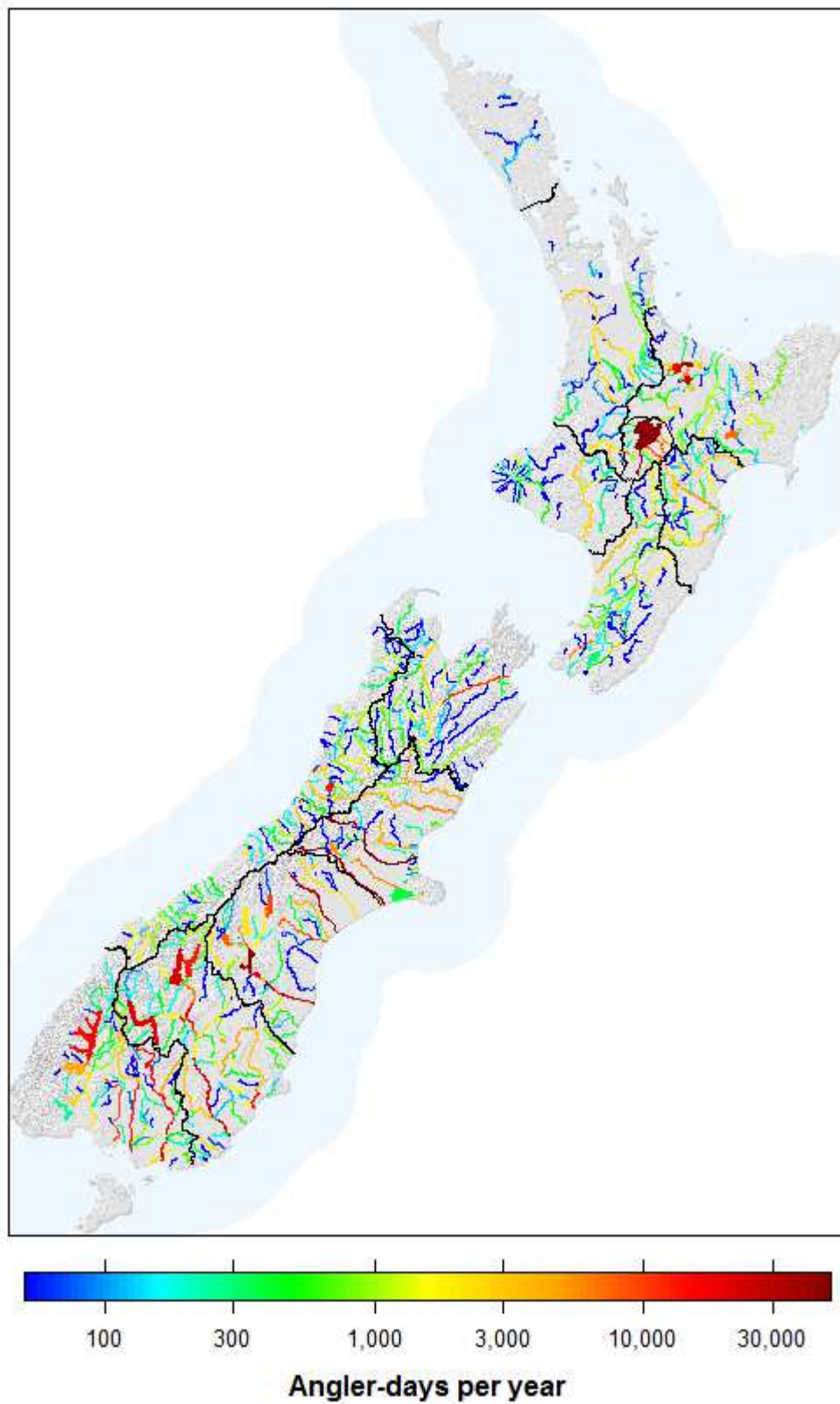


Figure 3-1: Estimated annual fishing effort (angler-days) for all respondents to the 2014/15 National Angling Survey. Regional boundaries (black lines) are as in Figure 1-1.

Table 3-2: Total angling effort for the 2014/15 season (thousands of angler-days \pm 1 standard error) by fishing region and water type (river vs. lake). Figures in parentheses show the regional total for each water type as a percentage of the national total.

Region	Rivers	Lakes	Total
Northland	0.5 \pm 0.1 (0.1%)	1.1 \pm 0.2 (0.2%)	1.6 \pm 0.3 (0.1%)
Auckland/Waikato	20.6 \pm 1.9 (2.8%)	6.1 \pm 1.1 (1.2%)	26.7 \pm 2.2 (2.1%)
Eastern	30.8 \pm 3.1 (4.1%)	124.4 \pm 6.5 (23.7%)	155.2 \pm 7.2 (12.2%)
Taupo Conservancy	53.6 \pm 4.5 (7.2%)	74.1 \pm 6.1 (13.9%)	127.7 \pm 7.6 (10.0%)
Taranaki	6.5 \pm 0.5 (0.9%)	2.5 \pm 0.5 (0.5%)	9.0 \pm 0.7 (0.7%)
Hawkes Bay	34.7 \pm 1.9 (4.6%)	2.8 \pm 0.5 (0.5%)	37.4 \pm 2.0 (2.9%)
Wellington	34.6 \pm 2.0 (4.6%)	0.9 \pm 0.3 (0.2%)	35.5 \pm 2.0 (2.8%)
Nelson/Marlborough	34.7 \pm 2.4 (4.7%)	4.4 \pm 0.5 (0.8%)	39.1 \pm 2.5 (3.1%)
West Coast	35.7 \pm 3.2 (4.8%)	21.3 \pm 3.2 (4.1%)	57.1 \pm 4.5 (4.5%)
North Canterbury	147.1 \pm 8.8 (19.7%)	28.9 \pm 3.4 (5.5%)	176.0 \pm 9.4 (13.8%)
Central South Island	176.8 \pm 7.7 (23.6%)	122.7 \pm 7.3 (23.4%)	299.5 \pm 10.6 (23.5%)
Otago	81.2 \pm 5.6 (10.9%)	105.4 \pm 6.3 (20.1%)	186.6 \pm 8.4 (14.7%)
Southland	90.7 \pm 5.3 (12.2%)	31.7 \pm 2.8 (6.0%)	122.7 \pm 6.0 (9.6%)
Total	747.9 \pm 15.9	526.3 \pm 14.3	1,274.2 \pm 21.3

Cross tabulation of the data by region and stratum (Analysis of effort by region and survey period (Table 3-4) confirms that angling is primarily a summer activity, with 75.7% of the annual total for Strata 1-3 anglers (936,580 \pm 18,380 angler-days) expended over the six months from October to March (September to February in the Taupo Conservancy), and a further 12.5% (154,370 \pm 7,050 angler-days) in April/May (March-April in the Taupo Conservancy). Seasonality was particularly strong in the North Canterbury and Central South Island regions, where angling intensity from December to March-April directly reflects the strength of the highly variable sea-run salmon fishery (Unwin 1997). Seasonal variation in effort also reflects local regulations, such as FGNZ restrictions on many non-lowland river fisheries and smaller lakes which limit angling to a seven month season from 1 October to 30 April, and similar restrictions in the Taupo Conservancy under which the western tributaries of Lake Taupo are closed from June to November.

Table 3-3) highlights the dominance of Stratum 1 licence holders, who accounted for 91.5% of total effort (1,166,120 \pm 21,140 angler-days). Stratum 2 licence holders contributed a further 33,600 \pm 2,100 angler-days (2.6% of the total), with Stratum 3 licence holders accounting for a further 37,840 \pm 160 angler-days (3.0% of the total). In contrast to whole-season licence holders (i.e., Strata 1, 2, and 4), part-season licence holders showed a strong preference for the tourist-oriented fisheries of the Eastern, Central South Island, and Otago regions, which collectively accounted for 25,680 \pm 130 angler-days (68% of the Stratum 3 total). However, the absence of Stratum 2 and 3 data for the Taupo Conservancy means that totals for junior and part-season licence holders are conservative, and underestimate the contribution of the Taupo fishery to the national total. Overseas visitors accounted for 36,600 \pm 2 800 angler-days (2.9% of the total).

Analysis of effort by region and survey period (Table 3-4) confirms that angling is primarily a summer activity, with 75.7% of the annual total for Strata 1-3 anglers (936,580 \pm 18,380 angler-days) expended over the six months from October to March (September to February in the Taupo

Conservancy), and a further 12.5% (154,370 ± 7,050 angler-days) in April/May (March-April in the Taupo Conservancy). Seasonality was particularly strong in the North Canterbury and Central South Island regions, where angling intensity from December to March-April directly reflects the strength of the highly variable sea-run salmon fishery (Unwin 1997). Seasonal variation in effort also reflects local regulations, such as FGNZ restrictions on many non-lowland river fisheries and smaller lakes which limit angling to a seven month season from 1 October to 30 April, and similar restrictions in the Taupo Conservancy under which the western tributaries of Lake Taupo are closed from June to November.

Table 3-3: Total angling effort for the 2014/15 season (thousands of angler-days ± 1 standard error) by licence region and survey stratum. Figures in parentheses show the regional total for each stratum as a percentage of the national total.

Region	Stratum 1	Stratum 2	Stratum 3	Stratum 4	Total
Northland	1.3 ± 0.2 (0.1%)		0.2 ± 0.0 (0.4%)	0.1 ± 0.1 (0.2%)	1.6 ± 0.3 (0.1%)
Auckland/Waikato	23.3 ± 2.2 (2.0%)	1.5 ± 0.4 (4.4%)	1.3 ± 0.0 (3.5%)	0.7 ± 0.2 (1.8%)	26.7 ± 2.2 (2.1%)
Eastern	136.9 ± 7.1 (11.7%)	6.3 ± 1.2 (18.6%)	9.9 ± 0.1 (26.1%)	2.2 ± 0.5 (6.0%)	155.2 ± 7.2 (12.2%)
Taupo Conservancy	127.7 ± 7.6 (11.0%)				127.7 ± 7.6 (10.0%)
Taranaki	8.3 ± 0.7 (0.7%)	0.3 ± 0.1 (1.0%)	0.3 ± 0.0 (0.7%)	0.2 ± 0.1 (0.5%)	9.0 ± 0.7 (0.7%)
Hawkes Bay	34.1 ± 2.0 (2.9%)	0.6 ± 0.1 (1.7%)	1.0 ± 0.0 (2.7%)	1.7 ± 0.4 (4.7%)	37.4 ± 2.0 (2.9%)
Wellington	33. ± 2.0 (2.8%)	0.6 ± 0.1 (1.8%)	0.8 ± 0.0 (2.2%)	1.0 ± 0.3 (2.7%)	35.5 ± 2.0 (2.8%)
Nelson/Marlborough	32.1 ± 2.2 (2.7%)	1.6 ± 0.3 (4.7%)	1.6 ± 0.0 (4.2%)	3.9 ± 1.0 (10.5%)	39.1 ± 2.5 (3.1%)
West Coast	51.7 ± 4.5 (4.4%)	1.2 ± 0.4 (3.7%)	1.3 ± 0.0 (3.4%)	2.9 ± 0.5 (7.9%)	57.1 ± 4.5 (4.5%)
North Canterbury	169.4 ± 9.4 (14.5%)	2.5 ± 0.4 (7.5%)	2.5 ± 0.0 (6.6%)	1.8 ± 0.4 (4.8%)	176.1 ± 9.4 (13.8%)
Central South Island	278. ± 10.5 (23.8%)	8.5 ± 1.0 (25.4%)	7.9 ± 0.1 (20.8%)	5.1 ± 0.7 (13.9%)	299.5 ± 10.6 (23.5%)
Otago	168.1 ± 8.3 (14.4%)	5.4 ± 0.9 (15.9%)	7.9 ± 0.1 (21.0%)	5.2 ± 0.9 (14.2%)	186.6 ± 8.4 (14.6%)
Southland	102.4 ± 5.9 (8.8%)	5.1 ± 0.7 (15.2%)	3.2 ± 0.1 (8.4%)	12.0 ± 1.1 (32.8%)	122.7 ± 6.0 (9.6%)
Total	1,166.1 ± 21.1	33.6 ± 2.1	37.8 ± .2	36.6 ± 2.1	1,274.1 ± 21.4

Table 3-4: Total angling effort for the 2014/15 season (thousands of angler-days \pm 1 standard error) by fishing region and survey period. Figures in parentheses show the bimonthly total for each region as a percentage of the regional total. Overseas visitors were surveyed once at the end of the season, so are excluded from the table.

Region	Oct – Nov (FGNZ)	Dec – Jan (FGNZ)	Feb - Mar (FGNZ)	Apr - May (FGNZ)	Jun - Jul (FGNZ)	Aug - Sep (FGNZ)	Total
	Sep – Oct (Taupo)	Nov – Dec (Taupo)	Jan – Feb (Taupo)	Mar – Apr (Taupo)	May – Jun (Taupo)	Jul – Aug (Taupo)	
Northland	0.3 \pm 0.1 (16.3%)	0.3 \pm 0.1 (18.7%)	0.2 \pm 0.1 (15.6%)	0.2 \pm 0.1 (15.7%)	0.4 \pm 0.1 (23.7%)	0.2 \pm 0.1 (10.0%)	1.5 \pm 0.2
Auckland/Waikato	3.7 \pm 0.8 (15.2%)	8.4 \pm 1.2 (31.6%)	6.1 \pm 1.2 (23.2%)	3.9 \pm 0.7 (15.1%)	2.1 \pm 0.6 (7.8%)	1.9 \pm 0.7 (7.1%)	26.1 \pm 2.2
Eastern	23.0 \pm 2.9 (15.0%)	49.3 \pm 4.0 (32.2%)	30.9 \pm 3.2 (20.2%)	27.8 \pm 2.6 (18.1%)	13.5 \pm 2.8 (8.8%)	8.6 \pm 1.4 (5.6%)	153.1 \pm 7.2
Taupo Conservancy	21.3 \pm 2.6 (16.8%)	30.2 \pm 4.3 (23.8%)	34.6 \pm 4.7 (27.3%)	17.2 \pm 2.2 (13.5%)	10.1 \pm 1.4 (7.9%)	13.4 \pm 1.3 (10.6%)	127.7 \pm 7.5
Taranaki	2.0 \pm 0.2 (23.0%)	2.9 \pm 0.4 (32.5%)	2.0 \pm 0.4 (23.0%)	1.1 \pm 0.2 (12.3%)	0.4 \pm 0.2 (5.0%)	0.4 \pm 0.2 (4.1%)	8.9 \pm 0.7
Hawkes Bay	7.0 \pm 0.6 (19.6%)	8.5 \pm 0.7 (23.8%)	9.1 \pm 1.2 (25.6%)	5.5 \pm 1.1 (15.3%)	3.9 \pm 0.6 (11.0%)	1.7 \pm 0.3 (4.6%)	35.7 \pm 2.0
Wellington	5.5 \pm 0.6 (16.2%)	10.7 \pm 1.1 (30.6%)	8.9 \pm 1.1 (26.0%)	5.8 \pm 0.8 (16.8%)	2.2 \pm 0.5 (6.1%)	1.5 \pm 0.6 (4.3%)	34.5 \pm 2.0
Nelson/Marlborough	6.9 \pm 0.7 (19.6%)	10.8 \pm 1.1 (30.7%)	9.6 \pm 1.2 (27.3%)	3.4 \pm 0.7 (9.7%)	2.4 \pm 0.6 (6.7%)	2.1 \pm 1.1 (5.9%)	35.2 \pm 2.2
West Coast	7.9 \pm 0.8 (14.5%)	17.8 \pm 1.9 (32.9%)	9.9 \pm 1.0 (18.2%)	7.1 \pm 1.5 (13.1%)	8.8 \pm 3.5 (16.2%)	2.7 \pm 0.6 (5.1%)	54.2 \pm 4.5
North Canterbury	16.3 \pm 1.7 (9.3%)	66.4 \pm 5.5 (38.1%)	65.6 \pm 6.7 (37.6%)	17.4 \pm 2.5 (10.0%)	3.1 \pm 1.2 (1.8%)	5.5 \pm 1.4 (3.2%)	174.3 \pm 9.4
Central South Island	46.4 \pm 3.0 (15.8%)	115.0 \pm 6.9 (39.0%)	81.3 \pm 6.0 (27.6%)	27.9 \pm 3.2 (9.5%)	14.6 \pm 2.4 (5.0%)	9.3 \pm 1.9 (3.1%)	294.4 \pm 10.6
Otago	23.4 \pm 2.2 (13.0%)	73.0 \pm 4.8 (40.3%)	37.0 \pm 4.2 (20.5%)	26.5 \pm 3.7 (14.7%)	10.1 \pm 2.6 (5.6%)	10.9 \pm 2.0 (6.0%)	180.9 \pm 8.3
Southland	26.6 \pm 2.9 (23.8%)	35.4 \pm 2.9 (32.1%)	22.0 \pm 2.1 (19.9%)	10.4 \pm 1.6 (9.5%)	5.6 \pm 1.5 (5.0%)	10.6 \pm 2.9 (9.6%)	110.7 \pm 5.9
Total	190.5 \pm 6.5 (15.4%)	428.6 \pm 12.4 (34.6%)	317.5 \pm 11.9 (25.6%)	154.4 \pm 7.1 (12.5%)	77.0 \pm 6.3 (6.2%)	68.7 \pm 4.90 (5.6%)	1,236.9 \pm 21.2

3.3 Temporal trends

Total effort in 2014/15 (by New Zealand resident licence holders) for waters under FGNZ jurisdiction (1,109,890 ± 19,860 angler-days) was the lowest on record⁷, although virtually identical to (within 800 angler-days of) the 2001/2002 total (1,110,700 ± 15,760 angler days; Table 3-5, Appendix B). These figures contrast with 1.156 million angler-days in 1994/96, and 1.202 million angler-days in 2007/08. Mean annual effort for the four years of record was 1.144 million angler-days, with an annual range of 92,490 angler-days. The differences between the 1994/95 total and the totals for the other three surveys are not statistically significant (paired t-tests; $p > 0.05$ in all cases), but the 2007/08 total is significantly greater than the 1994/95 and 2014/15 totals ($p < 0.001$ in both cases). The decline in usage from 2007/08 to 2014/15 (91,680 ± 27,800 angler-days) is thus highly significant, although the data show no evidence of a consistent long-term trend.

More consistent long-term trends are apparent at regional level (Table 3-5, Figure 3-2). Strong declines are apparent in Auckland/Waikato (down from 44,940 ± 2,030 angler-days in 1994/95 to 26,040 ± 2,180 angler-days in 2014/15; 42% decrease), Eastern (1994/95: 250,410 ± 9,270 angler-days; 2014/15: 153,100 ± 7,180 angler-days; 39% decrease); and Wellington (1994/95: 68,030 ± 3,230 angler-days; 2014/15: 34,990 ± 2,020 angler-days; 49% decrease), with less consistent but perceptible declines in Nelson/Marlborough and Southland (down 30% since 2001/02). Effort increased markedly in two regions: West Coast (a 108% increase from 1994/95 to 2014/15), and Central South Island (a 77% increase over the same period). No consistent pattern was apparent in the remaining five regions (Northland, Taranaki, Hawkes Bay, North Canterbury, and Otago). The pronounced drop in effort for North Canterbury in 2001/02 has been attributed to an unusually poor salmon fishing season (Unwin & Image 2003), reflecting the region's dependence on the highly volatile annual salmon run.

Table 3-5: Annual trends in estimated annual usage by New Zealand resident anglers (angler-days x 1000 ± 1 SE), 1994/95 to 2014/15 by FGNZ region. Northland licence holders were not surveyed in 1994/95, so the 1994/95 figure is a conservative estimate based on data for visiting anglers from other regions.

Region	1994/95	2001/02	2007/08	2014/15
Northland	340 ± 120	1,870 ± 520	3,650 ± 550	1,510 ± 240
Auckland/Waikato	44,940 ± 2,030	41,040 ± 1,990	30,650 ± 2,570	26,040 ± 2,180
Eastern	250,410 ± 9,270	231,330 ± 7,650	209,520 ± 8,500	153,100 ± 7,180
Taranaki	13,150 ± 850	8,230 ± 620	16,380 ± 1,380	8,850 ± 680
Hawke's Bay	37,830 ± 630	46,430 ± 2,100	32,490 ± 2,430	35,680 ± 1,960
Wellington	68,030 ± 3,230	45,310 ± 2,110	44,430 ± 2,570	34,480 ± 2,000
Nelson/Marlborough	46,270 ± 2,210	38,520 ± 1,750	34,440 ± 1,970	35,230 ± 2,230
West Coast	26,000 ± 1,420	36,030 ± 1,540	43,060 ± 2,280	54,180 ± 4,500
North Canterbury	166,690 ± 9,720	117,930 ± 5,170	194,620 ± 8,540	174,380 ± 9,370
Central South Island	166,140 ± 5,640	168,230 ± 5,860	241,440 ± 8,980	294,430 ± 10,590
Otago	182,870 ± 6,470	218,710 ± 8,660	215,430 ± 9,370	181,360 ± 8,330
Southland	152,820 ± 5,050	157,060 ± 5,920	136,260 ± 5,930	110,650 ± 5,910
Total	1,155,480 ± 17,380	1,110,700 ± 15,760	1,202,380 ± 19,470	1,109,890 ± 19,860

⁷ The loss of data from the discarded SIT interviews reduces the precision of the 2014/15 estimate, but has no systematic effect on its magnitude (c.f. Sections 3.4.2 - 3.4.5).

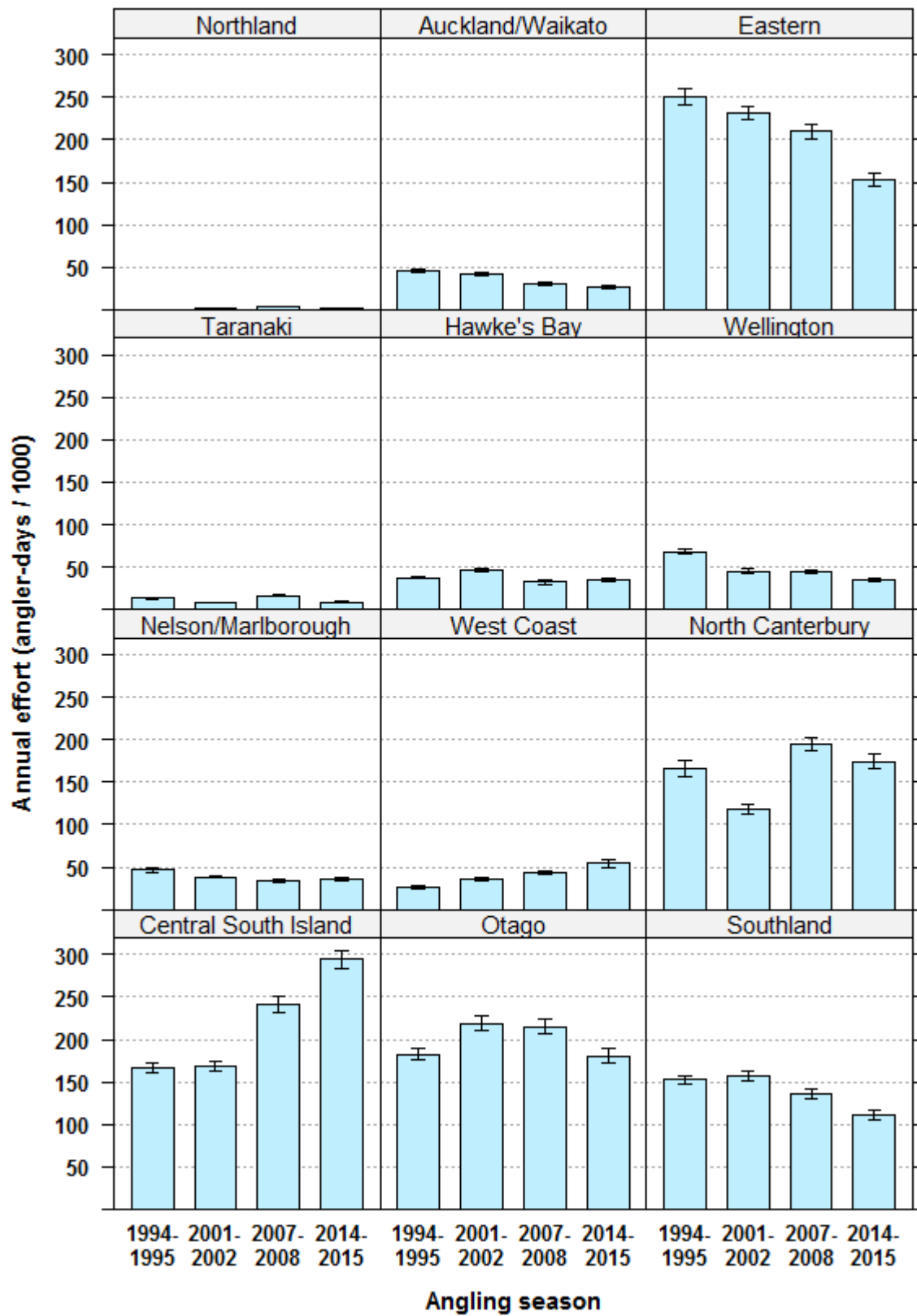


Figure 3-2: Annual trends in estimated usage of river fisheries by New Zealand resident anglers (angler-days x 1000 ± 1 SE) by FGNZ region.

3.4 Regional summaries

3.4.1 Northland region

Total estimated effort for the Northland region in 2014/15 was $1,570 \pm 250$ angler-days, distributed across 13 angling waters in eight catchments (Table 3-5, Appendix A). This comprised 480 ± 130 angler days on nine lake fisheries (31% of the regional total), and $1,090 \pm 210$ angler-days on four lake and reservoir fisheries (69% of the regional total). The most heavily fished waters were the Kaiwi Lakes (680 ± 160 angler-days; 43% of the regional total); Whau Valley Dam (220 ± 100 angler-days; 14%); and Lake Manuwai (170 ± 90 angler-days, 11%). However, these totals are almost certainly conservative because of the absence of Stratum 1 data for Northland licence holders in December-January (Section 2.5.1). Total effort for these licence holders over the 10 months covered by the survey was 730 ± 160 angler-days, but the corresponding figures for 2007/08 suggest that this represents only 48% (520 of $1,080$ angler-days) of the total for this stratum. Assuming a similar figure applies to the 2014/15 season, the missing December-January data would have contributed a further 670 angler-days to the regional total, increasing it (by 43%) to 2,240 angler-days. On this basis, total annual usage for the Kaiwi Lakes, the most popular water in the region, is likely to have been between 900 and 1,000 angler-days. The Northland region was not surveyed in 1994/1995, but a comparison of annual totals for 2001/02 ($1,870 \pm 520$ angler-days), 2007/08 ($3,650 \pm 550$ angler-days), and 2014/15 (2,240 angler-days) shows no obvious long-term trend.

The random sample survey methodology used by the 2014/15 survey and its predecessors is not ideally suited to the Northland region. With so few local licence-holders available in each stratum (e.g., 104 – 216 for Stratum 1; Table 2-4), it is difficult to implement a sampling strategy which maximises sample size (and hence statistical precision) while minimising the need to survey the same individuals on multiple occasions. Even with a bimonthly sample size as small as 20 some Northland licence holders were surveyed four times over the 2014/15 season, a situation which risks exhausting angler patience as well as skewing the results in favour of a small number of individuals who are not necessarily representative of the wider population. If the survey is to be repeated in another seven years, it may appropriate to conduct a preliminary review seeking a sampling strategy which better reflects the small angling population within the Northland region.

3.4.2 Auckland/Waikato region

Total estimated effort for the Auckland/Waikato region in 2014/15 was $26,690 \pm 2,190$ angler-days, distributed across 64 angling waters in 13 catchments (Table 3-5, Appendix A). This comprised $6,050 \pm 1,130$ angler days on 15 lake fisheries, and $20,640 \pm 1,880$ angler-days on 49 river fisheries. The most heavily fished waters were the upper Whanganui River (i.e., above the boundary with Taranaki at Ohura; $4,690 \pm 870$ angler-days, comprising 2,090 and 2,610 angler-days above and below the Whakapapa confluence, respectively); Lake Arapuni ($3,370 \pm 920$ angler-days); the Waikato River below Karapiro ($3,130 \pm 840$ angler-days); the Whakapapa River ($2,920 \pm 690$ angler-days); the Waipa River ($2,340 \pm 980$ angler-days); Lake Karapiro ($1,690 \pm 590$ angler-days); and the Waihou River ($1,520 \pm 420$ angler-days, comprising 620 and 900 angler-days above and below Okoroire, respectively). No other waters attracted more than 1,000 angler-days. The three most heavily fished catchments were the Whanganui, Waikato, and Waihou, which collectively accounted for 94.7% of total effort for the region.

New Zealand resident licence holders from other FGZ regions fished for $6,590 \pm 1,430$ angler-days within the Auckland/Waikato region, representing 25% of the regional total. The most popular waters with these anglers were Lake Arapuni ($1,560 \pm 870$ angler-days) and the Whanganui River

above Ohura (1,450 ± 440 angler-days). The survey data also give an estimate of 1,150 out-of-district angler-days for the Waipa River, but this figure is based on a single respondent with a Waikato home address who purchased a North Canterbury licence, and is highly unlikely to reflect a general trend. Overseas visitors accounted for 650 ± 190 angler-days (2.4% of the regional total), primarily on the Whakapapa River and upper Whanganui River.

The reduction in annual usage by New Zealand resident anglers since the 1994/95 survey (Table 3-5, Appendix B) appears to be associated more with lakes than with rivers. River usage over the four surveys conducted to date totalled 26,280, 23,950, 20 830, and 19,990 angler-days, respectively, in 1994/95, 2001/02, 2007/08, and 2014/15, with standard errors of ± 1,500 – 1,900 angler-days. By contrast, lake usage in 2014/15 was less than a third of the 1994/95 figure, totalling 18,650, 17,080, 9,820, and 6 050 angler-days (with standard errors of ± 1,130 – 1,900 angler-days) over the four surveys. Figures for the most popular lake fisheries (Lake Arapuni and Lake Karapiro) strongly reflect this trend, but equally strong (if not stronger) trends are apparent for many smaller lakes. For example, seven less heavily used lake fisheries (Lake Pupuke, Hamilton Lake, Lake Waipapa, Mangatangi Reservoir, Lake Ototoa, Lake Okaihau, and Tomarata Lake) recorded a total of 4,770 angler-days in 1994/95, compared to 560 angler-days in 2014/15.

Confidence intervals for the 2014/15 usage estimates were little affected by the loss of data due to the discarded telephone interviews (Section 2.5.1). Assuming sample sizes for the two affected strata had been as originally planned, i.e., 200 for October-November (instead of 175 as actually achieved), and 250 for February-March (instead of 174), the confidence interval for total effort in the Auckland/Waikato region would have been reduced from ± 2,180 angler-days to ± 2,160 angler-days.

3.4.3 Eastern region

Total estimated effort for the Eastern region in 2014/15 was 153,100 ± 7,180 angler-days, distributed across 76 angling waters in 14 catchments (Appendix A). This comprised 124,490 ± 6,500 angler-days on 28 lake fisheries, and 30,800 ± 3,090 angler-days on 48 river fisheries. The most heavily fished waters were Lake Rotoiti (40,150 ± 4,190 angler-days), Lake Tarawera (31,540 ± 3,610 angler-days), Lake Rotorua (17,800 ± 2,120 angler-days), and Lake Waikaremoana (7,500 ± 1,110 angler-days), which collectively accounted for 63.4% of the regional total. By contrast, only one river (Ngongotaha Stream) attracted more than 5,000 angler-days (7,450 ± 2,000), although a further ten rivers attracted over 1,000 days (Appendix A).

Three Eastern rivers were subdivided into multiple reaches for the purposes of the 2014/15 survey. These were the Tarawera River, where 1,090 of 1,370 angler-days (80%) was recorded above Tarawera Falls; the Rangitaiki River (total effort 2,580 angler-days), where 910, 1,120, and 560 angler-days were recorded above Lake Aniwhenua, between Lake Aniwhenua and Lake Matahina, and below Lake Matahina, respectively; and the Ruakituri River, where 1,610 of 1,750 angler-days (92%) were recorded above Boothman Bridge.

New Zealand resident licence holders from other FGNZ regions (primarily Auckland/Waikato and Hawkes Bay) fished for 28,710 ± 2,100 angler-days within the Eastern region, representing 19% of the regional total. The most popular waters with visitors were Lake Rotoiti (6,830 ± 1,480 angler-days); Lake Tarawera (3,280 ± 530 angler-days); Lake Rotorua (3,140 ± 650 angler-days); and Lake Waikaremoana (2,570 ± 490 angler-days). Overseas visitors accounted for 2,190 ± 530 angler-days, representing 1.4% of the regional total.

Unlike the Auckland/Waikato region, the decline in total effort by New Zealand resident anglers relative to 1994/95 (Table 3-5, Appendix B) appears to have affected lake and river fisheries more or less equally, with the 2014/15 figures representing 62.3% of the 1994/95 total for lake fisheries, and 56.7% of the 1994/95 total for river fisheries. However, the decline in lake fishing effort has been unevenly distributed across the region, with little or no long-term trend evident on Lakes Rotoiti and Tarawera, compared to reductions (relative to 1994/95) of 57% and 64%, respectively, for Lakes Rotorua and Waikaremoana. The decline has been particularly marked for hydroelectric reservoirs. For eight such reservoirs in the Rangitaiki catchment (Lakes Flaxy, Aniwhenua, Matahina) and the Waikato catchment (Lakes Ohakuri, Atiamuri, Whakamaru, Maraetai, Waipapa), total effort fell from 21,020 ± 2,200 angler-days in 1994/95 to 3 850 ± 770 angler-days in 2014/15.

Confidence intervals for 2014/15 usage estimates in the Eastern region were moderately affected by the loss of data due to the discarded telephone interviews, which effectively halved the sample size for the three affected strata from October 2014 to March 2015 (Section 2.5.1). Assuming sample sizes for these strata had been as originally planned, the confidence interval for total effort in the Eastern region would have been reduced by 16%, from ± 7,180 angler-days to ± 6,000 angler-days.

3.4.4 Taupo Conservancy

Total effort for the Taupo Conservancy in 2014/15 was 127,700 ± 7,560 angler-days, distributed over 11 river fisheries and four lake fisheries in the upper Waikato (i.e., Lake Taupo) catchment (Appendix A). Lake fisheries accounted for 74,090 ± 6,070 angler-days (58% of the total), with Lake Taupo attracting just over half of the regional total (67,440 ± 5,820 angler-days; 53%). River fisheries accounted for 53,610 ± 4,500 angler days (42% of the regional total), of which 30,670 ± 3,100 angler days (24% of the total) was recorded on the Tongariro River. Two other waters attracted over 5,000 angler-days: the Tauranga-Taupo River (7,740 ± 2,500 angler-days), and Hinemaiaia Stream (7,270 ± 1,160 angler-days), each representing 6% of the regional total.

The within-season distribution of angling effort in the Taupo Conservancy differed markedly between Lake Taupo and its inflowing tributaries. Peak fishing effort on Lake Taupo (29,320 ± 4,510 angler-days; 43% of the total for this fishery) occurred during January-February, with a further 16,370 ± 2,840 angler-days; 24%) recorded in November-December. By contrast, angling activity on the tributary fisheries peaked in September-October (15,890 ± 2,250 angler-days; 30% of the total for river fisheries), with 69% (37,220 ± 3,910 angler-days) recorded over the six months from July to December.

As with FGNZ's Eastern region, the precision of the above usage estimates was reduced, and the associated confidence intervals broadened, by the loss of roughly half of the interviews for the first three survey periods (Section 2.5.1). Assuming sample sizes for these three periods had remained at 200, as originally planned, the confidence interval for total effort in the Taupo Conservancy would have been reduced by 32%, from ± 7,560 angler-days to ± 5,730 angler-days. Corresponding figures for the Lake Taupo and Tongariro River fisheries would have been a 33% reduction (from ± 5,820 to ± 4,390 angler days) for Lake Taupo, and a 27% reduction (from 3,100 to 2,440 angler-days) for the Tongariro River.

3.4.5 Taranaki region

Total effort for the Taranaki region in 2014/15 was 9,010 ± 690 angler-days, distributed over 42 river fisheries (6,320 ± 510 angler-days) and 11 lake fisheries (2,530 ± 450 angler-days; Appendix A). These fisheries represent 24 catchments, reflecting the high number of separate catchments draining the

Taranaki ring plain. However, two catchments – the Whanganui and the Waiwhakaiho – sustained 59% of total effort, accounting for $2,140 \pm 340$ angler-days, and $3,260 \pm 480$ angler-days, respectively (Appendix A). Three waters attracted more than 1,000 angler-days: the Manganui-o-te-ao River ($1,230 \pm 260$ angler-days); the Waiwhakaiho River ($1,210 \pm 210$ angler-days); and Lake Mangamahoe ($1,210 \pm 320$ angler-days).

New Zealand resident licence holders from other FGNZ regions (primarily Auckland/Waikato and Wellington) fished for $2,370 \pm 440$ angler-days within the Taranaki region, representing 30% of the regional total. The most popular waters with visitors were the Whanganui River below Ohura (470 ± 140 angler-days), and the Manganui-o-te-ao River (460 ± 210 angler-days). Overseas visitors recorded 170 ± 100 angler-days in the Taranaki region, representing 1.9% of the regional total.

Comparison of these figures with results for the previous three surveys (Table 3-5, Appendix B) suggests that the Taranaki fishery is characterised by high annual variability, but shows no obvious long-term trend. Inspection of results for the more heavily fished waters reinforces this conclusion. Some waters (e.g., the Manganui-o-te-ao River, the Patea River) fluctuate markedly from year to year; others (e.g., the Waingongoro River) show some evidence of a long-term decline; while others (e.g., the Waiwhakaiho River) may be gaining in popularity. Because of this volatility, it may take several decades for any sustained long term trends to become apparent.

Confidence intervals for 2014/15 usage estimates in the Taranaki region were only slightly broadened by the loss of data due to the discarded telephone interviews, which affected only the February-March 2015 survey (Section 2.5.1, Table 2-4). Assuming the sample size for this period had been 150, as originally planned, the confidence interval for total effort in the Taranaki region would have been reduced by 7%, from ± 690 angler-days to ± 640 angler-days.

3.4.6 Hawkes Bay region

Total effort for the Hawkes Bay region in 2014/15 was $37,390 \pm 2,000$ angler days, distributed over 34 river fisheries and two lake fisheries in seven catchments (Appendix A). Four catchments – the Tukituki, Mohaka, Tutaekuri, and Ngaruroro – accounted for 88% of this total, with catchment subtotals of $12,550 \pm 1,190$, $7,950 \pm 690$, $6,610 \pm 1,120$, and $5,710 \pm 670$ angler-days, respectively (i.e., 34%, 21%, 18%, and 15% of the regional total). Two waters – Lake Tutira and the Esk River – accounted for most of the effort ($4,250 \pm 630$ angler-days) outside these four catchments.

