

**Fisheries Environmental Report No. 37**

**The relative value of  
Marlborough rivers to  
New Zealand anglers**

**Fisheries Research Division  
Ministry of Agriculture and Fisheries  
Wellington**

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Marlborough Rivers  
to New Zealand anglers

by

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## Fisheries Environmental Reports

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\* This report is exempt from this condition.

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## PREFACE

The rivers and streams of New Zealand, many of which support salmon or trout fisheries, are the subject of frequent water management decisions. Some of these decisions result in significant alterations to existing fish habitat, thereby reducing angling opportunities. Any case presented by fisheries interests to either the regional water board or the National Water and Soil Conservation Authority (NWASCA), in support of a particular river, will obviously be strengthened by the inclusion of information about the angling experience afforded by that river. As hydro-electric, irrigation, and other river developments place increasing demands on the remaining freshwater resource, the need for up to date information on current angling usage has become acute. Specifically, there is a need for comparative data about the relative importance and highly valued aspects of the angling experience offered by a particular river. Such information will enable water managers to take into account the angling value of a river in a regional or national context, rather than in isolation as tends to happen at present.

In 1979, Fisheries Research Division (FRD) of the Ministry of Agriculture and Fisheries (MAF), with the New Zealand acclimatisation societies, began a postal survey of anglers in all acclimatisation districts with significant sales of fishing licences. The survey had 4 major objectives:

- (1) To collect, directly from the adult angling population of New Zealand, quantitative and comparative information on every river supporting a significant sports fishery.
- (2) To identify those attributes which characterise rivers of importance.
- (3) To determine from this information rivers which constitute fisheries of national, regional, and local importance.
- (4) To obtain a data base for future work.

Lake fisheries were deliberately excluded from the survey, because it was considered impractical to design a single questionnaire capable of coping adequately with the full range of lake and river fisheries.

A questionnaire booklet, containing a list of rivers within a given acclimatisation district, was mailed to anglers in each society. Anglers were asked to identify rivers which they had fished over 3-5 years, and to assess for each river its importance to them (on a 1-5 scale) and the relative importance of 7 listed qualities (distance from home, access, area of fishable water, scenic beauty, feelings of peace and solitude, catch rate, and size of fish) in determining why they fished that river. Information was also requested on average number of visits, reach of river fished, fishing methods used, and any associated recreational activity.

Of more than 10 700 anglers contacted, about 4000 completed their booklets, providing over 20 500 individual assessments of more than 800 rivers and streams throughout the country. The present series of reports uses these assessments to identify in each acclimatisation society district rivers which are regionally and locally important. Nationally important angling rivers have already been identified by Teirney et al. (1982), but are also discussed in this series. Because of the sheer volume of data collected, and the amount of detailed information contained within the data, a full analysis of every river was not possible and for some rivers only the raw data are presented.

## 1. INTRODUCTION

The Marlborough acclimatisation district, which occupies the north-east corner of the South Island (Fig. 1), is transected by a series of mountain ranges and intervening fault-line valleys. Within a few kilometres of the sea at Kaikoura, the Seaward Kaikoura Range rises abruptly to 2600 metres. Between this range and the higher Inland Kaikoura Range lies the valley of the Clarence River. North-west of this are the Awatere River, the Raglan Range, the Wairau River valley, and the Richmond Range, which extends eastward into the sea to form the fiords and islands of the Marlborough Sounds. The Spenser Mountains, St Arnaud Range, and Bryant Range, all part of the Main Divide, form the boundary between this district and the Nelson acclimatisation district to the west. To the south, the Crimea Range and Conway River form the boundary with the North Canterbury acclimatisation district.

Weather patterns in Marlborough are largely determined by the presence of these numerous mountain ranges. Moist maritime air from the Tasman Sea is blocked by the Main Divide, and this creates a warm dry climate in Marlborough, particularly during summer. Rainfall varies from less than 600 mm per year along the east coast to almost 2200 mm in the mountains (Wards 1976). In most years less than 25% of the annual precipitation falls in summer. As a result, rivers draining to the east coast, particularly the southern tributaries of the Wairau, are unstable; they rise rapidly to flood levels after rain and sections of them are prone to drying up during summer.

The hilly terrain and dry climate of Marlborough make intensive farming of most of the region impracticable. Although there is some dairying in the more moist areas in the Richmond Range, most of the district is at present used for sheep and cattle grazing (N.Z. Department of Statistics 1981a). In parts of the Wairau valley a variety of cash crops are cultivated under single farm irrigation, mostly from groundwater sources. Further allocation of groundwater supplies is currently a major concern of the regional water board, largely because of the rapidly expanding grape growing industry in the region. One proposal which has been accorded "high priority" involves use of water from the Waihopai River, either directly or indirectly, as an aquifer "recharger" (D.J. Jellyman, pers. comm.).

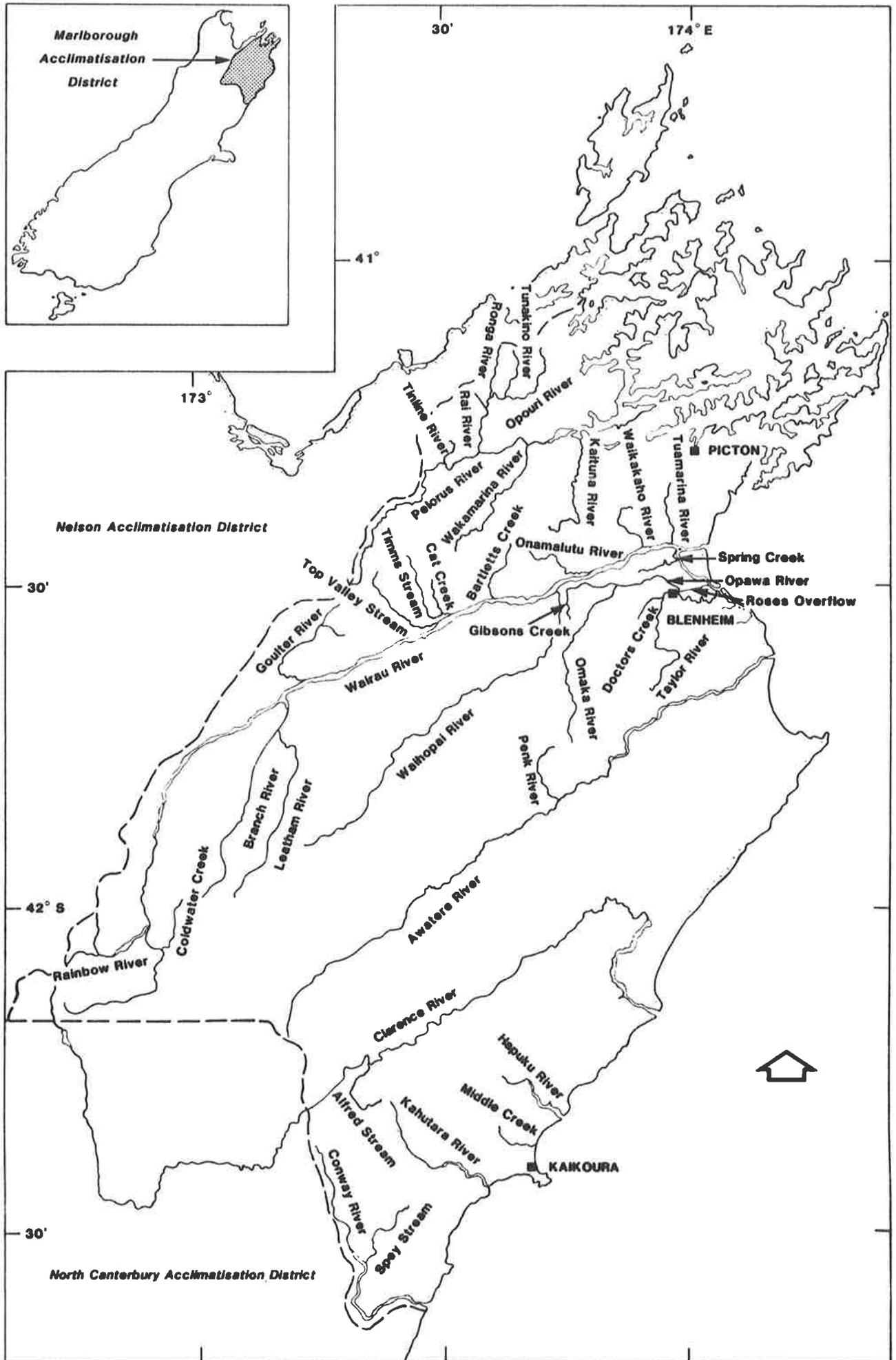


FIGURE 1. Marlborough Acclimatisation Society district.