The Mohaka, Ngaruroro, and Tukituki mainstems were subdivided into multiple reaches so as to better characterise longitudinal variation in angling effort. All three rivers attracted significant levels of effort across all identified reaches (Appendix A). For the Mohaka River, estimated annual effort was $2,110 \pm 370$ angler-days above Mangatainoka, $1,830 \pm 290$ from Mangatainoka to SH5, and $2,910 \pm 440$ angler-days below SH5. For the Ngaruroro River, estimated effort was $2,630 \pm 450$ angler-days above the Taruarau confluence, and $1,810 \pm 310$ angler-days below the Taruarau confluence. For the Tukituki River, estimated effort was $2,470 \pm 600$ angler-days above Waipawa, $3,030 \pm 590$ angler-days from Waipawa to Patangata, and $4,150 \pm 570$ angler-days below Patangata.

New Zealand resident licence holders from other FGNZ regions (primarily Auckland/Waikato, Eastern, and Wellington) fished for $5,820 \pm 730$ angler-days within the Hawkes Bay region, representing 16% of the regional total. The most popular waters with visitors were the Mohaka River ($1,250 \pm 320$ angler-days); the Ngaruroro River ($1,220 \pm 400$ angler-days); and the Tukituki River ($1,160 \pm 240$ angler-days). Overseas visitors contributed $1,710 \pm 370$ angler-days (4.6% of the regional total), including $1,110 \pm 320$ angler-days on the Mohaka River.

As with the Taranaki region, Hawkes Bay results for New Zealand resident anglers over the four surveys conducted to date suggest a moderate level of annual variability, but show no evidence of any long-term trend (Table 3-5, Appendix B). Estimated annual effort peaked at $46,430 \pm 2,100$ angler-days in 2001/02, but has been relatively stable ($32,490 - 37,830$ angler-days) over the remaining three surveys. Similar levels of annual variability are apparent at the level of individual waters, few of which show any consistent trend. A possible exception is the Tukituki River, where usage of the lower river (i.e., below Patangata) may have declined since 2001/02. The river was not subdivided in the 1994/95 survey, but estimated usage in 2001/02 ($10,140 \pm 1,210$ angler-days) was markedly higher than in either 2007/08 ($2,920 \pm 580$ angler-days), or 2014/15 ($4,150 \pm 570$ angler-days).

3.4.7 Wellington region

Total effort for the Wellington region in 2014/15 was $35,490 \pm 2,020$ angler days, distributed over 44 river fisheries and 7 lake fisheries in 14 catchments (Appendix A). Four catchments – the Manawatu, Rangitikei, Hutt, and Ruamahunga – accounted for 91% of this total, with catchment subtotals of $13,120 \pm 1,260$, $8,730 \pm 1,230$, $5,840 \pm 740$, and $4,600 \pm 500$ angler-days, respectively (i.e., 37%, 25%, 17%, and 13% of the regional total).

Three Wellington mainstem rivers (Ruamahunga, Manawatu, and Rangitikei) were subdivided into multiple reaches (Appendix A). On the Ruamahunga River most effort ($2,440 \pm 380$ angler-days) was expended on the middle reaches between Masterton and Martinborough, with a further 630 ± 210 angler-days between Masterton and Mount Bruce, and 460 ± 140 angler-days on the lower reaches below Martinborough. Only 60 ± 40 angler-days were recorded in the headwaters above Mount Bruce. On the Manawatu River the middle reaches (from Woodville to Palmerston North) were also the most heavily fished ($4,440 \pm 660$ angler days; 48% of the total for this river), but the remaining effort ($4,770$ angler-days) was broadly distributed across three more reaches, with $1,550 \pm 560$ angler-days in the headwaters above Dannevirke; $1,980 \pm 450$ angler-days between Dannevirke and Woodville; and $1,240 \pm 500$ angler-days on the lower reaches below Palmerston North. By contrast, effort on the Rangitikei River increased with increasing distance downstream, with $1,580 \pm 440$ angler-days in the headwaters above the Mangaohane Road bridge; $2,440 \pm 490$ angler-days from Mangaohane to Vinegar Hill; and $3,850 \pm 1,010$ angler-days below Vinegar Hill.

New Zealand resident licence holders from other FGNZ regions fished for $3,350 \pm 780$ angler-days within the Wellington region, representing 10% of the regional total. The Rangitikei River accounted for well over half of this total ($1,750 \pm 710$ angler-days), with most visitors originating from Taranaki, Hawkes Bay, and Nelson/Marlborough. Overseas visitors recorded $1,000 \pm 270$ angler-days within the Wellington region, the majority of which (600 ± 200 angler-days) was on the Rangitikei River.

Total annual effort by New Zealand resident anglers in the Wellington region fell from 1994/95 ($68,030 \pm 3,230$ angler-days) to 2001/02 ($45,310 \pm 2,110$ angler-days), followed by a further significant fall from 2007/08 ($44,430 \pm 2,570$ angler-days) to 2014/15 (Table 3-5). However, not all catchments have been equally affected (Appendix A). For the Ruamahunga catchment the decline appears to have been steady over two decades, with total effort estimated as $13,860 \pm 1,390$, $10,470 \pm 1,030$, $8,880 \pm 1,060$, and $4,480 \pm 500$ angler-days over the four surveys conducted since 1994/95. By contrast, annual effort in the Hutt catchment fell abruptly from $20,270 \pm 2,030$ angler days in 1994/95 to $6,610 \pm 850$ angler-days in 2001/02 but has since remained relatively stable; effort in the Manawatu catchment changed little from 1994/95 to 2007/08 ($19,170 - 20,610$ angler-days) but

showed a moderate fall in 2014/15 ($13,100 \pm 1,260$ angler-days); while total effort for the Rangitikei catchment shows little evidence of any long-term change.

3.4.8 Nelson/Marlborough region

Total effort for the Nelson/Marlborough region in 2014/15 was $39,090 \pm 2,460$ angler days, distributed over 64 river fisheries and 9 lake fisheries in 17 catchments (Appendix A). The Wairau catchment was by far the most heavily fished of the major catchments in the region, accounting for $16,100 \pm 1,840$ angler-days (41% of the regional total). This was followed by the Buller catchment above Lyell⁸ ($7,960 \pm 730$ angler-days; 20%); the Motueka catchment ($6,450 \pm 1,150$ angler-days; 17%); the Clarence catchment ($2,360 \pm 470$ angler-days; 6%); and the Pelorus catchment ($2,040 \pm 330$ angler-days; 6%). Lake fisheries attracted $4,350 \pm 480$ angler-days (11% of the regional total).

Subdivided rivers in the Nelson/Marlborough region included the Motueka, Wairau, and Clarence as well as the Takaka, Pelorus, and upper Buller (Appendix A). Most of the effort on the Wairau River was recorded on the lower reaches below the Wash Bridge ($10,520 \pm 1,670$ angler-days; 84% of the total), whereas usage of the Motueka River was relatively evenly divided between the upper reaches (above the Wangapeka confluence; $2,840 \pm 1,020$ angler-days) and the lower reaches (below the Wangapeka confluence; $2,250 \pm 330$ angler-days). Usage estimates for the Clarence River were also moderately skewed towards the middle and lower river (i.e., below the Acheron confluence), which accounted for $1,030 \pm 350$ angler-days evenly divided between anglers targeting salmon (430 ± 190 angler-days) and those targeting trout (600 ± 290 angler-days; see Section 0 for further analysis of usage data for the salmon fishery).

New Zealand resident licence holders from other FGNZ regions (primarily North Canterbury and West Coast) fished for $5,850 \pm 840$ angler-days within the Nelson-Marlborough region, representing 17% of the regional total. The most popular waters with visitors were the Clarence River ($1,050 \pm 360$ angler-days); the Motueka River (680 ± 370 angler-days); the Buller River above Lyell (650 ± 230 angler-days); and the Wairau River (500 ± 190 angler-days). Overseas visitors expended $3,860 \pm 1,030$ angler-days within the Nelson/Marlborough region (10% of the regional total), including $1,270 \pm 930$ angler-days on the Motueka River above the Wangapeka confluence, and $1,230 \pm 330$ on the Buller River and its upper tributaries.

Total annual effort by New Zealand resident anglers fell from $46,270 \pm 2,210$ angler-days in 1994/95 to $38,520 \pm 1,750$ angler-days in 2001/02, but has changed little since then (Table 3-5). As in Wellington, however, temporal trends become more apparent when the data are considered at catchment and river level. Catchments showing evidence of a persistent decline in usage include the Takaka (down from $2,230 \pm 450$ angler days in 1994/95 to 530 ± 120 angler-days in 2014/15); the Motueka ($12,130 \pm 1,380$ angler days in 1994/95 vs. $5,060 \pm 670$ angler-days in 2014/15); and the Buller ($10,330 \pm 1,010$ angler-days in 1994/95 vs. $6,730 \pm 650$ angler-days in 2014/15). By contrast, figures for the Wairau catchment are consistent with a slight increase in total annual effort ($10,970 - 11,560$ angler-days from 1994/95 to 2001/02 vs. $12,380 - 15,600$ angler-days from 2007/08 to 2014/15). Figures for the Clarence catchment are more variable, but are also consistent with a modest increase since the first two surveys ($970 - 1,420$ angler-days) compared to the two most recent surveys ($2,110 - 3,230$ angler-days).

⁸ The Buller River flows through both the Nelson/Marlborough and West Coast regions; the figures in this section relate only to the portion within the Nelson/Marlborough region.

3.4.9 West Coast region

Total effort for the West Coast region in 2014/15 was $57,080 \pm 4,530$ angler days, distributed over 80 river fisheries and 12 lake fisheries in 39 catchments (Appendix A). Just under half of this total ($26,610 \pm 3,030$ angler-days; 47% of the total) was recorded in the Grey catchment, but a further 11 catchments each contributed over 1,000 angler-days, and collectively accounted for $23,910 \pm 3,070$ angler-days (42% of the total). River and lake fisheries accounted for $35,740 \pm 3,180$ (63%) and $21,340 \pm 3,220$ angler-days (37%) of total effort, respectively. Lake fishing was dominated by Lake Brunner, which recorded $14,700 \pm 2,780$ angler-days (26% of the regional total), but river fishing was much more broadly distributed. The most heavily fished river (the Grey River) accounted for $4,950 \pm 910$ angler-days (9% of the total), moderately skewed in favour of the lower reaches below Ikamatua ($3,050 \pm 540$ angler-days) relative to the upper reaches above Ikamatua ($1,900 \pm 730$ angler-days). The remaining effort ($30,780 \pm 3,050$ angler-days; 54% of the total) was distributed over 76 rivers spanning the 500 km from the Heaphy River in Kahurangi National Park to the Awarua River at Big Bay. This diversity of angling opportunity, over a broad geographical range, is a distinguishing feature of the West Coast fishery.

New Zealand resident licence holders from other FGNZ regions expended $28,000 \pm 4,190$ angler-days within the West Coast region, representing over half (52%) of the regional total. The largest contribution ($13,390 \pm 2,830$ angler-days) came from North Canterbury, followed by Otago ($5,940 \pm 2,650$ angler-days); Central South Island ($3,890 \pm 1,450$ angler-days); and Nelson/Marlborough ($3,530 \pm 610$ angler-days). By far the most popular water with visitors was Lake Brunner, where 71% of the total effort ($10,270 \pm 2,740$ angler-days) came from outside the region. However, in South Westland where – as described later in this section – total effort has increased markedly since the 1994/95 survey, an even higher proportion of total effort in 2014/15 ($7,460 \pm 2,600$ of $9,080 \pm 2,630$ angler-days) came from outside the region. Overseas visitors contributed $2,520 \pm 470$ angler-days to the regional total, broadly distributed across 14 catchments from the Cascade to the Karamea, and representing 4.4% of the total.

The more than two-fold increase in total annual effort since 1994/95 (Table 3-5) has occurred throughout the region, with the sole exception of the Buller/Karamea sub-region (defined here as all catchments from the Heaphy River to Punakaiki; Table 3-6). Relative to 1994/95, effort has increased by a factor of 2.14 in the Grey District (essentially the Grey Valley); by a factor of 2.07 in the Hokitika/Taramakau region; and by a factor of 3.39 in South Westland (all waters south of Ross). Most of the increase in the Grey District is attributable to a three-fold increase in annual effort on Lake Brunner, up from $4,240 \pm 550$ angler-days in 1994/95 to $14,420$ angler-days in 2014/15, but the cumulative effect of incremental increases in effort in a number of less well-known fisheries has also contributed to the overall trend. A similar pattern is evident in the Hokitika/Taramakau sub-region, where moderate increases in effort on the Hokitika and Taramakau Rivers have been augmented by less pronounced but cumulative increases on several smaller fisheries (Appendix A).

The most dramatic increases have occurred in South Westland, particularly south of the glaciers. Over this area, annual effort has increased from $2,220 \pm 340$ angler-days in 1994/95 to $9,100 \pm 2,630$ angler-days in 2014/15. The rate of increase in the northern part of the sub-region (i.e., Ross to the glaciers) has been more gradual, but still represents an increase from $2,500 \pm 520$ angler-days in 1994/95 to $6,890 \pm 1,680$ angler-days in 2014/15. Possible reasons for this increase, taking into account results for other FGNZ regions, are discussed in Section 4.3.

Table 3-6: Estimated annual effort (angler-days \pm 1 standard error) by season for four sub-regions within the West Coast region, ordered from north to south. Totals for the 1994/95 to 2007/08 surveys include waters which did not appear in the 2014/15 survey, so the total numbers of catchments (Ncatchments) and waters (Nwaters) across the whole region exceed those reported in Section 3.4.9 for the 2014/15 season.

Sub-region	Ncatchments	Nwaters	1994/95	2001/02	2007/08	2014/15
Buller/Karamea	13	29	5,230 \pm 560	4,520 \pm 460	4,640 \pm 690	4,160 \pm 750
Grey District	4	35	11,960 \pm 1,040	21,620 \pm 1,240	17,150 \pm 1,480	25,570 \pm 3,030
Hokitika/Taramakau	5	25	4,090 \pm 480	4,760 \pm 570	10,880 \pm 1,200	8,470 \pm 890
South Westland	24	43	4,720 \pm 620	5,130 \pm 540	10,390 \pm 1,040	15,980 \pm 3,120
Total, all sub-regions	46	132	26,000 \pm 1,420	36,030 \pm 1,540	43,060 \pm 2,280	54,180 \pm 4,500

3.4.10 North Canterbury region

Total effort for the North Canterbury region in 2014/15 was 176,130 \pm 9,380 angler days, distributed over 45 river fisheries and 23 lake fisheries in 13 catchments (Appendix A). The fishery was dominated by the Waimakariri and Rakaia catchments, which accounted for 75,670 \pm 5,730 angler-days (43% of the regional total), and 61,370 \pm 6,310 angler-days (35% of the regional total), respectively. This was followed by the Hurunui catchment (16,370 \pm 2,810 angler-days; 9%); the Waiau catchment (6,780 \pm 1,370 angler-days; 4%); and the Selwyn catchment (6,060 \pm 1,580 angler-days; 3%). River fisheries attracted 147,190 \pm 8,750 angler-days (84% of the regional total). Lake Coleridge (5,960 \pm 1,050 angler-days) was the most heavily fished lake, but six other high country lakes (Lakes Sumner, Taylor, Pearson, Lyndon, Georgina, and Selfe) attracted over 1,000 angler-days, contributing a further 13,240 \pm 2,510 angler-days to the total.

North Canterbury is heavily dependent on the fishery for sea-run Chinook salmon, with salmon angling on the four main salmon-producing rivers (Waiau, Hurunui, Waimakariri, and Rakaia) accounting for 49% of total effort in 2014/15 (86,060 \pm 7,350 angler-days; Table 3-7). Salmon fishing was the dominant activity on the Waimakariri and Rakaia Rivers, accounting for 72% and 74%, respectively, of total effort on these two waters. Effort on the Waiau and Hurunui Rivers was more evenly divided between salmon and trout angling.

Table 3-7: Estimated annual effort (angler-days \pm 1 standard error) expended in 2014/15 on eight east coast South Island rivers sustaining recognised salmon fisheries. Figures for the Hurunui River are based on the assumption that anglers fishing in the upper and lower reaches, i.e., above and below the Mandamus confluence, are targeting trout and salmon, respectively.

FGNZ region	River	Total effort	Effort (salmon)	Effort (trout)	% salmon
Nelson/Marlborough	Clarence River (below Acheron)	1,030 \pm 350	430 \pm 190	600 \pm 290	42%
North Canterbury	Waiau River	4,780 \pm 1,270	2,320 \pm 1,010	2,460 \pm 770	49%
	Hurunui River	11,540 \pm 2,250	6,810 \pm 1,750	4,730 \pm 1,420	59%
	Waimakariri River	59,520 \pm 5,250	42,750 \pm 4,750	16,760 \pm 2,230	72%
	Rakaia River	46,260 \pm 5,930	34,180 \pm 5,230	12,080 \pm 2,790	74%
Central South Island	Rangitata River	28,540 \pm 3,690	19,880 \pm 2,900	8,650 \pm 2,290	70%
	Waitaki River (lower)	26,250 \pm 3,230	9,560 \pm 2,200	16,680 \pm 2,370	36%
Otago	Clutha River (below Roxburgh)	23,520 \pm 3,870	6,760 \pm 2,700	16,760 \pm 2,770	29%
Total, all regions		201,440 \pm 10,420	122,690 \pm 8,630	78,720 \pm 5,820	61%

New Zealand resident licence holders from other FGNZ regions (primarily Central South Island) fished for 33,030 ± 4,330 angler-days within the North Canterbury region, representing 19% of the regional total. The most popular waters with visitors were the Rakaia River (16,900 ± 3,780 angler-days); the Waimakariri River (4,600 ± 1,050 angler-days); and the Waiau River (2,760 ± 980 angler-days). Central South Island visitors tended to concentrate their efforts on the rivers between the Waimakariri and Rakaia, whereas visitors from Nelson-Marlborough were more likely to fish from the Hurunui River northwards. Overseas visitors accounted for 1,750 ± 350 angler-days, 1% of the regional total.

The seasonal volatility of the salmon fishery in the North Canterbury region tends to confound detailed analysis of long-term temporal variation, but a few general trends are discernible (Appendix B). Usage of lake fisheries by New Zealand resident anglers appears to have increased since the 1994/95 survey, up from 19,400 – 21,560 angler-days in 1994/95 and 2001/02 to 30,770 – 28,710 angler-days in 2007/08 and 2014/15. There is also evidence of a sustained increase in effort for the Waiau catchment, from 2 920 – 3,080 angler-days in 1994/95 and 2001/02 to 5,650 – 6,280 angler-days in 2007/08 and 2014/15. Annual effort in the Hurunui catchment has been variable (range 10,210 – 18,960 angler-days) but shows no obvious trend, as has also been the case in the Ashley catchment (range 3,850 – 5,410 angler-days). By contrast, totals for the Selwyn River show a striking reversal of the steep decline in usage which has been recorded over the three preceding surveys, from 6,700 ± 1,370 angler-days in 1994/95 to 870 ± 280 angler-days in 2007/08. The 2014/15 estimate (6,020 ± 1,580 angler-days) is only slightly below the 1994/95 figure, and appears to reflect a significant improvement in the fishery for the 2014/15 season, when trout were unusually abundant in the lower reaches of the river above Selwyn Huts (Tony Hawker, FGNZ North Canterbury, pers. comm.).

3.4.11 Central South Island region

Total effort for the Central South Island region in 2014/15 was 299,520 ± 10,620 angler days, distributed over 46 river and canal fisheries and 23 lake fisheries in 10 catchments (Appendix A). The fishery was dominated by the Waitaki catchment, which accounted for 239,210 ± 9,430 angler-days (80% of the regional total), followed by the Rangitata catchment (28,710 ± 3,690 angler-days; 10%); the Opihi catchment (14,500 ± 2,320 angler-days; 5%); and the Ashburton catchment (9,050 ± 1,530 angler-days; 3.0%). River fisheries accounted for 88,090 ± 5,840 angler-days (29% of the regional total); canal fisheries for 88,730 ± 5,060 angler-days (30% of the total); and lake fisheries for 122,700 ± 7,280 angler-days (41% of the total).

Salmon fishing is less dominant in Central South Island than in North Canterbury, accounting for 29,450 ± 3,640 angler-days in 2014/15 (10% of the regional total; Table 3-7). The 2014/15 survey did not attempt to differentiate between salmon and trout angling on the Ashburton and Opihi Rivers, both of which sustain minor salmon fisheries, so this estimate is likely to be conservative. Salmon angling was the dominant activity on the Rangitata River (70% of total effort), and accounted for just over one third (36%) of effort on the Waitaki River. Further analysis of salmon angling data for these two rivers, taking into account angler origin, suggests that salmon are the dominant target species on the Rangitata River irrespective of angler origin, whereas visitors to the Waitaki River, particularly from the neighbouring North Canterbury and Otago regions, were much more likely to be targeting trout than were local anglers from Central South Island (Table 3-8).

Table 3-8: Estimated angling effort for salmon and trout (angler-days \pm 1 standard error) on the Rangitata and Waitaki Rivers, 2014/15, by angler origin. Dashes indicate that no Otago anglers reported fishing the Rangitata River.

River	Angler origin	Annual effort (angler-days)			
		Total	Salmon	Trout	% salmon
Rangitata River	North Canterbury	3,150 \pm 980	2,300 \pm 870	850 \pm 450	73%
	Central South Island	24,490 \pm 3,550	17,070 \pm 2,760	7,420 \pm 2,240	70%
	Otago	-	-	-	-
	Other NZ	680 \pm 250	470 \pm 220	210 \pm 120	69%
	All regions	28,330 \pm 3,690	19,840 \pm 2,900	8,490 \pm 2,290	70%
Waitaki River	North Canterbury	2,000 \pm 790	350 \pm 190	1,640 \pm 770	18%
	Central South Island	16,440 \pm 2,620	7,100 \pm 2,000	9,340 \pm 1,690	43%
	Otago	6,810 \pm 1,660	1,610 \pm 820	5,200 \pm 1,440	24%
	Other NZ	990 \pm 450	500 \pm 330	490 \pm 310	51%
	All regions	26,250 \pm 3,230	9,560 \pm 2,200	16,680 \pm 2,370	36%

The 88,730 angler-days expended on canal fisheries is almost entirely confined to the upper Waitaki hydroelectric canals, which accounted for all but 90 angler-days of the canal total. This figure may well be conservative, due to a data capture problem whereby respondents who fished one or more of the canals described this to the interviewer by saying only that they fished “at Twizel” or “around Twizel”, leading the interviewer to code their effort against the Twizel River. Once this problem became apparent SIT staff were alerted to the need to ask for more detail, and FG NZ staff were able to re-interview some of the suspect Twizel River anglers and retrospectively update their responses. However, estimated usage for the Twizel River in 2014/15 (7,230 \pm 1,420 angler-days) remains substantially higher than in previous surveys (720 – 3,200 angler-days), suggesting that some of the effort expended on the canals remains unrecognised. In addition, although interviewers were generally able to identify in which of the three major canals the respondent had been fishing (i.e., Tekapo Canal, Pukaki Canal, Ohau Canal), a few respondents were unable to provide this level of detail and were recorded under a generic “Upper Waitaki canals” code.

A striking feature of the canal fisheries is their appeal to anglers from throughout New Zealand (Table 3-9), with over half of the total effort (45,290 \pm 3,730 angler-days; 51%) coming from licence holders outside the Central South Island region. The Ohau canal accounted for 61% of the canal total, compared to 26% for the Tekapo canal and 12% for the Pukaki canal, consistent with its high-profile location on SH 8 near Twizel where it is ideally placed for anglers travelling along a major South Island tourist route. Collectively, the three canals are by far the most heavily used fishery under FG NZ jurisdiction, well ahead of the other four waters in the top five: the Waimakariri River (59,160 \pm 5,250 angler-days); Lake Benmore (47,460 \pm 5,380 angler-days); the Rakaia River (46,210 \pm 5,930 angler-days); and Lake Rotoiti in the Eastern region (40,110 \pm 4,190 angler-days). Overseas visitors expended 5,090 \pm 720 angler-days in the Central South Island region (1.7% of the regional total), including 900 \pm 360 angler-days on the canal fisheries.

Table 3-9: Estimated angling effort on the upper Waitaki hydroelectric canals in 2014/15 (angler-days \pm 1 standard error) by angler origin. Estimates derived from responses where the interviewer was unable to establish which of the three canals had been fished are listed as "Undefined".

Angler origin	Ohau Canal	Pukaki Canal	Tekapo Canal	Undefined	All canals
Northland	10 \pm 10	-	-	-	10 \pm 10
Auckland/Waikato	110 \pm 50	20 \pm 20	50 \pm 40	-	180 \pm 70
Eastern	500 \pm 390	-	80 \pm 80	-	580 \pm 400
Taranaki	120 \pm 70	10 \pm 10	220 \pm 190	-	350 \pm 200
Hawke's Bay	-	-	800 \pm 770	-	800 \pm 770
Wellington	330 \pm 230	220 \pm 210	220 \pm 210	-	760 \pm 380
Nelson/Marlborough	770 \pm 350	790 \pm 510	260 \pm 130	90 \pm 90	1,910 \pm 640
West Coast	130 \pm 70	-	110 \pm 70	-	240 \pm 100
North Canterbury	12,060 \pm 2,370	850 \pm 300	6,170 \pm 1,140	20 \pm 20	19,110 \pm 2,650
Central South Island	25,380 \pm 2,500	6,730 \pm 1,640	10,630 \pm 1,630	600 \pm 310	43,340 \pm 3,420
Otago	9,720 \pm 1,500	920 \pm 470	3,650 \pm 1,130	160 \pm 160	14,450 \pm 1,940
Southland	4,290 \pm 1,050	1,120 \pm 680	490 \pm 210	100 \pm 90	6,000 \pm 1,270
Overseas	520 \pm 290	-	380 \pm 220	-	900 \pm 360
All regions	53,950 \pm 3,950	10,670 \pm 1,940	23,050 \pm 2,460	970 \pm 370	88,730 \pm 5,060

Excluding canal fisheries from the Central South Island data for the four surveys conducted to date gives a clearer picture of the underlying long-term trends in usage by New Zealand resident anglers, and suggests that these trends differ for lake and river fisheries (Table 3-10, Appendix B). Lake fishing has increased in popularity, up from 45,320 \pm 2,850 angler-days in 1994/95 to 125,570 – 121,010 angler-days in 2007/08 and 2014/15, primarily associated with the three large hydroelectric lakes on the Waitaki River (Lakes Benmore, Aviemore, and Waitaki) rather than the Ashburton and Waitaki headwaters. By contrast, effort expended on rivers has been variable, and shows some evidence of a decline over the period of record.

Table 3-10: Total angling effort in the Central South Island region (angler-days \pm 1 standard error) by water type, 1994/95 - 2014/15, excluding canal fisheries.

Water type	1994/95	2001/02	2007/08	2014/15
Natural lake	17,380 \pm 1,640	30,810 \pm 2,170	35,090 \pm 2,840	34,390 \pm 3,280
Reservoir	27,940 \pm 2,330	40,950 \pm 2,500	90,480 \pm 5,720	86,630 \pm 6,490
Total, all lakes	45,320 \pm 2,850	71,770 \pm 3,310	125,570 \pm 6,390	121,010 \pm 7,270
River	118,850 \pm 4,830	82,000 \pm 4,180	105,020 \pm 5,920	85,590 \pm 5,820
Total, all waters	164,180 \pm 5,600	153,770 \pm 5,330	230,590 \pm 8,710	206,600 \pm 9,310

3.4.12 Otago region

Total effort for the Otago region in 2014/15 was 186,570 \pm 8,370 angler days, distributed over 60 river fisheries and 36 lake fisheries in 13 catchments (Appendix A). The fishery was dominated by the Clutha catchment, which accounted for 141,340 \pm 7,420 angler-days (76% of the regional total), and to a lesser extent the Taieri catchment (33,000 \pm 3,320 angler-days; 18%). River fisheries accounted

for $81,150 \pm 5,550$ angler-days (43% of the regional total), and lake fisheries for $105,420 \pm 6,270$ angler-days (57% of the total). Most lake fishing ($68,020 \pm 5,490$ angler-days) was recorded on natural lakes (primarily the upper Clutha source lakes), but a significant minority ($37,400 \pm 3,030$ angler-days) was recorded on artificial lakes such as Lake Dunstan ($17,290 \pm 2,120$ angler-days), and another 18 Central Otago irrigation reservoirs ($14,920 \pm 1,920$ angler-days).

The Taieri and Clutha Rivers were subdivided into multiple reaches for the purposes of the 2014/15 survey, and – for the lower Clutha River (below Roxburgh) – respondents were also asked to specify whether they had targeted trout or salmon (Table 3-7). The lower reaches of the Taieri River (below Outram) accounted for $14,560 \pm 2,480$ angler-days (64% of the total for this river), with $3,200 \pm 960$ angler-days (14% of the total) expended on the middle reaches (Kokonga to Outram), and $5,080 \pm 1,180$ angler-days (22% of the total) on the upper reaches above Kokonga. Of $31,550 \pm 4,160$ angler-days recorded on the Clutha River, $23,520 \pm 3,870$ was recorded below Roxburgh, primarily by trout anglers (Table 3-7); $1,300 \pm 770$ angler-days on the short section of the river between Alexandra and Clyde; and $6,730 \pm 1,330$ angler-days on the upper reaches from Wanaka to Lake Dunstan.

New Zealand resident licence holders from other FGZ regions (particularly Southland, Central South Island, and North Canterbury) fished for $37,110 \pm 3,170$ angler-days within the Otago region, contributing 20% of the regional total. Most of this effort ($26,700 \pm 2,800$ angler-days; 72% of the visitor total) was expended on lakes, primarily the Clutha source lakes (Hawea, Wanaka, Wakatipu) and Lake Dunstan. The most popular river fisheries used by visitors were the Clutha River ($3,570 \pm 870$ angler-days, evenly divided between the lower and upper reaches); the Taieri River below Outram ($1,480 \pm 810$ angler-days); and the Pomahaka River ($1,150 \pm 500$ angler-days). Overseas visitors expended $5,210 \pm 860$ angler-days within the Otago region (2.8% of the regional total), almost all of which ($4,920 \pm 840$ angler-days) was recorded in the Clutha catchment.

Total annual effort by New Zealand resident anglers in the Otago region over the four surveys since 1994/95 ranged from $181,360$ angler-days (this season) to $218,710$ angler-days (in 2001/2002), but showed no obvious long-term trend (Table 3-5, Appendix B). Separate analyses for specific water types confirm the absence of any consistent trends for most types of fishery, the main exception being a marked decline for lowland rivers (from $22,300 \pm 2,650$ angler-days in 1994/95 to $8,870 \pm 1,360$ angler-days in 2014/15). However, there has also been a significant redistribution of effort along the mainstem of the Clutha River, where reduced effort on the upper reaches from Lake Wanaka to Lake Dunstan ($20,900 \pm 3,220$ angler-days in 2007/08 vs. $6,670 \pm 1,330$ angler-days in 2014/2015) has been largely offset by increased effort on the lower reaches below Roxburgh ($12,550 \pm 1,940$ angler-days in 2007/08 vs. $23,420 \pm 3,870$ angler-days in 2014/15).

Table 3-11: Total angling effort in the Otago region (angler-days \pm 1 standard error) by water type, 1994/95 - 2014/15.

Water type	1994/95	2001/02	2007/08	2014/15
River (mountain-fed)	6,480 \pm 660	8,420 \pm 1,100	7,990 \pm 960	7,410 \pm 1,190
River (hill-fed)	16,740 \pm 1,550	27,140 \pm 3,380	20,080 \pm 3,090	28,260 \pm 3,100
River (lowland)	22,300 \pm 2,650	18,560 \pm 2,590	12,620 \pm 1,750	8,870 \pm 1,360
River (lake-fed)	32,160 \pm 3,400	44,700 \pm 4,440	40,890 \pm 4,010	33,600 \pm 4,210
Total, all rivers	77,690 \pm 4,630	98,810 \pm 6,250	81,580 \pm 5,440	78,150 \pm 5,530
Lake (natural)	68,920 \pm 3,990	77,190 \pm 4,890	84,320 \pm 6,740	66,080 \pm 5,450
Lake (reservoir)	36,260 \pm 2,130	42,710 \pm 3,470	49,530 \pm 3,590	37,130 \pm 3,020
Total, all lakes	105,180 \pm 4,520	119,910 \pm 5,990	133,850 \pm 7,630	103,210 \pm 6,230
Total, all rivers and lakes	182,870 \pm 6,470	218,710 \pm 8,660	215,430 \pm 9,370	181,360 \pm 8,330

3.4.13 Southland region

Total effort for the Southland region in 2014/15 was 122,660 \pm 6,010 angler days, distributed over 57 river fisheries and 14 lake fisheries in 14 catchments (Appendix A). The fishery was dominated by the four main catchments which traverse the Southland region from north to south: the Mataura (44,270 \pm 3,610 angler-days; 36% of the regional total); the Waiau (43,120 \pm 3,170 angler-days; 35%); the Oreti (18,110 \pm 2,090 angler-days; 15%); and the Aparima (10,160 \pm 2,220 angler-days; 8%). River fisheries accounted for 90,990 \pm 5,310 angler-days (74% of the regional total), and lake fisheries for 31,670 \pm 2,830 angler-days (26% of the total). Lake Te Anau (15,400 \pm 1,770 angler-days) and Lake Manapouri (4,410 \pm 770 angler-days) were the two most heavily fished lakes, followed by the North and South Mavora Lakes (3,380 \pm 1,300 and 1,410 \pm 560 angler-days, respectively); Lake Monowai (2,510 \pm 660 angler-days); and Waituna Lagoon (2,240 \pm 590 angler-days).

Licence holders from outside the Southland region fished for 24,360 \pm 1,830 angler-days on Southland waters, contributing 20% of the regional total. This figure was evenly divided between residents of other New Zealand regions (12,340 \pm 1,450 angler-days) and overseas visitors (12,010 \pm 1,120 angler-days), each representing 10% of total effort. The relative contribution from overseas visitors is the same as for the Nelson/Marlborough region (10%; Section 3.4.8), and is consistent with high overseas usage of these two regions in the 2007/08 survey (Unwin 2009).

Data for visiting anglers from other New Zealand regions also help to illuminate the longitudinal distribution of usage on the three Southland rivers – the Mataura, Oreti, and Waiau – which were subdivided into multiple reaches for survey purposes. On both the Mataura and Oreti most effort (60% and 81%, respectively) was recorded on the lower reaches. However, whereas Southland anglers tended to favour the lower reaches of both rivers, visiting anglers tended to focus on the upper reaches (Table 3-12). On the Mataura River, visitors accounted for 49% of total effort above Gore (7,560 \pm 1,040 of 15,280 \pm 1,580 angler-days), compared to 17% of total effort below Gore (3,880 \pm 750 of 22,980 \pm 3,090 angler-days). On the Oreti River, visitors accounted for 43% of total effort above Lumsden (1,330 \pm 340 of 3,040 \pm 630 angler-days), compared to 6% of total effort below Lumsden (790 \pm 310 of 13,380 \pm 1,880 angler-days). Anglers on the Waiau River tended to concentrate on the upper reaches between Te Anau and Manapouri irrespective of origin, but – whereas visitors accounted for 14% of total effort above Manapouri (1,130 \pm 280 of 7,910 \pm 1,350

angler-days) – they contributed only 5% of total effort (110 ± 70 of $2,230 \pm 570$ angler-days) on the Waiau River below the Mararoa River confluence (Table 3-12).

Table 3-12: Estimated annual effort on the Mataura River, Oreti River, and Waiau River, 2014/15, by river reach and angler origin. The terms upper reaches and lower reaches refer to the Mataura River above and below Gore; the Oreti River above and below Lumsden; and the Waiau River above Lake Manapouri (upper) and below the Mararoa River confluence (lower).

River	Angler origin	Annual effort (angler-days \pm 1 standard error)			% upper reaches
		All reaches	Upper reaches	Lower reaches	
Mataura River	Southland	26,820 \pm 3,230	7,720 \pm 1,190	19,100 \pm 3,000	29%
	Other New Zealand	3,860 \pm 830	2,780 \pm 740	1,080 \pm 380	72%
	Overseas	7,570 \pm 970	4,780 \pm 730	2,790 \pm 640	63%
	Total, all anglers	38,260 \pm 3,470	15,280 \pm 1,580	22,980 \pm 3,090	40%
Oreti River	Southland	14,310 \pm 1,930	1,720 \pm 540	12,600 \pm 1,860	12%
	Other New Zealand	970 \pm 310	620 \pm 260	350 \pm 170	64%
	Overseas	1,150 \pm 330	710 \pm 210	440 \pm 260	62%
	Total, all anglers	16,430 \pm 1,990	3,040 \pm 630	13,380 \pm 1,880	19%
Waiau River	Southland	8,890 \pm 1,440	6,770 \pm 1,320	2,120 \pm 570	76%
	Other New Zealand	890 \pm 260	780 \pm 250	110 \pm 70	88%
	Overseas	350 \pm 130	350 \pm 130	0	100%
	Total, all anglers	10,140 \pm 1,470	7,910 \pm 1,350	2,230 \pm 570	78%

Total annual effort on Southland waters by New Zealand resident anglers was stable from 1994/95 ($152,820 \pm 5,050$ angler-days) to 2001/02 ($157,060 \pm 5,920$), but decreased by over 20,000 angler days from 2001/02 to 2007/08 ($136,260 \pm 5,930$ angler-days), and by a further 25,610 angler-days from 2007/08 to 2014/15 ($110,650 \pm 5,910$ angler-days; Table 3-5, Appendix B). Separate analysis of lake and river fisheries confirms that most of this decline has been associated with river fisheries (129,100, 126,170, 97,690, and 79,910 angler-days in 1994/95, 2001/02, 2007/08, and 2014/15, respectively), with no evidence of any consistent long-term trend for lake fisheries (23,730, 30,890, 38,570, and 30,730 angler-days in 1994/95, 2001/02, 2007/08, and 2014/15, respectively). On the Mataura River most of the decline appears to have occurred between 2001/02 and 2007/08, with a similar pattern also evident on its largest tributary, the Waikaia River (Appendix B). By contrast, results for the other three main Southland rivers suggest that annual effort has declined steadily on the Oreti River over the period of record; has been variable but with no clear trend on the Aparima River; and has also been variable on the Waiau River albeit with some evidence of declining effort below the Mararoa confluence since 2007/08.

3.5 Cross-boundary fishing

3.5.1 FGNZ regions

New Zealand resident FGNZ licence holders fishing waters under FGNZ jurisdiction expended 75.0% of their effort (832,610 angler-days) within their home region, with most of the remainder (211,380 angler-days; 19.0% of the total) expended in a geographically adjacent region (Table 3-13). Only 6.0% of the total (47,600 angler days) was expended by anglers travelling further afield, of which 39,810

angler days were recorded in the South Island and 7,790 in the North Island. Movement between the North and South Islands was even more limited, representing just 1.5% of the total (16,650 angler-days).

Analysis of the geographical footprint of licence holders from each region, i.e., the distribution of their fishing effort both inside and outside their licence region, further elucidates the main patterns of movement among regions (Figure 3-3,

Figure 3-4). Among North Island regions, Auckland/Waikato anglers appear to be the most mobile, with a distinct presence in all other North Island regions (particularly Eastern), and lesser but widespread activity in the South Island. By contrast, Eastern and Hawkes Bay anglers tended to fish locally and regionally rather than nationally, and visited relatively few South Island waters. Taranaki and Wellington anglers primarily fished within their home region, but were active throughout the lower and central North Island, and also had a moderate but broadly distributed presence in the South Island. South Island licence holders tended to be rather more mobile than those from the North Island, with well-defined region-scale movements between Nelson/Marlborough and West Coast; West Coast and North Canterbury; North Canterbury and Central South Island; and Otago and Southland.

The effect of cross-boundary fishing on angling pressure within each region varied widely, depending on whether total annual effort expended within the region was less than, equal to, or greater than the total effort expended by licence holders from that region (Table 3-13). This impact was neutral or near-neutral in three regions (Northland: nett loss 60 angler-days; Taranaki: nett loss 1,580 angler-days; Hawkes Bay: nett loss 1,220 angler-days), negative in six regions (Auckland/Waikato, Wellington, Nelson/Marlborough, North Canterbury, Otago, and Southland: nett loss 7,130 – 43,650 angler-days); and positive in three regions (Eastern: nett gain 22,450 angler-days; West Coast: nett gain 24,080 angler-days; and Central South Island: nett gain 80,250 days). For these three regions the contribution from licence-holders from other regions represented 18.7%, 51.7%, and 38.4%, respectively, of the total effort recorded in the region.

3.5.2 Overseas visitors

Overseas visitors fished a broad range of waters across both islands, with a moderate tendency to cluster around the central North Island; Nelson, Buller, and North Canterbury in the vicinity of the Lewis Pass; the upper Waitaki Valley; the Otago lakes; and Southland (Figure 3-5). As in 2007/08 they showed a strong preference for rivers (80.8% of total effort) rather than lakes (19.2%), and for South Island waters (84.2% of total effort) as opposed to North Island waters (15.8%).

Overseas visitor effort for the 2014/15 survey (36,600 angler-days) was just over half of that recorded in 2007/08 (Unwin 2009). However, the extent to which this is an artefact of the differences in survey methodology for overseas visitors (email in 2007/08, telephone in 2014/15) is unclear. Licence holders who respond to email surveys tend to be self-selecting in favour of more active anglers, reflecting a natural tendency for individuals who do not fish to feel that their information is of little value. This tendency was readily apparent in a forerunner to the present survey, in which licence holders in a random sample contacted by email fished an average of 11.9 rivers per respondent, compared to 4.2 rivers per respondent for those contacted by telephone (Unwin 2013). If so, the 2007/08 figure for overseas visitors is potentially biased, and is likely to be an overestimate.

Table 3-13: Distribution of angling effort for the 2014/15 season (angler-days) by FGZ licence region (row headings), and fishing region (column headings). Diagonal entries (bold face) denote effort recorded by anglers fishing within their licence Region; off-diagonal entries represent cross-boundary fishing. Row totals give the effort recorded by licence holders from each region; thus, Eastern licence holders fished for an estimated 130,650 angler-days. Column totals give the total effort recorded within each region; thus, an estimated 155,290 angler-days were recorded within the Eastern region.

Licence region	Fishing region														Total
	Northland	Auckland/ Waikato	Eastern	Taranaki	Hawkes Bay	Wellington	Nelson/ Marlborough	West Coast	North Canterbury	Central South Island	Otago	Southland			
Northland	870	170	280		070	20		30	10	30	70	10			1,570
Auckland/Waikato	450	19,460	16,310	940	1,370	540	150	310	270	680	570	400			41,440
Eastern	110	1,980	124,400	120	1,570	290	280	260	160	1,040	310	140			130,650
Taranaki		760	1,580	6,480	110	940	40	60	10	370	40	50			10,430
Hawkes Bay		40	4,870	30	29,860	660	10	10	170	1,160	70	20			36,900
Wellington		1,550	3,460	610	2,300	31,130	300	210	300	1,650	460	140			42,120
Nelson/Marlborough		40	170	80		670	29,380	3,530	3,180	3,450	1,260	1,260			43,020
West Coast		50	50	110	110	10	1,210	26,180	940	960	280	200			30,100
North Canterbury	50	2,090	290	320	220		2,580	13,390	141,260	48,950	8,360	530			218,030
Central South Island			730		70	140	250	3,890	21,800	181,450	5,180	670			214,180
Otago	30	80	790	120		580	800	5,940	3,440	43,310	143,750	8,860			207,680
Southland			180	40		20	240	370	2,740	11,390	20,510	98,300			133,780
Overseas	60	650	2,190	170	1,710	1,000	3,860	2,900	1,750	5,090	5,210	12,010			36,600
Total	1,570	26,690	155,290	9,010	37,390	35,990	39,090	57,080	176,030	299,520	186,070	122,660			1,146,490

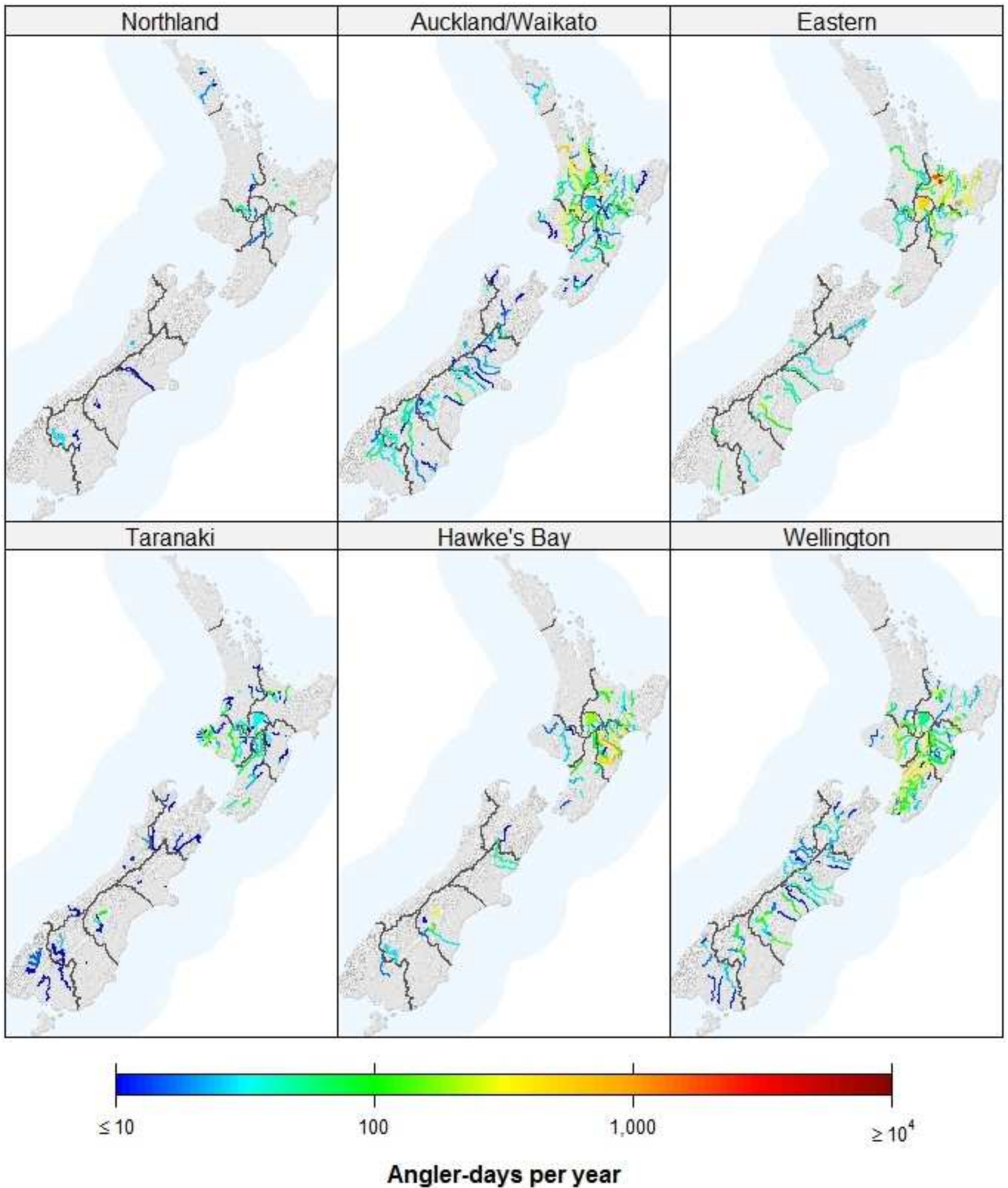


Figure 3-3: Geographical distribution of estimated annual angling effort for licence holders from each of the six North Island FGNZ regions. Data for FGNZ licence holders fishing Taupo Conservancy waters are included in these maps, as described in Section 3.5.3.

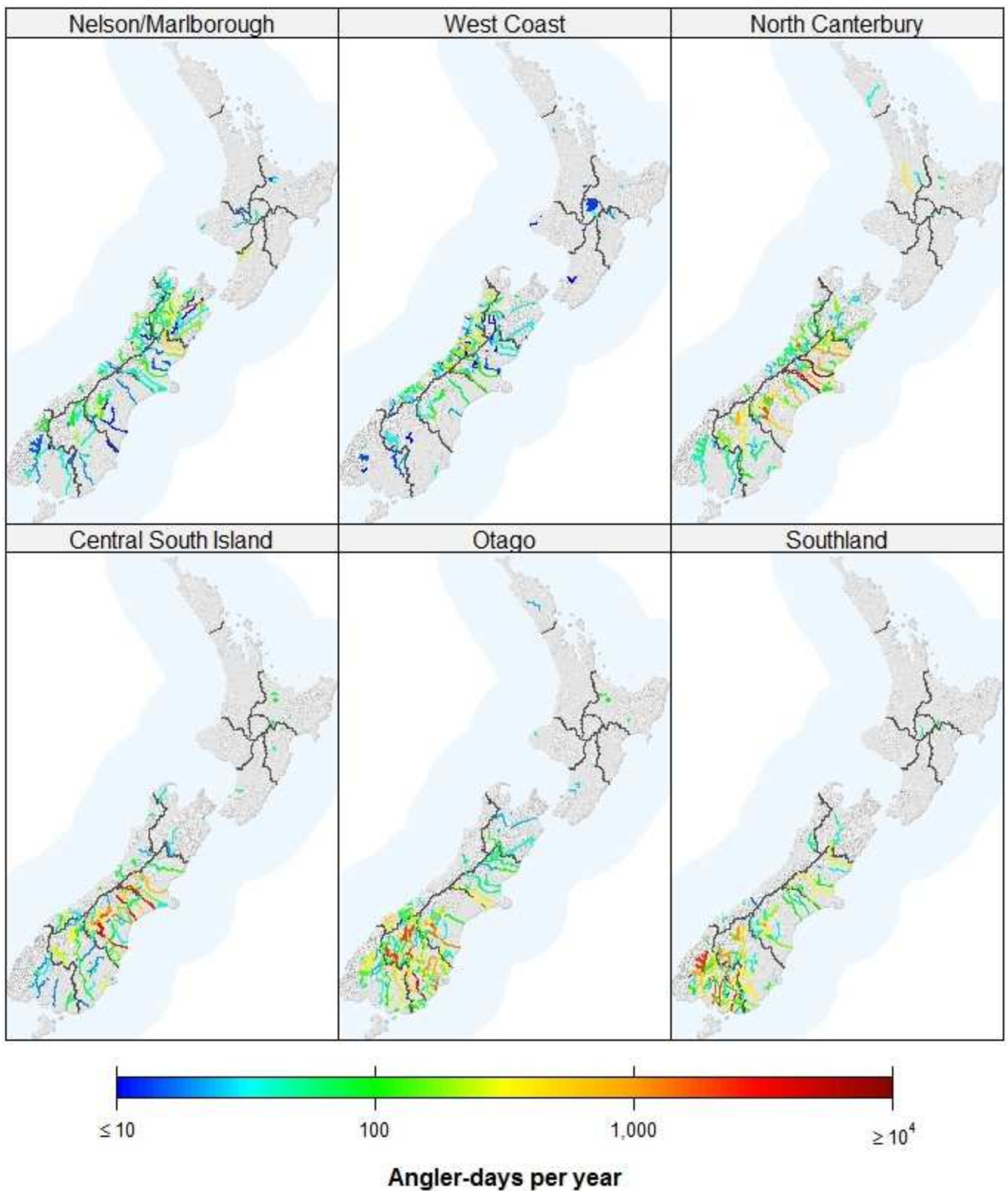


Figure 3-4: Geographical distribution of estimated annual angling effort for licence holders from each of the six South Island FGNZ regions. Data for FGNZ licence holders fishing Taupo Conservancy waters are included in these maps, as described in Section 3.5.3.

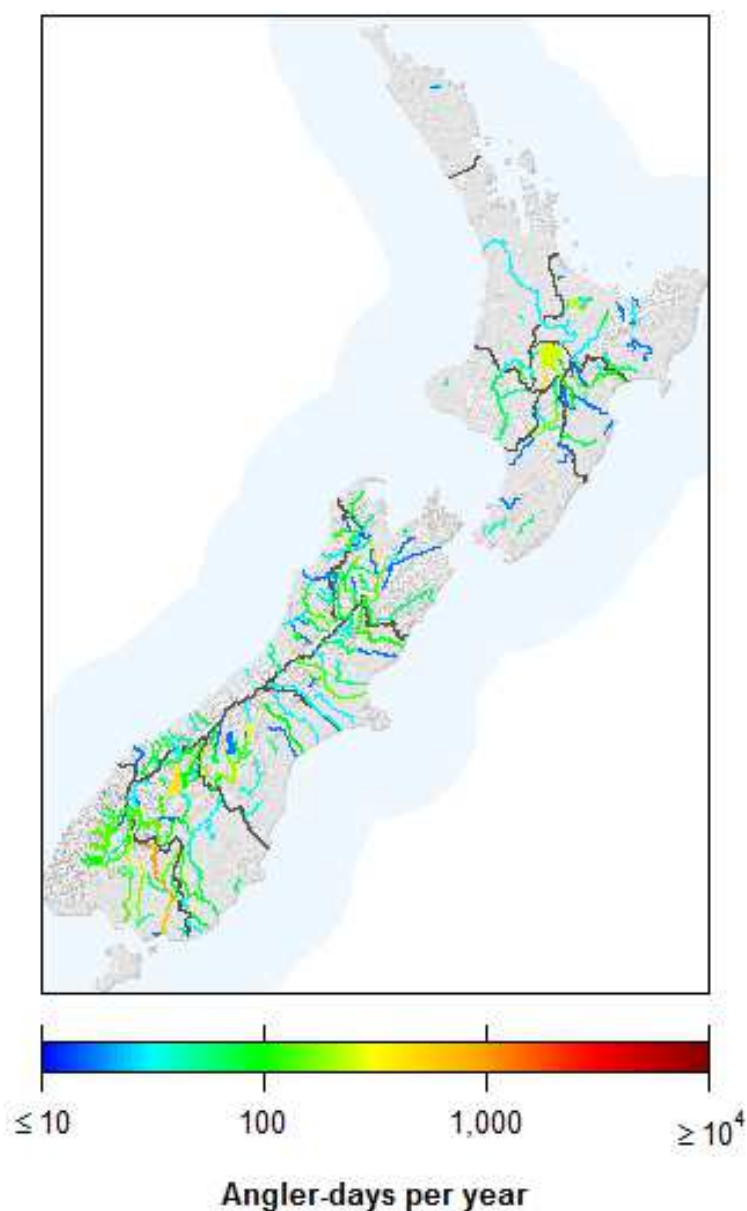


Figure 3-5: Geographical distribution of estimated annual angling effort for overseas visitors holding a FGZ whole-season fishing licence.

3.5.3 Dual FGZ and Taupo Conservancy licence holders

New Zealand resident FGZ licence holders spent an estimated $6,140 \pm 1,890$ angler-days fishing within the Taupo Conservancy, representing 0.6% of the 2014/15 total of 1,109,890 angler-days (Table 3-5). The main contributions to this total by FGZ region were from Eastern ($3,660 \pm 1,850$ angler-days); Auckland/Waikato (770 ± 190 angler-days); Hawkes Bay (770 ± 260 angler-days); and Wellington (470 ± 160 angler-days). The most popular waters with these visitors were Lake Taupo ($2,600 \pm 1,590$ angler-days), the Tongariro River ($1,770 \pm 530$ angler-days), and Lake Otamangakau ($1,160 \pm 840$ angler-days). In the reverse direction, Taupo Conservancy licence holders recorded 860 \pm 430 angler-days fishing waters under FGZ jurisdiction, representing 0.7% of their total effort. All of this was recorded in the Auckland/Waikato, Eastern, and Taranaki regions.

Although neither of these totals is a robust measure of cross-boundary effort by licence holders from each jurisdiction, their magnitude – less than 1% of total effort for both groups – suggests that only a small minority of New Zealand resident anglers purchase licences for both jurisdictions. In particular, only 1.0% (103 of 10,784) of the FGNZ whole-season licence holders interviewed during the survey reported fishing any Taupo Conservancy waters, and 0.5% (4 of 785) of Taupo Conservancy licence holders fished one or more waters under FGNZ jurisdiction. Of the 103 FGNZ whole-season licence holders who fished within the Taupo Conservancy, 89 recorded at most seven days on Taupo waters, suggesting that they may well have held only a part-season (weekly or daily) licence.

3.6 Influence of water type, source of flow, and land cover

Analysis of usage data by water type and REC source-of-flow class provides additional insight into possible drivers for the observed regional trends (Table 3-14). Annual effort remains relatively stable for lake fisheries irrespective of lake type (i.e., natural lakes vs. artificial reservoirs), with estimated totals between 435,740 and 465,680 angler-days over three of the four seasons surveyed to date. Annual effort for mountain-fed, hill-fed, and lake-fed rivers over the period of record also shows little evidence of any long-term change, although the 2007/08 and 2014/15 totals for mountain-fed rivers suggest a possible increase relative to the 1994/95 and 2001/02 seasons. By contrast, the trend for lowland rivers suggests a strong and persistent decline, with the 2014/15 total (136,750 angler days) representing just over half (52%) of the 1994/95 total.

Analysis of annual usage trends for river fisheries by REC land cover class (Figure 3-6) is consistent with this result. Little or no long-term change is apparent in catchments dominated by natural land cover, but usage has declined by 30% (from 378,620 angler-days in 1994/95 to 264,560 angler-days in 2014/15) in catchments dominated by pasture or cropland. These trends are consistent with national scale analyses of water quality state and trends in New Zealand lowland rivers, which confirm that water quality metrics such as nitrogen, phosphorus and *Escherichia coli* concentrations were elevated, and visual clarity and Macroinvertebrate Community Index (MCI) were low, in the pastoral land cover class relative to catchments under natural land cover (Larned et al. 2016). Trend analyses of the same data set show some evidence of decreasing concentrations of dissolved reactive phosphorus, total phosphorus, and ammoniacal nitrogen over the 10 years from 2004 to 2013. The reasons for these trends are unknown, but may include stock exclusion from waterways, improved farm effluent treatment, improved fertiliser management, and reductions in phosphorus fertiliser use. However, nitrate-nitrogen, total nitrogen, and *E. coli* concentrations show degrading trends over the same period, highlighting the need for continual improvements in land-use management so as to limit future water-quality degradation.

Table 3-14 also highlights the striking increase in total effort for canal-based fisheries⁹ over the four surveys to date, from 5,480 – 15,830 angler-days between 1994/95 and 2007/08 to 89,300 angler-days in 2014/15. As detailed later (Section 3.4.11), virtually all of this increase has occurred in the upper Waitaki River hydroelectric canals, where fishing for salmon and trout in the vicinity of commercial salmon farms has become highly popular in recent years. These canals accounted for 98% (87,740 angler-days) of canal-based effort recorded in 2014/15, representing 8.0% of the national total for New Zealand resident anglers. This compares with 0.4% in 1994/95, 1.4% in 2001/02, and 1.1% in 2007/08.

⁹ For survey purposes canals include artificial structures such as hydro-electric canals (e.g., Flaxy Canal and Rangitaiki Canal in Bay of Plenty, and the upper Waitaki canals), and diversion channels such as Roses Overflow and the Wairau Diversion in Marlborough.

Table 3-14: Annual trends in estimated annual usage by New Zealand resident anglers (angler-days x 1000 + 1 SE), 1994/95 to 2014/15, by water type (lake, river, canal). Lakes and rivers are further subdivided by type (lakes) and source of flow (rivers), as described in Section 0.

Water type	Sub-type	1994/95	2001/02	2007/08	2014/15
Lake	Natural	328,140 ± 9,340	345,460 ± 8,370	369,260 ± 10,970	305,120 ± 10,490
	Reservoir	107,600 ± 4,140	120,220 ± 5,410	162,090 ± 7,190	140,130 ± 7,440
Total, all lakes		435,740 ± 10,220	465,680 ± 9,970	531,360 ± 13,110	445,250 ± 12,860
River	Mountain	146,340 ± 8,580	103,850 ± 5,300	187,750 ± 8,520	154,750 ± 8,890
	Hill	205,160 ± 6,660	220,540 ± 6,710	208,920 ± 6,970	199,840 ± 7,360
	Lowland	259,170 ± 7,020	192,650 ± 5,970	151,650 ± 5,500	136,590 ± 6,100
	Lake-fed	103,510 ± 5,360	112,140 ± 5,830	109,910 ± 7,110	84,160 ± 5,720
Total, all rivers		714,260 ± 13,990	629,180 ± 11,950	658,250 ± 14,210	575,340 ± 14,250
Canal		5,480 ± 1,420	15,830 ± 2,490	12,770 ± 2,310	89,300 ± 5,060
Total		1,155,480 ± 17,380	1,110,700 ± 15,760	1,202,380 ± 19,470	1,109,890 ± 19,860

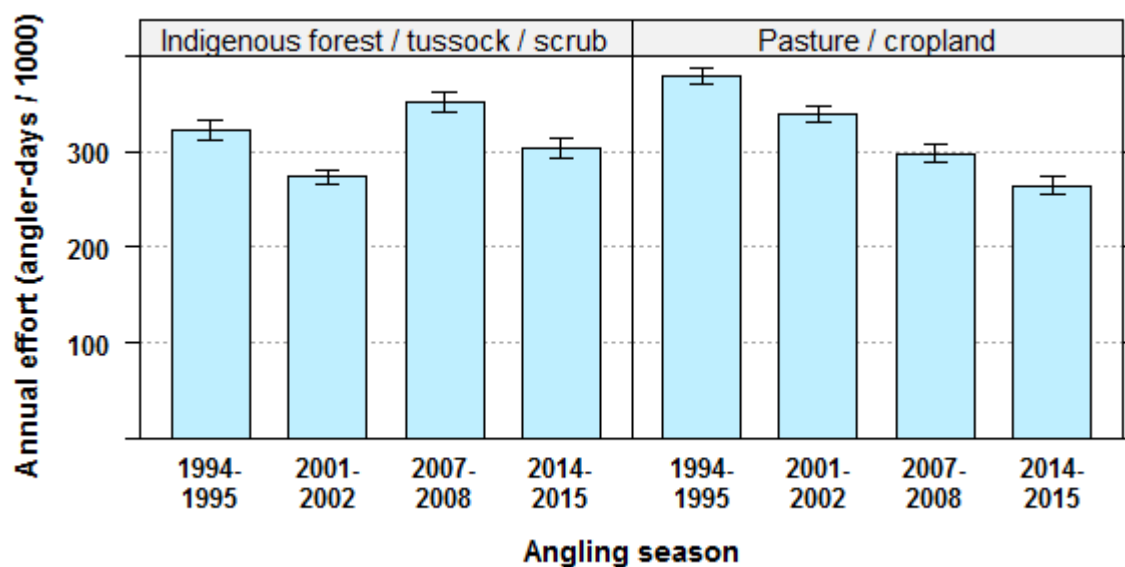


Figure 3-6: Annual trends in estimated usage of river fisheries by New Zealand resident anglers (angler-days x 1000 + 1 SE) by REC land cover class. Totals for land cover classes Exotic Forest and Urban, which collectively account for 1.4% - 2.7% of total effort, are not shown.

4 Discussion

4.1 Scope and coverage

The 2014/15 survey is the most comprehensive of the four FGNZ National Angling Surveys conducted to date with respect to coverage of the New Zealand freshwater angling resource. Essentially all New Zealand resident FGNZ whole-season licence holders were available for inclusion in the sampling frame, as were all adult non-resident licence holders who provided a usable telephone number. Coverage of FGNZ part-season licence holders was exceptionally high compared to previous surveys, with viable responses obtained from 20,143 of the 32,861 24-hour licences purchased over the 2014/15 season. Inclusion of whole-season licence holders from the Taupo Conservancy further broadens the scope of the survey, and goes much of the way towards filling what has previously been a significant gap in national coverage. The only anglers not included in the survey frame were junior whole-season licence holders and part-season licence holders from the Taupo Conservancy.

Data losses arising from the fabricated interviews during the first six months of the survey degraded confidence intervals for usage estimates in three FGNZ regions and the Taupo Conservancy (i.e., loss of precision), but – on the assumption that the lost interviews were a random subsample of those originally scheduled – did not bias the results (i.e., no loss of accuracy). The estimated loss of precision was largest (32%) in the Taupo Conservancy, moderate (16%) in the Eastern region, and smallest (1.3% and 7%) in the Auckland/Waikato and Taranaki regions, respectively.

4.2 Data quality

As with its three predecessors, the 2014/15 survey methodology incorporated a number of minor procedural and operational refinements, each of which led to an incremental improvement in data quality. FGNZ's online licence database has now evolved to the point where up-to-date licence records are available more or less in real time, ensuring that the sampling frame for each bimonthly survey became available within one working day of the end of the corresponding period. This, together with SIT's ability to assign up to nine call centre staff to the survey at peak periods, made it possible to complete all interviews within four weeks, with a median turnaround interval of 11 days. The new non-resident licence class also represented a significant advance over the 2007/08 survey, providing a simple and effective means of identifying and targeting overseas visitors. The use of telephone calls rather than email, which was used to sample overseas visitors in the 2007/08 survey, was another refinement, minimising the likelihood of skewing the results in favour of more active anglers (c.f. Unwin 2013).

The online data capture procedures implemented via the survey website benefitted greatly from the experience gained during the 2013 River Attributes survey (Unwin 2013), allowing the angling waters identified by most respondents to be recorded accurately and efficiently. This was particularly valuable for resolving confusion over duplicate river and lake names, and – for rivers which were subdivided into multiple reaches – virtually eliminated responses for which reach information was either missing or ambiguous. It also provided a simple way of differentiating between trout and salmon angling for east coast South Island rivers such as the Waimakariri and Rakaia, providing independent usage estimates for each target species.

4.3 National trends

The continued decline in usage for lowland river fisheries continues a trend which was first noted in 2007/08 (Unwin 2009), and now spans two decades. This decline amounts to over 120,000 angler-

days, or approximately 6,000 angler-days per year. This decline has been partly offset by the sudden rise in popularity of the upper Waitaki canal fisheries, which – with the possible exception of Lake Taupo – are now the most heavily used fishery in New Zealand. It is unclear whether the effort expended on the canal fisheries represents a diversion of effort which would have been spent on other waters, or whether they are attracting anglers who would otherwise not have fished. Regardless of the source of this effort, however, then – without the contribution of the canal fisheries – total angling effort on FGNZ waters in 2014/15 would have been only 1.057 million angler days, and easily the lowest on record.

Whereas the increase in effort in the Central South Island region can be attributed mostly to the influence of the canal fisheries, the parallel increase in the West Coast region – where total annual effort has doubled since 1994/95 – appears to reflect a more general redistribution of angler activity. Over half of the effort recorded on the West Coast in 2014/15 was associated with visitors from other regions, and is consistent with the modest declines in effort recorded in the adjoining North Canterbury and Otago regions from 2007/08 to 2014/15. In these regions, and also in Nelson/Marlborough, Central South Island, and Southland, total effort on river fisheries in the REC mountain and hill source-of-flow classes is steady rather than increasing, suggesting that anglers in search of a back country fishing experience are travelling further afield than was the case in 2007/08. Temporal trends in effort in the central North Island are also consistent with this interpretation, albeit on a more localised scale, with evidence of increasing effort in the headwaters of catchments such as the Ngaruroro and Whanganui.

The survey did not specifically consider the effect of didymo (*Didymosphenia geminata*) on changing patterns in river fishery usage. However, declining effort on high profile lower South Island rivers such as the Waiau River are consistent with reduced densities of adult brown trout in the Waiau and Mararoa Rivers (Kilroy et al. In press), in response to the increasing spread of didymo since 2004 (Kilroy & Unwin 2011).

4.4 Taupo Conservancy results

The survey results for waters in the Taupo Conservancy are neither as complete nor as robust as those for waters under FGNZ jurisdiction. For this reason, they should be interpreted as proof-of-concept rather than a robust data set on the same footing as the FGNZ results. In addition to the lack of data for junior and part-season licence holders, the small number of licence records available for sample selection (particularly for September-October 2014) introduces the risk that the licence holders interviewed for the first few survey periods were not a random subsample of the full population (Section 2.2.2), and hence may have been subject to bias. The need to retrospectively estimate population size for each survey period from licence sales for the 2015/16 season is a further source of uncertainty. With the benefit of hindsight, it may well have been prudent to defer the Taupo survey until the 2015/16 season, by which time most of the difficulties associated with implementing the new online licencing system had been overcome. Nevertheless, the 2014/15 results are credible, particularly with regard to relative usage of the most heavily fished waters (Lake Taupo, Tongariro River, Hinemaiaia Stream, Tauranga-Taupo River), and the differing patterns of within-season variation in effort for Lake Taupo (where peak effort occurs in mid-summer) and the tributary fisheries (which peak in late winter and early spring). Estimated annual usage of Lake Taupo (67,440 angler-days) is also consistent with the figure of 59,520 angler-days for the Waimakariri River in North Canterbury, in the sense that both waters are by far the most popular and accessible fisheries in each region, and that sales of adult whole-season licences in 2014/15 were similar in both regions (Taupo: 11,895, North Canterbury: 12,207).

Although DoC maintains several long-term data sets on the Taupo fishery (Dedual & Maheswaran 2016), a water-by-water comparison of usage estimates from the present survey with those collected by DoC is beyond the scope of this report. In addition to the lack of data for Taupo junior and part-season licence holders in the 2014/15 FGZ survey, any such comparison would need to take into account the differing survey methodologies in the two jurisdictions. Specifically, the sampling frame for each FGZ survey is the entire population of active licence holders in each stratum, with random sampling used to estimate mean effort per licence holder for each water of interest. Data for licence holders who did not fish during each survey period have the same status as data for those who fished, ensuring that estimated mean effort per licence holder is unbiased. By contrast, most DoC surveys are field based (Dedual & Maheswaran 2016), with the sampling frame comprising each day in a 12 month angling season (possibly stratified by season and time of day). These surveys yield unbiased estimates of statistics such as mean daily catch-per-unit-effort, but – because individuals who did not fish on the day of each survey are automatically excluded from the sample – are not necessarily compatible with the FGZ data.

Assuming a more complete telephone survey of Taupo licence holders can be undertaken at a later date, an important preliminary goal would be to review both survey methodologies in search of one or more common metrics by which the results can be compared. Such a comparison would be invaluable for managers in both jurisdictions. Agreement or near agreement between the two data sets would provide strong evidence that both methodologies are yielding unbiased estimates, whereas any significant discrepancies could indicate that one or both methodologies may need to be reviewed. In this context, it is encouraging to note that some consideration is being given to a single national licence (Sapsford 2013). Leaving aside the question of how this might be implemented, such a move would go a long way towards eliminating many of the operational problems encountered during the current survey, and pave the way for a comprehensive survey of New Zealand freshwater angling resources.

4.5 Future developments

The four surveys completed to date provide FGZ with a rich database on angler activity over two decades, and have become widely recognised as a robust and credible source of quantitative data on New Zealand angling. In addition to its value as a resource for FGZ in its day-to-day management activities, the database has gained recognition as a national resource with potential to inform a wide range of end-users. For example, development of the RIVAS (River Values Assessment System; Hughey & Booth 2012) relied heavily on regional analysis of the survey data (e.g., Booth et al. 2010), which facilitated iterative development of the RIVAS model until its conclusions matched the observed data. As another example, a workshop on river mouth fisheries in the North Canterbury region (Unwin 2011) acknowledged the survey results as one of the few available sources of quantitative data on long-term trends in riverine environments, in sharp contrast to data-poor activities such as kayaking, jet-boating, and mahinga kai. More recently, the surveys have been recognised by the Ministry for the Environment as a critical data source for developing a coherent set of values by which salmonid angling can be incorporated into its National Policy Statement for Freshwater Management.

The ability to link the survey database to the REC has also proved invaluable, but there remains scope for further development. The REC has now been updated so as to more accurately model local catchments (particularly in low gradient areas where the earlier models were often deficient), and also to take advantage of newer (2008) satellite imagery from the New Zealand land cover database

(LCDB3)¹⁰. Linking the FGNZ database to the updated REC (REC2) is beyond the scope of this report, but is an obvious task for the future. Likewise, analysis of lake fisheries in relation to the WONI (Waters of National Importance) database has yet to be undertaken, although much of the groundwork (including linking each recognised lake fishery to its corresponding WONI record) has been completed.

As noted earlier (Section 3.2.1), the analyses presented in this report focus mostly on national-scale results. An important goal for FGNZ is to ensure that regional staff are aware of the potential of the survey database for further analyses at national, regional, and local levels), and – perhaps more importantly – have (or acquire) the necessary data processing skills. A series of workshops or training sessions would be an appropriate way of achieving this.

Assuming that FGNZ continues to conduct national surveys every 6-7 years, the next such survey will take place c. 2021/2022. Given the rate at which web and internet based technology is developing it is almost certain that new (and possibly highly cost effective) opportunities for data collection will have emerged by the time the survey is due to be launched. A challenge for FGNZ as communications technology continues to advance will be to take maximum advantage of the possibilities for a more web-based survey design, while minimising the risk of introducing bias by moving away from the telephone-based methodology which has served it well for two decades.

¹⁰ <https://iris.scinfo.org.nz/>

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Appendix A Estimated usage for New Zealand lake and river fisheries recorded in the 2014/15 National Angling Survey

The following tables give estimated usage (angler-days \pm 1 standard error) for all New Zealand river and lake fisheries recorded in the 2014/15 National Angling Survey, grouped by region and catchment. Regions are ordered from north to south; catchments are ordered clockwise around New Zealand; and waters within each major catchment are ordered by increasing distance upstream (Anon. 1956). Sub-totals are given for catchments sustaining five or more fisheries. Estimates for New Zealand resident whole-season licence holders (Strata 1 and 2), and for all part-season licence holders (Stratum 3) are given for each two month survey period, from October-November 2014 to August-September 2015. Estimates for non-resident whole-season licence holders (Stratum 4) are for the full 12 month survey period (October 2014 – September 2015).