There are 2 run-of-the-river hydro-electric schemes on Marlborough rivers. One is on the Waihopai River and the other, at present under construction, is on the Branch River (a tributary of the Wairau). Use of the upper Wairau River as a source of hydro-electric power is also being investigated (Royds Sutherland & McLeay 1978, 1981, 1983). There are numerous cowshed and piggery effluent outfalls on rivers in the Rai, Kaituna, and Tuamarina valleys and the lower Wairau receives effluent from industry and oxidation ponds.

Only 2 rivers in the Marlborough district, the Rai and Pelorus, are known to hold a mixed population of rainbow and brown trout. The other rivers support brown trout only. Small numbers of sea-run quinnat salmon can be found each February-March in the Wairau, Awatere, and Clarence Rivers, though only the Wairau receives significant angling pressure for these fish.

The main population centre in the district is Blenheim (population 17 827) located a few kilometres inland of the Wairau River mouth. Apart from Picton (3223) and Kaikoura (2150) (N.Z. Department of Statistics 1981b) most of the remaining population is rural and confined to coastal areas or lowland river valleys.

In March 1980, survey booklets were mailed to 322 anglers selected at random from the 687 adult holders of whole season licences in Marlborough (for the 1978/79 fishing season). This report deals with the responses of 145 (45%) of the anglers sampled who returned booklets providing information on Marlborough rivers. An example of the booklet is included as Appendix I.

A space was provided at the end of each booklet for anglers to enter details of additional rivers they fished which were not listed in their booklets. Thus, anglers who held licences in other districts also provided information on Marlborough rivers. For rivers which received sufficient responses from outside anglers, the data have been incorporated into this report.

## 2. RESULTS

To assess the relative value of Marlborough rivers to anglers, 2 measures of importance were used. In the first, the raw data were

tabulated to show the number of respondents who fished each river. Both the number of respondents fishing a river and the total number of visits were taken as an indication of the relative use made of the river. Individual rivers were then selected for further analysis if they were fished by 9 or more respondents.

The second measure of importance was based on individual angler's ratings, on a 1-5 scale, of the importance of each river they fished, taking into account the whole angling experience. Histograms showing the percentage frequency distribution of the 1-5 ratings were constructed for each river (Appendix II). A grade between 1 and 5 was then assigned to each river on the basis of these histograms. A grade of 1 indicated that the river was generally not highly valued by anglers who fished there; a grade of 5 indicated that the river was generally very highly valued by anglers who fished there. Although histograms were constructed for all rivers with 9 or more respondents, grades were assigned only to those rivers with 15 or more responses. Although this method provided an objective basis for allocating gradings, the final choices were necessarily partly subjective.

Marlborough rivers which were fished by more than 1 respondent are listed in Table 1. For each of these rivers, the number of respondents who fished the river, the number of visits they made annually, and the average number of visits per respondent are given. The importance grade is also given for the 9 rivers which were fished by 15 or more respondents. Data on a further 12 Marlborough streams were provided by single respondents. This does not necessarily indicate that the value of these streams is low from a fisheries viewpoint. Such streams may provide spawning grounds or extra summer water for the fisheries supported by other rivers.

To investigate the relationship between usage of each river and the value of the river to the anglers who fished there, rivers which attracted more than 9 respondents were ordered according to the estimated number of anglers fishing them (Table 2). The total estimate of 420 anglers for the Wairau River was calculated from 2 (1.5%) respondents who fished only for salmon, 114 (87.7%) who fished only for trout, and 14 (10.8%) who fished for both species. Together, these anglers represented 89.7% of the respondents. (The method of calculating these estimates will be described in a forthcoming Fisheries Environmental Report on the Nelson Acclimatisation Society district.)

TABLE 1. Measures of angler use and importance grade, or value, of Marlborough rivers.

River	No. of respondents	% of respondents	No. of visits	Visits per respondent	Importance grade*
Conway†	9	6.2	34	-	-
Kahutara	3	2.1	8	-	-
Clarence Trout	6	4.1	26	-	-
Clarence Salmon	3	2.1	10	-	-
Awatere Trout	11	7.6	104	-	-
Wairau Trout	128	88.3	2 220	17.3	4
Wairau Salmon	16	11.0	355	22.2	3
Opawa	32	22.1	257	8.0	3
Taylor	40	27.6	312	7.8	3
Omaka	3	2.1	11	-	-
Spring Creek	66	45.5	600	9.1	3
Tuamarina	5	3.4	11	-	-
Waihopai	18	12.4	54	3.0	1
Bartletts	3	2.1	12	-	-
Top Valley	2	1.4	11	-	-
Goulter	20	13.8	43	2.2	5
Branch	4	2.8	14	-	-
Leatham	10	6.9	26	-	-
Rainbow	10	6.9	22	-	-
Kaituna	4	2.8	7	-	-
Pelorus	83	57.2	337	4.1	4
Wakamarina	24	16.6	70	2.9	3
Rai	23	15.9	104	4.5	4
Opouri	3	2.1	32	-	-
Tinline	5	3.4	6	-	-

\* 1 = not highly valued, 5 = very highly valued.

† The Conway River forms the boundary with North Canterbury acclimatisation district.

A dash indicates too few responses to analyse.

TABLE 2. Estimates of angler use and importance grade, or value, of 13 Marlborough rivers.

River	No. of anglers	No. of visits	Importance grade*	
			Salmon	Trout
Wairau	420	7 800	3	4
Pelorus	270	1 100		4
Spring Creek	220	2 000		3
Taylor	130	1 000		3
Opawa	100	850		3
Wakamarina	80	230		3
Rai	80	340		4
Goulter	70	140		5
Waihopai	60	180		1
Awatere	40	340		-
Leatham	30	90		-
Rainbow	30	70		-
Conway	30	110		-

\* 1 = not highly valued, 5 = very highly valued.

A dash indicates too few responses to analyse.

From this table, it is clear that the 2 rivers with the most anglers (Wairau and Pelorus) were also quite highly valued by the anglers who fished them. However, there was no consistent relationship between usage and importance grade for the remaining rivers. For example, though the Waihopai was fished by nearly as many anglers as the Goulter, it received a much lower importance grade.

Except for the Pelorus, all of the first 5 rivers listed in Table 2 are located in the Wairau catchment and collectively accounted for 82% of the total angling effort (expressed as the total number of visits made annually by Marlborough adult anglers). When all the Wairau tributaries are included, the overriding importance of this river and its catchment becomes even more obvious (85% of the total angling effort).

Although the Pelorus catchment was also highly valued, in terms of angling effort it attracted less than 12% of the total number of visits. This relatively low usage is partly a consequence of the distance of the catchment from the main population centres, and therefore anglers were not able to fish it frequently. Nevertheless, together with the Rai and Wakamarina Rivers, the Pelorus was visited by almost 60% of the respondents.

To analyse why some rivers were more highly valued than others, the anglers' assessments of 7 factors (listed in the questionnaire), which contribute to the angling experience on each river, were considered. As with importance grades, each factor was assigned a grade between 1 and 5 for each river, based on the frequency distribution histograms of anglers' ratings (Appendix II). Again, some degree of subjective judgement was inevitable in assigning individual grades. Only those rivers with 15 or more respondents were assigned grades for the 7 factors.

The results of this analysis are summarised in Table 3. The rivers have been grouped according to the anglers' assessment of distance from home rather than geographically, since several trends in the data are most readily discussed in terms of distance from home or travelling time.

The first group of rivers comprised the Wairau River and its tributaries which are close to Blenheim. The respondents thought that

TABLE 3. Assessment by anglers of 7 factors (listed in the questionnaire) which contribute to the angling experience provided by 9 Marlborough rivers.