Northland Region

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas	Total	
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep		Oct-Sep
Rangitane River	Lake Manuwai			20 \pm 10		90 \pm 80	60 \pm 40		170 \pm 90
	Waipapa Stream			40 \pm 40				40 \pm 40	80 \pm 60
Kerikeri River	Kerikeri River	10 \pm 10		20 \pm 20				20 \pm 20	50 \pm 30
Waitangi River	Waitangi River			10 \pm 10					10 \pm 10
Hatea River	Mangakino Stream		70 \pm 60	40 \pm 30					110 \pm 70
	Whau Valley Dam	130 \pm 80			90 \pm 60				220 \pm 100
Ruakaka River	Wilson's Dam				20 \pm 10				20 \pm 10
Wairua River	Wairua River	10 \pm 10	40 \pm 40		60 \pm 50				110 \pm 60
	Mangakahia River	20 \pm 20	30 \pm 30						50 \pm 40
	Mangahahuru Stream	10 \pm 10							10 \pm 10
	Kaimamaku Stream	10 \pm 10							10 \pm 10
Kaiwi Lakes	Kaiwi Lakes	40 \pm 20	140 \pm 100	70 \pm 40	70 \pm 40	270 \pm 90	80 \pm 70		680 \pm 160
Waihou River	Waihou River			40 \pm 30					40 \pm 40
Total, Northland region		250 \pm 90	280 \pm 130	240 \pm 80	240 \pm 90	360 \pm 120	150 \pm 80	60 \pm 50	1,570 \pm 250

Auckland/Waikato Region

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Oct-Sep	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Waitemata Harbour	Lake Pupuke	< 10	100 ± 70	20 ± 20	120 ± 80	40 ± 30	20 ± 20		310 ± 120
Wairoa River	Wairoa River	20 ± 20	40 ± 40	20 ± 20		20 ± 20			100 ± 50
Waihou River	Waihou River (above Okoroire)	60 ± 30	300 ± 70	40 ± 20	190 ± 90	< 10	< 10		620 ± 120
	Waihou River (below Okoroire)		320 ± 120	70 ± 70	360 ± 350		150 ± 140		900 ± 410
	Waihou River (total)	60 ± 30	620 ± 140	120 ± 70	550 ± 370	< 10	160 ± 140		1,520 ± 420
	Hikutaia River						90 ± 90		90 ± 90
	Maratoto Stream					50 ± 50			50 ± 50
	Ohinemuri River	70 ± 30	230 ± 80	100 ± 70	280 ± 210	< 10	< 10		700 ± 240
	Waitawheta River	60 ± 40	160 ± 60	60 ± 40		30 ± 20			320 ± 80
	Waitekauri River		10 ± 10						10 ± 10
	Waiomou Stream	10 ± 10	110 ± 60						130 ± 60
	Rapurapu Stream	10 ± 10	40 ± 40						50 ± 40
	Kakahu Stream		20 ± 20	10 ± 10					30 ± 20
	Oraka Stream	50 ± 20	110 ± 80						150 ± 80
	Waimakariri Stream	40 ± 30	100 ± 40	< 10	160 ± 90	30 ± 30	20 ± 20		350 ± 100
	Total, Waihou catchment		310 ± 60	1,390 ± 210	300 ± 110	1,000 ± 430	130 ± 60	280 ± 170	
Waiwawa River	Waiwawa River			10 ± 10					10 ± 10
Tairua River	Tairua River	60 ± 60	30 ± 20						90 ± 60
Whanganui River	Whanganui River (above Whakapapa)	160 ± 50	780 ± 550	660 ± 310	260 ± 130	110 ± 90	80 ± 60	40 ± 30	2,090 ± 660
	Whanganui River (Whakapapa to Ohura)	310 ± 140	740 ± 250	640 ± 310	570 ± 340	190 ± 130	40 ± 30	100 ± 100	2,610 ± 570
	Whanganui River (total)	470 ± 150	1,530 ± 600	1,300 ± 440	820 ± 370	300 ± 160	120 ± 60	150 ± 110	4,690 ± 870
	Ohura River		< 10						< 10

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Oct-Sep	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Ongarue River	20 ± 20	40 ± 30	20 ± 20	70 ± 70				150 ± 80
	Taringamotu River	20 ± 20		50 ± 50					80 ± 60
	Waimiha Stream		< 10						< 10
	Whakapapa River	310 ± 100	1,080 ± 560	610 ± 160	550 ± 330	40 ± 30		330 ± 140	2,920 ± 690
	Piopiotea Stream			130 ± 90					130 ± 90
	Mangatepopo Stream	10 ± 10							10 ± 10
	Total, Whanganui catchment	830 ± 180	2,650 ± 820	2,110 ± 490	1,440 ± 500	340 ± 160	130 ± 60	480 ± 180	7,980 ± 1,120
Mokau River	Mangaotaki River		80 ± 50		10 ± 10	140 ± 140			230 ± 150
Awakino River	Awakino River	70 ± 30	80 ± 30	190 ± 140	40 ± 20				380 ± 150
	Manganui River		20 ± 10					60 ± 50	80 ± 50
Marokopa River	Marokopa River	30 ± 20	40 ± 20				40 ± 40		110 ± 50
	Tawarau River	< 10			< 10				< 10
	Mangaohae Stream	10 ± 10	40 ± 40	20 ± 20	10 ± 10				80 ± 40
Waikato River	Waikato River (below Karapiro)	430 ± 160	510 ± 180	660 ± 250	100 ± 50	630 ± 470	750 ± 610	40 ± 40	3,130 ± 840
	Piggott Wetland		20 ± 20						20 ± 20
	Lake Waahi	20 ± 20							20 ± 20
	Hamilton Lake	10 ± 10							10 ± 10
	Lake Arapuni	540 ± 340	1,570 ± 730	890 ± 450	160 ± 70	140 ± 80	80 ± 20		3,370 ± 920
	Lake Karapiro	630 ± 520	230 ± 110	250 ± 120	200 ± 140	320 ± 180	70 ± 40		1,690 ± 590
	Lake Otamatearua				< 10				< 10
	Lake Waipapa		200 ± 160	< 10			20 ± 20		230 ± 160
	Mangatawhiri Reservoir					140 ± 140			150 ± 140
	Lake Whatihua	10 ± 10	20 ± 20	50 ± 50					90 ± 60
	Parkinsons Lake	20 ± 20	20 ± 20	70 ± 70		30 ± 20			140 ± 80

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas	Total	
		Oct-Nov	Oct-Sep	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep		Oct-Sep
	Whangamarino River		< 10						< 10
	Mangatangi Reservoir		10 ± 10						10 ± 10
	Whangape Stream		10 ± 10					20 ± 20	30 ± 20
	Rangiriri Stream				50 ± 40				50 ± 40
	Lake Hakanoa		< 10	< 10	< 10		< 10		< 10
	Mangawara Stream	10 ± 10	10 ± 10						20 ± 10
	Waipa River	380 ± 270	360 ± 190	1,060 ± 890	350 ± 230	120 ± 120	60 ± 40		2,340 ± 980
	Kaniwhaniwha Stream	60 ± 30	70 ± 40	130 ± 110	50 ± 40				310 ± 120
	Puniu River	10 ± 10	260 ± 180		70 ± 50				340 ± 190
	Mangatutu Stream	40 ± 20	140 ± 50	200 ± 130	120 ± 110				500 ± 180
	Waipari River	10 ± 10	40 ± 40						50 ± 40
	Ngakoahia Stream	20 ± 20							20 ± 20
	Moakururua Stream	40 ± 30	30 ± 30						60 ± 40
	Mangawhero Stream		40 ± 30						40 ± 30
	Mangaokewa Stream		40 ± 30	60 ± 50					90 ± 60
	Waimahora Stream							40 ± 40	40 ± 40
	Pokaiwhenua Stream	20 ± 20	70 ± 40		30 ± 20				120 ± 50
	Little Waipa Stream	60 ± 40	190 ± 100	20 ± 20	80 ± 60	20 ± 20	20 ± 20		390 ± 130
	Mangawhio Stream		20 ± 20						20 ± 20
	Waipapa River	40 ± 30	50 ± 30	60 ± 40	30 ± 30		20 ± 20		210 ± 70
	Mangakino Stream						370 ± 370		370 ± 370
Total, Waikato catchment		2,330 ± 700	3,880 ± 830	3,470 ± 1,050	1,240 ± 320	1,400 ± 540	1,390 ± 710	100 ± 60	13,830 ± 1,790

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas	Total	
		Oct-Nov	Oct-Sep	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep		Oct-Sep
Lake Ototoa	Lake Ototoa	< 10		< 10					< 10
Kaipara River	Kumeu River				30 ± 30				30 ± 30
Lake Tomarata	Lake Tomarata						< 10		< 10
Total, Auckland/Waikato region		3,700 ± 730	8,370 ± 1,190	6,140 ± 1,170	3,890 ± 740	2,070 ± 590	1,870 ± 740	650 ± 190	26,690 ± 2,190

Eastern Region

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Oct-Sep	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Tuapiro Creek	Tuapiro Creek	40 ± 40							40 ± 40
Wairoa River	McLaren Falls Dam	50 ± 20	120 ± 80	400 ± 320	200 ± 110	50 ± 30	750 ± 510		1,570 ± 620
	Wairoa River	< 10	< 10	< 10					10 ± 3
	Ohourere Stream							20 ± 20	20 ± 20
	Ruahihi Canal	40 ± 40	120 ± 120	< 10			< 10		180 ± 120
	Ngamuwahine River	20 ± 20	10 ± 10						40 ± 20
Total, Wairoa catchment		120 ± 50	270 ± 140	410 ± 320	200 ± 110	50 ± 30	750 ± 510	20 ± 20	1,820 ± 630
Kaituna River	Kaituna River	30 ± 20	40 ± 30	40 ± 40	180 ± 130				300 ± 140
	Lake Rotoiti	4,540 ± 860	11,820 ± 2,030	7,590 ± 1,700	8,780 ± 1,680	6,510 ± 2,630	860 ± 270	40 ± 40	40,150 ± 4,190
	Ohau Channel	230 ± 160	440 ± 220	140 ± 70	160 ± 90		90 ± 80		1,060 ± 310
	Lake Rotorua	1,840 ± 560	6,020 ± 1,250	4,230 ± 1,180	2,680 ± 780	960 ± 250	1,410 ± 690	670 ± 290	17,800 ± 2,120
	Utuhina Stream	170 ± 160	60 ± 50	80 ± 80	20 ± 20	30 ± 30			360 ± 190
	Ngongotaha Stream	2,170 ± 1,640	2,090 ± 770	1,120 ± 400	720 ± 240	340 ± 170	930 ± 680	80 ± 50	7,450 ± 2,000
	Waiteti Stream	30 ± 20	1,260 ± 390	1,290 ± 550	460 ± 250	80 ± 50			3,110 ± 720
	Awahou Stream		1,430 ± 920	320 ± 320		260 ± 200			2,010 ± 990
Total, Kaituna catchment		9,010 ± 1,950	23,560 ± 2,720	14,860 ± 2,210	13,120 ± 1,890	8,190 ± 2,650	3,290 ± 1,010	790 ± 300	72,810 ± 5,270
Waihi Estuary	Pongakawa Stream		80 ± 80						80 ± 80
Lake Rotoehu	Lake Rotoehu	210 ± 110	50 ± 10	50 ± 10	300 ± 130	90 ± 60	360 ± 190	210 ± 200	1,280 ± 330
	Lake Rotoma	550 ± 300	1,550 ± 590	350 ± 250	230 ± 80	610 ± 320	190 ± 130		3,480 ± 790
Tarawera River	Tarawera River (above Tarawera Falls)	810 ± 650	160 ± 150	120 ± 90					1,090 ± 680
	Tarawera River (below Tarawera Falls)	40 ± 30	230 ± 230						280 ± 230

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Oct-Sep	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Tarawera River (total)	850 ± 660	390 ± 280	130 ± 90					1,370 ± 720
	Lake Okaro	130 ± 90	10 ± 10	720 ± 670	80 ± 60	30 ± 30			970 ± 680
	Lake Okataina	750 ± 290	2,040 ± 530	970 ± 370	1,230 ± 680	1,030 ± 490	310 ± 180	330 ± 290	6,660 ± 1,150
	Lake Rerewhakaaitu	790 ± 380	620 ± 270	410 ± 160	1,610 ± 530	200 ± 130	210 ± 200		3,850 ± 760
	Ruruanga Stream	10 ± 10							10 ± 10
	Waiwhakapa Stream				20 ± 20				30 ± 20
	Lake Tarawera	5,160 ± 1,540	11,010 ± 2,280	7,220 ± 1,940	5,080 ± 1,200	2,050 ± 430	1,030 ± 360		31,540 ± 3,610
	Lake Okareka	190 ± 110	1,360 ± 960	660 ± 490	790 ± 580	270 ± 140	< 10		3,290 ± 1,240
	Lake Rotokakahi		20 ± 20						20 ± 20
	Lake Tikitapu (Blue Lake)		160 ± 150		30 ± 20	30 ± 30	370 ± 230		600 ± 280
	Lake Rotomahana	120 ± 90	140 ± 120	420 ± 230	160 ± 160		40 ± 40		870 ± 320
	Total, Tarawera catchment	8,000 ± 1,750	15,760 ± 2,560	10,530 ± 2,160	9,000 ± 1,600	3,630 ± 680	1,970 ± 510	330 ± 290	49,210 ± 4,200
Rangitaiki River	Rangitaiki River (above Lake Aniwhenua)	50 ± 40	140 ± 80	< 10	280 ± 170		370 ± 330	40 ± 40	910 ± 380
	Rangitaiki River (Aniwhenua to Matahina)	250 ± 180	630 ± 470	< 10	< 10	30 ± 30		190 ± 180	1,120 ± 540
	Rangitaiki River (below Matahina Dam)	40 ± 40	90 ± 50		430 ± 290				560 ± 290
	Rangitaiki River (total)	350 ± 190	850 ± 480	30 ±	710 ± 330	30 ± 30	380 ± 330	230 ± 190	2,580 ± 720
	Lake Aniwhenua	580 ± 340	30 ± 20	620 ± 350	50 ± 40	30 ± 30	40 ± 40	150 ± 90	1,490 ± 500
	Lake Matahina	50 ± 40	80 ± 80	210 ± 140	< 10		< 10		350 ± 170
	Waihua Stream	240 ± 180		50 ± 50					300 ± 190
	Horomanga River		470 ± 460	100 ± 70					570 ± 470
	Whirinaki River	170 ± 100	630 ± 470	370 ± 250	90 ± 50				1,250 ± 540
	Flaxy Canal	< 10	< 10					60 ± 60	90 ± 60
	Lake Flaxy				40 ± 40		140 ± 130	60 ± 60	240 ± 150
	Rangitaiki Canal						140 ± 130		140 ± 130

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Oct-Sep	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Wheao River						330 ± 320		330 ± 320
	Otangimoana Stream		30 ± 30						30 ± 30
	Otamatea River		120 ± 110	150 ± 150					270 ± 190
	Total, Rangitaiki catchment	1,390 ± 440	2,210 ± 830	1,530 ± 480	910 ± 340	70 ± 50	890 ± 480	500 ± 230	7,500 ± 1,230
Whakatane River	Whakatane River		10 ± 10	140 ± 90	20 ± 20				180 ± 100
	Waimana River				30 ± 30	30 ± 30		20 ± 20	90 ± 50
	Tauranga River						90 ± 90		90 ± 90
	Waikare River	10 ± 10	10 ± 10						20 ± 10
	Ruatahuna Stream	50 ± 40							50 ± 40
	Total, Whakatane catchment	60 ± 50	20 ± 10	140 ± 90	50 ± 40	30 ± 30	100 ± 90	20 ± 20	420 ± 150
Waioeka River	Waioeka River	100 ± 50	900 ± 450	880 ± 320	310 ± 150			40 ± 30	2,240 ± 570
	Opato Stream		30 ± 30						30 ± 30
	Wairata Stream		160 ± 150					20 ± 20	180 ± 160
Otara River	Otara River							20 ± 20	20 ± 20
Motu River	Motu River	340 ± 230	420 ± 380	20 ± 20					790 ± 450
Turanganui River	Turanganui River		20 ± 20						20 ± 20
Wairoa River	Wairoa River	40 ± 40	80 ± 80						130 ± 90
	Waiau River		50 ± 40	60 ± 50	160 ± 150			100 ± 100	370 ± 200
	Lake Kaitawa	80 ± 80							80 ± 80
	Lake Tuai	80 ± 80	30 ± 30			70 ± 60			180 ± 110
	Lake Waikareiti	< 10	220 ± 210	< 10			40 ± 40		270 ± 210
	Lake Waikaremoana	1,230 ± 380	2,710 ± 790	880 ± 340	1,820 ± 550	460 ± 160	410 ± 190		7,500 ± 1,110
	Waikaretaheke River	70 ± 40							70 ± 40
	Mangapapa Stream						80 ± 80		80 ± 80

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Oct-Sep	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Hopuruahine Stream	50 ± 50							50 ± 50
	Moerangi Stream	10 ± 10							10 ± 10
	Ruakituri River	350 ± 120	640 ± 400	490 ± 330	260 ± 130			20 ± 20	1,750 ± 550
	Hangaroa River	980 ± 970	40 ± 40	90 ± 80	60 ± 40			20 ± 20	1,190 ± 970
	Total, Wairoa catchment	2,900 ± 1,050	3,760 ± 910	1,510 ± 480	2,300 ± 580	530 ± 170	530 ± 210	150 ± 110	11,680 ± 1,610
Waikato River	Waikato River (Huka Falls to Ohakuri)	70 ± 30	140 ± 40	180 ± 90	610 ± 390	40 ± 20	40 ± 20	40 ± 30	1,120 ± 400
	Lake Aratiatia		< 10						< 10
	Lake Atiamuri			360 ± 360	160 ± 120				520 ± 380
	Lake Maraetai	50 ± 30	40 ± 30	20 ±	90 ± 90	130 ± 100	< 10		330 ± 140
	Lake Ohakuri			40 ± 40	100 ± 70	140 ± 110	330 ± 210	40 ± 40	660 ± 260
	Lake Whakamaru		70 ± 40	10 ± 10	360 ± 280		40 ± 40		490 ± 280
	Whirinaki Stream		120 ± 120						120 ± 120
	Lake Ngahewa	30 ± 30							30 ± 30
	Lake Ngapouri	80 ± 80	120 ± 120						200 ± 140
	Ruatawiri Stream		20 ± 20						20 ± 20
	Pueto Stream		10 ± 10						10 ± 10
	Total, Waikato catchment	250 ± 100	520 ± 180	610 ± 370	1,330 ± 500	310 ± 150	410 ± 220	80 ± 50	3,510 ± 710
	Total, Eastern region	23,980 ± 2,880	49,310 ± 4,030	30,890 ± 3,230	27,750 ± 2,630	13,510 ± 2,760	8,620 ± 1,390	2,190 ± 530	155,240 ± 7,200

Taupo Conservancy

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Oct-Sep	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Waikato River	Lake Taupo	40 ± 40							67,440 ± 5,820
	Waitahanui River	50 ± 20	120 ± 80	400 ± 320	200 ± 110	50 ± 30	750 ± 510		4,470 ± 1,230
	Hinemaiaia Stream	< 10	< 10	< 10					7,270 ± 1,160
	Tauranga-Taupo River								7,740 ± 2,500
	Waimarino River	40 ± 40	120 ± 120	< 10			< 10		1,840 ± 1,150
	Waiotaka Stream	20 ± 20	10 ± 10						320 ± 140
	Tongariro River	30 ± 20	40 ± 30	40 ± 40	180 ± 130				30,670 ± 3,100
	Lake Rotoaira	4,540 ± 860	11,820 ± 2,030	7,590 ± 1,700	8,780 ± 1,680	6,510 ± 2,630	860 ± 270		950 ± 620
	Lake Otamangakau	230 ± 160	440 ± 220	140 ± 70	160 ± 90		90 ± 80		4,480 ± 1,460
	Omor Stream	1,840 ± 560	6,020 ± 1,250	4,230 ± 1,180	2,680 ± 780	960 ± 250	1,410 ± 690		240 ± 170
	Kuratau River	170 ± 160	60 ± 50	80 ± 80	20 ± 20	30 ± 30			240 ± 170
	Lake Kuratau	2,170 ± 1,640	2,090 ± 770	1,120 ± 400	720 ± 240	340 ± 170	930 ± 680		1,230 ± 610
	Whanganui Stream	30 ± 20	1,260 ± 390	1,290 ± 550	460 ± 250	80 ± 50			90 ± 90
	Waihaha River		1,430 ± 920	320 ± 320		260 ± 200			470 ± 290
	Whangamata Stream		390 ± 250	50 ± 40	130 ± 120				290 ± 230
Total, Taupo Conservancy		21,470 ± 2,620	30,970 ± 4,380	34,630 ± 4,740	17,160 ± 2,190	10,060 ± 1,440	13,410 ± 1,290		127,700 ± 7,560

Taranaki Region

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Turakina River	Lake Namunamu				10 ± 10	120 ± 120			130 ± 120
Whangaehu River	Lake Ohakune						20 ± 20		20 ± 20
	Raetihi Hydro Dam		10 ± 10						10 ± 10
	Mangawhero River	140 ± 70	60 ± 30	40 ± 40	< 10				250 ± 80
	Taonui Stream	60 ± 60		40 ± 30					100 ± 70
	Mangateitei Stream	< 10							< 10
	Waitaiki Stream	10 ± 10							10 ± 10
	Waitangi Stream			10 ± 10					10 ± 10
Total, Whangaehu catchment		210 ± 90	80 ± 30	80 ± 50	10 ±		20 ± 20		400 ± 110
Kaitoke Stream	Lake Wiritoa	30 ± 10	30 ± 20		20 ± 20				80 ± 30
Whanganui River	Whanganui River (below Ohura)	40 ± 30	140 ± 70	180 ± 90	10 ± 10	90 ± 70	210 ± 140		670 ± 190
	Manganui-o-te-ao River	230 ± 70	350 ± 120	440 ± 210	110 ± 40			80 ± 60	1,230 ± 260
	Ruatiti Stream		< 10				< 10		20 ±
	Mangaturuturu River	< 10							< 10
	Makatote River		10 ± 10						10 ± 10
	Retaruke River	130 ± 110		30 ± 30		30 ± 30			190 ± 120
Total, Whanganui catchment		400 ± 140	520 ± 130	660 ± 230	130 ± 40	130 ± 70	220 ± 140	80 ± 60	2,140 ± 340
Waitotara River	Omahine Stream		10 ± 10						10 ± 10
Patea River	Lake Rotorangi	30 ± 20	< 10						40 ± 20
	Patea River	120 ± 50	80 ± 30	120 ± 70	190 ± 90		30 ± 30		540 ± 130
	Mangaehu Stream			< 10					< 10
	Makuri Stream		10 ± 10	20 ± 20					30 ± 20

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Kahouri Stream	20 ± 10							20 ± 10
Total, Patea catchment		170 ± 50	100 ± 30	140 ± 70	190 ± 90		30 ± 30		640 ± 130
Waingongoro River	Waingongoro River	140 ± 40	210 ± 60	180 ± 140	30 ± 20		10 ± 10		560 ± 160
	Mangatoki Stream		20 ± 10						20 ± 10
Kapuni Stream	Kapuni Stream	10 ± 10			10 ± 10				30 ± 20
Waiokura Stream	Waiokura Stream		< 10						< 10
Kaupokonui Stream	Kaupokonui Stream	50 ± 20	60 ± 40	40 ± 30	40 ± 20		10 ± 10		200 ± 50
	Mangawhero Stream	< 10							< 10
Taungatara Stream	Taungatara Stream	< 10							< 10
Mangahume Stream	Mangahume Stream				40 ± 30				40 ± 30
Waiaua River	Lake Opunake	10 ± 10	60 ± 60		50 ± 40		60 ± 50		190 ± 90
	Waiaua River	10 ± 10		30 ± 30	10 ± 10				50 ± 30
Otahi Stream	Otahi Stream	< 10							< 10
Okahu Stream	Okahu Stream		10 ± 10						10 ± 10
Kapoaiaia Stream	Kapoaiaia Stream	10 ± 10							10 ± 10
Warea River	Warea River	10 ± 10	30 ± 20	10 ± 10					50 ± 20
Stony River	Stony River	40 ± 20	110 ± 30	100 ± 90	30 ± 20				290 ± 100
Kaihihi Stream	Kaihihi Stream	10 ± 10							10 ± 10
Timaru Stream	Timaru Stream		120 ± 120						120 ± 120
Oakura River	Oakura River	< 10	30 ± 20						30 ± 20
Waiwhakaiho River	Lake Rotomanu	110 ± 40	390 ± 260	120 ± 70	110 ± 50	10 ± 10			730 ± 270
	Waiwhakaiho River	370 ± 70	420 ± 150	340 ± 120	80 ± 40	20 ± 10			1,210 ± 210
	Mangorei Stream		< 10		< 10				< 10
	Lake Mangamahoe	210 ± 60	340 ± 180	160 ± 150	320 ± 160	160 ± 140	20 ± 20		1,210 ± 320

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas	Total	
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep		Oct-Sep
	Kai Auahi Stream	20 ± 10			10 ± 10			80 ± 80	110 ± 80
Total, Waiwhakaiho catchment		700 ± 100	1,150 ± 350	610 ± 200	510 ± 180	190 ± 140	20 ± 20	80 ± 80	3,260 ± 480
Waiongana Stream	Waiongana Stream		150 ± 80	30 ± 20					180 ± 80
Waitara River	Lake Cowley		30 ± 30						30 ± 30
	Lake Ngangana	10 ± 10							10 ± 10
	Waitara River		30 ± 20						30 ± 20
	Manganui River	140 ± 40	70 ± 40	90 ± 70	10 ± 10				310 ± 90
	Ngatoro Stream		10 ± 10	50 ± 50					60 ± 50
	Maketawa Stream	10 ± 10							10 ± 10
	Waipuku Stream	< 10							< 10
	Lake Ratapiko	40 ± 10	30 ± 20	20 ± 10					80 ± 30
Total, Waitara catchment		200 ± 50	180 ± 50	160 ± 80	10 ± 10				540 ± 110
Total, Taranaki region		2,040 ± 210	2,880 ± 420	2,040 ± 370	1,090 ± 220	440 ± 200	360 ± 160	170 ± 100	9,010 ± 690

Hawkes Bay Region

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Mohaka River	Mohaka River (above Mangatainoka)	400 ± 150	310 ± 80	320 ± 120	370 ± 140	160 ± 90	30 ± 20	520 ± 260	2,110 ± 370
	Mohaka River (Mangatainoka to SH5)	220 ± 110	330 ± 80	490 ± 140	240 ± 140	160 ± 90	30 ± 20	350 ± 130	1,830 ± 290
	Mohaka River (below SH5)	490 ± 260	830 ± 180	950 ± 220	230 ± 120	30 ± 20	160 ± 130	230 ± 130	2,910 ± 440
	Mohaka River (total)	1,110 ± 320	1,470 ± 210	1,760 ± 280	850 ± 230	340 ± 130	230 ± 140	1,110 ± 320	6,860 ± 640
	Te Hoe River	50 ± 50	10 ± 10	40 ± 30					100 ± 60
	Hautapu River							40 ± 40	40 ± 40
	Waipunga River	10 ± 10	90 ± 50	90 ± 40	20 ± 20				210 ± 70
	Mokomokonui River		70 ± 50	60 ± 40		170 ± 170			290 ± 180
	Ripia River		50 ± 40		20 ± 20			20 ± 20	90 ± 50
	Makahu River	30 ± 20							30 ± 20
	Mangatutunui Stream	10 ± 10	100 ± 90						100 ± 90
	Mangatainoka River	40 ± 30	80 ± 70						120 ± 80
	Taharua River						20 ± 20	20 ± 20	40 ± 30
	Oamaru River	< 10	< 10		< 10				< 10
	Kaipo River			50 ± 50					50 ± 50
Total, Mohaka catchment		1,250 ± 320	1,860 ± 250	2,000 ± 290	900 ± 230	510 ± 210	250 ± 140	1,190 ± 320	7,950 ± 690
Aropaoanui River	Aropaoanui River	20 ± 20	10 ± 10						30 ± 20
	Waikoau River	30 ± 20	10 ± 10	10 ± 10					50 ± 30
	Lake Tutira	390 ± 170	360 ± 170	440 ± 230	200 ± 130	1,020 ± 310	300 ± 130		2,720 ± 490
Esk River	Esk River	350 ± 120	300 ± 90	170 ± 110	450 ± 310	190 ± 140	70 ± 70		1,530 ± 390

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Tutaekuri River	Tutaekuri River	1,270 ± 290	1,280 ± 410	1,440 ± 700	1,040 ± 640	310 ± 140	370 ± 110	20 ± 20	5,740 ± 1,090
	Twin Lakes	20 ± 20							30 ± 20
	Mangaone River	150 ± 90	170 ± 80		130 ± 90	180 ± 170			640 ± 230
	Mangatutu Stream	90 ± 80	40 ± 30		10 ± 10			60 ± 60	210 ± 100
Ngaruroro River	Ngaruroro River (above Taruarau)	370 ± 120	790 ± 200	950 ± 340	40 ± 20	320 ± 140		170 ± 120	2,630 ± 450
	Ngaruroro River (below Taruarau)	680 ± 230	400 ± 100	520 ± 160	70 ± 50	110 ± 70	20 ± 20		1,810 ± 310
	Ngaruroro River (total)	1,050 ± 260	1,200 ± 230	1,470 ± 380	110 ± 50	430 ± 160	20 ± 20	170 ± 120	4,440 ± 550
	Tutaekuri Waimate Stream	30 ± 20	10 ± 10			130 ± 100			170 ± 100
	Mangatahi Stream		< 10	< 10					< 10
	Otamauri Stream					70 ± 70			70 ± 70
	Poporangi Stream		10 ± 10						10 ± 10
	Whanaukini Stream	10 ± 10							10 ± 10
	Ohara Stream	100 ± 50	70 ± 40	350 ± 320		70 ± 70			580 ± 330
	Taruarau River	190 ± 100	70 ± 40	70 ± 60		20 ± 20	20 ± 20	20 ± 20	410 ± 130
Ngaawapurua Stream	20 ± 20							20 ± 20	
Total, Ngaruroro catchment		1,400 ± 290	1,360 ± 230	1,890 ± 500	110 ± 50	720 ± 210	50 ± 30	190 ± 120	5,710 ± 670
Tukituki River	Tukituki River (above Waipawa)	140 ± 60	390 ± 120	570 ± 230	1,050 ± 520	150 ± 100	50 ± 30	130 ± 90	2,470 ± 600
	Tukituki River (Waipawa to Patangata)	430 ± 140	1,110 ± 290	980 ± 470	180 ± 90	110 ± 80	110 ± 40	100 ± 70	3,030 ± 590
	Tukituki River (below Patangata)	1,040 ± 210	780 ± 190	870 ± 220	450 ± 240	720 ± 350	290 ± 140		4,150 ± 570
	Tukituki River (total)	1,610 ± 260	2,280 ± 360	2,420 ± 570	1,680 ± 580	980 ± 370	450 ± 150	230 ± 120	9,650 ± 1,010
	Waipawa River	210 ± 70	510 ± 230	520 ± 330	410 ± 230	30 ± 20	160 ± 100		1,850 ± 480
	Mangaonuku Stream	30 ± 30	120 ± 70	70 ± 40	150 ± 130				380 ± 150
	Mangamauku Stream	40 ± 30							40 ± 30
Makaroro River		30 ± 20	30 ± 30					60 ± 30	

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas	Total	
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep		Oct-Sep
	Tukipo River	110 ± 60	100 ± 70	30 ± 20	350 ± 340			580 ± 350	
Total, Tukituki catchment		2,000 ± 280	3,050 ± 440	3,070 ± 660	2,590 ± 720	1,020 ± 370	600 ± 180	230 ± 120	12,550 ± 1,190
Maraetotara River	Maraetotara River	20 ± 20	50 ± 20	110 ± 80	40 ± 40			20 ± 20	240 ± 100
Total, Hawke's Bay region		6,980 ± 640	8,490 ± 730	9,140 ± 1,150	5,470 ± 1,060	3,940 ± 620	1,650 ± 290	1,710 ± 370	37,390 ± 2,000

Wellington Region

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Pahaoa River	Wainuioru River		30 ± 30						30 ± 30
Ruamahanga River	Kourarau Dam		< 10						< 10
	Lake Onoke		10 ± 10						10 ± 10
	Ruamahanga R (above Mount Bruce)		20 ± 20		40 ± 40				60 ± 40
	Ruamahanga R (Mount Bruce - Masterton)	80 ± 40	110 ± 50	230 ± 160	210 ± 120				630 ± 210
	Ruamahanga R (Masterton - Martinborough)	240 ± 90	680 ± 170	820 ± 230	220 ± 130	190 ± 90	170 ± 150	130 ± 90	2,440 ± 380
	Ruamahanga R (below Martinborough)	70 ± 30	150 ± 60	< 10	200 ± 120	30 ± 30			460 ± 140
	Ruamahanga River (total)	390 ± 100	960 ± 190	1,060 ± 280	670 ± 210	220 ± 100	170 ± 150	130 ± 90	3,590 ± 460
	Lake Wairarapa	30 ± 20	160 ± 100	100 ± 90					280 ± 140
	Tauherenikau River	40 ± 30	30 ± 30	80 ± 60					150 ± 70
	Huangarua River	30 ± 20		20 ± 20					50 ± 30
	Waiohine River	180 ± 80	50 ± 30		80 ± 80				310 ± 110
	Tauweru River	10 ± 10							10 ± 10
	Waingawa River		20 ± 20	40 ± 30					60 ± 30
	Atiwhakatu Stream	10 ± 10	10 ± 10						20 ± 10
	Waipoua River		20 ± 20						20 ± 20
	Kopuaranga River		40 ± 40	40 ± 40					80 ± 60
Total, Ruamahanga catchment		690 ± 140	1,310 ± 230	1,340 ± 310	750 ± 230	220 ± 100	170 ± 150	130 ± 90	4,600 ± 500
Wainuiomata River	Wainuiomata River	90 ± 40	70 ± 40	60 ± 60					210 ± 80
Hutt River	Hutt River	1,140 ± 280	1,350 ± 280	920 ± 250	810 ± 210	850 ± 430	430 ± 250	60 ± 60	5,560 ± 710
	Whakatikei River		20 ± 20						20 ± 20
	Akatarawa River	30 ± 20	10 ± 10						40 ± 20

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Mangaroa River	10 ± 10							10 ± 10
	Pakuratahi River	200 ± 190							200 ± 190
Total, Hutt catchment		1,380 ± 340	1,390 ± 280	920 ± 250	810 ± 210	850 ± 430	430 ± 250	60 ± 60	5,840 ± 740
Porirua Stream	Porirua Stream							40 ± 40	40 ± 40
Pauatahanui Stream	Whitby Lakes		30 ± 30						30 ± 30
Wainui Stream	Wainui Stream		30 ± 20						30 ± 20
Waikanae River	Waikanae River	80 ± 40	320 ± 110	450 ± 210		60 ± 60			920 ± 250
	Maungakotukuku Stream			40 ± 40					40 ± 40
Otaki River	Otaki River	230 ± 100	160 ± 50	240 ± 100	90 ± 50	90 ± 50		20 ± 20	830 ± 160
	Waiotauru River			40 ± 40					40 ± 40
Waitohu Stream	Lake Waitawa	40 ± 30							50 ± 30
Ohau River	Ohau River	60 ± 40	180 ± 70	120 ± 80	100 ± 100				460 ± 160
Manawatu River	Hokowhitu Lagoon		30 ± 30						30 ± 30
	Manawatu R (above Dannevirke)	20 ± 10	330 ± 150	540 ± 230	130 ± 70	10 ± 10	500 ± 490	20 ± 20	1,550 ± 560
	Manawatu R (Dannevirke - Woodville)	340 ± 210	880 ± 320	380 ± 170	150 ± 70	220 ± 150			1,980 ± 450
	Manawatu R (Woodville - Palmerston North)	370 ± 200	1,050 ± 270	1,540 ± 410	1,190 ± 340	220 ± 180	70 ± 60		4,440 ± 660
	Manawatu R (Palmerston North - Foxton)	120 ± 50	570 ± 380	130 ± 70	300 ± 290	60 ± 60	70 ± 60		1,240 ± 500
	Manawatu River (total)	850 ± 290	2,830 ± 590	2,590 ± 510	1,770 ± 460	510 ± 240	640 ± 500	20 ± 20	9,200 ± 1,100
	Tokomaru River	40 ± 40		100 ± 90					130 ± 100
	Oroua River	30 ± 20	140 ± 60	210 ± 110	320 ± 280		30 ± 30		730 ± 310
	Turitea Stream	20 ± 20				40 ± 40			60 ± 50
	Pohangina River	250 ± 200	210 ± 70	190 ± 90	220 ± 130		60 ± 60		930 ± 270
	Makiekie Creek	10 ± 10							10 ± 10
	Horopito Stream	40 ± 30							40 ± 30

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Mangahao River	140 ± 110	80 ± 70		70 ± 60	60 ± 60			360 ± 160
	Tiraumea River	40 ± 30							40 ± 30
	Mangatainoka River	80 ± 50	540 ± 330	120 ± 50	320 ± 150	90 ± 70			1,150 ± 380
	Makakahi River	170 ± 120	10 ± 10						180 ± 120
	Makuri River	120 ± 60	60 ± 40	60 ± 40					230 ± 80
	Mangatoro Stream		10 ± 10						10 ± 10
	Total, Manawatu catchment	1,770 ± 400	3,910 ± 680	3,270 ± 540	2,710 ± 580	710 ± 260	730 ± 500	20 ± 20	13,120 ± 1,260
Rangitikei River	Rangitikei (above Mangaohane Bridge)	180 ± 80	260 ± 80	650 ± 390	320 ± 140	60 ± 50		100 ± 70	1,580 ± 440
	Rangitikei (Mangaohane Bridge - Vinegar Hill)	300 ± 120	890 ± 400	360 ± 110	230 ± 90	150 ± 110	30 ± 30	480 ± 180	2,440 ± 490
	Rangitikei (Vinegar Hill - Tangimoana)	490 ± 190	1,390 ± 580	1,200 ± 680	740 ± 440	< 10		20 ± 20	3,850 ± 1,010
	Rangitikei River (total)	970 ± 230	2,530 ± 710	2,220 ± 790	1,290 ± 480	220 ± 120	30 ± 30	600 ± 200	7,870 ± 1,210
	Mangateweka Stream		80 ± 60						80 ± 60
	Kawhatau River	20 ± 10	20 ± 10	60 ± 30			100 ± 70	80 ± 80	280 ± 110
	Hautapu River	60 ± 30	20 ± 10	120 ± 60				40 ± 40	240 ± 80
	Moawhango River						30 ± 30		30 ± 30
	Whakaurekou River	30 ± 20							30 ± 20
	Mangatera River		20 ± 20						20 ± 20
	Mangaohane Stream		190 ± 170						190 ± 170
	Total, Rangitikei catchment	1,070 ± 240	2,860 ± 730	2,400 ± 790	1,290 ± 480	220 ± 120	160 ± 80	730 ± 220	8,730 ± 1,230
Lake Alice	Lake Dudding	100 ± 50	380 ± 200		30 ± 30				510 ± 210
Total, Wellington region		5,510 ± 610	10,680 ± 1,100	8,880 ± 1,070	5,780 ± 820	2,150 ± 540	1,490 ± 590	1,000 ± 250	35,490 ± 2,020

Nelson/Marlborough Region

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Aorere River	Aorere River	30 ± 20	150 ± 90					150 ± 90	330 ± 130
Takaka River	Takaka River (above Lindsay's Bridge)		60 ± 40					80 ± 80	150 ± 90
	Takaka River (below Lindsay's Bridge)		40 ± 30	20 ± 20		30 ± 30			80 ± 40
	Takaka River (total)		100 ± 50	20 ± 20		30 ± 30		80 ± 80	240 ± 100
	Anatoki River		40 ± 30						40 ± 30
	Waingaro River		10 ± 10		30 ± 30				50 ± 40
	Cobb Reservoir	10 ± 10	50 ± 40	< 10	30 ± 20		10 ± 10		120 ± 50
	Cobb River	20 ± 10	150 ± 80					100 ± 70	280 ± 110
Total, Takaka catchment		30 ± 20	350 ± 110	30 ± 20	70 ± 40	40 ± 30	10 ± 10	190 ± 110	720 ± 160
Riwaka River	Riwaka River	130 ± 90		70 ± 50			50 ± 50		250 ± 120
	Riwaka River North Branch			20 ± 20					20 ± 20
	Riwaka River South Branch		120 ± 110						120 ± 110
Motueka River	Motueka River (above Wangapeka)	310 ± 120	810 ± 380	420 ± 120	20 ±			1,270 ± 930	2,840 ± 1,020
	Motueka River (below Wangapeka)	380 ± 110	640 ± 150	590 ± 180	270 ± 150	150 ± 90	230 ± 120		2,250 ± 330
	Motueka River (total)	690 ± 160	1,450 ± 410	1,010 ± 210	290 ± 150	150 ± 90	230 ± 120	1,270 ± 930	5,090 ± 1,070
	Pearse River		10 ± 10	20 ± 20					20 ± 20
	Baton River	30 ± 20	80 ± 50					20 ± 20	140 ± 50
	Wangapeka River	70 ± 40	180 ± 80	70 ± 50	70 ± 60			60 ± 50	450 ± 130
	Rolling River							20 ± 20	20 ± 20
	Motupiko River	100 ± 50	470 ± 380	130 ± 90				20 ± 20	720 ± 390
Rainy River	< 10							< 10	
Total, Motueka catchment		910 ± 170	2,180 ± 560	1,230 ± 240	360 ± 160	150 ± 90	230 ± 120	1,400 ± 930	6,450 ± 1,150

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Waimea River	Waimea River	180 ± 80	100 ± 50	50 ± 40	20 ± 20				350 ± 110
	Wai-iti River			20 ± 20					20 ± 20
	Wairoa River	60 ± 30	900 ± 510		200 ± 130		130 ± 130		1,310 ± 540
	Lee River		< 10			< 10			< 10
Maitai River	Maitai River	160 ± 150	80 ± 50	170 ± 160	20 ± 20				430 ± 220
Wakapuaka River	Wakapuaka River	10 ± 10	170 ± 140	80 ± 80				130 ± 120	390 ± 200
Whangamoia River	Whangamoia River	10 ± 10	10 ± 10	20 ± 20					40 ± 20
Pelorus River	Pelorus River (above Pelorus Bridge)	100 ± 60	280 ± 110	160 ± 90				20 ± 20	570 ± 160
	Pelorus River (below Pelorus Bridge)	170 ± 100	400 ± 140	110 ± 70	20 ± 20				700 ± 190
	Pelorus River (total)	270 ± 120	680 ± 180	270 ± 120	20 ± 20			20 ± 20	1,270 ± 250
	Wakamarina River	10 ± 10	30 ± 30						40 ± 30
	Rai River	90 ± 40	240 ± 120	270 ± 150					600 ± 200
	Opouri River	20 ± 20		100 ± 100					120 ± 100
Wairau River	Wairau River (above Wash Bridge)	290 ± 110	680 ± 200	630 ± 250	50 ± 20			350 ± 160	2,010 ± 370
	Wairau River (below Wash Bridge)	1,050 ± 340	2,320 ± 540	2,940 ± 860	1,420 ± 590	1,340 ± 490	1,420 ± 1,030	20 ± 20	10,520 ± 1,670
	Wairau River (total)	1,340 ± 360	3,000 ± 580	3,570 ± 900	1,470 ± 590	1,350 ± 490	1,420 ± 1,030	380 ± 160	12,530 ± 1,710
	Wairau Diversion	290 ± 150		460 ± 330	100 ± 100	120 ± 100		40 ± 40	1,020 ± 390
	Opawa River	370 ± 340	60 ± 40	10 ± 10					450 ± 350
	Taylor River	50 ± 50		10 ± 10	50 ± 40	260 ± 260	10 ± 10		380 ± 260
	Spring Creek	130 ± 120	90 ± 60	200 ± 100	100 ± 100				510 ± 190
	Tuamarina River		10 ± 10						10 ± 10
	Waihopai River	10 ± 10							10 ± 10
	Timms Creek		10 ± 10						10 ± 10
	Goulter River	60 ± 40						60 ± 50	130 ± 60

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas	Total	
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep		Oct-Sep
	Argyle Pond	150 ± 60	110 ± 50	290 ± 200	50 ± 40	110 ± 100		700 ± 240	
	Branch River	50 ± 40	20 ± 20			30 ± 30	20 ± 20	120 ± 50	
	Leatham River	70 ± 40						70 ± 40	
	Rainbow River	80 ± 60	< 10	30 ± 30	30 ± 30			150 ± 80	
	Fish Lake		10 ± 10					10 ± 10	
	Total, Wairau catchment	2,600 ± 550	3,330 ± 580	4,580 ± 980	1,800 ± 610	1,860 ± 570	1,430 ± 1,030	500 ± 170	16,100 ± 1,840
Awatere River	Awatere River	20 ± 20	10 ± 10		20 ± 20			50 ± 30	
Blind River	Blind River		30 ± 30					30 ± 30	
Clarence River	Clarence River (above Acheron)	250 ± 150	170 ± 80	< 10	150 ± 140		150 ± 90	720 ± 240	
	Clarence River (below Acheron, salmon)	< 10	80 ± 70	310 ± 180		30 ± 30		430 ± 190	
	Clarence River (below Acheron, trout)	100 ± 70	70 ± 60	280 ± 260	60 ± 50		100 ± 70	600 ± 290	
	Clarence River (total)	350 ± 170	310 ± 120	600 ± 310	200 ± 150	30 ± 30	250 ± 110	1,750 ± 420	
	Acheron River	20 ± 20	20 ± 20					50 ± 30	
	Lake Sedgemere	50 ± 50						50 ± 50	
	Severn River	130 ± 130	10 ± 10					140 ± 130	
	Alma River		10 ± 10					10 ± 10	
	Bowscale Tarn		20 ± 20					20 ± 20	
	Lake Tennyson	30 ± 20	160 ± 60	20 ± 20	130 ± 120			340 ± 140	
	Total, Clarence catchment	580 ± 220	540 ± 140	620 ± 310	330 ± 200	30 ± 30	250 ± 110	2,360 ± 470	
Lyell Creek	Lyell Creek		40 ± 30					40 ± 30	
Kahutara River	Kahutara River	20 ± 20						20 ± 20	
Conway River	Conway River			50 ± 50				60 ± 50	
Buller River	Buller River (Rotoiti to Gowan)	120 ± 60	200 ± 100	20 ±		210 ± 120	100 ± 60	650 ± 180	
	Buller River (Gowan to Lyell)	210 ± 90	180 ± 80	220 ± 110	70 ± 70		160 ± 150	970 ± 260	

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Buller River (total)	330 ± 110	380 ± 130	240 ± 110	80 ± 70	210 ± 120	160 ± 150	230 ± 140	1,620 ± 320
	Deepdale River		10 ± 10					20 ± 20	30 ± 20
	Lake Daniells	80 ± 60	30 ± 20			30 ± 30			140 ± 80
	Maruia River	130 ± 70	210 ± 110	120 ± 70				150 ± 110	620 ± 190
	Woolley River	30 ± 30							30 ± 30
	Matiri River	40 ± 30							40 ± 30
	Matakitaki River	110 ± 70	10 ± 10	290 ± 260	30 ± 30			170 ± 80	600 ± 290
	Glenroy River			< 10					< 10
	Mangles River	60 ± 40	20 ± 20	10 ± 10					90 ± 50
	Tutaki River	50 ± 40	80 ± 70	20 ± 20				20 ± 20	160 ± 80
	Tiraumea River	10 ± 10							10 ± 10
	Owen River	20 ± 10	140 ± 70	140 ± 50	40 ±			400 ± 220	730 ± 240
	Gowan River	60 ± 40		270 ± 260	< 10				340 ± 260
	Lake Rotoroa	260 ± 100	360 ± 130	270 ± 130	100 ± 80	30 ± 30	50 ± 50	170 ± 140	1,240 ± 270
	Sabine River	50 ± 30		70 ± 60				80 ± 50	200 ± 90
	D`Urville River	20 ± 20		20 ± 20					40 ± 30
	Hope River	< 10			< 10				< 10
	Howard River	40 ± 40							40 ± 40
	Lake Rotoiti	360 ± 120	600 ± 150	430 ± 120	320 ± 110	< 10	< 10		1,730 ± 250
	Travers River	120 ± 70	20 ± 10	150 ± 130					290 ± 150
	Total, Buller catchment	1,770 ± 260	1,850 ± 280	2,030 ± 460	580 ± 160	280 ± 130	220 ± 160	1,230 ± 330	7,960 ± 730
	Total, Nelson/Marlborough region	6,910 ± 710	10,820 ± 1,060	9,610 ± 1,190	3,430 ± 700	2,370 ± 600	2,090 ± 1,060	3,860 ± 1,030	39,090 ± 2,460

West Coast Region

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Awarua River	Awarua River	10 ± 10							10 ± 10
Hope River	Hope River		< 10						< 10
Cascade River	Cascade River					1,510 ± 1,500		20 ± 20	1,530 ± 1,500
Arawata River	Arawata River			100 ± 100	20 ± 20	1,510 ± 1,500		150 ± 140	1,770 ± 1,510
	Jackson River		130 ± 80						130 ± 80
Waiatoto River	Waiatoto River		810 ± 800					130 ± 120	940 ± 810
Hapuka River	Hapuka River		810 ± 800						810 ± 800
Turnbull River	Turnbull River		870 ± 800	50 ± 50				290 ± 280	1,220 ± 850
Okuru River	Okuru River		170 ± 120				70 ± 70	40 ± 40	290 ± 140
Haast River	Haast River	50 ± 40	490 ± 440				10 ±	80 ± 50	640 ± 450
	Thomas River		150 ± 150						150 ± 150
	Burke River		30 ± 30						30 ± 30
Waita River	Waita River		150 ± 130	20 ± 20	30 ± 30				200 ± 130
Moeraki River	Lake Moeraki		70 ± 40	290 ± 170					360 ± 170
	Moeraki River			50 ± 50					50 ± 50
Paringa River	Paringa River	20 ± 20	120 ± 110	30 ± 20	80 ± 80		240 ± 240	40 ± 30	530 ± 280
	Lake Paringa	20 ± 10	90 ± 70	360 ± 140	50 ± 50		30 ± 30		550 ± 170
Mahitahi River	Mahitahi River	120 ± 70	10 ± 10					150 ± 140	270 ± 160
Jacobs River	Jacobs (Makawhio) River	380 ± 260	110 ± 60						480 ± 270
Waiho River	Waiho River		10 ± 10						10 ± 10

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Okarito River	Okarito River	80 ± 70	280 ± 180	160 ± 80	100 ± 70		50 ± 50		680 ± 230
	Okarito Lagoon			180 ± 140	20 ± 20	1,540 ± 1,500			1,740 ± 1,510
	Lake Wahapo	30 ± 30				20 ± 20			50 ± 40
	Lake Mapourika	170 ± 80	350 ± 190	1,030 ± 360	130 ± 100				1,670 ± 420
Waitangi-taona River	Waitangi-taona River		140 ± 110						140 ± 110
Whataroa River	Whataroa River		50 ± 30	100 ± 70					150 ± 80
Poerua River	Poerua River	10 ± 10			20 ± 20				20 ± 20
Wanganui River	Wanganui River	40 ± 10	80 ± 40	200 ± 110	30 ± 30		30 ± 30		390 ± 130
	La Fontaine Stream	10 ± 10	170 ± 120	20 ± 10				40 ± 30	250 ± 120
	Lake Ianthe	50 ± 20	120 ± 100	130 ± 100	50 ± 30		30 ± 30		380 ± 150
	Berry Creek	10 ± 10	130 ± 130						140 ± 130
Waitaha River	Waitaha River	30 ± 30	220 ± 190	420 ± 300	410 ± 310				1,080 ± 470
	Kakapotahi River				30 ± 30				30 ± 30
Mikonui River	Mikonui River	20 ± 20	180 ± 120				20 ± 20		210 ± 120
Totara River	Totara River		10 ± 10		150 ± 150		20 ± 20		180 ± 150
Mahinapua Creek	Mahinapua Creek		20 ± 20	40 ± 30			30 ± 30		90 ± 50
Hokitika River	Hokitika River	480 ± 160	940 ± 280	1,060 ± 410	370 ± 220	260 ± 170	240 ± 190	80 ± 60	3,430 ± 620
	Lake Mahinapua	40 ± 20	120 ± 50						160 ± 60
	Kaniere River		60 ± 40						70 ± 40
	Lake Kaniere	200 ± 110	160 ± 60	220 ± 100	100 ± 80	20 ± 20	70 ± 60		760 ± 190
	Kokatahi River			20 ± 20					20 ± 20
	Whitcombe River		10 ± 10						10 ± 10
Total, Hokitika catchment		730 ± 200	1,290 ± 290	1,300 ± 420	470 ± 230	270 ± 170	310 ± 200	80 ± 60	4,440 ± 650
Arahura River	Arahura River	140 ± 80	110 ± 80	180 ± 150		80 ± 80			510 ± 200

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Taramakau River	Kawhaka Creek		230 ± 220						230 ± 220
	Kawhaka Hydro	30 ± 20	10 ± 10						40 ± 20
	Kapitea Reservoir	30 ± 20	130 ± 130						150 ± 130
	Taramakau River	110 ± 70	1,100 ± 240	1,050 ± 280	570 ± 320		40 ± 30		2,870 ± 490
	Taipo River	10 ± 10							10 ± 10
New River	Bruce Creek	10 ± 10	10 ± 10						30 ± 20
	New River	50 ± 40	80 ± 50	30 ± 30	20 ± 20				170 ± 70
Grey River	Grey River (above Ikamatua)	80 ± 30	110 ± 50	70 ± 30	670 ± 610	640 ± 380		330 ± 100	1,900 ± 730
	Grey River (below Ikamatua)	630 ± 190	890 ± 300	790 ± 300	80 ± 40		610 ± 270	40 ± 40	3,050 ± 540
	Grey River (total)	720 ± 200	1,000 ± 300	860 ± 300	750 ± 610	640 ± 380	610 ± 270	380 ± 110	4,950 ± 910
	Lake Haupiri	120 ± 60	60 ± 60		< 10		80 ± 80		270 ± 120
	Coal Creek		10 ± 10				60 ± 40		70 ± 40
	Stillwater Creek		40 ± 40						40 ± 40
	Arnold River	400 ± 150	830 ± 260	430 ± 160	220 ± 130	110 ± 80	240 ± 170	20 ± 20	2,260 ± 410
	Deep Creek		10 ± 10						10 ± 10
	Molloy Creek	90 ± 80							90 ± 80
	Crooked River	230 ± 120	590 ± 320	110 ± 80	30 ± 30	60 ± 50		20 ± 20	1,050 ± 350
Lake Brunner	2,630 ± 500	4,510 ± 830	1,490 ± 310	2,610 ± 1,100	2,670 ± 2,330	520 ± 230	270 ± 160	14,700 ± 2,780	
Lake Poerua	400 ± 190	150 ± 80						550 ± 210	
Poerua River	230 ± 220			70 ± 70				290 ± 230	
Orangipuku River	50 ± 30	10 ± 10						60 ± 30	
Nelson Creek							20 ± 20	20 ± 20	
Moonlight Creek	40 ± 20		100 ± 100					140 ± 100	
Ahaura River	60 ± 30	180 ± 120	240 ± 140	< 10	250 ± 250		150 ± 80	890 ± 320	

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Haupiri River	50 ± 30	30 ± 20	60 ± 50	20 ± 20	30 ± 30			190 ± 70
	Big River	20 ± 10	10 ± 10	80 ± 80					120 ± 80
	Rough River	40 ± 20	120 ± 110	30 ± 20	290 ± 290		20 ± 20	190 ± 70	680 ± 320
	Mawheraiti River			50 ± 50					50 ± 50
	Blue Grey River							170 ± 70	170 ± 70
	Brown Grey River				< 10				< 10
	Total, Grey catchment	5,080 ± 650	7,550 ± 990	3,460 ± 510	4,010 ± 1,300	3,770 ± 2,370	1,530 ± 400	1,210 ± 230	26,610 ± 3,030
Punakaiki River	Punakaiki River		< 10						< 10
Pororari River	Pororari River		30 ± 30						30 ± 30
Fox River	Fox River			< 10		< 10			< 10
Totara River	Totara River		10 ± 10						10 ± 10
Buller River	Buller River (Lyell to Westport)	180 ± 90	430 ± 130	170 ± 90	50 ± 50	20 ± 20	320 ± 270	20 ± 20	1,190 ± 330
	Ohikanui River	10 ± 10		60 ± 60				60 ± 50	140 ± 70
	Inangahua River	60 ± 30	650 ± 270	230 ± 120		60 ± 60			1,010 ± 310
	Stony (Te Wharau) River				< 10				< 10
	Awarau River	40 ± 30	20 ± 10	20 ± 20	290 ± 290			40 ± 30	420 ± 290
	Waitahu River	10 ± 10	70 ± 70	40 ± 30	< 10			80 ± 50	210 ± 90
	Montgomerie River							40 ± 40	40 ± 40
	Total, Buller catchment	310 ± 100	1,180 ± 310	530 ± 160	350 ± 290	80 ± 60	330 ± 270	250 ± 90	3,020 ± 550
Mokihinui River	Mokihinui River	140 ± 80	160 ± 100			< 10		40 ± 40	350 ± 140
Little Wanganui River	Little Wanganui River	< 10	100 ± 90	< 10	20 ±				140 ± 90
Karamea River	Karamea River	110 ± 40	50 ± 30	60 ± 30	550 ± 490			270 ± 140	1,040 ± 510
	Ugly River	70 ± 70							70 ± 70
	Roaring Lion River			30 ± 30					30 ± 30

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas	Total	
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep		Oct-Sep
	Beautiful River							20 ± 20	20 ± 20
	Leslie River		< 10					40 ± 30	50 ± 30
	Crow River	10 ± 10						40 ± 30	50 ± 30
Total, Karamea catchment		190 ± 80	60 ± 30	90 ± 40	550 ± 490			380 ± 150	1,270 ± 520
Oparara River	Oparara River	10 ± 10							10 ± 10
Heaphy River	Heaphy River		< 10						< 10
Total, West Coast region		7,870 ± 770	17,830 ± 1,920	9,850 ± 950	7,100 ± 1,520	8,790 ± 3,520	2,740 ± 590	2,900 ± 480	57,080 ± 4,530

North Canterbury Region

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Waiau River	Waiau River (salmon)	30 ±	1,370 ± 910	80 ± 40	750 ± 440	40 ± 40		40 ± 30	2,320 ± 1,010
	Waiau River (trout)	230 ± 120	1,130 ± 690	600 ± 260	300 ± 150			210 ± 130	2,460 ± 770
	Waiau River (total)	260 ± 120	2,490 ± 1,140	680 ± 260	1,050 ± 460	40 ± 40		250 ± 130	4,780 ± 1,270
	Hanmer River	< 10	< 10						< 10
	Hope River	40 ± 20	450 ± 340	210 ± 120	60 ± 50			60 ± 50	810 ± 370
	Boyle River		220 ± 160	70 ± 50	260 ± 150			80 ± 60	630 ± 230
	Doubtful River							60 ± 50	60 ± 50
	Nina River			20 ± 20					20 ± 20
	Lewis River	30 ± 20		30 ± 20	60 ± 50			40 ± 40	150 ± 70
	Henry River	< 10							< 10
	Lake Guyon			310 ± 230					320 ± 230
Total, Waiau catchment		330 ± 120	3,170 ± 1,200	1,320 ± 380	1,420 ± 490	40 ± 40		500 ± 170	6,780 ± 1,370
Hurunui River	Hurunui River (above Mandamus)	70 ± 30	3,520 ± 1,350	380 ± 200	530 ± 390	80 ± 80		150 ± 110	4,730 ± 1,420
	Hurunui River (below Mandamus)	350 ± 140	4,290 ± 1,630	1,410 ± 510	640 ± 320		80 ± 80	20 ± 20	6,810 ± 1,750
	Hurunui River (total)	420 ± 140	7,810 ± 2,120	1,800 ± 540	1,170 ± 510	80 ± 80	90 ± 80	170 ± 110	11,540 ± 2,250
	Lake Sumner	410 ± 190	150 ± 80	1,850 ± 1,610	< 10		10 ±	80 ± 60	2,510 ± 1,620
	Mandamus River	70 ± 50	30 ± 30		50 ± 50				150 ± 70
	Lake Mason		180 ± 180						190 ± 180
	Lake Sheppard	70 ± 50	70 ± 60	100 ± 100	50 ± 50			100 ± 100	390 ± 170
	Lake Taylor	270 ± 160	520 ± 200	240 ± 130	< 10	170 ± 170	30 ± 30	40 ± 40	1,270 ± 330
	Loch Katrine	140 ± 100	70 ± 60	110 ± 100					310 ± 160
Total, Hurunui catchment		1,370 ± 310	8,830 ± 2,140	4,100 ± 1,710	1,290 ± 510	250 ± 190	130 ± 90	400 ± 160	16,370 ± 2,810

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Motunau River	Motunau River		640 ± 630						640 ± 630
Waipara River	Waipara River		160 ± 110	50 ± 50	20 ± 20				230 ± 130
Ashley River	Ashley River	1,000 ± 320	1,980 ± 640	700 ± 390	460 ± 260		180 ± 160	80 ± 60	4,390 ± 870
	Saltwater Creek		10 ± 10		90 ± 80				100 ± 80
	Waikuku Stream	200 ± 190							200 ± 190
	Okuku River	< 10							< 10
Waimakariri River	Lake Roto Kohatu	130 ± 100		420 ± 410					550 ± 430
	The Groynes	470 ± 390	580 ± 290	1,260 ± 880	100 ± 100	1,420 ± 1,100			3,830 ± 1,490
	Waimakariri River (salmon)	620 ± 250	13,680 ± 2,480	23,030 ± 3,730	5,230 ± 1,550	60 ± 40	90 ± 60	60 ± 60	42,750 ± 4,750
	Waimakariri River (trout)	1,870 ± 490	5,420 ± 1,090	5,820 ± 1,540	1,590 ± 630	330 ± 260	1,430 ± 810	290 ± 150	16,760 ± 2,230
	Waimakariri River (total)	2,490 ± 550	19,100 ± 2,710	28,850 ± 4,040	6,820 ± 1,680	390 ± 270	1,520 ± 810	350 ± 160	59,520 ± 5,250
	Styx River	< 10			< 10				< 10
	Kaiapoi Lakes	30 ± 30	50 ± 40	160 ± 160					240 ± 160
	Kaiapoi River	530 ± 260	1,350 ± 840		20 ± 10				1,900 ± 880
	Silverstream	10 ± 10		50 ± 50					60 ± 50
	Cam River	260 ± 260	10 ± 10						270 ± 260
	Cust River	130 ± 130	120 ± 110						250 ± 170
	Waimakariri South Branch	520 ± 190	2,930 ± 810	1,350 ± 810	290 ± 250	130 ± 100	570 ± 490		5,800 ± 1,290
	Broken River	50 ± 40	280 ± 130	20 ± 10				270 ± 190	620 ± 240
	Lake Meremere		160 ± 110	100 ± 100					260 ± 150
	Lake Pearson	130 ± 60	780 ± 270	220 ± 120	50 ± 50		160 ± 160		1,340 ± 350
	Winding Creek		30 ± 30						30 ± 30
	Porter River							20 ± 20	30 ± 20
	Esk River	< 10	< 10						20 ±

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Poulter River		20 ± 10	20 ± 20	50 ± 50			40 ± 40	140 ± 70
	Cass Hill Stream		10 ± 10						10 ± 10
	Lake Sarah		60 ± 60						60 ± 60
	Lake Grasmere	100 ± 60	170 ± 100	190 ± 140	100 ± 100				560 ± 210
	Lake Hawdon		120 ± 100	50 ± 50					170 ± 110
	Bealey River	< 10							< 10
	Total, Waimakariri catchment	4,870 ± 810	25,770 ± 2,990	32,700 ± 4,240	7,430 ± 1,700	1,940 ± 1,140	2,260 ± 960	690 ± 250	75,670 ± 5,730
Avon River	Avon River	190 ± 120					800 ± 730		990 ± 740
	Heathcote River						100 ± 100		100 ± 100
	Wairarapa Stream			60 ± 40					60 ± 40
Lake Forsyth	Lake Forsyth	1,320 ± 1,000		210 ± 150			570 ± 490		2,100 ± 1,130
	Okana River	100 ± 100							100 ± 100
Halswell River	Halswell River	130 ± 90	100 ± 70		70 ± 60				300 ± 130
Selwyn River	Selwyn River	900 ± 330	1,550 ± 780	820 ± 440	2,260 ± 1,240	80 ± 80	410 ± 210	40 ± 40	6,060 ± 1,580
Harts Creek	Harts Creek	260 ± 160			50 ± 50				310 ± 160
Lake Ellesmere	Lake Ellesmere	60 ± 40	140 ± 80				160 ± 160		370 ± 180
Rakaia River	Rakaia River (salmon)	1,480 ± 560	14,180 ± 3,210	16,950 ± 4,010	1,250 ± 770	310 ± 230	20 ±		34,180 ± 5,230
	Rakaia River (trout)	1,980 ± 720	5,340 ± 1,540	4,170 ± 2,180	540 ± 390			40 ± 40	12,080 ± 2,790
	Rakaia River (total)	3,460 ± 910	19,520 ± 3,560	21,110 ± 4,560	1,790 ± 870	310 ± 230	20 ±	40 ± 40	46,260 ± 5,930
	Acheron River		30 ± 30	170 ± 160					200 ± 170
	Lake Lyndon	580 ± 160	1,410 ± 310	600 ± 250	350 ± 190	80 ± 80	340 ± 320		3,360 ± 580
	Lake Coleridge	990 ± 230	1,070 ± 290	1,240 ± 510	1,920 ± 770	380 ± 200	370 ± 260		5,960 ± 1,050
	Lake Georgina	90 ± 70	680 ± 630	1,310 ± 1,090	50 ± 50				2,120 ± 1,270
	Lake Evelyn	30 ± 30			100 ± 100				130 ± 100

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas	Total	
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep		Oct-Sep
	Lake Henrietta	70 ± 60	30 ± 30						100 ± 70
	Lake Ida		140 ± 80						140 ± 80
	Ryton River			50 ± 50					50 ± 50
	Wilberforce River		30 ± 30						30 ± 30
	Harper River		60 ± 40						70 ± 40
	Lake Selfe	190 ± 90	940 ± 550	1,120 ± 1,090	220 ± 120		170 ± 160		2,640 ± 1,240
	Hydra Waters	20 ± 20	150 ± 140						170 ± 140
	Double Hill Stream		30 ± 30						30 ± 30
	Lake Stream	110 ± 110							110 ± 110
	Total, Rakaia catchment	5,550 ± 970	24,090 ± 3,680	25,600 ± 4,860	4,420 ± 1,190	770 ± 320	890 ± 450	40 ± 40	61,370 ± 6,310
	Total, North Canterbury region	16,270 ± 1,740	66,440 ± 5,470	65,560 ± 6,710	17,510 ± 2,540	3,090 ± 1,200	5,500 ± 1,420	1,750 ± 350	176,130 ± 9,380

Central South Island Region

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Rakaia River	Lake Heron	520 ± 140	2,280 ± 860	330 ± 300	50 ± 40				3,170 ± 920
Ashburton River	Ashburton River	1,160 ± 400	360 ± 180	830 ± 410				40 ± 40	2,400 ± 600
	Lake Camp	< 10	620 ± 340	230 ± 150	290 ± 250				1,150 ± 450
	Lake Emily	10 ± 10							10 ± 10
	Lake Emma	430 ± 290	610 ± 310	200 ± 150					1,240 ± 450
	Lake Hood	390 ± 210	250 ± 120	130 ± 80	1,020 ± 1,010				1,800 ± 1,040
	Taylor's Stream		40 ± 40						40 ± 40
	Bowyers Stream	30 ± 30							30 ± 30
	Lake Clearwater	90 ± 70	980 ± 420	230 ± 140	1,080 ± 540				2,380 ± 700
Total, Ashburton catchment		2,120 ± 540	2,860 ± 660	1,630 ± 490	2,390 ± 1,170			40 ± 40	9,050 ± 1,530
Rangitata River	Rangitata River (salmon)	1,260 ± 470	6,670 ± 1,470	10,870 ± 2,390	1,050 ± 550			40 ± 40	19,880 ± 2,900
	Rangitata River (trout)	1,540 ± 740	2,880 ± 1,210	1,840 ± 880	1,780 ± 1,520	120 ± 120	330 ± 320	170 ± 120	8,650 ± 2,290
	Rangitata River (total)	2,800 ± 870	9,550 ± 1,900	12,700 ± 2,550	2,830 ± 1,620	120 ± 120	330 ± 320	210 ± 130	28,540 ± 3,690
	RDR Canal	90 ± 60							90 ± 60
	Deep Stream			50 ± 50					50 ± 50
	Deep Creek		30 ± 30						30 ± 30
Orari River	Orari River	480 ± 240	1,570 ± 900	1,770 ± 770				20 ± 20	3,830 ± 1,210
Opihi River	Opihi River	3,230 ± 1,110	620 ± 310	2,640 ± 1,390	1,480 ± 910	340 ± 340	150 ± 150		8,450 ± 2,060
	Temuka River	460 ± 250	70 ± 60	200 ± 200					730 ± 320
	Waihi River	50 ± 30	200 ± 150						250 ± 150
	Hae Hae Te Moana River					< 10			< 10
	Te Ngawai River	70 ± 40							70 ± 40

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Lake Opuha	1,650 ± 400	2,250 ± 810	200 ± 130			70 ± 70		4,170 ± 910
	Opuha River	70 ± 60	150 ± 90	110 ± 100				80 ± 60	410 ± 160
	North Opuha River	20 ± 20		400 ± 390					420 ± 390
	Total, Opihi catchment	5,540 ± 1,210	3,290 ± 880	3,550 ± 1,470	1,480 ± 910	350 ± 340	220 ± 160	80 ± 60	14,500 ± 2,320
Pareora River	Pareora River		30 ± 20						30 ± 20
Waihao River	Waihao River	50 ± 40							60 ± 40
	Waihao River (North Branch)	50 ± 40							50 ± 40
Waitaki River	Bell's Pond	50 ± 40			40 ± 40	140 ± 140			220 ± 150
	Lake Aviemore	2,540 ± 740	13,340 ± 2,200	6,040 ± 1,700	60 ± 50	620 ± 380	330 ± 220		22,920 ± 2,910
	Lake Benmore	7,190 ± 1,240	23,760 ± 4,520	9,270 ± 1,910	3,230 ± 1,160	2,220 ± 1,200	1,790 ± 780	560 ± 230	48,020 ± 5,390
	Lake Waitaki	480 ± 220	1,900 ± 760	1,140 ± 570	500 ± 240	140 ± 140		60 ± 60	4,240 ± 1,010
	Waitaki River (salmon)	430 ± 300	2,060 ± 670	6,470 ± 2,040	310 ± 210	280 ± 270	< 10		9,560 ± 2,200
	Waitaki River (trout)	3,920 ± 1,120	6,700 ± 1,490	3,950 ± 1,260	1,270 ± 610	340 ± 340	500 ± 280		16,680 ± 2,370
	Waitaki River (total)	4,350 ± 1,160	8,760 ± 1,630	10,430 ± 2,400	1,580 ± 650	620 ± 430	510 ± 280		26,250 ± 3,230
	Eckholds Pond	50 ± 40							50 ± 40
	Maerewhenua River	20 ± 20	980 ± 730					40 ± 40	1,050 ± 730
	Kurow River		230 ± 230	40 ± 40					280 ± 230
	Hakataramea River	100 ± 60	150 ± 120		110 ± 70			60 ± 40	420 ± 160
	Awakino River		< 10						< 10
	Otematata River	< 10							20 ±
	Clear Stream	70 ± 70							70 ± 70
	Ahuriri River	170 ± 80	770 ± 220	600 ± 220	< 10			480 ± 220	2,030 ± 390
	Sutherlands Creek		120 ± 110	80 ± 80					190 ± 140
	Omarama Stream	60 ± 40	20 ± 20	390 ± 220	60 ± 50			190 ± 160	720 ± 280

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Lake McGregor	20 ± 20	930 ± 600	480 ± 300	200 ± 200			20 ± 20	1,660 ± 700
	Lake Middleton	40 ± 40	90 ± 90					20 ± 20	150 ± 90
	Lake Ohau	1,650 ± 430	4,250 ± 1,370	1,460 ± 720	560 ± 260		150 ± 100	150 ± 70	8,220 ± 1,630
	Lake Ruataniwha	510 ± 190	2,350 ± 830	400 ± 210	1,530 ± 760	630 ± 550	420 ± 330		5,840 ± 1,320
	Ohau Canal	6,620 ± 970	17,470 ± 2,050	14,680 ± 2,560	7,950 ± 1,420	5,270 ± 1,270	1,430 ± 440	520 ± 290	53,950 ± 3,950
	Ohau River		170 ± 120	130 ± 130	100 ± 100	550 ± 540			950 ± 580
	Upper Waitaki Canals	170 ± 120	560 ± 310	180 ± 160		70 ± 70			970 ± 370
	Loch Cameron		60 ± 40						60 ± 40
	Twizel River	2,240 ± 450	1,470 ± 430	2,730 ± 1,270	130 ± 10	70 ± 10	60 ±	540 ± 190	7,230 ± 1,420
	Maitland Stream	10 ± 10							10 ± 10
	Temple Stream	10 ± 10							10 ± 10
	Hopkins River	< 10	20 ± 20	50 ± 50				210 ± 200	280 ± 210
	Dobson River	20 ± 20	60 ± 60					20 ± 20	100 ± 60
	Kelland Pond		260 ± 140						260 ± 140
	Lake Merino	30 ± 30	60 ± 60						100 ± 70
	Lake Poaka	30 ± 30			100 ± 100				130 ± 100
	Lake Pukaki	230 ± 180	1,010 ± 500	340 ± 180	350 ± 290	< 10	10 ±	20 ± 20	1,970 ± 630
	Pukaki Canal	2,220 ± 820	2,420 ± 670	4,010 ± 1,480	640 ± 240	1,010 ± 580	360 ± 230		10,670 ± 1,940
	Lake Tekapo	550 ± 190	4,090 ± 1,290	1,520 ± 520	1,020 ± 360	100 ± 50	1,620 ± 1,360	830 ± 270	9,740 ± 2,010
	Tekapo Canal	3,130 ± 670	6,840 ± 1,210	5,150 ± 1,380	2,960 ± 750	2,550 ± 1,120	2,040 ± 600	380 ± 220	23,050 ± 2,460
	Tekapo River	1,010 ± 340	260 ± 100	110 ± 100	< 10			310 ± 250	1,710 ± 440
	Mary Burn	110 ± 80						100 ± 50	220 ± 100
	Grays River	20 ± 20						150 ± 90	170 ± 90
	Lake Alexandrina	550 ± 190	2,480 ± 910	2,010 ± 740	< 10	140 ± 140		20 ± 20	5,210 ± 1,190

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Cass River		< 10						< 10
	Godley River		30 ± 30					40 ± 30	70 ± 40
Total, Waitaki catchment		34,290 ± 2,490	94,940 ± 6,420	61,240 ± 5,150	21,170 ± 2,320	14,130 ± 2,370	8,710 ± 1,820	4,730 ± 710	239,210 ± 9,430
Kakanui River	Kakanui River	360 ± 200	180 ± 150						530 ± 250
	Kauru River	110 ± 110							110 ± 110
Waianakarua River	Waianakarua River	50 ± 40	230 ± 230						280 ± 230
Total, Central South Island region		46,440 ± 2,980	114,950 ± 6,910	81,260 ± 6,010	27,920 ± 3,200	14,600 ± 2,400	9,260 ± 1,860	5,090 ± 720	299,520 ± 10,620

Otago Region

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Shag River	Shag River	330 ± 180	460 ± 220						800 ± 280
Waikouaiti River	Waikouaiti River	150 ± 90	150 ± 120	110 ± 110	60 ± 60		170 ± 120		630 ± 230
Waitati River	Waitati River			130 ± 130					130 ± 130
Water of Leith	Sullivans Dam	190 ± 110	120 ± 80	270 ± 260			70 ± 70		660 ± 310
	Water of Leith	20 ± 20	< 10	70 ± 50	30 ± 30				130 ± 60
Tomahawk Creek	Tomahawk Lagoon	150 ± 100	1,110 ± 810	1,320 ± 880	110 ± 110		300 ± 290		2,980 ± 1,240
Kaikorai Stream	Kaikorai Stream		320 ± 310						320 ± 310
	Southern Reservoir	560 ± 310	1,120 ± 410	220 ± 200	330 ± 250	150 ± 150	750 ± 390		3,130 ± 730
Taieri River	Hamiltons Dam		300 ± 290	110 ± 110					410 ± 310
	Taieri River (above Kokonga)	1,720 ± 710	1,710 ± 610	910 ± 560	450 ± 350		300 ± 290		5,080 ± 1,180
	Taieri River (Kokonga to Outram)	860 ± 450	1,230 ± 510	870 ± 650	170 ± 160		70 ± 70		3,200 ± 960
	Taieri River (below Outram)	2,160 ± 690	4,610 ± 1,470	2,590 ± 1,050	2,150 ± 940	1,210 ± 820	1,740 ± 910	100 ± 100	14,560 ± 2,480
	Taieri River (total)	4,750 ± 1,090	7,540 ± 1,670	4,370 ± 1,360	2,760 ± 1,020	1,220 ± 820	2,110 ± 960	100 ± 100	22,850 ± 2,910
	Lake Mahinerangi	230 ± 120	880 ± 430	280 ± 220	120 ± 110		80 ± 70		1,580 ± 510
	Lake Waihola	110 ± 80	560 ± 350	640 ± 630	60 ± 50		300 ± 290		1,660 ± 790
	Lake Waipori	1,430 ± 910	30 ± 30	220 ± 210	110 ± 110				1,790 ± 940
	Waipori River	< 10	10 ± 10	110 ± 110					120 ± 110
	Lee Stream	40 ± 40							40 ± 40
	Deep Stream		120 ± 70	210 ± 210	110 ± 110				440 ± 250
	Kye Burn		< 10						< 10
	Coal Pit Dam	100 ± 70	270 ± 190	50 ± 50					430 ± 210
	Hoffmans Dam		< 10	10 ± 10					20 ± 10

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas	Total	
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep		Oct-Sep
	Rutherfords Dam	40 ± 40	90 ± 90						130 ± 100
	Mathias Dam	330 ± 330		160 ± 160	170 ± 160				660 ± 400
	Blakeleys Dam	180 ± 150	30 ± 30	210 ± 170					420 ± 230
	West Eweburn Dam		< 10	< 10	< 10				< 10
	Hore's Pond		90 ± 90	110 ± 110					200 ± 140
	Logan Burn	180 ± 110	80 ± 60		20 ± 20				280 ± 130
	Logan Burn Reservoir	< 10	970 ± 340	320 ± 190	340 ± 330		150 ± 150		1,790 ± 530
	McAtamneys Head Pond		180 ± 180						180 ± 180
Total, Taieri catchment		7,400 ± 1,480	11,160 ± 1,840	6,790 ± 1,590	3,680 ± 1,100	1,220 ± 820	2,630 ± 1,020	100 ± 100	33,000 ± 3,320
Akatore Creek	Akatore Creek	40 ± 40							40 ± 40
Tokomairiro River	Tokomairiro River	70 ± 50	80 ± 70			380 ± 370	< 10		540 ± 390
Clutha River	Clutha River (Wanaka to Lake Dunstan)	820 ± 310	2,450 ± 650	1,700 ± 660	1,460 ± 880	150 ± 150	90 ± 70	60 ± 60	6,730 ± 1,330
	Clutha River (Clyde to Alexandra)		140 ± 130		170 ± 160	680 ± 670	300 ± 290	20 ± 20	1,300 ± 770
	Clutha River (below Roxburgh, salmon)	80 ± 40	410 ± 170	2,530 ± 1,270	2,960 ± 2,250	760 ± 750	20 ±		6,760 ± 2,700
	Clutha River (below Roxburgh, trout)	2,410 ± 920	6,320 ± 1,770	5,450 ± 1,670	1,650 ± 560	750 ± 750	70 ± 70	100 ± 100	16,760 ± 2,770
	Clutha River (total)	3,300 ± 970	9,320 ± 1,900	9,680 ± 2,210	6,240 ± 2,480	2,350 ± 1,260	470 ± 310	190 ± 120	31,550 ± 4,160
	Puerua River		180 ± 130						180 ± 130
	Kaitangata Channel	40 ± 40		90 ± 80					120 ± 90
	Waitahuna River	120 ± 80							120 ± 80
	Pomahaka River	390 ± 160	1,510 ± 610	240 ± 130	280 ± 270	450 ± 450	150 ± 150	250 ± 120	3,270 ± 850
	Waipahi River		150 ± 140					60 ± 60	210 ± 150
	Leithen Burn		380 ± 350		< 10				390 ± 350
	Tuapeka River	< 10	< 10						< 10
	Pinders Pond			30 ± 30					30 ± 30