River	Distance	Access	Area fishable	Scenic beauty	Solitude	Catch rate	Size of fish
Close to anglers' homes							
Taylor	●●●●	●●●●	●●●	●●	●●	●●	●●●
Opawa	●●●●	●●●●	●●●	●●	●●	●●	●●●
Wairau Trout	●●●●	●●●●	●●●●	●●●	●●●●	●●●	●●●
Wairau Salmon	●●●●	●●●●	●●●●	●●●	●●●●	●●●	●●●●
Spring Creek	●●●●	●●●	●●●	●●●	●●●	●	●●●
More distant from anglers' homes							
Waihopai	●●●	●●	●●	●●●	●●●●	●	●●
Goulter	●●	●●●	●●●	●●●●	●●●●	●●●	●●●●
Pelorus	●●	●●●	●●●●	●●●●	●●●●	●●	●●●
Wakamarina	●●	●●●	●●●	●●●●	●●●●	●●	●●●
Rai	●	●●●	●●●	●●●●	●●●●	●●●	●●
Grade	●	●●●●●					
Distance	remote	close					
Access	difficult	easy					
Area fishable	restricted	extensive					
Scenic beauty	low	high					
Solitude	low	high					
Catch rate	low	high					
Size of fish	small	large					

access to these rivers was quite easy, and all the rivers had a high number of visits per angler, which reflects the opportunity they provide for frequent fishing (Table 4). In general, they were not highly rated for scenic beauty or solitude, with the exception of the largest river in the group, the Wairau.

The second group of rivers, those more distant from the anglers' homes, varied considerably both in angler usage and importance grade. Although the frequency of visits per angler was much less for this group, without exception these rivers were consistently highly rated for solitude and, apart from the Waihopai, also for scenic beauty. Access was not considered to be easy to any of the more distant rivers. The amount of fishable water available varied; in the Pelorus River it was relatively large, but in the Waihopai it was only small.

In summary, 2 trends appeared to be related to the distance of rivers from the anglers' homes. Firstly, anglers tended to visit rivers close to their homes more frequently than they visited remote rivers. Secondly, and more consistently, ratings for both scenic beauty and solitude increased with distance from home. The Goulter River and the Pelorus catchment in particular were very highly valued for their scenic qualities.

### 3. CHARACTERISTICS OF 13 MARLBOROUGH RIVERS

The following section provides a summary of the survey results in relation to each of the 13 Marlborough rivers listed in Table 2. In addition to the information presented in Appendix II and Table 3, use has also been made of Table 5 (summarising the angler's responses on which reach of each river was fished) and Tables 6 and 7 (detailing preferred fishing methods and participation in other activities associated with each river). For rivers with sufficient responses, the data were further broken down according to the reaches fished, to obtain comparative information between different sections of each river. Many anglers also provided written comments which have been included, as received, for rivers which elicited more than 2 or 3 comments. The rivers are dealt with in geographical order from south to north. The tributaries of the Wairau and Pelorus Rivers are listed in order of increasing distance upstream.

TABLE 4. Estimates of angler use and importance grade, or value, of 9 Marlborough rivers arranged according to distance from anglers' homes.

River	No. of anglers	No. of visits	Visits per angler	Importance grade*
Close to anglers' homes				
Taylor	130	1 030	7.9	3
Opawa	100	850	8.5	3
Wairau	420	7 790	18.5	4
Spring Creek	220	1 990	9.0	3
More distant from anglers' homes				
Waihopai	60	180	3.0	1
Goulter	70	140	2.0	5
Pelorus	270	1 130	4.2	4
Wakamarina	80	230	2.9	3
Rai	80	340	4.2	4

\* 1 = not highly valued, 5 = very highly valued.

**TABLE 5.** Popularity of individual river reaches of 13 Marlborough rivers.

River	Headwaters	Middle reaches	Lower reaches
Conway	-	●●●●	●●●
Awatere	●●	●●	●●●●
Wairau Trout	●	●●●●●	●●●
Wairau Salmon	●	●●●●	●●●
Opawa	●	●●●●	●●●
Taylor	●	●●●●●	●●
Spring Creek	●	●●●●	●●●●
Waihopai	●	●●●	●●●●
Goulter	●●	●●●●	●●●
Leatham	●●	●●●	●●●
Rainbow	●●	●●	●●●
Pelorus	●	●●●●●	●●
Wakamarina	●●	●●●●	●●●
Rai	-	●●●●	●●●●

A dash indicates reaches fished by less than 5% of respondents.

- 5-20% of the respondents fished that reach.
- 21-40%
- 41-60%
- 61-80%
- 81-100%

TABLE 6. Preferred angling methods used on 13 Marlborough rivers.

River	Dry fly	Wet fly	Nymph	Live bait*	Spinner
Conway	●●	●	-	-	●●●●●
Awatere	-	●	-	-	●●●●●
Wairau Trout	●	●●	●	●	●●●●●
Wairau Salmon	-	●	-	●	●●●●●
Opawa	●●	●●	-	-	●●●
Taylor	●●	●●	-	-	●●●
Spring Creek	●●	●●●	-	-	●●●
Waihopai	●●	●●●	-	-	●●●
Goulter	●●●	●●	-	-	●●
Leatham	●●●●	●	-	-	●●
Rainbow	●●●●	●	-	-	●
Pelorus	●●	●●	-	-	●●●●
Wakamarina	●●	●●	-	-	●●●●
Rai †	●●●●	●●	-	-	●●

\* Use of live bait in the Marlborough district is restricted to the Wairau River below the State Highway 1 bridge.

A dash indicates method used by less than 5% of respondents.

† During the period of the survey, the Rai was restricted to artificial fly only above Bulford Bridge.

- 5-20% of the respondents used that method.
- 21-40%
- 41-60%
- 61-80%
- 81-100%

TABLE 7. Participation in other recreational activities associated with angling on 13 Marlborough rivers.

River	Enjoying the scenery	Picnicking	Swimming	Camping	Tramping	Hunting
Conway	●●	●	●	●●	-	-
Awatere	●	●	●	-	●	●●
Wairau Trout	●●●	●●●●	●●	●	-	●
Wairau Salmon	●	●●●	●●●	●	●	-
Opawa	●	-	-	-	-	-
Taylor	●●	●	-	-	-	-
Spring Creek	●●	-	-	-	-	-
Waihopai	●●●	●●	●	●	●	-
Goulter	●●●	●	-	●●	●●●	●●●
Leatham	●●●●	●●	-	●●	●●●	●●
Rainbow	●●●●	-	-	●●●●●	●●●	●●
Pelorus	●●●●	●●●●	●●●	●●●	●	-
Wakamarina	●●●	●●●	●●	●●●●	●	●
Rai	●●●●	●●●●	-	-	-	-

A dash indicates activities listed by less than 10% of respondents.

- 10-19% of the respondents participated in that activity.
- 20-29%
- 30-39%
- 40-49%
- > 50%

### 3.1 Conway River

This small braided river, which forms part of the boundary with the North Canterbury acclimatisation district, attracted few Marlborough anglers. All respondents who provided data on the Conway confined their efforts to the lower and middle reaches and mainly used artificial spinners, but a few respondents also used dry or wet flies. Camping was sometimes combined with angling on the Conway. A more comprehensive discussion of this river, including data from the North Canterbury district, will appear in the North Canterbury regional report.

### 3.2 Awatere River

The Awatere River and its catchment are characterised by low summer rainfall, fast run-off in the headwaters, and a wide, shallow, unstable, braided bed, particularly in the lower reaches (Egarr and Egarr 1981). Consequently, the river does not support large stocks of trout and was not highly valued as a fishery. It was fished mainly in the lower reaches by local anglers who used spinners almost exclusively.

### 3.3 Wairau River

Indisputably the most important river in the district, the Wairau was fished by almost 90% of the respondents. It attracted over 4 times as many visits as the second most-fished river (Spring Creek) and accounted for 55% of the fishing effort in the district. Although some anglers fished the Wairau for salmon, the river was more highly valued for its trout fishery, probably because of the small size and short duration of the salmon run.

Apart from size of fish and catch rate, comparable ratings were given by both salmon and trout anglers to the other factors which contribute to the angling experience. Because of the Wairau's proximity to Blenheim, both ease of access and closeness to home were very highly valued. Similarly, the area of fishable water was given the highest rating in the district. In common with other rivers located close to population centres, the Wairau was not highly valued for scenic beauty, though the opportunity of fishing in peace and solitude was rated above average.

Most trout and salmon angling was concentrated in the middle reaches and to a lesser extent in the lower reaches; less than 20% of the respondents visited the upper reaches. However, the lower reaches were the least valued part of the river. The highest importance ratings for the Wairau were given by anglers who had fished throughout the river.

Virtually all salmon anglers fished with a spinner. Spinning was also the most popular method with trout anglers, though lures of all types were used. Catch rates for trout were considered a little above average for the district but were low for salmon, a characteristic of most salmon rivers (Teirney, Richardson, and Unwin 1982).

Picnicking was the most popular activity associated with angling, followed by enjoying the scenery and swimming. A few respondents also engaged in kahawai fishing and whitebaiting in the lower reaches of the river. Anglers' comments stressed the peace and solitude experienced while fishing the Wairau, and the good access. A few anglers mentioned that jet boats should be banned and also that the river was hot, dusty, and fished poorly in summer, but was good in winter (the river is open for a winter season from 1 May to 31 August).

The Wairau was also visited by 27 respondents from outside the Marlborough district. An estimated 170 anglers were from the nearby Nelson society, but some were from the West Coast, North Canterbury, and Tauranga districts. In contrast to the Marlborough respondents, the outside anglers fished mainly in the middle and upper reaches. Generally, however, they agreed with the local anglers' assessment of the Wairau, particularly in terms of the catch rate and size of the trout. Besides spinner, nymph and dry fly were popular with the outside visitors.

Recently, concern has been expressed by anglers about the Wairau Diversion. This large, stop-banked diversion channel, immediately downstream of State Highway 1 bridge, runs for 5 km directly to the sea. It is basically a flood prevention scheme designed to allow more rapid dissipation of flood water. Although most of the river still flows down the old course, it is envisaged that successive floods eventually will scour the diversion channel to the limits of its stop banks which are 300 m apart. At this stage, most of the Wairau will flow down the diversion channel and a 12-km stretch of the old course will be affected. This scheme may eventually reduce the fisheries values of the lower Wairau and perhaps the Wairau Lagoon.

In addition, the upper Wairau River has been the subject of 2 power scheme investigations (Royds Sutherland & McLeay 1981). The first proposal, which is not within the present 15-year power plan, is to divert the flow of the Wairau into Lake Rotoiti through a tunnel located near Dip Flat, about 16 km down stream of the confluence of the Wairau and Rainbow Rivers. The Wairau water would then augment the flow of the Buller River, thereby increasing its hydro-electric power potential.

The second proposal also requires an intake at Dip Flat. The original scheme (Royds Sutherland & McLeay 1981) required diversion of the entire flow of the river into a man made race along the river terraces. The water was to flow through a total of 6 power stations while contained in the race system and then discharge back into the natural channel, just up stream of the Branch and Wairau confluence. A more recent variation of this scheme (Royds Sutherland & McLeay 1983) is for the diversion of  $20 \text{ m}^3/\text{s}$  (from a mean annual flow of  $23.5 \text{ m}^3/\text{s}$ ) at Dip Flat. Water would then pass along an 11-km-long race, generating power at 2 stations en route.

Development of the first scheme is unlikely at present. However, the amended second scheme is favoured by the Marlborough Electric Power Board. The installation of this scheme would result in a severely reduced flow over the 11-km stretch between the intake at Dip Flat and the outlet. Although few local anglers use the upper Wairau for fishing, it is popular with outside visitors. Furthermore, a preliminary survey made by the acclimatisation society indicates that up to 50% of Wairau trout spawn above this 11-km section of the river (R.G. Frost, pers. comm.).

The local power board has also expressed interest in a joint hydro-irrigation proposal which would use tail race water from the Branch River hydro-electric station. This scheme would involve diversion of up to  $10 \text{ m}^3/\text{s}$  from the tail race, of which  $7 \text{ m}^3/\text{s}$  would be returned to the Wairau 40 km below the intake (D.J. Jellyman, pers. comm.). Possible effects of both schemes on trout stocks of the Wairau, not only in the upper reaches, but also in the highly valued middle and lower reaches, need further research.

### 3.3.1 Opawa River

The Opawa River was originally formed by a breakthrough in the banks of the Wairau River last century (Marlborough Acclimatisation Society 1980). Today, numerous small streams combine to create the river, which flows through the outskirts of Blenheim and joins the Wairau near its mouth. Prolific growth of water weed in summer, especially below the State Highway 1 bridge, significantly reduces the amount of fishable water available in the Opawa.

The Opawa was fished by almost a quarter of the survey respondents, undoubtedly a feature of its proximity to Blenheim and easy access. This is in direct contrast to the results of Graynoth and Skrzynski (1973), who reported little angling on this tributary of the Wairau. Despite the high fishing effort, anglers considered the overall angling experience to be of only average value.

Most angling occurred in the middle and lower reaches, where anglers gave the qualities of scenic beauty and feelings of peace and solitude some of the lowest ratings of any rivers in the district. Catch rate was also relatively low, but the size of fish was comparable with that of the Wairau.

Over 50% of the respondents used spinners on the Opawa, but dry fly, wet fly, and nymph were also popular. Although anglers did not rate this river highly, their comments reflected a positive attitude toward the river. They included:

- *good during midday*
- *more trout now thanks to commercial eeling*
- *observation of trout increase has been made during my time farming near the banks of this river*
- *a handy river giving encouragement to young anglers.*

### 3.3.2 Taylor River

Although more anglers fished this tributary of the Opawa than the mainstem, the relative value of the angling experience was also only average. This river, which flows through Blenheim, attracted the fourth highest number of anglers and visits in the whole district. Anglers gave both ease of access and proximity to home very high

ratings, but as with other suburban rivers, feelings of peace and solitude and scenic beauty were not highly rated. Respondents employed all of the artificial angling methods and landed average sized trout.

Most angling on the Taylor occurred in the middle reaches, where a small lake (2 hectares) has been created by a flood retention dam. This lake provides a recreational fishing alternative to the often ephemeral river. However, the fishery value of the lake is at present in doubt, as, in the past, lowering of the lake level to control the growth of aquatic weeds has led to some fish mortality due to stress and increased water temperatures. The situation has been aggravated by the use of weed spray, as the decaying weed has de-oxygenated the water. If the fishery is to continue, an appropriate management plan to control aquatic weed growth will be required.

### 3.3.3 Spring Creek

As its name implies, the source of this small, short stream is a spring. Consequently, it rarely floods, is gin clear, and, unlike many other Wairau tributaries, is not prone to drying up in summer. These features, in combination with its proximity to Blenheim and Picton, resulted in Spring Creek attracting 14% of the angling effort recorded by the survey respondents, almost double that reported by Graynoth and Skrzynski (1973). Nearly 50% of the respondents fished this creek.

The fishery was considered of slightly better than average importance, but apart from closeness to home, none of the various aspects which make up the angling experience received above average ratings. The middle and lower reaches of Spring Creek received about equal fishing pressure and anglers regarded the 2 reaches as being very similar.

Spinner, dry fly, wet fly, and nymph were all used as angling methods. Some anglers commented that Spring Creek was overfished and had many snags and weeds.

### 3.3.4 Waihopai River

This highly modified tributary of the Wairau was poorly valued as a trout fishery; it received the lowest importance rating of all the 13

Marlborough rivers listed in Table 2. In the 1920s, a dam for hydroelectric power generation was built in the Waihopai Gorge. Within 10 years the reservoir which formed behind the dam had completely silted up, and now the gorge consists of braided shingle flats with the former gorge walls forming low rock banks. Today the power scheme operates by run-of-the-river. Below the powerhouse there is 7 km of narrow, inaccessible gorge which gradually widens; the river becomes shallow and braided at its mouth. An additional diversion of water into Gibsons Creek often results in discontinuous summer flows in the lower 2 km of the Waihopai.

Except for feelings of peace and solitude, all the other aspects which make up the angling experience received average or below average ratings from anglers. Almost all the angling occurred in the middle and lower reaches. Access is difficult to the upper reaches, which are prone to drying up in summer. Spinners, artificial flies, and nymphs were used on this river, and fish caught were of below average size, though 1 angler mentioned that the river did hold a few good fish. Other activities associated with fishing on the Waihopai included enjoying the scenery, swimming, picnicking, tramping, and camping. The Waihopai is currently being investigated as a potential source of irrigation water for the Fairhall-Omaka area.