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas	Total	
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep		Oct-Sep
	Lake Onslow	140 ± 80	680 ± 240	570 ± 330	30 ± 30			1,420 ± 410	
	Teviot River		90 ± 70	100 ± 100				190 ± 120	
	Lake Roxburgh		590 ± 290	70 ± 40	390 ± 330		370 ± 370	1,420 ± 580	
	Butchers Dam	30 ± 30	130 ± 120			380 ± 370		540 ± 390	
	Falls Dam	< 10	30 ± 30					50 ± 30	
	Manuherikia River	500 ± 260	250 ± 120	890 ± 670	390 ± 380		70 ± 70	40 ± 40	2,140 ± 830
	Manor Burn	70 ± 40	90 ± 40	90 ± 70	180 ± 160				440 ± 190
	Manorburn Reservoir	50 ± 30	920 ± 630	270 ± 160					1,240 ± 650
	Ida Burn	< 10							< 10
	Poolburn Reservoir	340 ± 130	2,240 ± 840	1,710 ± 840	790 ± 440			60 ± 60	5,150 ± 1,280
	Pool Burn	510 ± 220	240 ± 130					40 ± 40	800 ± 260
	Dunstan Creek		190 ± 150	< 10		< 10			210 ± 150
	Conroys Dam		660 ± 590						660 ± 590
	Fraser Dam	20 ± 20	< 10						30 ± 20
	Fraser River		150 ± 110						150 ± 110
	Kawarau River	260 ± 220	150 ± 130	500 ± 310	720 ± 450			20 ± 20	1,650 ± 600
	Bannock Burn		160 ± 160				220 ± 220		390 ± 270
	Nevis River	50 ± 50	60 ± 60	20 ± 20	60 ± 50			210 ± 90	400 ± 130
	Arrow River	90 ± 70	< 10				60 ± 60	250 ± 240	410 ± 260
	Lake Hayes	40 ± 40	80 ± 70		60 ± 40				180 ± 90
	Lake Johnson				480 ± 440	70 ± 70			550 ± 450
	Lake Kirkpatrick			< 10					< 10
	Moke Lake	110 ± 70	300 ± 180	20 ± 10			10 ±	40 ± 40	480 ± 200
	Shotover River	30 ± 30	< 10	110 ± 70					150 ± 80

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Diamond Lake	< 10	160 ± 80	< 10	120 ± 110	< 10		20 ± 20	340 ± 130
	Glenorchy Lagoons	70 ± 70	90 ± 90	40 ± 40					210 ± 120
	Lake Sylvan	< 10							< 10
	Lake Wakatipu	2,890 ± 590	7,040 ± 1,020	6,000 ± 2,550	3,960 ± 1,320	1,270 ± 580	700 ± 300	330 ± 180	22,200 ± 3,180
	Lochy River	70 ± 70	90 ± 70	110 ± 110					270 ± 140
	Von River	30 ± 30	40 ± 30	190 ± 160				130 ± 70	390 ± 180
	Greenstone River	330 ± 290	130 ± 120	60 ± 50	220 ± 220			270 ± 170	1,020 ± 420
	Caples River		120 ± 120		220 ± 220			150 ± 90	490 ± 270
	Dart River	< 10	20 ± 10	< 10	< 10			40 ± 40	90 ± 40
	Rees River	< 10	140 ± 120	< 10					160 ± 120
	Diamond Creek	90 ± 70	40 ± 40	20 ± 20				20 ± 20	170 ± 90
	Route Burn	< 10	50 ± 30	< 10	230 ± 160			40 ± 40	340 ± 160
	Lake Dunstan	1,750 ± 620	9,050 ± 1,530	2,240 ± 540	1,470 ± 580	840 ± 750	1,730 ± 750	210 ± 180	17,290 ± 2,120
	Lindis River	40 ± 40							40 ± 40
	Cardrona River	190 ± 180	10 ± 10						200 ± 180
	Hawea River	140 ± 110	220 ± 110	20 ± 10	20 ±	80 ± 70			480 ± 170
	Lake Hawea	1,180 ± 390	6,710 ± 1,580	1,110 ± 420	1,830 ± 630	1,630 ± 1,500	1,180 ± 840	210 ± 120	13,840 ± 2,490
	Hunter River		210 ± 150		500 ± 400			290 ± 140	1,000 ± 450
	Timaru River	40 ± 40	30 ± 30					130 ± 70	200 ± 80
	Dingle Burn	20 ± 20	300 ± 180		390 ± 380			60 ± 50	770 ± 430
	Lake Wanaka	1,500 ± 400	11,720 ± 2,380	3,280 ± 860	2,860 ± 1,440	1,080 ± 760	1,970 ± 950	1,330 ± 650	23,740 ± 3,250
	Matukituki River	50 ± 40	1,120 ± 720	160 ± 120	200 ± 170			130 ± 90	1,650 ± 760
	Mototapu River		200 ± 110		60 ± 50				260 ± 120
	Makarora River	50 ± 40	310 ± 160	160 ± 110	370 ± 230		10 ±	170 ± 80	1,060 ± 320

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Wilkin River		60 ± 60	30 ± 30				130 ± 90	220 ± 110
	Young River	< 10			220 ± 220			40 ± 40	280 ± 220
	Ore Stream		20 ± 20						20 ± 20
	Blue River							60 ± 60	60 ± 60
Total, Clutha catchment		14,620 ± 1,550	56,450 ± 4,260	27,920 ± 3,750	22,320 ± 3,500	8,160 ± 2,380	6,950 ± 1,600	4,920 ± 840	141,340 ± 7,470
Catlins River	Catlins River	30 ± 20	1,670 ± 740	380 ± 280	60 ± 60			150 ± 90	2,280 ± 800
	Owaka River		60 ± 60						70 ± 60
Tahakopa River	Tahakopa River		240 ± 170					40 ± 40	280 ± 180
	Maclennan River	40 ± 40							40 ± 40
Tautuku River	Tautuku River					180 ± 180			180 ± 180
	Fleming River		30 ± 30						30 ± 30
Total, Otago region		23,580 ± 2,180	72,980 ± 4,810	37,220 ± 4,190	26,610 ± 3,680	10,080 ± 2,560	10,880 ± 1,960	5,210 ± 860	186,570 ± 8,370

Southland Region

Catchment	Angling water	New Zealand resident whole-season, all part-season						Overseas	Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
Waikawa River	Waikawa River	350 ± 210	90 ± 70			40 ± 40	40 ± 40	60 ± 50	590 ± 230
Tokenui River	Tokenui River	30 ± 30							30 ± 30
Titiroa Stream	Titiroa Stream			60 ± 50			1,780 ± 1,760		1,840 ± 1,760
Mataura River	Mataura River (above Gore)	1,850 ± 510	3,200 ± 730	3,350 ± 810	1,350 ± 440	530 ± 530	220 ± 220	4,780 ± 730	15,280 ± 1,580
	Mataura River (below Gore)	7,370 ± 2,240	3,850 ± 980	3,700 ± 840	1,070 ± 330	1,910 ± 1,060	2,280 ± 1,110	2,790 ± 640	22,980 ± 3,090
	Mataura River (total)	9,220 ± 2,300	7,050 ± 1,220	7,060 ± 1,160	2,410 ± 550	2,440 ± 1,190	2,500 ± 1,130	7,570 ± 970	38,260 ± 3,470
	Mokoreta River	130 ± 80	20 ± 20				90 ± 90		240 ± 120
	Mimihau Stream	10 ± 10	110 ± 80	70 ± 50	230 ± 230		70 ± 70		490 ± 260
	Waikaka Stream	90 ± 60	20 ± 20	170 ± 110	30 ± 30			150 ± 140	460 ± 190
	Waimea Stream	20 ± 20	20 ± 20	130 ± 130				100 ± 70	270 ± 150
	Winding Creek	40 ± 40							40 ± 40
	Waikaia River	680 ± 340	1,390 ± 420	1,040 ± 600	780 ± 420		70 ± 50	350 ± 140	4,310 ± 920
	Argyle Burn		20 ± 20						20 ± 20
	Tomogalak Stream	20 ± 20							20 ± 20
	Nokomai River	20 ± 20	50 ± 40		< 10				80 ± 40
	Eyre Creek	100 ± 70							100 ± 70
	Total, Mataura catchment		10,320 ± 2,320	8,670 ± 1,290	8,470 ± 1,320	3,460 ± 730	2,440 ± 1,190	2,730 ± 1,140	8,170 ± 990
Waituna Lagoon	Waituna Lagoon	780 ± 250	440 ± 250	150 ± 130	530 ± 330		310 ± 310	20 ± 20	2,240 ± 590
Waihopai River	Waihopai River	110 ± 80	500 ± 310	60 ± 50	60 ± 60		170 ± 170		910 ± 370
Oreti River	Oreti River (above Lumsden)	980 ± 480	810 ± 270	530 ± 210	< 10			710 ± 210	3,040 ± 630
	Oreti River (below Lumsden)	2,370 ± 600	4,110 ± 1,270	3,780 ± 1,090	700 ± 250	670 ± 300	1,310 ± 440	440 ± 260	13,380 ± 1,880
	Oreti River (total)	3,350 ± 770	4,920 ± 1,300	4,310 ± 1,110	700 ± 250	670 ± 300	1,310 ± 440	1,150 ± 330	16,430 ± 1,990

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Waikiwi Stream			40 ± 40				60 ± 60	100 ± 70
	Makarewa River	150 ± 70	800 ± 600	110 ± 70			40 ± 40		1,100 ± 610
	Dunsdale Stream		20 ± 20						20 ± 20
	Otapiri Stream	100 ± 60	130 ± 90						230 ± 110
	Lora Stream	100 ± 90							100 ± 90
	Dipton Stream		30 ± 30	40 ± 40					70 ± 50
	Irthing Stream		30 ± 30						30 ± 30
	Cromel Stream	< 10							< 10
	Acton Stream		30 ± 30						30 ± 30
Total, Oreti catchment		3,710 ± 780	5,960 ± 1,430	4,500 ± 1,110	710 ± 250	670 ± 300	1,360 ± 440	1,210 ± 340	18,110 ± 2,090
Waimatuku Stream	Waimatuku Stream	70 ± 60	110 ± 80	70 ± 50					240 ± 110
Aparima River	Aparima River	2,110 ± 530	1,720 ± 700	1,770 ± 540	670 ± 290	890 ± 680	2,360 ± 1,810	380 ± 160	9,900 ± 2,220
	Otautau Stream		< 10						< 10
	Hamilton Burn	50 ± 30		110 ± 70	30 ± 30			40 ± 30	230 ± 90
	Braxton Burn	20 ± 20							20 ± 20
	Pleasant Creek	< 10							< 10
Total, Aparima catchment		2,180 ± 530	1,730 ± 700	1,880 ± 540	710 ± 300	890 ± 680	2,360 ± 1,810	420 ± 160	10,160 ± 2,220
Waiau River	Waiau River (Te Anau to Manapouri)	2,080 ± 1,020	3,110 ± 680	1,660 ± 470	560 ± 250		140 ± 140	350 ± 130	7,910 ± 1,350
	Waiau River (below Mararoa)	500 ± 160	940 ± 250	340 ± 210		440 ± 440			2,230 ± 570
	Waiau River (total)	2,590 ± 1,030	4,060 ± 730	1,990 ± 520	560 ± 250	440 ± 440	140 ± 140	350 ± 130	10,140 ± 1,470
	Orauea Stream		20 ± 20	70 ± 60					80 ± 70
	Morley Stream				30 ± 30				30 ± 30
	Wairaki River	20 ± 20	50 ± 40	110 ± 110	10 ± 10				200 ± 120
	Letham Burn		70 ± 70						70 ± 70

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Monowai River	180 ± 110	110 ± 110	80 ± 60	70 ± 70				440 ± 180
	Lake Monowai	570 ± 220	1,220 ± 580	530 ± 200	90 ± 50	20 ±	70 ± 40		2,510 ± 660
	Eel Creek							20 ± 20	20 ± 20
	Borland Burn		20 ± 20						20 ± 20
	Lake Thomas		20 ± 20	70 ± 60				40 ± 40	130 ± 80
	Mararoa River	260 ± 110	280 ± 140	60 ± 40	100 ± 100		40 ± 40	270 ± 120	1,010 ± 240
	McGregors Pond	650 ± 630			1,060 ± 1,040				1,710 ± 1,220
	Whitestone River	110 ± 70	120 ± 60	70 ± 60				80 ± 50	390 ± 120
	North Mavora Lake	260 ± 130	2,350 ± 1,250	150 ± 80	140 ± 110		310 ± 240	170 ± 140	3,380 ± 1,300
	South Mavora Lake	140 ± 80	750 ± 490	90 ± 40	270 ± 230			170 ± 70	1,410 ± 560
	Windon Burn		30 ± 30						30 ± 30
	Lake Manapouri	830 ± 280	2,050 ± 620	510 ± 160	530 ± 260	210 ± 120	70 ± 50	210 ± 150	4,410 ± 770
	Grebe River		50 ± 40		110 ± 110				170 ± 120
	Spey River		20 ± 20						20 ± 20
	Freeman Burn			< 10		< 10			< 10
	Iris Burn		< 10	< 10					< 10
	Lake Fergus			20 ± 20					20 ± 20
	Lake Gunn	50 ± 30		130 ± 90					170 ± 90
	Lake Henry	20 ± 10							20 ± 10
	Lake Te Anau	3,070 ± 640	5,550 ± 950	2,660 ± 880	1,720 ± 700	840 ± 380	1,230 ± 620	330 ± 140	15,400 ± 1,770
	Upukerora River	120 ± 60	210 ± 150		160 ± 80				490 ± 180
	McKenzie Burn			110 ± 110					110 ± 110
	Junction Burn			50 ± 50					50 ± 50
	Eglinton River		50 ± 30	< 10	< 10			210 ± 100	290 ± 110

Catchment	Angling water	New Zealand resident whole-season, all part-season					Overseas		Total
		Oct-Nov	Dec-Jan	Feb-Mar	Apr-May	Jun-Jul	Aug-Sep	Oct-Sep	
	Worsley Stream							60 ± 60	70 ± 60
	Clinton River		60 ± 40	30 ± 10				190 ± 90	280 ± 100
	Neale Burn	< 10							< 10
	Eglinton River East Branch		20 ± 20					20 ± 20	40 ± 30
Total, Waiau catchment		8,890 ± 1,430	17,140 ± 2,010	6,740 ± 1,080	4,840 ± 1,340	1,510 ± 590	1,870 ± 690	2,130 ± 350	43,120 ± 3,170
Wairaurahiri River	Lake Hauroko		60 ± 40	50 ± 50	130 ± 130				240 ± 140
Arthur River	Arthur River		240 ± 220						240 ± 220
Cleddau River	Cleddau River		450 ± 290						450 ± 290
Hollyford River	Hollyford River	170 ± 160	< 10						180 ± 160
	Lake McKerrow			30 ± 10					30 ± 10
	Lake Alabaster			< 10					< 10
Total, Southland region		26,610 ± 2,910	35,400 ± 2,920	22,000 ± 2,110	10,440 ± 1,620	5,560 ± 1,520	10,630 ± 2,910	12,010 ± 1,120	122,660 ± 6,010

Appendix B Estimated usage for New Zealand lake and river fisheries recorded in the 1994/95 - 2014/15 National Angling Surveys

The following tables give estimated annual usage (angler-days \pm 1 standard error) by New Zealand resident anglers for all FGNZ river and lake fisheries recorded in at least one of the 1994/95, 2001/02, 2007/08, or 2014/15 National Angling Surveys, grouped by region and catchment. Regions are ordered from north to south; catchments are ordered clockwise around New Zealand; and waters within each major catchment are ordered by increasing distance upstream (Anon. 1956). Sub-totals are given for all catchments sustaining five or more listed fisheries. These tables do not include FGNZ non-resident licence holders, so the 2014/15 figures are conservative relative to their equivalents in Appendix A (as detailed in Section 3.2.1). Blank cells indicate that no effort was recorded over the given period.

Northland Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Awanui River	Awanui River		30 \pm 30		
	Victoria River		20 \pm 20	30 \pm 20	
Rangitane River	Rangitane River		20 \pm 20		
	Lake Manuwai	170 \pm 90	460 \pm 190	170 \pm 40	
	Waipapa Stream	40 \pm 40	30 \pm 30		
Kerikeri River	Kerikeri River	30 \pm 20		20 \pm 10	
Waitangi River	Waitangi River	10 \pm 10	20 \pm 10	120 \pm 10	
Kawakawa River	Tirohanga Stream				
Hatea River	Hatea River		80 \pm 80		
	Mangakino Stream	110 \pm 70	240 \pm 120		
	Whau Valley Dam	220 \pm 100	480 \pm 260	100 \pm 40	
Ruakaka River	Wilson's Dam	20 \pm 10	70 \pm 50		
Waipu River	Waipu River		20 \pm 20		
	North River		10 \pm 10		
Wairua River	Wairua River	110 \pm 60	500 \pm 180	110 \pm 50	
	Mangatu Stream		50 \pm 50		
	Mangakahia River	50 \pm 40	40 \pm 30	100 \pm 100	
	Mangere Stream		10 \pm 10		
	Poroti Stream		10 \pm 10		
	Mangahuru Stream	10 \pm 10	40 \pm 40	10 \pm 10	
	Whakapara River		20 \pm 20	40 \pm 30	
	Kaimamaku Stream	10 \pm 10			
	Kaiikanui River			50 \pm 40	
	Te Waiongatahuna Stream			20 \pm 20	
	Kirikiritoki Stream		10 \pm 10		

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Waiariki River		170 ± 170		
	Waiotu River			20 ± 10	
Total, Wairua catchment		190 ± 70	910 ± 260	300 ± 110	
Kaiwi Lakes	Kaiwi Lakes	680 ± 160	650 ± 260	1,060 ± 500	340 ± 120
	Lake Taharoa		80 ± 50	10 ± 10	
Waima River	Waima River		130 ± 100		
	Punakitere River		50 ± 50		
Waihou River	Waihou River	40 ± 40	320 ± 130	30 ± 30	
	Waihou River total	40 ± 40	320 ± 130	30 ± 30	
	Waipapa River		10 ± 10	30 ± 20	
	Pukatea Stream		20 ± 20		
Total, all Northland waters		1,510 ± 240	3,650 ± 550	1,870 ± 520	340 ± 120

Auckland/Waikato Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95	
Henderson Lake	Henderson Lake			50 ± 50		
Waitemata Harbour	Chelsea Sugar Works Pond		10 ± 10	110 ± 60	600 ± 210	
	Lake Pupuke	310 ± 120	920 ± 310	610 ± 330	1,240 ± 340	
	Carter Holt Ponds			30 ± 30		
Wairoa River	Wairoa River	100 ± 50		50 ± 30		
Kape-o-kati Coast	Kaiaua Gravel Pits		50 ± 50	200 ± 70	450 ± 140	
Waihou River	Waihou R (above Okoroire)	620 ± 120				
	Waihou R (below Okoroire)	900 ± 410				
	Waihou R (undefined)		1,370 ± 450	2,640 ± 370	1,780 ± 320	
	Waihou River total	1,520 ± 420	1,370 ± 450	2,640 ± 370	1,780 ± 320	
	Hikutaia River	90 ± 90			20 ± 20	
	Maratoto Stream	50 ± 50	10 ± 10			
	Komata River		30 ± 30		20 ± 20	
	Ohinemuri River	700 ± 240	1,500 ± 310	2,600 ± 480	1,620 ± 390	
	Waitawheta River	320 ± 80	480 ± 180	650 ± 190	160 ± 50	
	Waitekauri River	10 ± 10	90 ± 80	190 ± 70	300 ± 190	
	Waiomou Stream	130 ± 60		490 ± 150	490 ± 140	
	Rapurapu Stream	50 ± 40	20 ± 20	150 ± 80	130 ± 100	
	Kakahu Stream	30 ± 20	80 ± 50	250 ± 100	30 ± 20	
	Oraka Stream	150 ± 80	20 ± 20	100 ± 70	130 ± 50	
	Waimakariri Stream	350 ± 100	370 ± 140	770 ± 190	550 ± 130	
		Purere Stream			30 ± 30	
	Total, Waihou catchment		3,400 ± 530	3,970 ± 600	7,860 ± 700	5,240 ± 580
Kauaeranga River	Kauaeranga River		150 ± 100	130 ± 110	140 ± 50	
Waiwawa River	Waiwawa River	10 ± 10		60 ± 40	1,050 ± 410	
Tairua River	Tairua River	90 ± 60	440 ± 190	60 ± 50	320 ± 100	
Whanganui River	Whanganui River (above Whakapapa)	2,050 ± 660				
	Whanganui River (Whakapapa - Ohura)	2,500 ± 560				
	Whanganui River (above Ohura)		900 ± 240	1,260 ± 360		
	Whanganui River total	4,550 ± 860	900 ± 240	1,260 ± 360		
	Ohura River	< 5	210 ± 130	30 ± 30	50 ± 50	
	Ongarue River	150 ± 80	210 ± 100	290 ± 100	690 ± 370	
	Taringamotu River	80 ± 60	30 ± 30	50 ± 50	20 ± 20	
	Waione Stream				40 ± 30	
	Waimiha Stream	< 5	60 ± 50	90 ± 60	220 ± 140	
	Whakapapa River	2,590 ± 680	2,500 ± 420	1,030 ± 310	330 ± 90	
	Piopiotea Stream	130 ± 90	20 ± 10	10 ± 10		
	Mangatepopo Stream	10 ± 10			20 ± 10	

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Total, Whanganui catchment		7,500 ± 1,110	3,940 ± 510	2,760 ± 490	1,360 ± 410
Mokau River	Mokau River		60 ± 40	170 ± 80	280 ± 170
	Mangaotaki River	230 ± 150	150 ± 90	70 ± 30	190 ± 70
	Mangapehi River		20 ± 20	50 ± 50	
Awakino River	Awakino River	380 ± 150	600 ± 120	840 ± 360	800 ± 150
	Manganui River	20 ± 10			
	Mangaorongo Stream		20 ± 20		
Marokopa River	Marokopa River	110 ± 50	30 ± 20	100 ± 40	150 ± 50
	Tawarau River	< 5	90 ± 60	230 ± 120	30 ± 20
	Mangaohae Stream	80 ± 40	40 ± 30	180 ± 70	300 ± 90
Awaroa River	Awaroa River		40 ± 40		
Waikato River	Mangaorongo Stream				280 ± 270
	Hamilton Lake	10 ± 10		70 ± 30	440 ± 180
	Lake Arapuni	3,370 ± 920	5,990 ± 1,810	9,730 ± 980	7,300 ± 900
	Lake D		60 ± 50		
	Lake Karapiro	1,690 ± 590	1,160 ± 340	2,320 ± 450	4,810 ± 680
	Lake Otamatearoa	< 5		40 ± 20	
	Lake Waipapa	230 ± 160	540 ± 280	1,370 ± 410	820 ± 450
	Mangatawhiri Reservoir	150 ± 140	40 ± 30	300 ± 120	
	Waikato R (below Karapiro)	3,090 ± 840	6,150 ± 1,090	4,830 ± 800	7,240 ± 790
	Lake Whatihua	90 ± 60		110 ± 50	80 ± 40
	Parkinsons Lake	140 ± 80	40 ± 20	40 ± 30	20 ± 20
	Mangatawhiri River		70 ± 70	20 ± 20	
	Whangamarino River	< 5	40 ± 30	70 ± 60	80 ± 30
	Mangatangi Reservoir	10 ± 10	50 ± 40	140 ± 90	840 ± 150
	Whangape Stream	10 ± 10			
	Lake Waikare		100 ± 100		
	Rangiriri Stream	50 ± 40	260 ± 110	250 ± 110	
	Lake Hakanoa	10 ± 0	180 ± 90	30 ± 30	150 ± 60
	Mangawara Stream	20 ± 10	130 ± 60	90 ± 30	10 ± 10
	Waipa River	2,340 ± 980	1,620 ± 850	1,560 ± 400	2,600 ± 680
	Mangawawa Stream		220 ± 220	10 ± 10	
	Kaniwhaniwha Stream	310 ± 120	110 ± 70	370 ± 140	860 ± 220
	Lake Ngaroto		20 ± 20		
	Mangauika Stream		10 ± 10	140 ± 140	
	Puniu River	340 ± 190	440 ± 280	840 ± 180	1,220 ± 270
	Mangatutu Stream	500 ± 180	860 ± 200	1,070 ± 230	1,600 ± 350
Waipari River	50 ± 40		70 ± 40	50 ± 40	
Ngakoaohia Stream	20 ± 20	120 ± 80	430 ± 140	270 ± 100	
Moakurarua Stream	60 ± 40	90 ± 40	150 ± 50	320 ± 200	

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Ngutunui Stream		10 ± 10	30 ± 30	80 ± 40
	Mangawhero Stream	40 ± 30	40 ± 30	50 ± 50	90 ± 70
	Mangaokewa Stream	90 ± 60	10 ± 10	20 ± 20	40 ± 20
	Pokaiwhenua Stream	120 ± 50	120 ± 60	230 ± 80	360 ± 110
	Whakauru Stream		80 ± 90		
	Lake Moananui		300 ± 140	330 ± 270	
	Matarawa Stream			610 ± 610	
	Little Waipa Stream	390 ± 130	100 ± 50	170 ± 90	730 ± 210
	Mangawhio Stream	20 ± 20	10 ± 10	70 ± 50	
	Waipapa River	210 ± 70	440 ± 170	220 ± 80	440 ± 110
	Mangakino Stream	370 ± 370			
	Kaiwhitiwhiti Stream			80 ± 80	
	Lake Waahi	20 ± 20			
	Piggott Wetland	20 ± 20			
Total, Waikato catchment		13,760 ± 1,780	19,400 ± 2,380	25,860 ± 1,670	30,740 ± 1,750
Pahurehure Inlet	Bombay Pond		50 ± 40	220 ± 150	460 ± 150
Lake Kereta	Lake Kereta				130 ± 60
Lake Ototoa	Lake Ototoa	< 5	210 ± 80	1,250 ± 320	930 ± 270
Muriwai Beach	Muriwai Beach				
	Lake Okaihau		80 ± 80	110 ± 100	320 ± 90
Kaipara River	Kaipara River		20 ± 20		
	Kumeu River	30 ± 30	340 ± 340		20 ± 20
Lake Tomarata	Lake Tomarata	< 5	40 ± 30	40 ± 20	180 ± 160
Total, all Auckland/Waikato waters		26,040 ± 2,180	30,650 ± 2,570	41,040 ± 1,990	44,940 ± 2,030

Eastern Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95	
Tuapiro Creek	Tuapiro Creek	40 ± 40	30 ± 30	40 ± 30		
	Waitengaue Stream		90 ± 90			
Wairoa River	Wairoa River	10 ± 0	80 ± 40	160 ± 80	140 ± 110	
	McLaren Falls Dam	1,570 ± 620	860 ± 300	1,200 ± 420	1,690 ± 630	
	Ohourere Stream		20 ± 20	50 ± 40		
	Ruahihi Canal	180 ± 120	260 ± 190	460 ± 350	1,070 ± 420	
	Ngamuwahine River	40 ± 20		1,000 ± 440	160 ± 100	
	Opuiaki River			20 ± 20		
	Ngatuhoa Stream		280 ± 190			
	Omanawa River		80 ± 80	60 ± 60		
	Total, Wairoa catchment		1,800 ± 630	1,570 ± 410	2,960 ± 710	3,070 ± 770
Waimapu Stream	Waimapu Stream			50 ± 50		
Kaituna River	Kaituna River	300 ± 140	410 ± 170	1,560 ± 760	2,460 ± 650	
	Waiari Stream			40 ± 20	260 ± 180	
	Mangorewa River		190 ± 100	40 ± 30		
	Lake Rotoiti	40,110 ± 4,190	47,810 ± 3,710	40,540 ± 2,840	43,370 ± 3,430	
	Ohau Channel	1,060 ± 310	6,090 ± 3,770	2,180 ± 1,050	4,720 ± 1,050	
	Hauparu Stream		20 ± 20		70 ± 70	
	Lake Rotorua	17,130 ± 2,100	31,070 ± 3,190	27,510 ± 2,110	40,190 ± 4,400	
	Utuhina Stream	360 ± 190	470 ± 280	3,060 ± 1,130	2,310 ± 1,440	
	Ngongotaha Stream	7,370 ± 1,990	10,780 ± 1,860	11,240 ± 1,990	8,800 ± 2,670	
	Waiteti Stream	3,110 ± 720	3,700 ± 960	3,090 ± 1,050	1,840 ± 580	
	Awahou Stream	2,010 ± 990	1,410 ± 430	1,420 ± 580	190 ± 130	
	Hamurana Stream	580 ± 280	880 ± 310	1,550 ± 810	1,070 ± 580	
	Total, Kaituna catchment		72,020 ± 5,260	102,840 ± 6,550	92,210 ± 4,630	105,280 ± 6,530
	Waihi Estuary	Waihi Estuary				
		Pongakawa Stream	80 ± 80			50 ± 40
Lake Rotoehu	Lake Rotoehu	1,070 ± 270	3,720 ± 1,210	2,190 ± 770	2,290 ± 580	
	Lake Rotoma	3,480 ± 790	11,110 ± 2,040	9,210 ± 1,230	6,610 ± 1,290	
Tarawera River	Lake Okaro	970 ± 680	260 ± 170	200 ± 120	100 ± 70	
	Lake Okataina	6,330 ± 1,110	6,160 ± 1,060	6,830 ± 860	5,830 ± 940	
	Lake Rerewhakaaitu	3,850 ± 760	3,780 ± 800	8,070 ± 1,310	9,390 ± 1,660	
	Tarawera River (above falls)	1,090 ± 680	300 ± 120	640 ± 290		
	Tarawera River (below falls)	280 ± 230	600 ± 440	2,040 ± 630		
	Tarawera River (undefined)		220 ± 100	1,390 ± 560	5,010 ± 1,180	
	Tarawera River total	1,370 ± 720	1,120 ± 470	4,070 ± 890	5,010 ± 1,180	
	Ruruanga Stream	10 ± 10			170 ± 100	
	Waiaute Stream		100 ± 100			

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Waiwhakapa Stream	30 ± 20	70 ± 70	40 ± 30	
	Lake Tarawera	31,540 ± 3,610	33,450 ± 3,420	41,790 ± 2,910	38,440 ± 3,990
	Lake Okareka	3,290 ± 1,240	2,040 ± 530	3,750 ± 1,240	3,410 ± 800
	Lake Rotokakahi	20 ± 20	240 ± 130	20 ± 20	920 ± 900
	Lake Tikitapu (Blue Lake)	600 ± 280	320 ± 120	470 ± 190	260 ± 160
	Lake Rotomahana	870 ± 320	70 ± 50	820 ± 380	1,220 ± 420
Total, Tarawera catchment		48,880 ± 4,190	47,590 ± 3,740	66,070 ± 3,670	64,750 ± 4,760
Rangitaiki River	Lake Aniwhenua	1,350 ± 490	2,300 ± 500	9,840 ± 2,800	11,330 ± 1,640
	Lake Matahina	350 ± 170	360 ± 220	590 ± 280	880 ± 400
	Rangitaiki River (above Lake Aniwhenua)	860 ± 380	1,550 ± 370	4,400 ± 1,560	1,410 ± 420
	Rangitaiki River (Aniwhenua - Matahina)	930 ± 510	1,180 ± 420	2,350 ± 1,570	3,560 ± 1,190
	Rangitaiki River (below Matahina)	560 ± 290	320 ± 160	770 ± 250	720 ± 210
	Rangitaiki River (undefined)		980 ± 270	2,020 ± 630	
	Rangitaiki River total	2,350 ± 700	4,020 ± 650	9,540 ± 2,310	5,680 ± 1,280
	Waihua Stream	300 ± 190	120 ± 60	270 ± 120	310 ± 300
	Ngatamawahine Stream		50 ± 40	30 ± 30	
	Horomanga River	570 ± 470	1,790 ± 1,120	190 ± 90	1,240 ± 420
	Whirinaki River	1,250 ± 540	1,850 ± 680	750 ± 230	1,710 ± 520
	Flaxy Canal	20 ± 0	770 ± 520	590 ± 410	
	Lake Flaxy	180 ± 140	1,310 ± 540	2,410 ± 740	1,520 ± 440
	Wheao River	330 ± 320	430 ± 280	400 ± 160	550 ± 180
	Otangimoana Stream	30 ± 30			20 ± 20
	Otamatea River	270 ± 190	430 ± 290	10 ± 10	
	Rangitaiki Canal	140 ± 130			
Total, Rangitaiki catchment		7,130 ± 1,220	13,420 ± 1,780	24,610 ± 3,760	23,240 ± 2,290
Whakatane River	Whakatane River	180 ± 100	1,590 ± 780	1,450 ± 530	2,230 ± 800
	Waimana River	70 ± 40	1,030 ± 570	480 ± 180	1,920 ± 670
	Urewera Stream			10 ± 10	
	Tauranga River	90 ± 90			
	Waikare River	20 ± 10	10 ± 10	260 ± 260	
	Ruatahuna Stream	50 ± 40	40 ± 30	30 ± 30	
Total, Whakatane catchment		400 ± 150	2,670 ± 970	2,230 ± 610	4,150 ± 1,040
Waiotahi River	Waiotahi River			90 ± 60	110 ± 60
Waioea River	Waioea River	2,200 ± 570	1,430 ± 630	1,540 ± 510	2,480 ± 1,240
	Opato Stream	30 ± 30		80 ± 40	
	Wairata Stream	160 ± 150	90 ± 60	410 ± 260	110 ± 80
	Koranga River			30 ± 30	
	Kahunui Stream			30 ± 30	
Total, Waioea catchment		2,380 ± 590	1,520 ± 630	2,080 ± 580	2,590 ± 1,240
Otara River	Otara River		290 ± 220	60 ± 40	260 ± 160

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Motu River	Motu River	790 ± 450	210 ± 110	1,290 ± 400	240 ± 130
	Takaputahi River			30 ± 20	40 ± 40
Haparapara River	Haparapara River			40 ± 40	
Raukokore River	Raukokore River		130 ± 80		
Mata River	Mata River				50 ± 50
	Waingakia Stream		10 ± 10		
Turanganui River	Turanganui River	20 ± 20			
Waipaoa River	Waipaoa River		20 ± 20		
	Wharekopae River		30 ± 30	70 ± 70	
Kopuawhara Stream	Kopuawhara Stream		240 ± 210		
Wairoa River	Wairoa River	130 ± 90	10 ± 10	40 ± 30	
	Waiau River	270 ± 170	290 ± 120	200 ± 130	280 ± 160
	Lake Kaitawa	80 ± 80	30 ± 30	50 ± 50	180 ± 180
	Lake Tuai	180 ± 110	50 ± 30	20 ± 20	1,200 ± 460
	Lake Waikareiti	270 ± 210	330 ± 210	250 ± 80	510 ± 270
	Lake Waikaremoana	7,500 ± 1,110	12,960 ± 1,620	18,770 ± 2,000	20,620 ± 2,190
	Waikaretaheke River	70 ± 40	90 ± 80	20 ± 20	
	Mangapapa Stream	80 ± 80		20 ± 20	
	Aniwaniwa Stream		240 ± 120	130 ± 90	
	Mokau Stream			60 ± 60	
	Hopuruahine Stream	50 ± 50	10 ± 10	180 ± 100	
	Moerangi Stream	10 ± 10			
	Mangapoike River			20 ± 20	30 ± 30
	Mangaone Stream			200 ± 90	70 ± 40
	Ruakituri River (above Boothman Bridge)	1,590 ± 550			
	Ruakituri River (below Boothman Bridge)	140 ± 60			
	Ruakituri River (undefined)			1,830 ± 530	1,420 ± 260
Ruakituri River total	1,730 ± 550		1,830 ± 530	1,420 ± 260	2,380 ± 620
Hangaroa River	1,170 ± 970		780 ± 530	450 ± 160	620 ± 420
Total, Wairoa catchment		11,540 ± 1,610	16,840 ± 1,810	21,700 ± 2,040	25,790 ± 2,390
Waikato River	Lake Aratiatia	< 5		70 ± 50	180 ± 100
	Lake Atiamuri	520 ± 380	800 ± 420	570 ± 260	540 ± 230
	Lake Maraetai	330 ± 140	1,140 ± 430	800 ± 350	650 ± 320
	Lake Ohakuri	620 ± 250	580 ± 440	1,210 ± 530	2,560 ± 740
	Lake Whakamaru	490 ± 280	1,010 ± 500	570 ± 170	3,360 ± 1,050
	Waikato R (above Ohakuri)	1,070 ± 400	2,150 ± 740	1,930 ± 1,080	3,710 ± 1,570
	Tahunaatara Stream		50 ± 50	260 ± 210	440 ± 300
	Whirinaki Stream	120 ± 120	580 ± 460	410 ± 160	110 ± 80
	Lake Ngahewa	30 ± 30	300 ± 270	30 ± 30	
Lake Ngapouri	200 ± 140	20 ± 20	170 ± 90	80 ± 60	

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Torepatutahi Stream		100 ± 90	180 ± 120	190 ± 120
	Ruatawiri Stream	20 ± 20		100 ± 100	
	Pueto Stream	10 ± 10	10 ± 10		80 ± 50
	Lake Rotoaira	50 ± 20	440 ± 160	90 ± 50	
Total, Waikato catchment		3,480 ± 710	7,180 ± 1,300	6,400 ± 1,330	11,900 ± 2,100
Total, all Eastern waters		153,100 ± 7,180	209,520 ± 8,500	231,330 ± 7,650	250,410 ± 9,270

Taranaki Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Turakina River	Turakina River				60 ± 60
	Lake Namunamu	130 ± 120	30 ± 20	30 ± 20	300 ± 110
Whangaehu River	Lake Ohakune	20 ± 20	40 ± 30		110 ± 40
	Lake Rotokura		430 ± 380	10 ± 10	110 ± 40
	Raetihi Hydro Dam	10 ± 10	30 ± 20		
	Whangaehu River				
	Mangawhero River	250 ± 80	420 ± 120	430 ± 140	620 ± 180
	Taonui Stream	100 ± 70	50 ± 30	70 ± 40	400 ± 260
	Lake Lahar			10 ±	
	Makotuku Stream		10 ± 10		
	Mangateitei Stream	< 5			
	Tokiahuru Stream			30 ± 20	80 ± 40
	Waitaiki Stream	10 ± 10	40 ± 30	40 ± 20	30 ± 20
	Omarae Stream		60 ± 50		10 ± 10
	Waitangi Stream	10 ± 10	20 ± 10		
	Total, Whangaehu catchment		400 ± 110	1,100 ± 410	600 ± 150
Kaitoke Stream	Lake Kohata			110 ± 30	
	Lake Pauri		20 ± 20		40 ± 30
	Lake Wiritoa	80 ± 30	100 ± 40	50 ± 30	10 ± 10
Whanganui River	Lake Virginia			100 ± 60	320 ± 80
	Whanganui R (below Ohura)	670 ± 190	1,990 ± 410	620 ± 180	1,780 ± 520
	Manganui-o-te-ao River	1,150 ± 250	2,220 ± 510	760 ± 140	1,970 ± 250
	Ruatiti Stream	20 ± 0	140 ± 40		30 ± 30
	Orautoha Stream		80 ± 70	30 ± 30	
	Mangaturuturu River	< 5			
	Waimarino Stream		50 ± 40	40 ± 20	20 ± 10
	Makatote River	10 ± 10			120 ± 90
Retaruke River	190 ± 120	100 ± 50	80 ± 50	80 ± 60	
Total, Whanganui catchment		2,050 ± 340	4,590 ± 660	1,630 ± 240	4,320 ± 590
Waitotara River	Waitotara River		10 ± 10		
	Lake Waiau		270 ± 250		
	Omahine Stream	10 ± 10		70 ± 40	10 ±
Tangahoe River	Tawhiti Stream				10 ± 10
Patea River	Lake Rotorangi	40 ± 20	130 ± 70	150 ± 60	230 ± 70
	Patea River	540 ± 130	1,450 ± 320	880 ± 280	280 ± 120
	Mangaehu Stream	< 5	10 ± 10		
	Makuri Stream	30 ± 20			110 ± 90
	Kahouri Stream	20 ± 10			40 ± 40