### 3.3.5 Goulter River

Although less than 15% of the respondents fished the Goulter, the importance grade for the angling experience was the highest for the entire Marlborough district. Because it drains Lake Chalice, this river is one of the few Wairau tributaries that is not prone to drying up during summer. Getting to the river was not considered easy, the only access being a walking track along the true left bank. Consequently, anglers thought the scenic/peaceful/solitude qualities of this river were among the highest of the 13 rivers under consideration. Catch rate was a little better than average and the trout landed were relatively large. Anglers visited all 3 reaches of this river and often combined enjoying the scenery, camping, tramping, and hunting with their trips. Dry fly and nymph were the most popular angling methods, but spinner and wet fly were also used. One angler suggested this was one of the most beautiful rivers in New Zealand. In addition to being a highly valued

trout fishery, the Goulter River provides valuable spawning grounds for trout from the Wairau.

### 3.3.6 Leatham River

The Leatham River is a tributary of the Branch River, which it joins about 7 km above the confluence of the Branch and Wairau Rivers. Because a hydro-electric intake and powerhouse is being constructed on the Branch River, the river was not included in the Marlborough acclimatisation district's survey booklet. In general, the Leatham has similar characteristics to the Branch, though its catchment is less eroded and hence is not subject to as many flash floods. How alteration of the flow regime in the Branch will affect the Leatham is not yet known.

The few respondents who fished this remote river considered the angling experience to be of average value, though both scenic beauty and solitude were highly regarded. Only the lower reaches of the Leatham are serviced by road, but all reaches were fished. Half the respondents cited camping, tramping, or hunting as associated activities. As in the other headwater tributaries of the Wairau, dry fly and nymph were the most popular angling methods.

### 3.3.7 Rainbow River

One of the most remote and inaccessible rivers in the Wairau catchment, the Rainbow River was also fished by few respondents, but was generally highly valued by these anglers, particularly for solitude. Dry fly and nymph were the primary angling methods used, and all the anglers who supplied information on size of fish reported trout over 53 cm long. As with the Leatham, activities such as camping were popular with anglers on this river.

## 3.4 Pelorus River

Together with the Wairau, the Pelorus stood out as a highly valued fishery. Despite its distance from the main population centres, it attracted almost 60% of the respondents and was the third most visited river among the Marlborough respondents. The river flows through

heavily bushed country in its upper and middle reaches, and its scenic qualities, with those of one of its tributaries, the Wakamarina, were awarded the highest values of any of the Marlborough rivers. Anglers also considered the area of fishable water to be relatively large.

Most angling took place in the middle reaches, where below average catch rates were recorded. The Pelorus is one of the few rivers in Marlborough to hold a mixed population of brown and rainbow trout. The order of preference of the artificial lures allowed on this river was spinner, wet fly, dry fly, and nymph. Four anglers indicated that they used live bait even though this method is not allowed by society regulations. In addition to enjoying the scenery, over 30% of the anglers also participated in picnicking, swimming, and camping on the Pelorus.

Anglers' comments, of which there were many, reiterated their high ratings of scenic beauty and feelings of peace and solitude for this valuable river. They included:

- *peaceful and unspoilt*
- *many visits for scenic pleasure*
- *a most beautiful river in both upper and lower reaches*
- *high quality water at all times*
- *great river*
- *outstanding fishing water*
- *best when dirty/high*
- *infrequently fished because of fuel restrictions*
- *calm, peaceful*
- *needs to be maintained as fly fishing only*
- *a great river.*

The Pelorus was also a popular river with outside anglers, particularly those who lived in the Nelson district. The estimated number of anglers who came from Nelson was 230, nearly equal to the number of Marlborough anglers (270). The visiting anglers came from 6 societies, from both North and South Islands, and had an average frequency of visits nearly as high as the local anglers (3.9 v. 4.1 visits per angler). Apart from a slightly better catch rate, assessments of the Pelorus by outside anglers were identical to those of the Marlborough respondents. Although spinner was the most frequently used angling method, dry flies or nymphs were used by 40% of the anglers.

#### 3.4.1 Wakamarina River

This small tributary of the Pelorus River flows north off the Richmond Range between hillsides covered in thick bush. Its high scenic beauty and solitude qualities were offset to some extent by its remoteness, difficult access, and relatively small area of fishable water, and so the total angling experience received only an average value. The catch rate was one of the lowest in the whole district, but size of fish received the highest rating of any river in the Pelorus catchment.

The middle and lower reaches received about equal fishing pressure, and over 20% of the respondents visited the headwaters, which are not serviced by road. As in the mainstem, spinner was the most popular angling method, though all artificial lures were used. Camping, admiring the scenery, picnicking, and swimming were all enjoyed while fishing the Wakamarina. One angler mentioned that gold panning, another common pastime on this river, made it difficult to fish. Although gold prospecting and mining applications are increasing in this area, the regional water board has asked for involvement of the acclimatisation society and FRD to ensure appropriate conditions are established before any rights are granted.

#### 3.4.2 Rai River

The upper and middle reaches of this tributary of the Pelorus flow through picturesque farmland and the banks of the lower 2 km are lined with beech trees. In summer, the Rai's headwater streams are prone to drying up, and the discharge of cowshed and piggery effluent into the middle reaches can create unhealthy conditions, particularly for swimming. Despite this, and the river's distance from population centres, anglers valued highly the angling experience afforded by this river. All the attributes, except size of fish, were rated as average or above average, especially scenic beauty and feelings of peace and solitude.

The middle and lower reaches were fished about equally, and almost 50% of the respondents combined a picnic with their visit. At the time of the survey, society regulations restricted the use of spinners to the lower reaches of this river, which probably accounts for artificial flies being the most popular angling method. The whole river is now available for both fly fishing and spinning.

An estimated 150 anglers from other districts indicated that they visited the Rai River; as with Pelorus anglers, most of these anglers lived in the nearby Nelson district. Most outside anglers (83%) considered the Rai to be closer to their homes than did Marlborough anglers, and consequently they had a much higher frequency of visits (6.8 v. 4.5 visits per angler). Outside anglers' assessments of the Rai were nearly the same as those of anglers who came from Marlborough. The outside respondents used artificial flies exclusively and obtained an extremely high catch rate of average sized trout.

#### 4. DISCUSSION

Although none of Marlborough's angling rivers qualified for inclusion on FRD's list of nationally important rivers (Teirney et al. 1982), several could be considered as regionally or locally important. These rivers may be classified as recreational, scenic, or wilderness fisheries, by use of the criteria developed by Teirney et al. (1982), and are summarised in Table 8.

Of the 7 rivers listed in Table 8, the Wairau clearly stood out with regard to both popularity and angling quality. It was fished by almost 90% of the survey respondents and was the only river awarded ratings of 5 for closeness to home, access, and area of fishable water, while still maintaining at least average values for its other attributes. Although anglers considered the trout fishery in the Wairau to be more valuable than the salmon fishery, it was the only river in Marlborough to be fished for salmon by more than 10 respondents. Clearly the Wairau is of at least regional importance and some form of protection may be desirable, particularly against reduced summer flow or river channel manipulation, both of which adversely affect fish habitat.

Second in terms of the number of anglers it attracted, the Pelorus River received a similar rating to the Wairau for the quality of its angling experience. Although it was not fished as frequently as other Marlborough rivers, almost half the respondents who visited the river awarded a value of 5 to scenic beauty, emphasising the wilderness nature of this relatively remote river. Activities such as picnicking, swimming, and camping were unusually popular in the middle reaches. In

TABLE 8. Marlborough rivers of regional or local importance.

River	Importance	Classification	Outstanding characteristics
Wairau	Regional	Recreational	High use and overall importance. Exceptional access, large area fishable and close to home. High feelings of solitude. Salmon angling.
Pelorus	Regional	Scenic	High use and overall importance. Exceptional scenic beauty. High feelings of solitude and a large area of fishable water.
Spring Creek	Local	Recreational	High use and close to home.
Taylor	Local	Recreational	High use and close to home. Very easy access.
Opawa	Local	Recreational	High use and close to home. Good access.
Rai	Local	Scenic	High value, scenic beauty, and solitude.
Goulter	Local	Wilderness	Exceptional overall importance and feelings of solitude. High scenic beauty. Large trout.

addition, the Pelorus supports populations of brown and rainbow trout. This attribute, and the fact that the Pelorus is not prone to drying up in summer, probably contributes to the river's popularity with anglers.

Despite the fact that the Opawa and Taylor Rivers and Spring Creek all attracted a high number of anglers, these rivers were not highly valued. What was important was their proximity to population centres and exceptional access; they lacked the particular combination of attributes which characterised the more highly valued rivers. However, their level of use indicates that they are recreational fisheries of considerable significance to the Marlborough angling population, and for this reason they are considered to be recreational rivers of local importance. Spring Creek appears to have improved in recent seasons and is gaining a reputation as a good quality fishery. It is the only spring fed river fishery in the Marlborough district, and for several seasons has produced some very large and well conditioned fish (R. G. Frost, pers. comm.).