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Piakau South Stream				40 ± 30
	Konini Stream				20 ± 20
Total, Patea catchment		640 ± 130	1,590 ± 330	1,030 ± 290	720 ± 170
Waingongoro River	Waingongoro River	560 ± 160	1,210 ± 290	1,010 ± 180	1,550 ± 240
	Mangatoki Stream	20 ± 10	10 ± 10	30 ± 20	200 ± 120
Kapuni Stream	Kapuni Stream	30 ± 20	50 ± 30	110 ± 40	50 ± 20
Waiokura Stream	Waiokura Stream	< 5	200 ± 180	20 ± 20	
Kaupokonui Stream	Kaupokonui Stream	200 ± 50	290 ± 120	230 ± 90	160 ± 110
	Mangawhero Stream	10 ± 0	20 ± 20	30 ± 10	
	Mangawheroiti Stream		50 ± 50		
	Dunns Creek				
Otakeho Stream	Otakeho Stream		40 ± 30	10 ±	
Taungatara Stream	Taungatara Stream	10 ± 0	230 ± 220		10 ± 10
Mangahume Stream	Mangahume Stream	40 ± 30			10 ± 10
Waiaua River	Lake Opunake	190 ± 90	200 ± 90		30 ± 20
	Waiaua River	50 ± 30	50 ± 30	10 ± 10	100 ± 40
Otahi Stream	Otahi Stream	< 5	10 ± 10		
Oaonui Stream	Oaonui Stream		10 ± 10	50 ± 50	
Okahu Stream	Okahu Stream	10 ± 10	40 ± 20	10 ± 10	80 ± 50
Pungaereere Stream	Pungaereere Stream		150 ± 140		
Waitotoroa Stream	Waitotoroa Stream			10 ± 10	
Kapoaiaia Stream	Kapoaiaia Stream	10 ± 10		10 ± 10	
Warea River	Warea River	50 ± 20	130 ± 40	30 ± 20	30 ± 10
Waiweranui Stream	Waiweranui Stream		40 ± 30	10 ± 10	
Stony River	Stony River	290 ± 100	230 ± 100	410 ± 140	150 ± 30
Kaihihi Stream	Kaihihi Stream	10 ± 10			
Timaru Stream	Timaru Stream	120 ± 120	130 ± 110	10 ± 10	30 ± 10
Oakura River	Oakura River	30 ± 20	80 ± 50	40 ± 30	30 ± 10
Tapuae Stream	Tapuae Stream		20 ± 20		
Huatoki Stream	Huatoki Stream				60 ± 30
Te Henui Stream	Te Henui Stream		60 ± 40	20 ± 10	290 ± 140
Waiwhakaiho River	Lake Rotomanu	730 ± 270	300 ± 90	620 ± 260	720 ± 160
	Waiwhakaiho River	1,210 ± 210	1,240 ± 200	340 ± 110	530 ± 120
	Mangorei Stream	10 ± 0	20 ± 20		110 ± 70
	Lake Mangamahoe	1,210 ± 320	1,910 ± 860	830 ± 200	1,380 ± 230
	Kai Auahi Stream	20 ± 10	70 ± 30		100 ± 40
	Mangawarawara Stream		40 ± 40		
Total, Waiwhakaiho catchment		3,180 ± 470	3,580 ± 890	1,790 ± 350	2,840 ± 310
Waiongana Stream	Waiongana Stream	180 ± 80	80 ± 40	20 ± 10	100 ± 50
	Mangaoraka Stream		60 ± 30	90 ± 60	190 ± 110

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Waitara River	Lake Cowley	30 ± 30	10 ± 10		80 ± 30
	Lake Ngangana	10 ± 10	100 ± 40	200 ± 60	
	Waitara River	30 ± 20	120 ± 60	10 ± 10	20 ± 10
	Manganui River	310 ± 90	600 ± 160	150 ± 60	160 ± 70
	Ngatoro Stream	60 ± 50	140 ± 60		40 ± 30
	Ngatoronui Stream		10 ± 10		
	Maketawa Stream	10 ± 10	60 ± 20	40 ± 20	100 ± 40
	Mangamawhete Stream		10 ± 10		10 ± 10
	Waipuku Stream	< 5			
	Te Popo Stream			10 ± 10	
	Lake Ratapiko	80 ± 30	650 ± 250	340 ± 120	
Total, Waitara catchment		540 ± 110	1,710 ± 310	760 ± 150	410 ± 90
Total, all Taranaki waters		8,850 ± 680	16,380 ± 1,380	8,230 ± 620	13,150 ± 850

Hawkes Bay Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Wairoa River	Mangamate Stream		20 ± 20		
Mohaka River	Mohaka River (above Mangatainoka)	1,590 ± 260	3,490 ± 1,800	900 ± 230	
	Mohaka River (Mangatainoka to SH5)	1,480 ± 260	2,240 ± 380	2,350 ± 350	
	Mohaka River (below SH5)	2,680 ± 420	2,240 ± 400	3,160 ± 560	
	Mohaka River (undefined)		890 ± 280	660 ± 170	3,770 ± 220
	Mohaka River total	5,750 ± 560	8,860 ± 1,910	7,070 ± 710	3,770 ± 220
	Te Hoe River	100 ± 60	50 ± 50	10 ± 10	10 ± 10
	Hautapu River		20 ± 20	40 ± 30	50 ± 20
	Waipunga River	210 ± 70	210 ± 100	340 ± 110	50 ± 20
	Mokomokonui River	290 ± 180		10 ± 10	
	Inangatahi Stream		20 ± 20	30 ± 20	130 ± 20
	Toropapa Stream			10 ± 10	
	Ripia River	70 ± 40		190 ± 70	130 ± 20
	Makahu River	30 ± 20		10 ± 10	100 ± 10
	Mangatutunui Stream	100 ± 90			
	Mangatainoka River	120 ± 80	60 ± 40	10 ± 10	200 ± 30
	Taharua River	20 ± 20			
	Oamaru River	10 ± 0	10 ± 10	70 ± 60	
	Kaipō River	50 ± 50	60 ± 40	30 ± 30	30 ± 10
Total, Mohaka catchment		6,760 ± 610	9,290 ± 1,910	7,820 ± 730	4,490 ± 220
Waikari River	Waikari River		240 ± 130	10 ± 10	120 ± 40
Waikari River Total			240 ± 130	10 ± 10	120 ± 40
Aropaoanui River	Aropaoanui River	30 ± 20	80 ± 50		
	Lake Opouahi		30 ± 20	10 ± 10	
	Lake Orakai		640 ± 560		
	Waikoau River	50 ± 30		370 ± 280	70 ± 10
	Lake Tutira	2,720 ± 490	1,640 ± 500	2,340 ± 380	3,090 ± 150
Total, Aropaoanui catchment		2,800 ± 490	2,390 ± 750	2,720 ± 480	3,160 ± 150
Esk River	Esk River	1,530 ± 390	870 ± 200	190 ± 50	1,950 ± 90
Tutaekuri River	Tutaekuri River	5,720 ± 1,090	4,700 ± 610	6,730 ± 770	7,130 ± 240
	Twin Lakes	30 ± 20	230 ± 180	220 ± 110	
	Lake Te Pohue		30 ± 30	10 ± 10	260 ± 40
	Mangaone River	640 ± 230	180 ± 90	390 ± 130	370 ± 30
	Mangatutu Stream	140 ± 80	530 ± 290	110 ± 60	300 ± 40
	Donald River			10 ± 10	
Total, Tutaekuri catchment		6,520 ± 1,120	5,680 ± 710	7,470 ± 790	8,060 ± 250
Ngaruroro River	Ngaruroro River (above Taruarau)	2,470 ± 440	550 ± 160	980 ± 280	
	Ngaruroro River (below Taruarau)	1,810 ± 310	1,680 ± 300	5,150 ± 660	

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Ngaruroro River (undefined)		420 ± 190	110 ± 50	3,760 ± 170
	Ngaruroro River total	4,270 ± 540	2,650 ± 390	6,240 ± 720	3,760 ± 170
	Tutaekuri Waimate Stream	170 ± 100	30 ± 30		
	Mangatarata Stream			40 ± 40	
	Waitio Stream		20 ± 20		
	Mangatahi Stream	< 5	180 ± 110	70 ± 70	
	Otamauri Stream	70 ± 70	50 ± 40	10 ± 10	
	Poporangi Stream	10 ± 10			100 ± 20
	Whanaukini Stream	10 ± 10			
	Ohara Stream	580 ± 330	120 ± 70	290 ± 140	170 ± 20
	Taruarau River	390 ± 130	280 ± 110	360 ± 150	220 ± 80
	Ikawetea Stream			70 ± 70	
	Ngaawapurua Stream	20 ± 20			
Total, Ngaruroro catchment		5,530 ± 660	3,320 ± 430	7,080 ± 760	4,250 ± 190
Tukituki River	Tukituki River (above Waipawa)	2,340 ± 590	1,680 ± 360	2,490 ± 480	
	Tukituki River (Waipawa - Patangata)	2,930 ± 580	3,830 ± 590	4,110 ± 650	
	Tukituki River (below Patangata)	4,150 ± 570	2,920 ± 580	10,140 ± 1,210	
	Tukituki River (undefined)		630 ± 170	470 ± 180	14,020 ± 410
	Tukituki River total	9,420 ± 1,010	9,070 ± 920	17,210 ± 1,470	14,020 ± 410
	Waipawa River	1,850 ± 480	1,150 ± 260	2,050 ± 390	610 ± 40
	Mangaonuku Stream	380 ± 150	20 ± 20	560 ± 190	200 ± 20
	Mangamauku Stream	40 ± 30			
	Makaroro River	60 ± 30		40 ± 30	40 ±
	Mangataura Stream		10 ± 10	10 ± 10	100 ± 10
	Tukipo River	580 ± 350	50 ± 40	1,050 ± 290	140 ± 80
	Makaretu River		160 ± 160	10 ± 10	
	Maharakeke Stream			60 ± 30	
	Tangarewai Stream		90 ± 90		
Total, Tukituki catchment		12,320 ± 1,180	10,560 ± 970	21,000 ± 1,560	15,100 ± 420
Maraetotara River	Maraetotara River	220 ± 100	110 ± 80	140 ± 90	700 ± 190
Total, all Hawkes Bay waters		35,680 ± 1,960	32,490 ± 2,430	46,430 ± 2,100	37,830 ± 630

Wellington Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Pahaoa River	Pahaoa River			10 ± 10	
	Wainuioru River	30 ± 30		20 ± 20	
Ruamahanga River	Kourarau Dam	< 5	90 ± 60	610 ± 170	850 ± 230
	Lake Henley	500 ± 280	270 ± 270	280 ± 250	2,250 ± 800
	Lake Onoke	10 ± 10	10 ± 10	30 ± 20	
	Oporua Spillway		160 ± 160		80 ± 80
Ruamahanga R (above Mount Bruce)		60 ± 40	30 ± 20	150 ± 90	
Ruamahanga R (Mount Bruce - Masterton)		630 ± 210	610 ± 210	360 ± 110	
Ruamahanga R (Masterton - Martinborough)		2,310 ± 370	3,140 ± 590	4,970 ± 720	
Ruamahanga R (below Martinborough)		460 ± 140	1,300 ± 570	1,090 ± 300	
Ruamahanga R (undefined)			1,330 ± 340	330 ± 160	7,390 ± 910
Ruamahanga River total		3,470 ± 450	6,400 ± 910	6,910 ± 810	7,390 ± 910
	Lake Wairarapa	280 ± 140	110 ± 70	150 ± 80	200 ± 140
	Tauherenikau River	150 ± 70	160 ± 80	220 ± 150	360 ± 280
	Huangarua River	50 ± 30	60 ± 50	60 ± 40	
	Waiohine River	310 ± 110	780 ± 370	960 ± 450	1,320 ± 410
	Mangatarere Stream			160 ± 90	260 ± 130
	Tauweru River	10 ± 10	300 ± 150	140 ± 60	50 ± 40
	Waingawa River	60 ± 30	140 ± 70	140 ± 60	430 ± 210
	Atiwhakatu Stream	20 ± 10		30 ± 30	
	Waipoua River	20 ± 20	80 ± 40	260 ± 180	140 ± 80
	Kopuaranga River	80 ± 60	310 ± 130	520 ± 190	520 ± 240
Total, Ruamahanga catchment		4,980 ± 570	8,880 ± 1,060	10,470 ± 1,030	13,860 ± 1,390
Orongorongo River	Orongorongo River			40 ± 40	
Wainuiomata River	Wainuiomata River	210 ± 80	1,560 ± 400	750 ± 170	2,390 ± 590
Hutt River	Hutt River	5,500 ± 710	3,790 ± 610	6,160 ± 830	19,960 ± 2,020
	Whakatikei River	20 ± 20	20 ± 20	80 ± 70	70 ± 30
	Akatarawa River	40 ± 20	220 ± 130	310 ± 140	70 ± 70
	Mangaroa River	10 ± 10		10 ± 10	120 ± 80
	Pakuratahi River	200 ± 190		50 ± 50	50 ± 40
Total, Hutt catchment		5,770 ± 740	4,040 ± 620	6,610 ± 850	20,270 ± 2,030
Korokoro Stream	Korokoro Stream				20 ± 20
Kaiwharawhara Stream	Kaiwharawhara Stream				20 ± 20
Karori Stream	Karori Stream				120 ± 80
Makara Stream	Makara Stream			70 ± 50	100 ± 60
Pauatahanui Stream	Whitby Lakes	30 ± 30	20 ± 20	410 ± 150	930 ± 500
Wainui Stream	Wainui Stream	30 ± 20	20 ± 20	70 ± 50	90 ± 80
Waikanae River	Waikanae River	920 ± 250	1,420 ± 450	420 ± 130	750 ± 190

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Maungakotukuku Stream	40 ± 40			
Otaki River	Otaki River	810 ± 160	620 ± 160	350 ± 90	690 ± 220
	Waiotauru River	40 ± 40			
Waitohu Stream	Lake Waitawa	50 ± 30	370 ± 160	140 ± 70	820 ± 540
	Waitohu Stream		70 ± 30		
Waikawa Stream	Lake Kopureherehere			210 ± 110	710 ± 350
	Waikawa Stream		10 ± 10		
Ohau River	Ohau River	460 ± 160	170 ± 60	180 ± 90	230 ± 100
Manawatu River	Hokowhitu Lagoon	30 ± 30	230 ± 240	430 ± 260	220 ± 100
	Manawatu R (above Dannevirke)	1,530 ± 560	1,540 ± 540	1,170 ± 340	
	Manawatu R (Dannevirke - Woodville)	1,980 ± 450	5,360 ± 1,030	3,730 ± 710	
	Manawatu R (Woodville - Palmerston North)	4,440 ± 660	4,360 ± 1,050	6,820 ± 980	
	Manawatu R (Palmerston North to Foxton)	1,240 ± 500	1,320 ± 310	2,000 ± 400	
	Manawatu R (undefined)		1,590 ± 450	150 ± 60	11,970 ± 1,360
	Manawatu River total	9,180 ± 1,100	14,160 ± 1,660	13,860 ± 1,320	11,970 ± 1,360
	Tokomaru River	130 ± 100		50 ± 30	160 ± 80
	Oroua River	730 ± 310	400 ± 180	610 ± 280	200 ± 80
	Kahuterawa Stream				110 ± 50
	Turitea Stream	60 ± 50	50 ± 40	20 ± 20	100 ± 50
	Pohangina River	930 ± 270	1,840 ± 490	920 ± 230	1,400 ± 350
	Makiekie Creek	10 ± 10		10 ± 10	110 ± 80
	Horopito Stream	40 ± 30	10 ± 10		
	Mangahao River	360 ± 160	1,120 ± 600	820 ± 220	210 ± 70
	Tiraumea River	40 ± 30	40 ± 40	10 ± 10	50 ± 40
	Mangatainoka River	1,150 ± 380	1,990 ± 730	1,670 ± 310	3,040 ± 530
	Makakahi River	180 ± 120	170 ± 140	160 ± 70	1,170 ± 460
	Makuri River	230 ± 80	590 ± 250	520 ± 130	820 ± 240
	Mangapuaka Stream			50 ± 30	
	Mangatoro Stream	10 ± 10		30 ± 30	50 ± 40
Total, Manawatu catchment		13,100 ± 1,260	20,610 ± 2,010	19,170 ± 1,450	19,610 ± 1,600
Rangitikei River	Rangitikei R (above Mangaohane)	1,480 ± 440	1,590 ± 430	850 ± 170	
	Rangitikei R (Mangaohane - Vinegar Hill)	1,960 ± 450	1,830 ± 370	2,130 ± 380	
	Rangitikei R (Vinegar Hill - Tangimoana)	3,830 ± 1,010	790 ± 260	2,490 ± 490	
	Rangitikei R (undefined)		1,700 ± 400	420 ± 150	5,710 ± 700
	Rangitikei River total	7,270 ± 1,190	5,900 ± 740	5,890 ± 660	5,710 ± 700
	Mangateweka Stream	80 ± 60	70 ± 70		90 ± 60
	Kawhatau River	190 ± 80	250 ± 150	80 ± 50	330 ± 110
	Pourangaki River		80 ± 80		
	Hautapu River	200 ± 70	220 ± 110	260 ± 130	1,060 ± 450
	Moawhango River	30 ± 30	10 ± 10	60 ± 30	190 ± 100

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Whakaurekou River	30 ± 20	60 ± 50	100 ± 80	
	Mangatera River	20 ± 20	50 ± 40		
	Mangaohane Stream	190 ± 170			30 ± 30
Total, Rangitikei catchment		8,000 ± 1,210	6,650 ± 770	6,390 ± 680	7,400 ± 850
Rangitikei coast	Lake Alice				10 ± 10
	Lake Dudding	510 ± 210			
Total, all Wellington waters		34,990 ± 2,020	44,430 ± 2,570	45,310 ± 2,110	68,030 ± 3,230

Nelson/Marlborough Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Aorere River	Aorere River	180 ± 90	760 ± 300	300 ± 80	650 ± 210
Takaka River	Takaka River (above Lindsay's Bridge)	70 ± 40	170 ± 80	360 ± 110	
	Takaka River (below Lindsay's Bridge)	80 ± 40	470 ± 320	540 ± 150	
	Takaka River (undefined)		220 ± 120	220 ± 100	1,160 ± 350
	Takaka River total	150 ± 60	860 ± 350	1,120 ± 210	1,160 ± 350
	Waikoropupu River			80 ± 50	40 ± 40
	Anatoki River	40 ± 30	20 ± 20	40 ± 20	350 ± 240
	Waingaro River	50 ± 40	30 ± 20	50 ± 20	50 ± 40
	Cobb Reservoir	120 ± 50	100 ± 50	220 ± 70	440 ± 130
	Cobb River	180 ± 80	110 ± 40	260 ± 110	290 ± 90
	Total, Takaka catchment		530 ± 120	1,110 ± 360	1,770 ± 260
Riwaka River	Riwaka River	250 ± 120	180 ± 60	570 ± 150	620 ± 220
	Riwaka River North Branch	20 ± 20		20 ± 10	
	Riwaka River South Branch	120 ± 110		30 ± 10	
Motueka River	Motueka River (above Wangapeka)	1,570 ± 410	860 ± 180	1,010 ± 180	
	Motueka River (below Wangapeka)	2,250 ± 330	2,640 ± 420	3,870 ± 430	
	Motueka River (undefined)		610 ± 170	1,510 ± 470	10,070 ± 1,330
	Motueka River total	3,820 ± 530	4,100 ± 490	6,390 ± 660	10,070 ± 1,330
	Orinoco Creek			90 ± 60	
	Graham River			50 ± 20	
	Pearse River	20 ± 20		30 ± 20	270 ± 240
	Baton River	120 ± 50	140 ± 60	150 ± 40	440 ± 140
	Wangapeka River	390 ± 120	510 ± 120	820 ± 140	970 ± 200
	Rolling River			10 ± 10	10 ± 10
	Motupiko River	700 ± 390	70 ± 30	290 ± 80	380 ± 150
	Rainy River	10 ± 0		10 ± 10	
	Total, Motueka catchment		5,060 ± 670	4,820 ± 510	7,830 ± 690
Waimea River	Waimea River	350 ± 110	390 ± 150	240 ± 80	1,780 ± 340
	Wai-iti River	20 ± 20	190 ± 130	30 ± 20	100 ± 50
	Wairoa River	1,310 ± 540	200 ± 120	550 ± 140	280 ± 90
	Roding River			70 ± 60	
	Lee River	10 ± 0	50 ± 50	80 ± 30	130 ± 120
Total, Waimea catchment		1,680 ± 550	830 ± 240	980 ± 180	2,290 ± 370
Maitai River	Maitai River	430 ± 220	60 ± 40	280 ± 170	180 ± 60
Wakapuaka River	Wakapuaka River	270 ± 160	70 ± 50	130 ± 70	280 ± 190
Whangamoia River	Whangamoia River	40 ± 20	10 ± 10	10 ± 10	
Pelorus River	Pelorus River (above Pelorus Bridge)	550 ± 160	570 ± 160	180 ± 60	
	Pelorus River (below Pelorus Bridge)	700 ± 190	830 ± 170	1,090 ± 200	

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Pelorus River (undefined)		180 ± 90	320 ± 140	2,100 ± 380
	Pelorus River total	1,250 ± 250	1,590 ± 250	1,600 ± 250	2,100 ± 380
	Wakamarina River	40 ± 30	60 ± 40	50 ± 30	
	Rai River	600 ± 200	1,020 ± 530	740 ± 200	1,440 ± 320
	Ronga River		10 ± 10	20 ± 10	
	Tunakino River			30 ± 20	10 ± 10
	Opouri River	120 ± 100	20 ± 20	130 ± 50	500 ± 250
	Tinline River				10 ± 10
Total, Pelorus catchment		2,020 ± 330	2,700 ± 590	2,560 ± 330	4,060 ± 560
Kaituna River	Kaituna River		190 ± 190	30 ± 20	190 ± 180
Wairau River	Wairau River (above Wash Bridge)	1,650 ± 330	2,230 ± 580	1,430 ± 240	
	Wairau River (below Wash Bridge)	10,500 ± 1,670	5,920 ± 780	5,750 ± 680	
	Wairau River (undefined)		1,050 ± 390	1,230 ± 470	8,480 ± 820
	Wairau River total	12,150 ± 1,710	9,200 ± 1,050	8,410 ± 860	8,480 ± 820
	Roses Overflow		20 ± 20		50 ± 40
	Wairau Diversion	970 ± 390	650 ± 610	170 ± 170	
	Opawa River	450 ± 350	160 ± 90	500 ± 200	870 ± 290
	Taylor River	380 ± 260	30 ± 30	180 ± 70	140 ± 110
	Omaka River		260 ± 260		
	Spring Creek	510 ± 190	860 ± 350	360 ± 110	170 ± 70
	Tuamarina River	10 ± 10	60 ± 60		20 ± 20
	Waikakaho River		80 ± 40	160 ± 150	20 ± 10
	Waihopai River	10 ± 10		70 ± 40	100 ± 70
	Bartletts Creek			10 ± 10	20 ± 20
	Timms Creek	10 ± 10	30 ± 20		
	Top Valley Stream		10 ± 10		
	Goulter River	60 ± 40	180 ± 80	90 ± 40	30 ± 20
	Argyle Pond	700 ± 240	710 ± 220	940 ± 210	1,280 ± 240
	Branch River	100 ± 50	20 ± 10	20 ± 10	230 ± 120
	Leatham River	70 ± 40	40 ± 20	30 ± 20	100 ± 40
	Rainbow River	150 ± 80	90 ± 40	30 ± 20	80 ± 40
	Fish Lake	10 ± 10			
Total, Wairau catchment		15,600 ± 1,830	12,380 ± 1,320	10,970 ± 950	11,560 ± 920
Awatere River	Awatere River	50 ± 30	160 ± 90	170 ± 110	200 ± 120
Blind River	Blind River	30 ± 30			
Clarence River	Clarence R (above Acheron)	570 ± 220	1,120 ± 440	160 ± 80	
	Clarence R (below Acheron, salmon)	430 ± 190			
	Clarence R (below Acheron, trout)	500 ± 280			
	Clarence R (below Acheron)		1,130 ± 480	180 ± 80	
	Clarence R (undefined)		490 ± 160	280 ± 130	840 ± 370

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Clarence River total	1,500 ± 410	2,740 ± 670	620 ± 170	840 ± 370
	Lake McRae		10 ± 10		
	Acheron River	50 ± 30	50 ± 30	50 ± 30	80 ± 60
	Lake Sedgemere	50 ± 50			
	Severn River	140 ± 130		70 ± 60	20 ± 20
	Alma River	10 ± 10	30 ± 20		40 ± 40
	Bowscale Tarn	20 ± 20	270 ± 150	160 ± 130	
	Lake Tennyson	340 ± 140	130 ± 60	80 ± 50	450 ± 330
Total, Clarence catchment		2,110 ± 450	3,230 ± 690	970 ± 230	1,420 ± 500
Lyell Creek	Lyell Creek	40 ± 30		40 ± 40	
Kahutara River	Kahutara River	20 ± 20		30 ± 30	
Conway River	Conway River	60 ± 50	150 ± 150	60 ± 40	10 ± 10
Buller River	Buller River (Rotoiti to Gowan)	550 ± 170	520 ± 120	1,320 ± 230	
	Buller River (Gowan to Lyell)	840 ± 230	420 ± 130	660 ± 130	
	Buller River (above Lyell)				3,460 ± 640
	Buller River (undefined)		370 ± 110	750 ± 360	
	Buller River total	1,390 ± 290	1,310 ± 210	2,730 ± 440	3,460 ± 640
	Deepdale River	10 ± 10	10 ± 10		
	Lake Daniells	140 ± 80	40 ± 30	160 ± 90	230 ± 150
	Maruia River	480 ± 150	680 ± 150	1,830 ± 880	1,190 ± 370
	Woolley River	30 ± 30		50 ± 30	
	Rahu River		10 ± 10		
	Warwick River		10 ± 10	20 ± 20	
	Matiri River	40 ± 30	130 ± 110	100 ± 40	90 ± 60
	Matakitaki River	440 ± 280	520 ± 150	560 ± 120	510 ± 150
	Glenroy River	< 5	110 ± 70	90 ± 40	70 ± 40
	Mangles River	90 ± 50	260 ± 160	180 ± 70	400 ± 140
	Tutaki River	140 ± 80	100 ± 50	90 ± 40	210 ± 80
	Tiraumea River	10 ± 10			
	Owen River	330 ± 90	170 ± 50	320 ± 70	140 ± 70
	Fyfe River		20 ± 20	10 ± 10	
	Gowan River	340 ± 260	50 ± 30	350 ± 110	70 ± 40
	Lake Rotoroa	1,080 ± 230	1,910 ± 680	2,350 ± 470	1,030 ± 220
	Sabine River	110 ± 70	110 ± 50	150 ± 50	230 ± 90
	D`Urville River	40 ± 30	340 ± 150	170 ± 60	90 ± 40
	Hope River	< 5	20 ± 10	260 ± 100	40 ± 20
	Station Creek		10 ± 10	10 ± 10	
	Howard River	40 ± 40	20 ± 20	20 ± 20	
	Speargrass Creek		20 ± 10	10 ± 10	80 ± 80
	Lake Rotoiti	1,730 ± 250	1,730 ± 300	1,970 ± 260	2,060 ± 550

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Travers River	290 ± 150	190 ± 70	290 ± 80	450 ± 160
Total, Buller catchment		6,730 ± 650	7,780 ± 850	11,720 ± 1,160	10,330 ± 1,010
Anatori River	Anatori River		10 ± 10	60 ± 40	
Paturau River	Paturau River				10 ± 10
Total, all Nelson/Marlborough waters		35,230 ± 2,230	34,440 ± 1,970	38,520 ± 1,750	46,270 ± 2,210

West Coast Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Awarua River	Awarua River	10 ± 10			
Hope River	Hope River	10 ± 0	250 ± 170	10 ± 10	
Cascade River	Cascade River	1,510 ± 1,500	150 ± 70	50 ± 20	200 ± 80
	Martyr River				30 ± 30
Arawata River	Arawata River	1,630 ± 1,500	240 ± 100	330 ± 190	200 ± 180
	Jackson River	130 ± 80	300 ± 170	30 ± 30	80 ± 40
	Lake Ellery		60 ± 30		70 ± 40
Waiatoto River	Waiatoto River	810 ± 800	70 ± 70	190 ± 170	
Hapuka River	Hapuka River	810 ± 800			20 ± 20
Turnbull River	Turnbull River	930 ± 800	190 ± 90	270 ± 180	70 ± 30
Okuru River	Okuru River	250 ± 140	490 ± 290	100 ± 60	220 ± 120
Haast River	Haast River	560 ± 440	860 ± 520	420 ± 180	370 ± 150
	Thomas River	150 ± 150	20 ± 10	160 ± 120	20 ± 20
	Landsborough River			10 ± 10	
	Burke River	30 ± 30			
Waita River	Waita River	200 ± 130			
Moeraki River	Lake Moeraki	360 ± 170	380 ± 150	130 ± 50	40 ± 20
	Moeraki River	50 ± 50	280 ± 150		40 ± 30
Paringa River	Paringa River	490 ± 280	340 ± 110	100 ± 70	130 ± 80
	Lake Paringa	550 ± 170	730 ± 180	220 ± 90	480 ± 130
Mahitahi River	Mahitahi River	120 ± 70	70 ± 60	10 ± 10	60 ± 60
Jacobs River	Jacobs (Makawhio) River	480 ± 270	80 ± 50	180 ± 90	140 ± 60
Karangarua River	Karangarua River		60 ± 30	140 ± 90	50 ± 40
	Copland River			80 ± 80	10 ± 10
Waikukupa River	Waikukupa River		60 ± 60		
Waiho River	Waiho River	10 ± 10			
Okarito River	Okarito River	680 ± 230	670 ± 240	310 ± 100	30 ± 20
	Okarito Lagoon	1,740 ± 1,510			
	Lake Wahapo	50 ± 40	170 ± 80	90 ± 70	10 ± 10
	Lake Mapourika	1,670 ± 420	2,490 ± 580	950 ± 160	1,460 ± 490
Waitangi-taona River	Waitangi-taona River	140 ± 110	270 ± 100	250 ± 120	100 ± 30
	Vickers Creek		10 ± 10		
Whataroa River	Whataroa River	150 ± 80	150 ± 60	60 ± 30	30 ± 20
Poerua River	Poerua River	20 ± 20	40 ± 30	70 ± 40	80 ± 40
Wanganui River	Wanganui River	390 ± 130	110 ± 70	110 ± 40	110 ± 100
	La Fontaine Stream	200 ± 120	330 ± 110	240 ± 90	280 ± 130
	Ilanthe Creek		20 ± 20		
	Lake Ianthe	380 ± 150	580 ± 160	250 ± 80	140 ± 40

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Berry Creek	140 ± 130	10 ± 10		
Total, Wanganui catchment		1,110 ± 260	1,040 ± 200	590 ± 130	540 ± 160
Waitaha River	Waitaha River	1,080 ± 470	440 ± 190	190 ± 150	190 ± 80
	Kakapotahi River	30 ± 30	50 ± 30	110 ± 70	60 ± 30
	Ellis Creek		10 ± 10		
Mikonui River	Mikonui River	210 ± 120	440 ± 250	80 ± 50	
Totara River	Totara River	180 ± 150	370 ± 240	130 ± 100	10 ± 10
Mahinapua Creek	Mahinapua Creek	90 ± 50	60 ± 40	50 ± 20	80 ± 30
Hokitika River	Hokitika River	3,340 ± 620	5,810 ± 970	1,120 ± 290	940 ± 240
	Lake Mahinapua	160 ± 60	120 ± 60		50 ± 40
	Kaniere River	70 ± 40	20 ± 10	30 ± 20	30 ± 20
	Lake Kaniere	760 ± 190	380 ± 220	230 ± 100	500 ± 90
	Kokatahi River	20 ± 20	90 ± 90	40 ± 30	10 ±
	Harris Creek		80 ± 40	120 ± 50	100 ± 20
	Murray Creek		10 ± 10	60 ± 30	50 ± 20
	Toaroha River			10 ± 10	
	Styx River		20 ± 20	30 ± 20	30 ± 10
	Whitcombe River	10 ± 10	80 ± 80		
Total, Hokitika catchment		4,360 ± 650	6,610 ± 1,010	1,630 ± 310	1,700 ± 260
Arahura River	Arahura River	510 ± 200	990 ± 290	950 ± 300	220 ± 80
	Kawhaka Creek	230 ± 220			
	Kawhaka Hydro	40 ± 20	20 ± 20	120 ± 60	10 ±
Taramakau River	Dredge Ponds			10 ± 10	
	Kapitea Reservoir	150 ± 130	220 ± 140	10 ± 10	
	Taramakau River	2,870 ± 490	2,420 ± 500	1,720 ± 350	1,890 ± 390
	Clear Creek		30 ± 30		
	Hohonu River				20 ± 10
	Big Hohonu River		10 ± 10	20 ± 10	
	Nicholas Creek				
	Taipo River	10 ± 10	70 ± 50	30 ± 30	10 ± 10
	Bruce Creek	30 ± 20	60 ± 60	80 ± 40	150 ± 90
	Otira River		30 ± 30		
Total, Taramakau catchment		3,050 ± 510	2,830 ± 530	1,880 ± 350	2,070 ± 400
New River	New River	170 ± 70	10 ± 10	170 ± 80	10 ± 10
Grey River	Grey River (above Ikamatua)	1,570 ± 720	540 ± 150	1,400 ± 350	1,660 ± 560
	Grey River (below Ikamatua)	3,010 ± 540	2,390 ± 420	4,130 ± 540	1,730 ± 240
	Grey River (undefined)		380 ± 150	730 ± 210	
	Grey River total	4,580 ± 900	3,310 ± 470	6,270 ± 680	3,390 ± 610
	Lady Lake		10 ± 10	50 ± 40	
	Lake Haupiri	270 ± 120	160 ± 70	240 ± 80	50 ± 30

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Lake Hochstetter		60 ± 40	10 ± 10	
	Coal Creek	70 ± 40			
	Stillwater Creek	40 ± 40			
	Arnold River	2,240 ± 410	1,050 ± 230	1,420 ± 210	1,590 ± 430
	Deep Creek	10 ± 10	10 ± 10	10 ± 10	10 ± 10
	Molloy Creek	90 ± 80	100 ± 90	70 ± 40	
	Crooked River	1,030 ± 350	480 ± 230	870 ± 170	580 ± 390
	Kangaroo Lake			10 ± 10	
	Lake Brunner	14,420 ± 2,780	9,530 ± 1,290	9,280 ± 910	4,240 ± 550
	Lake Poerua	550 ± 210	700 ± 280	370 ± 120	440 ± 180
	Poerua River	290 ± 230		150 ± 90	10 ± 10
	Orangipuku River	60 ± 30		410 ± 170	110 ± 40
	Eastern Hohonu River			100 ± 80	
	Red Jacks Creek		30 ± 20		
	Nelson Creek		20 ± 20	120 ± 80	120 ± 60
	Moonlight Creek	140 ± 100	90 ± 60	30 ± 20	20 ± 10
	Ahaura River	750 ± 310	550 ± 200	610 ± 150	680 ± 170
	Lake Ahaura		130 ± 80	50 ± 30	30 ± 20
	Hauptiri River	190 ± 70	230 ± 100	270 ± 110	140 ± 30
	Waikiti River		60 ± 60		
	Big River	120 ± 80		60 ± 40	130 ± 50
	Rough River	500 ± 310	310 ± 110	180 ± 60	200 ± 90
	Mawheraiti River	50 ± 50	130 ± 80	150 ± 120	130 ± 50
	Clarke River		20 ± 20	20 ± 10	20 ± 20
	Robinson River		10 ± 10	160 ± 70	
	Blue Grey River	< 5			50 ± 20
	Brown Grey River	< 5	20 ± 20	100 ± 50	
	Blackwater River		50 ± 50	100 ± 60	
	Little Grey River			340 ± 150	20 ± 20
Total, Grey catchment		25,400 ± 3,030	17,090 ± 1,480	21,450 ± 1,230	11,940 ± 1,040
Seven Mile Creek	Seven Mile Creek		50 ± 30		
Ten Mile Creek	Ten Mile Creek		10 ± 10		
Punakaiki River	Punakaiki River	< 5		30 ± 20	70 ± 30
Pororari River	Pororari River	30 ± 30			50 ± 30
Fox River	Fox River	< 5	10 ± 10	80 ± 60	20 ± 10
Waitakere River	Waitakere River		20 ± 20		40 ± 30
Totara River	Totara River	10 ± 10	120 ± 120		
Okari River	Okari River		30 ± 30		10 ± 10
Buller River	Trent River				10 ± 10
	Buller River (Lyell to Westport)	1,170 ± 320	1,330 ± 330	1,580 ± 280	1,600 ± 220

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Bradshaws Creek				20 ± 10
	Ohikanui River	70 ± 60	70 ± 40	50 ± 30	320 ± 100
	Ohikaiti River		20 ± 20		
	Inangahua River	1,010 ± 310	870 ± 320	1,080 ± 220	790 ± 170
	Stony (Te Wharau) River	< 5	50 ± 30	40 ± 30	80 ± 40
	Awarau River	380 ± 290	200 ± 60	250 ± 70	120 ± 70
	Waitahu River	130 ± 80	90 ± 40	300 ± 70	110 ± 40
	Montgomerie River			10 ± 10	20 ± 10
	New Creek		10 ± 10		10 ± 10
Total, Buller catchment		2,770 ± 540	2,640 ± 470	3,320 ± 370	3,070 ± 310
Orowaiti River	Orowaiti River				30 ± 10
Mokihinui River	Mokihinui River	310 ± 130	770 ± 390	400 ± 190	720 ± 160
	Johnson River			20 ± 20	50 ± 40
Little Wanganui River	Little Wanganui River	140 ± 90	100 ± 70	60 ± 30	20 ± 10
Karamea River	Karamea River	770 ± 490	730 ± 280	400 ± 170	920 ± 430
	Ugly River	70 ± 70	50 ± 50		
	Roaring Lion River	30 ± 30	10 ± 10	90 ± 40	110 ± 60
	Beautiful River		60 ± 50	20 ± 20	
	Leslie River	10 ± 0	70 ± 30	40 ± 20	40 ± 20
	Crow River	10 ± 10	30 ± 20		70 ± 40
Total, Karamea catchment		890 ± 500	950 ± 290	550 ± 180	1,130 ± 430
Oparara River	Oparara River	10 ± 10			
Heaphy River	Heaphy River	< 5	10 ± 10	60 ± 40	20 ± 10
Total, all West Coast waters		54,180 ± 4,500	43,060 ± 2,280	36,030 ± 1,540	26,000 ± 1,420