Two other rivers which deserve mention are the Goulter and Rai. Neither of these rivers was fished by more than 16% of the survey respondents and so their level of use does not justify a regionally important classification. However, their high ratings for angling quality suggest that use alone does not indicate their true angling value. Although they are both remote rivers lacking easy access, their qualities of scenic beauty, peace, and solitude were exceptional. In addition, the Goulter contains large fish and the Rai was popular with anglers from other districts. Both rivers, therefore, are considered to be locally important trout fisheries.

One further result of note from the survey data is that artificial spinners were by far the most popular lure used by Marlborough anglers. Of 142 survey respondents who supplied data on their angling methods, 118 (83%) used spinners on at least 1 river, and 43 (30%) did not use any other lure. Wet and dry flies were less popular, being used by 66 (47%) and 57 (40%) of the respondents respectively. These results support the Marlborough Acclimatisation Society policy of recent years, whereby rivers are no longer reserved for fly fishing only. Local regulations now deal principally with bag limits, winter fishing, and restrictions on live bait fishing.

## 5. ACKNOWLEDGMENTS

We would like to thank the Secretary, staff, and council members of the Marlborough Acclimatisation Society for their help in conducting this survey. Constructive criticism of the draft manuscript was provided by D.J. Jellyman. Finally, we would like to thank all those Marlborough anglers who made the survey a success by taking the time to complete and return their questionnaires.

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MARLBOROUGH  
ACCLIMATISATION  
SOCIETY



**A Survey To Assess**

**THE RELATIVE VALUE OF  
NEW ZEALAND RIVERS  
TO THE  
RECREATIONAL ANGLER**

**Conducted in association with the Ministry of Agriculture and Fisheries**

Dear Angler

Over the years numerous development schemes have substantially altered a large number of our rivers, resulting in a cumulative loss of high quality angling waters. It has become increasingly obvious that if we want to retain even a few valuable recreational fisheries, we must identify those rivers which, in our opinion, should not be modified, and be prepared to fight for them. To be able to do this we must understand the reasons why anglers value the various rivers they fish and be able to use this information when proposed developments threaten those rivers.

As you can see, this survey booklet, which has been designed to give us this information, applies specifically to the Marlborough Acclimatisation Society district. The results from a pilot scheme carried out recently by Wellington Society anglers look very promising. I would therefore encourage you to fill in the booklet as soon as possible, and return it in the envelope provided.

For the results to be meaningful, every angler receiving a booklet must complete the questionnaire. Any angler who does not return the booklet or advise as to the inability to do so would affect the survey's random selection basis. Individual returns will be confidential to Fisheries Research Division staff who are responsible for analysing the results.

The information collected will be used to protect valuable angling water for the present anglers and those of the future. I cannot emphasise strongly enough the need for your co-operation.

Thanking you in advance for your valued assistance.

Best Wishes and Good Fishing.



E. Bason  
President



Explanation of categories used in the  
recreational angling survey booklet

You should only fill in the categories if you have actually fished the river under consideration. In other words leave a blank beside those rivers you are not familiar with.

1. Importance of the river to you as an angler

This category relies on your own judgement and feelings about the rivers you fish. The score you give each river is not necessarily related to the amount of time you spend angling on it. You may for instance, value the headwaters of a remote river highly, because of the quality of the whole angling experience even although you only manage a trip every 2-3 years. On the other hand, you may value a river close to home as it allows you to go fishing frequently. One way of assessing the importance of a river to you is to imagine how you would feel if you no longer had the opportunity of fishing it.

2. Average number of visits you make to fish this river each year

You probably don't visit a river to fish it the same number of times each year and therefore your average should be taken over the past 3-5 years angling experience. If you stay at the river for more than 1 day in order to fish, then fill in the average number of days on which you fished during your stays. If you have difficulty remembering exactly how often you fished a river an approximation will do.

3. Stretch of water fished

You may fish the whole length of a particular river or you may have a preferred fishing locality. As the character of a river may alter from the headwaters to the middle and lower reaches, please tick which length of river you fish. If you fish the whole river then you would tick all three categories.

4. The aim of this section is to find out why you value each river you fish. Consider each river in isolation of the others and then grade each reason between 1-5. Most of the reasons are self explanatory:

- (a) Close to where you live would include rivers which can be reached by a short drive.
- (b) Easy access would include rivers which can be driven to, or that only involve a short walk to reach the river bed.
- (c) Large area of water fishable incorporates the possibility of walking beside, or wading through long stretches of water, which may contain both pools and riffles in order to continue angling without having to leave the river.
- (d) Scenic beauty should include the river bed, the river, the river banks and surrounding views, either immediate or panoramic.
- (e) Feelings of solitude/peace may be gained without being in a wilderness area and will be influenced by the geography of the river. For instance, if fishing in a gorge, the existence of a road above may not detract from feelings of solitude if it is out of sight and the traffic noise cannot be heard.

(f) Good catch rate refers to the number of fish you catch in a certain amount of time. You may fish some rivers all day without success and yet catch several fish in the same time from another river.

- (g) Size of fish:
1. Smaller than 23 cm (9 inches)
  2. 23 cm (9")-38 cm (15")
  3. 38 cm (15")-53 cm (21")
  4. 53 cm (21")-65 cm (26")
  5. Larger than 65 cm (26").

5. Which methods do you usually use

Tick the appropriate categories for each river. Naturally the regulations will restrict the use of some methods from some waters and these will be taken into account in the analysis of results.

6. Other recreational activities

You may visit some rivers purely for the angling experience, but there are many other recreational activities which can be carried out in conjunction with angling and which may involve family and friends. You can indicate the other activities you participate in by ticking the appropriate categories.

Rivers outside of the Marlborough Acclimitisation Society

You will notice at the end of the booklet that spaces have been left for you to fill in information about rivers outside of your society district which you may visit to fish. Fill in the categories in the same way as you did for the rivers in your own society district.

Rivers in which both Salmon and Trout are caught: As salmon and trout fishing tend to be rather different

experiences we have provided separate lines for each type of angling on those rivers supporting a salmon run. If you fish for both salmon and trout you should fill in both lines.

Average number of fish you catch each year

This is the total number of fish you catch from all the rivers you fish during the year. Once again you may like to take an average from your last 3-5 years of catches. If you find it difficult to remember exactly, an approximation will do.

Contacts within the Marlborough Acclimitisation Society

If you have any queries about the survey or categories included in the booklet, or if you need some assistance to fill in the questionnaire, the people whose names, addresses and phone numbers are listed below will be only too willing to help you:

Mr E.R. Bason	Mr A.B. Thompson	Mr R.G. Frost
51 Dillon Street	8 Churchill Street	21 Dillons Rd
Phone: Blen 84198	Phone: Blen 84292	Phone: Blen 88421











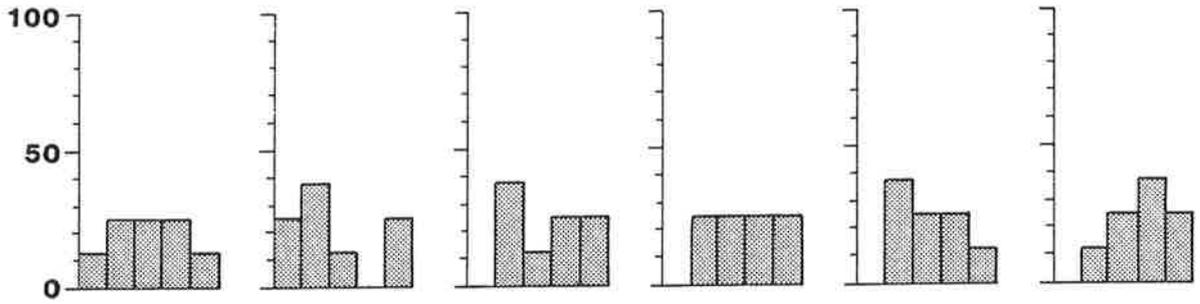


APPENDIX II. Histograms of ratings assigned by respondents to the relative importance of the angling experience and 7 other qualities (distance from home, access, area of fishable water, scenic beauty, feelings of peace and solitude, catch rate, and size of fish) for the 13 most-fished rivers in the Marlborough acclimatisation district. Histograms of reach of river fished, fishing methods used, and associated recreational activities of anglers visiting each river are also shown. (Although some anglers did not respond to all questions, this has not been shown in the histograms.)