North Canterbury Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Waiiau River	Waiiau River (salmon)	2,280 ± 1,010			
	Waiiau River (trout)	2,250 ± 760			
	Waiiau River (species undefined)		4,210 ± 1,010	2,130 ± 420	1,440 ± 490
	Waiiau River total	4,530 ± 1,260	4,210 ± 1,010	2,130 ± 420	1,440 ± 490
	Mason River			30 ± 30	
	Hanmer River		30 ± 30	30 ± 30	20 ± 20
	Hope River	750 ± 360	670 ± 310	340 ± 110	510 ± 300
	Boyle River	550 ± 220	320 ± 160	200 ± 80	390 ± 270
	Doubtful River		110 ± 110	50 ± 40	
	Doubtless River		110 ± 110		
	Nina River	20 ± 20	180 ± 120	40 ± 20	260 ± 260
	Lewis River	110 ± 60	20 ± 20	110 ± 50	270 ± 260
	Henry River				
	Ada River				20 ± 20
	Lake Guyon	320 ± 230		160 ± 80	
Total, Waiiau catchment		6,280 ± 1,360	5,650 ± 1,080	3,080 ± 450	2,920 ± 730
Hurunui River	Hurunui River (above Mandamus)	4,580 ± 1,420	4,240 ± 800	2,910 ± 350	
	Hurunui River (below Mandamus)	6,790 ± 1,750	5,660 ± 950	4,370 ± 850	
	Hurunui River (undefined)		2,230 ± 720	1,100 ± 370	17,100 ± 3,330
	Hurunui River total	11,370 ± 2,250	12,130 ± 1,430	8,380 ± 990	17,100 ± 3,330
	Lake Sumner	2,430 ± 1,620	1,880 ± 520	520 ± 210	390 ± 170
	Waitohi River		220 ± 190		
	Mandamus River	150 ± 70	30 ± 30		
	Lake Mason	190 ± 180	380 ± 150	20 ± 20	300 ± 300
	Lake Sheppard	290 ± 140	180 ± 90	120 ± 50	230 ± 120
	Lake Taylor	1,230 ± 330	3,270 ± 1,280	970 ± 220	750 ± 250
	Loch Katrine	310 ± 160	260 ± 140	200 ± 70	190 ± 130
	Total, Hurunui catchment		15,970 ± 2,810	18,330 ± 2,010	10,210 ± 1,040
Motunau River	Motunau River	640 ± 630	280 ± 280		20 ± 20
Waipara River	Waipara River	230 ± 130	120 ± 80	80 ± 50	
Ashley River	Ashley River	4,310 ± 870	5,190 ± 2,010	3,520 ± 680	4,530 ± 1,050
	Saltwater Creek	100 ± 80	50 ± 30	110 ± 100	
	Waikuku Stream	200 ± 190		190 ± 190	
	Okuku River		180 ± 120	30 ± 30	
	Glentui River				210 ± 120
Total, Ashley catchment		4,610 ± 890	5,410 ± 2,010	3,850 ± 720	4,740 ± 1,060
Waimakariri River	Lake Roto Kohatu	550 ± 430	140 ± 140	320 ± 320	
	Monopolies Pond			70 ± 70	

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	The Groynes	3,830 ± 1,490	640 ± 230	440 ± 210	
	Waimakariri River (salmon)	42,690 ± 4,750			
	Waimakariri River (trout)	16,470 ± 2,220			
	Waimakariri River (any species)		75,080 ± 6,060	48,950 ± 4,260	58,360 ± 7,100
	Waimakariri River total	59,160 ± 5,250	75,080 ± 6,060	48,950 ± 4,260	58,360 ± 7,100
	Styx River		440 ± 230	710 ± 310	440 ± 190
	Kaiapoi Lakes	240 ± 160	10 ± 10	600 ± 360	
	Kaiapoi River	1,900 ± 880	3,760 ± 1,190	1,800 ± 460	5,250 ± 2,150
	Silverstream	60 ± 50	20 ± 20	320 ± 150	1,400 ± 620
	Courtenay Stream		140 ± 100	10 ± 10	
	Cam River	270 ± 260	160 ± 90	120 ± 80	1,580 ± 1,070
	Cust River	250 ± 170	760 ± 340	40 ± 30	360 ± 190
	Ohoka Stream			120 ± 110	
	Waimakariri South Branch	5,800 ± 1,290	560 ± 360	290 ± 100	2,560 ± 690
	Eyre River				80 ± 50
	Kowai River			270 ± 170	10 ± 10
	Broken River	350 ± 140	240 ± 120	290 ± 100	680 ± 330
	Lake Meremere	260 ± 150	120 ± 70	340 ± 110	
	Lake Pearson	1,340 ± 350	2,760 ± 530	2,290 ± 350	1,750 ± 630
	Winding Creek	30 ± 30		30 ± 30	
	Porter River	10 ± 0	220 ± 120	170 ± 90	370 ± 270
	Esk River	20 ± 0		80 ± 40	
	Lake Letitia			70 ± 40	
	Poulter River	100 ± 60	330 ± 210	80 ± 30	30 ± 30
	Lake Minchin				200 ± 190
	Minchin Stream			30 ± 20	
	Cass Hill Stream	10 ± 10		50 ± 50	
	Lake Sarah	60 ± 60	70 ± 30	270 ± 100	560 ± 190
	Lake Grasmere	560 ± 210	370 ± 140	440 ± 110	820 ± 280
	Lake Hawdon	170 ± 110	160 ± 70	380 ± 120	180 ± 110
	Bealey River				
Total, Waimakariri catchment		74,980 ± 5,720	85,960 ± 6,240	58,570 ± 4,360	74,620 ± 7,600
Avon River	Avon River	990 ± 740	410 ± 190	730 ± 250	1,020 ± 450
	Lake Bryndwyr			40 ± 40	300 ± 290
	Heathcote River	100 ± 100		260 ± 160	30 ± 30
	Wairarapa Stream	60 ± 40	140 ± 100		230 ± 140
Okuti Stream	Lake Forsyth	2,100 ± 1,130	220 ± 220	330 ± 140	310 ± 170
	Okana River	100 ± 100	920 ± 680	60 ± 40	510 ± 310
	Okuti River		220 ± 220		
Kaituna River	Kaituna River				90 ± 90

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Halswell River	Halswell River	300 ± 130	460 ± 180	220 ± 130	1,760 ± 880
L II River	L II River		460 ± 200	680 ± 290	2,130 ± 1,110
Selwyn River	Selwyn River	6,020 ± 1,580	870 ± 280	2,130 ± 540	6,700 ± 1,370
	Hawkins River			80 ± 50	210 ± 140
	Hororata River				160 ± 130
Irwell River	Irwell River			30 ± 30	430 ± 240
Harts Creek	Harts Creek	310 ± 160	600 ± 330	480 ± 120	1,010 ± 520
Lake Ellesmere	Lake Ellesmere	370 ± 180	170 ± 70	150 ± 150	420 ± 280
Ellesmere to Rakaia	Tentburn Outfall		10 ± 10	30 ± 30	2,280 ± 1,180
Rakaia River	Rakaia River (salmon)	34,180 ± 5,230			
	Rakaia River (trout)	12,030 ± 2,790			
	Rakaia River (aby species)		52,700 ± 4,440	21,460 ± 2,040	34,650 ± 3,850
	Rakaia River total	46,210 ± 5,930	52,700 ± 4,440	21,460 ± 2,040	34,650 ± 3,850
	Acheron River	200 ± 170	820 ± 430	560 ± 300	
	Lake Lyndon	3,360 ± 580	2,730 ± 790	1,970 ± 360	3,290 ± 800
	Lake Coleridge	5,960 ± 1,050	12,910 ± 1,560	9,170 ± 850	7,090 ± 1,310
	Lake Georgina	2,120 ± 1,270	1,940 ± 510	660 ± 170	890 ± 280
	Lake Catherine		260 ± 90	250 ± 120	620 ± 350
	Lake Evelyn	130 ± 100	130 ± 70	50 ± 40	
	Lake Henrietta	100 ± 70	320 ± 220		
	Lake Ida	140 ± 80	90 ± 50	740 ± 190	510 ± 470
	Ryton River	50 ± 50		50 ± 30	70 ± 70
	Wilberforce River	30 ± 30	260 ± 220	50 ± 40	
	Harper River	70 ± 40	290 ± 110	190 ± 70	120 ± 120
	Lake Lilian		40 ± 30	30 ± 30	
	Lake Selfe	2,640 ± 1,240	1,740 ± 630	980 ± 200	600 ± 220
	Avoca River		110 ± 70	190 ± 80	
	Hydra Waters	170 ± 140	10 ± 10	10 ± 10	
	Double Hill Stream	30 ± 30			
	Glenariffe Stream			190 ± 70	
	Lake Stream	110 ± 110	40 ± 30	400 ± 250	
Total, Rakaia catchment		61,330 ± 6,310	74,400 ± 4,870	36,920 ± 2,300	47,840 ± 4,200
Total, all North Canterbury waters		174,380 ± 9,370	194,620 ± 8,540	117,930 ± 5,170	166,690 ± 9,720

Central South Island Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Rakaia River	Lake Heron	3,170 ± 920	2,580 ± 510	2,580 ± 940	2,620 ± 730
Wakanui Creek	Wakanui Creek			60 ± 60	
Ashburton River	Ashburton River	2,360 ± 600	2,960 ± 660	5,480 ± 1,130	4,170 ± 780
	Lake Hood	1,800 ± 1,040	310 ± 170		
	Taylors Stream	40 ± 40	10 ± 10	10 ± 10	
	Bowyers Stream	30 ± 30	120 ± 110	280 ± 240	150 ± 130
	Lake Camp	1,150 ± 450	400 ± 170	470 ± 190	680 ± 190
	Lake Clearwater	2,380 ± 700	4,600 ± 1,150	1,480 ± 330	2,900 ± 820
	Lake Emma	1,240 ± 450	690 ± 260	370 ± 140	440 ± 150
	Lake Roundabout				50 ± 40
	Lake Emily	10 ± 10	250 ± 120	130 ± 50	20 ± 20
	Maori Lakes			220 ± 120	70 ± 30
	Lake Mystery		10 ± 10		60 ± 60
Total, Ashburton catchment		9,010 ± 1,530	9,350 ± 1,380	8,450 ± 1,230	8,530 ± 1,160
Hinds River	Hinds River			320 ± 170	210 ± 100
Rangitata River	Rangitata River (salmon)	19,840 ± 2,900			
	Rangitata River (trout)	8,490 ± 2,290			
	Rangitata River (species undefined)		33,230 ± 3,560	12,710 ± 1,930	35,960 ± 2,550
	Rangitata River total	28,330 ± 3,690	33,230 ± 3,560	12,710 ± 1,930	35,960 ± 2,550
	RDR Canal	90 ± 60	110 ± 60	960 ± 770	20 ± 20
	Deep Stream	50 ± 50	110 ± 110	10 ± 10	190 ± 120
	Deep Creek	30 ± 30	10 ± 10	80 ± 80	20 ± 20
Orari River	Orari River	3,810 ± 1,210	570 ± 210	2,310 ± 560	6,330 ± 770
	Ohapi Creek		190 ± 120		120 ± 120
	Coopers Creek			30 ± 30	
Opihi River	Opihi River	8,450 ± 2,060	19,160 ± 2,620	13,390 ± 1,660	18,450 ± 1,660
	Temuka River	730 ± 320	970 ± 320	970 ± 340	1,280 ± 280
	Waihi River	250 ± 150	580 ± 320	690 ± 390	1,670 ± 790
	Hae Hae Te Moana River			10 ± 10	
	Kakahu River			20 ± 20	120 ± 110
	Te Ngawai River	70 ± 40	120 ± 80	890 ± 390	90 ± 50
	Lake Opuha	4,170 ± 910	4,750 ± 1,110	2,670 ± 430	
	Opuha River	330 ± 150	420 ± 140	1,310 ± 390	1,500 ± 490
	North Opuha River	420 ± 390			
Total, Opihi catchment		14,420 ± 2,320	25,990 ± 2,890	19,960 ± 1,870	23,110 ± 1,930
Pareora River	Pareora River	30 ± 20	310 ± 200	850 ± 290	190 ± 110
	Pareora River (South Branch)		10 ± 10		
Waimate Creek	Waimate Creek		290 ± 290		20 ± 20

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Waihao River	Waihao River	60 ± 40	640 ± 300	1,100 ± 590	650 ± 290
	Waihao River (North Branch)	50 ± 40	290 ± 150		
	Waihao River (South Branch)		300 ± 130	10 ± 10	
Waitaki River	Bell's Pond	220 ± 150	110 ± 70	220 ± 170	
	Lake Aviemore	22,920 ± 2,910	18,350 ± 2,730	11,580 ± 1,490	8,850 ± 1,320
	Lake Benmore	47,460 ± 5,380	58,850 ± 4,590	21,740 ± 1,680	12,830 ± 1,480
	Lake Waitaki	4,170 ± 1,010	3,570 ± 900	3,050 ± 880	5,230 ± 1,160
	Waitaki River (salmon)	9,560 ± 2,200			
	Waitaki River (trout)	16,680 ± 2,370			
	Waitaki River (species undefined)		5,050 ± 1,450	1,580 ± 480	34,500 ± 3,150
	Waitaki River total	26,250 ± 3,230	28,460 ± 3,550	27,580 ± 2,640	34,500 ± 3,150
	Eckholds Pond	50 ± 40			
	Maerewhenua River	1,010 ± 730	450 ± 210	200 ± 90	470 ± 230
	Kurow River	280 ± 230	160 ± 160	60 ± 40	270 ± 130
	Hakataramea River	350 ± 150	1,040 ± 450	1,610 ± 440	1,920 ± 480
	Awakino River				
	Deep Stream		40 ± 40		
	Parsons Rock Creek				50 ± 40
	Otematata River	20 ± 0	1,030 ± 520	180 ± 110	590 ± 210
	Clear Stream	70 ± 70	60 ± 50		
	Ahuriri River	1,550 ± 330	2,730 ± 600	2,900 ± 580	2,590 ± 720
	Andersons Creek		20 ± 20		
	Otamatapaio River			50 ± 50	
	Sutherlands Creek	190 ± 140		50 ± 50	
	Omarama Stream	540 ± 230	70 ± 40	390 ± 290	490 ± 170
	Hen Burn		20 ± 20		
	Avon Burn		70 ± 70		20 ± 20
	Stony River			40 ± 40	
	Lake McGregor	1,640 ± 700	790 ± 260	590 ± 220	20 ± 20
	Lake Middleton	130 ± 90	50 ± 30	40 ± 30	880 ± 350
	Lake Ohau	8,070 ± 1,630	9,690 ± 1,830	4,630 ± 680	1,520 ± 380
	Lake Ruataniwha	5,840 ± 1,320	4,540 ± 1,480	1,700 ± 480	1,030 ± 340
	Ohau Canal	53,430 ± 3,940	5,500 ± 1,580	5,370 ± 2,060	1,080 ± 630
	Ohau River	950 ± 580	480 ± 170	480 ± 150	640 ± 190
	Upper Waitaki Canals	970 ± 370			
	Larch Stream		50 ± 50		100 ± 70
	Lake Wardell			30 ± 30	20 ± 20
	Loch Cameron	60 ± 40	90 ± 50	120 ± 90	
	Twizel River	6,680 ± 1,410	3,200 ± 610	1,250 ± 320	720 ± 360

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Fraser Stream		20 ± 20		
	Maitland Stream	10 ± 10	30 ± 30	90 ± 90	20 ± 20
	Temple Stream	10 ± 10			
	Hopkins River	70 ± 50	450 ± 210	130 ± 90	350 ± 220
	Dobson River	80 ± 60	1,080 ± 320	280 ± 130	
	Huxley River		150 ± 130		260 ± 140
	Kelland Pond	260 ± 140	550 ± 390	770 ± 420	20 ± 20
	Lake Merino	100 ± 70	20 ± 20	70 ± 70	
	Lake Poaka	130 ± 100	790 ± 340	10 ± 10	
	Lake Pukaki	1,950 ± 630	950 ± 540	1,100 ± 320	620 ± 190
	Pukaki Canal	10,670 ± 1,940	790 ± 300	430 ± 400	
	Tasman River		250 ± 170		
	Whale Stream		10 ± 10		
	Jollie River			120 ± 90	
	Lake Tekapo	8,910 ± 1,990	7,550 ± 1,060	8,730 ± 980	3,000 ± 770
	Tekapo Canal	22,680 ± 2,450	4,440 ± 1,430	7,700 ± 940	870 ± 240
	Tekapo River	1,390 ± 370	2,800 ± 430	4,910 ± 700	2,420 ± 490
	Mary Burn	110 ± 80	270 ± 170	200 ± 70	30 ± 20
	Irishman Creek			30 ± 30	20 ± 20
	Grays River	30 ± 20	280 ± 180	260 ± 100	90 ± 60
	Fork Stream				40 ± 30
	Lake Alexandrina	5,190 ± 1,190	6,090 ± 1,120	9,470 ± 1,380	4,480 ± 720
	Cass River		100 ± 70	30 ± 20	
	Coal River				20 ± 20
	Godley River	30 ± 30	220 ± 160	120 ± 80	100 ± 80
	Macaulay River		100 ± 80	130 ± 90	
Total, Waitaki catchment		234,470 ± 9,400	166,370 ± 7,540	118,460 ± 4,830	86,130 ± 4,310
Kakanui River	Kakanui River	530 ± 250	890 ± 380	220 ± 100	2,040 ± 650
	Kauru River	110 ± 110	180 ± 180		
Waianakarua River	Waianakarua River	280 ± 230		140 ± 140	
Total, all Central South Island waters		294,430 ± 10,590	241,440 ± 8,980	168,230 ± 5,860	166,140 ± 5,640

Otago Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Shag River	Shag River	800 ± 280	750 ± 260	880 ± 310	1,060 ± 290
Waikouaiti River	Waikouaiti River	630 ± 230	1,240 ± 580	1,360 ± 850	2,630 ± 700
Waitati River	Waitati River	130 ± 130	1,010 ± 600	130 ± 80	670 ± 300
Water of Leith	Northern Reservoir				30 ± 30
	Sullivans Dam	660 ± 310	1,150 ± 520	2,030 ± 540	420 ± 190
	Water of Leith	130 ± 60	200 ± 200	60 ± 50	
Tomahawk Creek	Tomahawk Creek		320 ± 190		
	Tomahawk Lagoon	2,980 ± 1,240		670 ± 370	
Kaikorai Stream	Kaikorai Stream	320 ± 310			
	Southern Reservoir	3,130 ± 730	1,030 ± 660	1,090 ± 410	430 ± 240
Taieri River	Hamiltons Dam	410 ± 310			40 ± 40
	Lone Pine Dam				20 ± 20
	Taieri River (above Kokonga)	5,080 ± 1,180	3,600 ± 1,080	3,660 ± 730	
	Taieri River (Kokonga to Outram)	3,200 ± 960	2,730 ± 1,260	1,050 ± 270	
	Taieri River (below Outram)	14,450 ± 2,480	7,610 ± 2,360	13,230 ± 2,470	
	Taieri River (undefined)		1,940 ± 700	1,140 ± 500	11,530 ± 1,270
	Taieri River total	22,740 ± 2,910	15,870 ± 2,970	19,070 ± 2,640	11,530 ± 1,270
	Meggat Burn			50 ± 50	
	Knights Dam			70 ± 70	30 ± 30
	Lake Mahinerangi	1,580 ± 510	2,160 ± 600	4,750 ± 1,090	4,130 ± 690
	Lake Waihola	1,660 ± 790	300 ± 200	1,640 ± 620	310 ± 210
	Lake Waipori	1,290 ± 900	20 ± 20		120 ± 90
	Waipori River	120 ± 110	140 ± 110	720 ± 270	320 ± 160
	Silver Stream		240 ± 220	20 ± 20	
	Lee Stream	40 ± 40	150 ± 100	50 ± 40	170 ± 90
	Three O'Clock Stream			10 ± 10	
	Deep Stream	440 ± 250	210 ± 130	340 ± 200	190 ± 140
	Sutton Stream			80 ± 60	150 ± 80
	Kye Burn		340 ± 200	100 ± 80	
	Coal Pit Dam	430 ± 210	20 ± 20	760 ± 260	460 ± 240
	Hoffmans Dam	20 ± 10		280 ± 130	30 ± 30
	Rutherfords Dam	130 ± 100	30 ± 30	120 ± 70	190 ± 120
	Mathias Dam	660 ± 400	50 ± 50	200 ± 100	340 ± 160
	Blakeleys Dam	420 ± 230	210 ± 110	280 ± 140	730 ± 330
	West Eweburn Dam	10 ± 0	640 ± 610		30 ± 30
	Hore's Pond	200 ± 140	330 ± 330	40 ± 40	
	Logan Burn	280 ± 130			
	Logan Burn Reservoir	1,790 ± 530	2,730 ± 590	4,280 ± 860	1,320 ± 340

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	McAtamneys Head Pond	180 ± 180	280 ± 260		
Total, Taieri catchment		32,390 ± 3,310	23,720 ± 3,200	32,860 ± 3,090	20,090 ± 1,590
Akatore Creek	Akatore Creek	40 ± 40			
Tokomairiro River	Tokomairiro River	540 ± 390	520 ± 330	4,090 ± 1,680	850 ± 270
Clutha River	Clutha R (Wanaka to Lake Dunstan)	6,670 ± 1,330	20,900 ± 3,220	20,160 ± 2,760	11,440 ± 2,130
	Clutha R (Clyde to Alexandra)	1,280 ± 770			
	Clutha R (below Roxburgh, salmon)	6,760 ± 2,700			
	Clutha R (below Roxburgh, trout)	16,660 ± 2,770			
	Clutha R (below Roxburgh)		12,550 ± 1,940	14,450 ± 2,950	14,890 ± 2,390
	Clutha R (undefined)		4,640 ± 1,140	2,710 ± 980	
	Clutha R total	31,370 ± 4,160	38,090 ± 3,930	37,320 ± 4,160	26,340 ± 3,210
	Puerua River	180 ± 130	300 ± 260	90 ± 70	
	Kaitangata Channel	120 ± 90	40 ± 40		30 ± 30
	Lake Tuakitoto		220 ± 220		
	Kaihiku Stream				20 ± 20
	Waitahuna River	120 ± 80	420 ± 140	880 ± 460	10 ± 10
	Waiwera River		60 ± 60	320 ± 250	110 ± 90
	Pomahaka River	3,020 ± 840	3,630 ± 970	6,000 ± 1,440	6,780 ± 1,210
	Waipahi River	150 ± 140	840 ± 400	1,810 ± 490	2,370 ± 630
	Kaiwera Stream		260 ± 260	70 ± 70	100 ± 70
	Waikoikoi Creek		50 ± 50	340 ± 310	
	Leithen Burn	390 ± 350			
	Malones Dam		230 ± 220		
	Phoenix Dam		90 ± 80		
	Tuapeka River	10 ± 0	100 ± 80	110 ± 100	90 ± 60
	Pinders Pond	30 ± 30			
	Lake Onslow	1,420 ± 410	3,130 ± 780	3,450 ± 570	2,720 ± 490
	Teviot River	190 ± 120	100 ± 80	330 ± 200	160 ± 70
	Lake Roxburgh	1,420 ± 580	3,080 ± 1,150	210 ± 90	50 ± 40
	Butchers Dam	540 ± 390	620 ± 330	200 ± 90	170 ± 80
	Falls Dam	50 ± 30	170 ± 80	130 ± 80	30 ± 30
	Manuherikia River	2,100 ± 820	1,880 ± 640	5,630 ± 2,060	3,570 ± 840
	Manor Burn	440 ± 190	160 ± 150	440 ± 210	220 ± 90
	Manorburn Reservoir	1,240 ± 650	3,220 ± 610	2,350 ± 540	510 ± 130
	Ida Burn		200 ± 160		
	Poolburn Reservoir	5,090 ± 1,280	3,650 ± 700	2,810 ± 600	2,270 ± 540
	Pool Burn	760 ± 250	50 ± 30	370 ± 140	
	Dunstan Creek	210 ± 150	230 ± 170	40 ± 40	160 ± 140
	Conroys Dam	660 ± 590	400 ± 220	80 ± 50	60 ± 40
	Waikerikeri Creek		80 ± 80		30 ± 20

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Fraser Dam	30 ± 20	270 ± 170	90 ± 70	60 ± 50
	Fraser River	150 ± 110	1,380 ± 520	530 ± 390	410 ± 150
	Kawarau River	1,630 ± 600	1,930 ± 750	1,700 ± 770	3,500 ± 1,000
	Bannock Burn	390 ± 270			190 ± 120
	Nevis River	190 ± 100	650 ± 220	250 ± 80	110 ± 70
	Arrow River	160 ± 100	350 ± 160		210 ± 120
	Lake Hayes	180 ± 90	500 ± 160	1,540 ± 830	1,430 ± 480
	Lake Johnson	550 ± 450	170 ± 110	80 ± 80	
	Lake Kirkpatrick			70 ± 70	500 ± 300
	Lake Luna				40 ± 40
	Moke Lake	440 ± 190	420 ± 190	1,520 ± 430	370 ± 170
	Shotover River	150 ± 80	70 ± 50	1,120 ± 500	130 ± 60
	Diamond Lake	320 ± 130	360 ± 130	520 ± 210	330 ± 170
	Glenorchy Lagoons	210 ± 120	100 ± 100		
	Lake Dispute		80 ± 80		
	Lake Rere			10 ± 10	
	Lake Sylvan	10 ± 0	180 ± 180		
	Lake Wakatipu	21,860 ± 3,170	20,970 ± 2,230	17,720 ± 1,910	21,410 ± 2,180
	Wye Creek		160 ± 110		520 ± 210
	Lochy River	270 ± 140	80 ± 50	260 ± 170	130 ± 70
	Staircase Creek		30 ± 30		80 ± 80
	Twelve Mile Creek		40 ± 40		20 ± 20
	Von River	270 ± 170	670 ± 370	520 ± 190	190 ± 90
	Greenstone River	750 ± 390	390 ± 140	370 ± 170	460 ± 160
	Caples River	350 ± 250	270 ± 140	230 ± 120	190 ± 100
	Dart River	50 ± 10	200 ± 150	40 ± 40	90 ± 50
	Rees River	160 ± 120	140 ± 90	130 ± 90	290 ± 200
	Temple Burn		50 ± 50	80 ± 50	40 ± 30
	Diamond Creek	150 ± 80	360 ± 240	380 ± 160	30 ± 20
	Route Burn	300 ± 160	430 ± 230	90 ± 60	
	Lake Dunstan	17,080 ± 2,120	26,030 ± 2,800	19,480 ± 2,910	22,250 ± 1,750
	Lindis River	40 ± 40	330 ± 220	150 ± 90	280 ± 100
	Cluden Stream				40 ± 40
	Camp Creek			80 ± 80	
	Cardrona River	200 ± 180	30 ± 30		30 ± 30
	Hawea River	480 ± 170	710 ± 310	4,970 ± 1,310	1,920 ± 470
	Lake Hawea	13,640 ± 2,490	21,920 ± 2,750	28,160 ± 3,670	18,820 ± 2,260
	Fast Burn			210 ± 210	
	Hunter River	710 ± 430	1,050 ± 340	1,630 ± 580	610 ± 170
	Timaru River	70 ± 50	20 ± 20	480 ± 150	170 ± 60

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Dingle Burn	710 ± 420	40 ± 30	100 ± 80	120 ± 60
	Lake Wanaka	22,410 ± 3,180	39,070 ± 5,710	25,270 ± 2,310	25,530 ± 2,370
	Matukituki River	1,520 ± 750	240 ± 130	530 ± 280	870 ± 240
	Mototapu River	260 ± 120	120 ± 80	20 ± 20	150 ± 80
	Minaret Burn		30 ± 30		50 ± 30
	Albert Burn				30 ± 20
	Makarora River	900 ± 300	1,450 ± 430	1,480 ± 410	1,460 ± 350
	Wilkin River	100 ± 70	180 ± 100	140 ± 90	200 ± 120
	Young River	230 ± 220	20 ± 20	120 ± 100	30 ± 20
	Ore Stream	20 ± 20			
	Blue River		60 ± 60	20 ± 20	20 ± 20
	Boundary Creek			80 ± 80	
Total, Clutha catchment		136,420 ± 7,420	182,830 ± 8,670	173,150 ± 7,800	149,100 ± 5,840
Catlins River	Catlins River	2,130 ± 790	1,490 ± 720	910 ± 330	4,500 ± 1,520
	Owaka River	70 ± 60	1,090 ± 530	190 ± 110	1,400 ± 1,100
Tahakopa River	Tahakopa River	240 ± 170	60 ± 40	720 ± 380	1,630 ± 940
	Maclennan River	40 ± 40		150 ± 140	10 ± 10
Tautuku River	Tautuku River	180 ± 180	30 ± 30	390 ± 230	60 ± 40
	Fleming River	30 ± 30		20 ± 20	
Total, all Otago waters		180,860 ± 8,330	215,430 ± 9,370	218,710 ± 8,660	182,870 ± 6,470

Southland Region

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
Waikawa River	Waikawa River	530 ± 220	1,090 ± 380	930 ± 400	1,020 ± 440
Waikopikopiko Stream	Waikopikopiko Stream		140 ± 140		
Tokanui River	Tokanui River	30 ± 30	140 ± 110		
Titiroa Stream	Titiroa Stream	1,840 ± 1,760	830 ± 760	80 ± 80	
Mataura River	Mataura River (above Gore)	10,500 ± 1,400	11,750 ± 1,510	15,810 ± 1,800	
	Mataura River (below Gore)	20,180 ± 3,020	18,070 ± 2,920	36,850 ± 3,510	
	Mataura River (undefined)		2,640 ± 560	300 ± 90	51,360 ± 3,260
	Mataura River total	30,690 ± 3,330	32,460 ± 3,330	52,960 ± 3,950	51,360 ± 3,260
	Muddy Creek			20 ± 20	
	Mokoreta River	240 ± 120	940 ± 450	1,090 ± 300	2,390 ± 460
	Redan Stream				10 ± 10
	Mimihau Stream	490 ± 260	110 ± 50	1,540 ± 540	900 ± 290
	Waikaka Stream	310 ± 130	760 ± 320	1,750 ± 680	980 ± 240
	Pukerau Stream				20 ± 20
	Otamita Stream		470 ± 290	840 ± 260	1,370 ± 590
	Waimea Stream	170 ± 130	390 ± 230	680 ± 310	150 ± 60
	Fortune Creek				40 ± 30
	Winding Creek	40 ± 40			
	Waikaia River	3,950 ± 910	3,540 ± 760	6,850 ± 1,190	6,810 ± 1,030
	Dome Burn		30 ± 30	20 ± 20	10 ± 10
	Argyle Burn	20 ± 20	10 ± 10		20 ± 20
	Steeple Burn				20 ± 20
	Gow Burn		350 ± 350		40 ± 40
	Tomogalak Stream	20 ± 20	10 ± 10	10 ± 10	70 ± 40
Nokomai River	80 ± 40	350 ± 200	380 ± 270	760 ± 520	
Eyre Creek	100 ± 70	60 ± 60	50 ± 40	210 ± 200	
Robert Creek		40 ± 40			
Total, Mataura catchment		36,100 ± 3,470	39,530 ± 3,510	66,190 ± 4,250	65,150 ± 3,570
Waituna Lagoon	Waituna Lagoon	2,220 ± 590	1,840 ± 410	1,220 ± 550	1,120 ± 320
Waihopai River	Waihopai River	910 ± 370	370 ± 210	200 ± 190	
Oreti River	Oreti River (above Lumsden)	2,340 ± 600	3,800 ± 850	2,700 ± 800	
	Oreti River (below Lumsden)	12,940 ± 1,870	13,280 ± 1,600	17,590 ± 1,950	
	Oreti River (undefined)		2,180 ± 590	340 ± 140	27,180 ± 2,300
	Oreti River total	15,280 ± 1,960	19,270 ± 1,910	20,620 ± 2,110	27,180 ± 2,300
	Waikiwi Stream	40 ± 40	410 ± 300		130 ± 80
	Makarewa River	1,100 ± 610	1,940 ± 690	1,910 ± 610	3,610 ± 670
	Hedgehope Stream		320 ± 220	290 ± 160	10 ± 10
	Dunsdale Stream	20 ± 20	330 ± 230	230 ± 110	360 ± 210

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Otapiri Stream	230 ± 110	250 ± 110	990 ± 260	950 ± 220
	Lora Stream	100 ± 90		80 ± 40	100 ± 60
	Dipton Stream	70 ± 50	100 ± 80		180 ± 90
	Murray Creek			30 ± 30	
	Irthing Stream	30 ± 30		200 ± 110	90 ± 50
	Cromel Stream	10 ± 0	290 ± 220	30 ± 30	
	Acton Stream	30 ± 30		180 ± 120	10 ± 10
	Weydon Burn			70 ± 70	10 ± 10
	Windley River			70 ± 60	
Total, Oreti catchment		16,900 ± 2,060	22,920 ± 2,090	24,690 ± 2,230	32,650 ± 2,420
Waimatuku Stream	Waimatuku Stream	240 ± 110	70 ± 40	490 ± 250	1,420 ± 410
Aparima River	Aparima River	9,530 ± 2,210	6,950 ± 1,040	6,750 ± 970	11,280 ± 1,440
	Pourakino River		30 ± 30	230 ± 170	480 ± 220
	Omutu Creek		30 ± 30		
	Otautau Stream		400 ± 260	300 ± 210	50 ± 50
	Etal Stream				30 ± 20
	Hamilton Burn	190 ± 80	270 ± 140	1,030 ± 380	190 ± 80
	Braxton Burn	20 ± 20	40 ± 40		
	Pleasant Creek				
Total, Aparima catchment		9,750 ± 2,220	7,710 ± 1,080	8,300 ± 1,080	12,030 ± 1,460
Waiau River	Waiau River (Te Anau to Manapouri)	7,550 ± 1,340	7,200 ± 1,180	5,920 ± 1,120	
	Waiau River (below Mararoa)	2,230 ± 570	6,480 ± 1,560	7,890 ± 940	
	Waiau River (undefined)		3,620 ± 1,140	850 ± 320	7,720 ± 840
	Waiau River total	9,780 ± 1,460	17,300 ± 2,270	14,660 ± 1,500	7,720 ± 840
	Orauea River		90 ± 60	690 ± 290	760 ± 340
	Orauea Stream	80 ± 70			
	Morley Stream	30 ± 30	130 ± 140	50 ± 40	30 ± 20
	Lill Burn		20 ± 20	80 ± 50	120 ± 70
	Wairaki River	200 ± 120	790 ± 300	460 ± 210	220 ± 70
	Letham Burn	70 ± 70		120 ± 70	20 ± 10
	Monowai River	440 ± 180	310 ± 170	690 ± 350	440 ± 160
	Lake Monowai	2,510 ± 660	3,300 ± 640	6,250 ± 1,120	4,030 ± 580
	Walker River			30 ± 30	
	Electric River		70 ± 50	400 ± 370	20 ± 10
	Borland Burn	20 ± 20	220 ± 190	60 ± 30	60 ± 30
	Lake Thomas	80 ± 70	30 ± 30	390 ± 150	130 ± 50
	Mararoa River	740 ± 210	1,520 ± 330	2,970 ± 590	2,230 ± 380
	Kiwi Burn			10 ± 10	
	McGregors Pond	1,710 ± 1,220			
	Whitestone River	310 ± 110	1,150 ± 400	470 ± 130	710 ± 350

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Flaxy Creek		40 ± 40		
	Princhester Creek		10 ± 10	40 ± 40	
	North Mavora Lake	3,220 ± 1,290	3,460 ± 1,350	2,760 ± 580	1,420 ± 290
	South Mavora Lake	1,240 ± 550	310 ± 170	1,130 ± 300	690 ± 140
	Winton Burn	30 ± 30	60 ± 40	20 ± 20	70 ± 70
	Home Creek			20 ± 10	
	Lake Manapouri	4,210 ± 760	7,780 ± 1,170	5,920 ± 940	5,490 ± 870
	Grebe River	170 ± 120	300 ± 200	320 ± 310	110 ± 60
	Green Lake		60 ± 50	10 ± 10	
	Island Lake			10 ± 10	
	Spey River	20 ± 20		400 ± 300	50 ± 40
	Awe Burn			360 ± 360	
	Freeman Burn	10 ± 0		320 ± 310	
	Iris Burn				60 ± 50
	Lake Fergus	20 ± 20		50 ± 50	
	Lake Gunn	170 ± 90	240 ± 140	120 ± 80	30 ± 20
	Lake Hankinson				10 ± 10
	Lake Henry	20 ± 10	40 ± 30	90 ± 70	
	Lake Te Anau	15,070 ± 1,770	21,100 ± 2,620	12,080 ± 1,910	10,280 ± 1,230
	Upukerora River	490 ± 180	1,370 ± 380	1,190 ± 370	630 ± 180
	McKenzie Burn	110 ± 110	110 ± 110	50 ± 50	
	Snag Burn		170 ± 150		20 ± 20
	Junction Burn	50 ± 50		20 ± 20	30 ± 20
	Doon River		10 ± 10	20 ± 20	60 ± 50
	Wapiti River			10 ± 10	340 ± 250
	Eglinton River	80 ± 40	230 ± 90	1,020 ± 400	660 ± 190
	Eglinton River East Branch	20 ± 20			
	Lugar Burn		70 ± 50	10 ± 10	
	Glaisnock River		10 ± 10	20 ± 20	50 ± 30
	Nurse Creek		90 ± 90		
	Worsley Stream		130 ± 60	100 ± 80	800 ± 300
	Clinton River	90 ± 40	20 ± 10	50 ± 30	660 ± 320
	Neale Burn	10 ± 0			
Total, Waiau catchment		41,000 ± 3,150	60,530 ± 4,040	53,490 ± 3,160	37,940 ± 2,050
Wairaurahiri River	Wairaurahiri River		90 ± 90	20 ± 20	
	Lake Hauroko	240 ± 140	140 ± 70	320 ± 140	130 ± 60
Big River	Lake Monk		110 ± 80	50 ± 50	
Dusky Sound	Seaforth River		30 ± 30	10 ± 10	
Sutherland Sound	Dark River			70 ± 70	

Catchment	Angling water	2014/15	2007/08	2001/02	1994/95
	Light River			70 ± 70	
Arthur River	Arthur River	240 ± 220	60 ± 60	20 ± 10	170 ± 150
	Lake Ada		30 ± 30		
Cleddau River	Cleddau River	450 ± 290			90 ± 70
Hollyford River	Hollyford River	180 ± 160	430 ± 170	190 ± 120	600 ± 280
	Lake McKerrow	30 ± 10		440 ± 380	360 ± 220
	Lake Alabaster		110 ± 60	40 ± 30	30 ± 20
	Lake Wilmot		20 ± 20	10 ± 10	
	Pyke River		70 ± 40	210 ± 150	100 ± 80
	Hidden Falls Creek			30 ± 30	
Total, Hollyford catchment		210 ± 160	630 ± 190	920 ± 430	1,080 ± 370
Total, all Southland waters		110,650 ± 5,910	136,260 ± 5,930	157,060 ± 5,920	152,820 ± 5,050