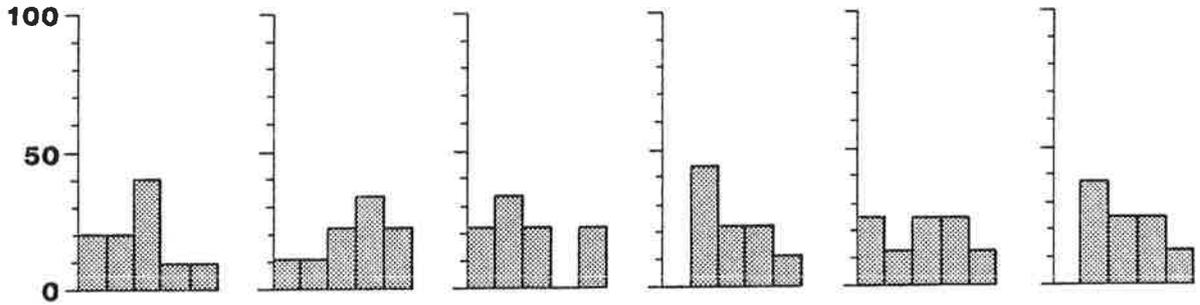
Codes: 1 = insignificant  
5 = exceptional

Reach of river fished:	H = headwaters
	M = middle reaches
	L = lower reaches
Fishing method used:	D = dry fly
	W = wet fly
	S = spinner
	N = nymph
	B = live bait
Recreational activities	E = enjoying the scenery
	P = picnicking
	S = swimming
	K = canoeing
	R = rafting
	C = camping
	T = tramping
	H = shooting

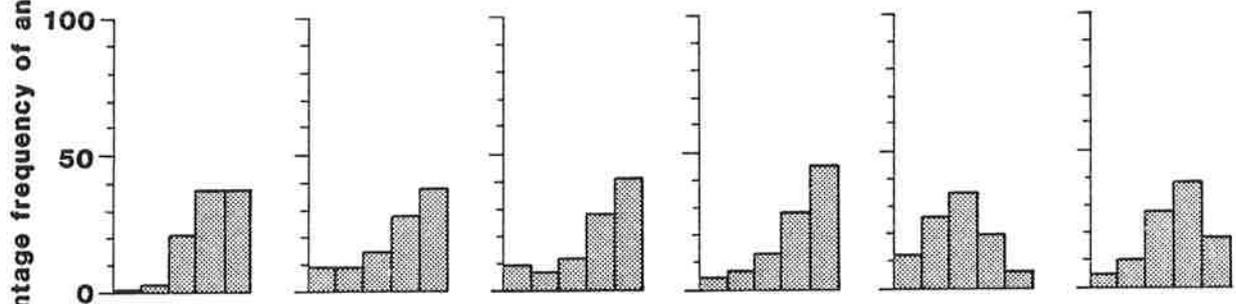
**Conway River (n=9)**



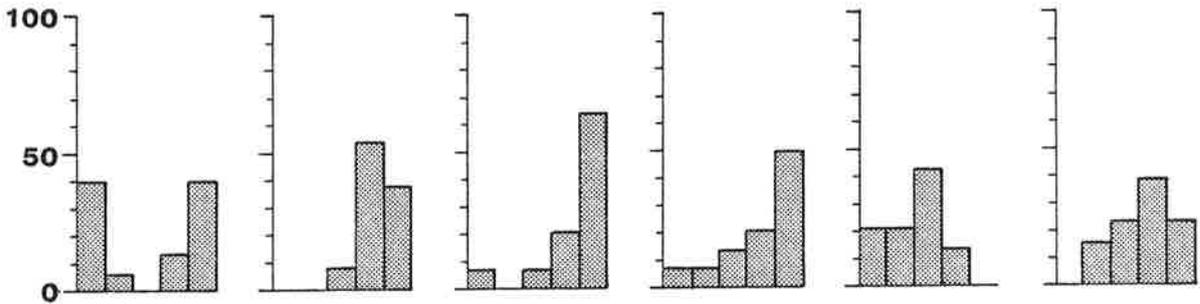
**Awatere River (n=11)**



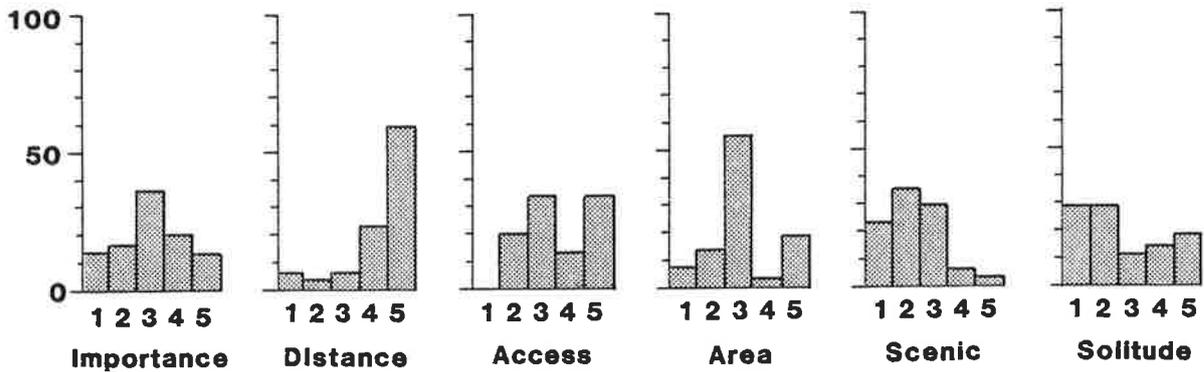
**Wairau River-Trout (n=128)**

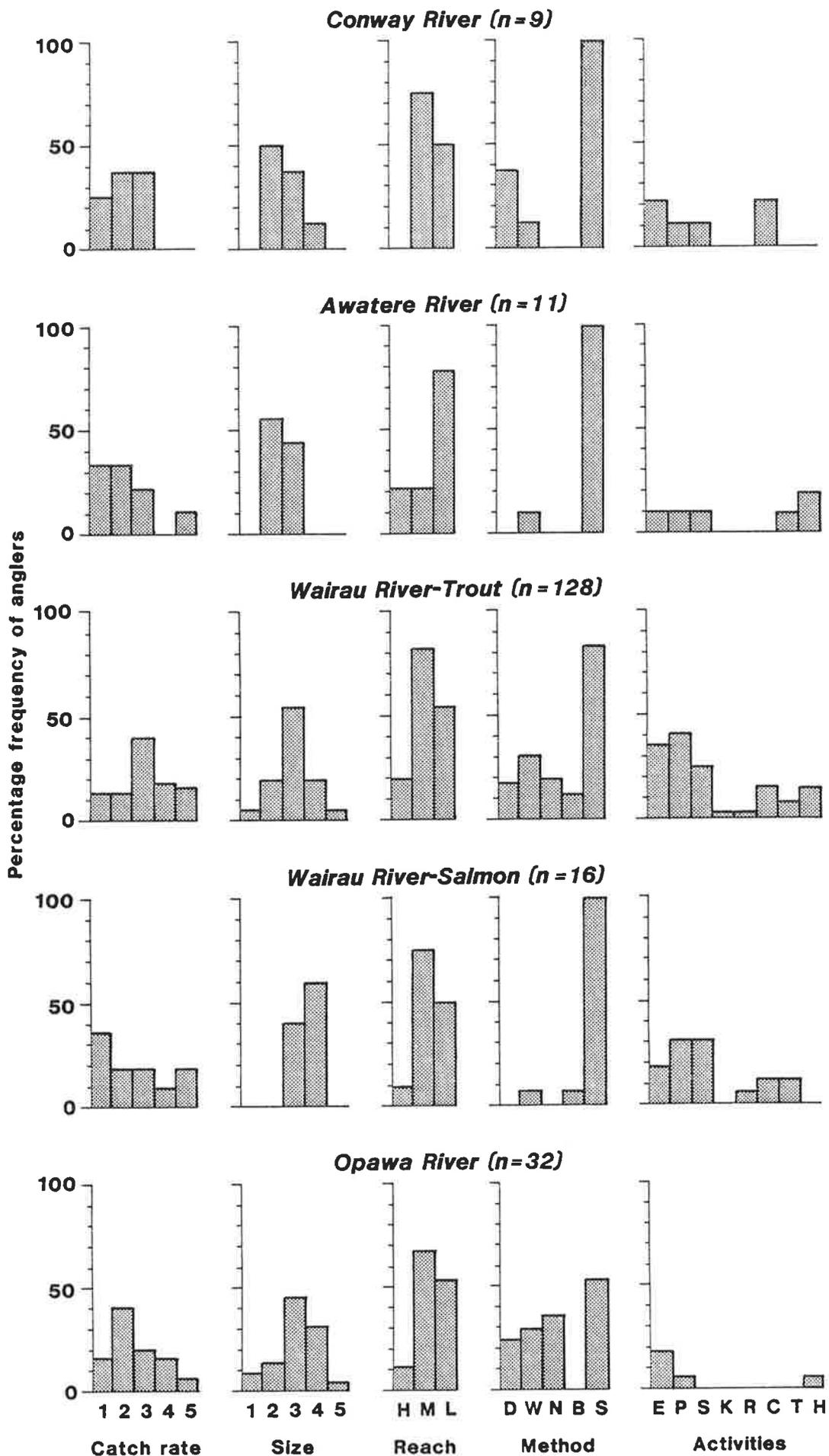


**Wairau River-Salmon (n=16)**

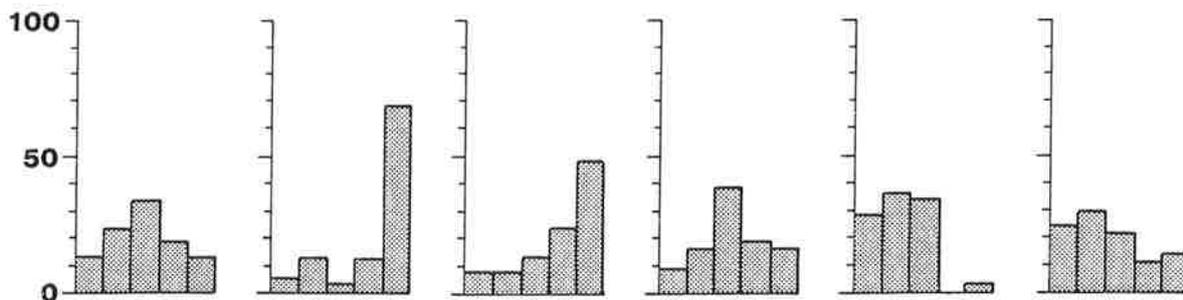


**Opawa River (n=32)**

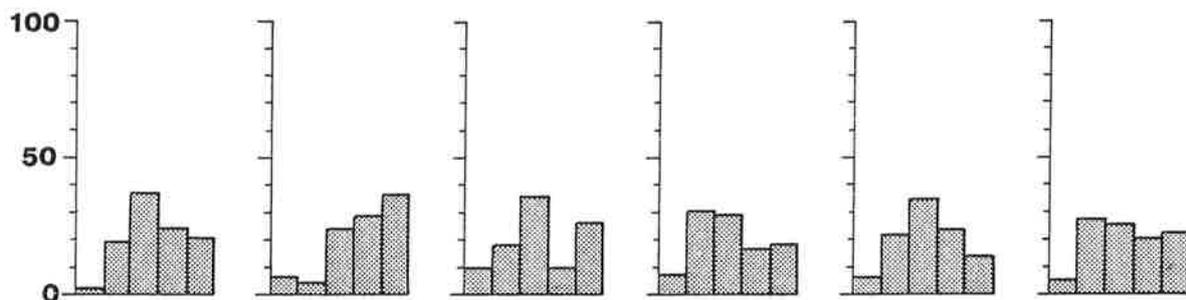




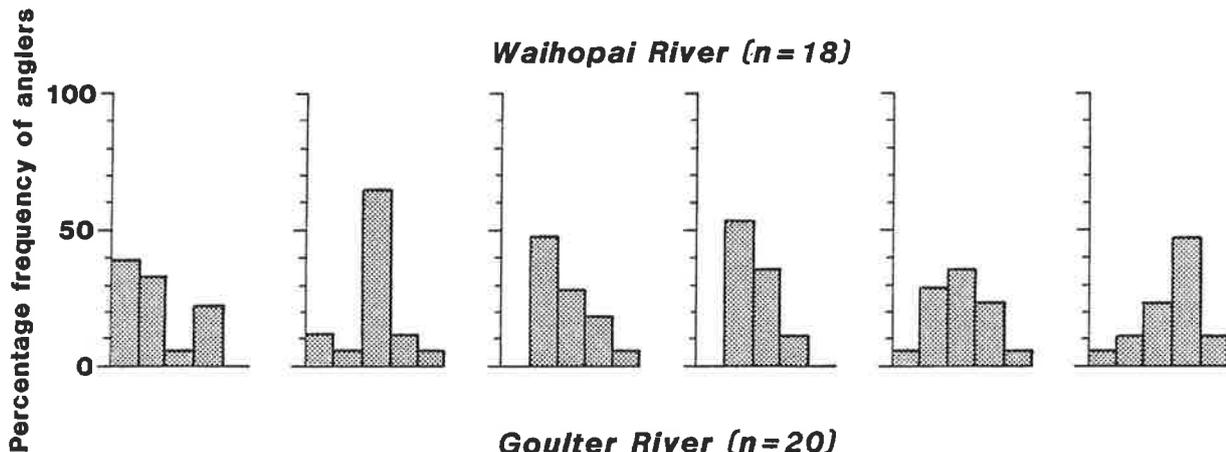
**Taylor River (n=40)**



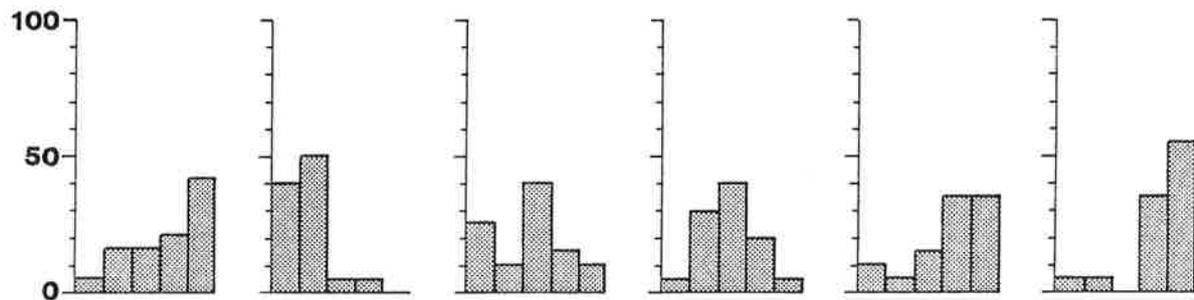
**Spring Creek (n=60)**



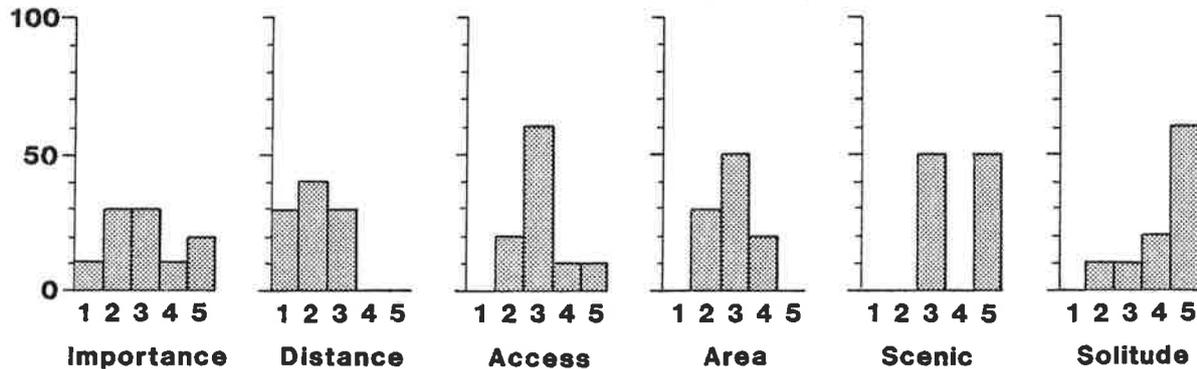
**Waihopai River (n=18)**



**Goulter River (n=20)**

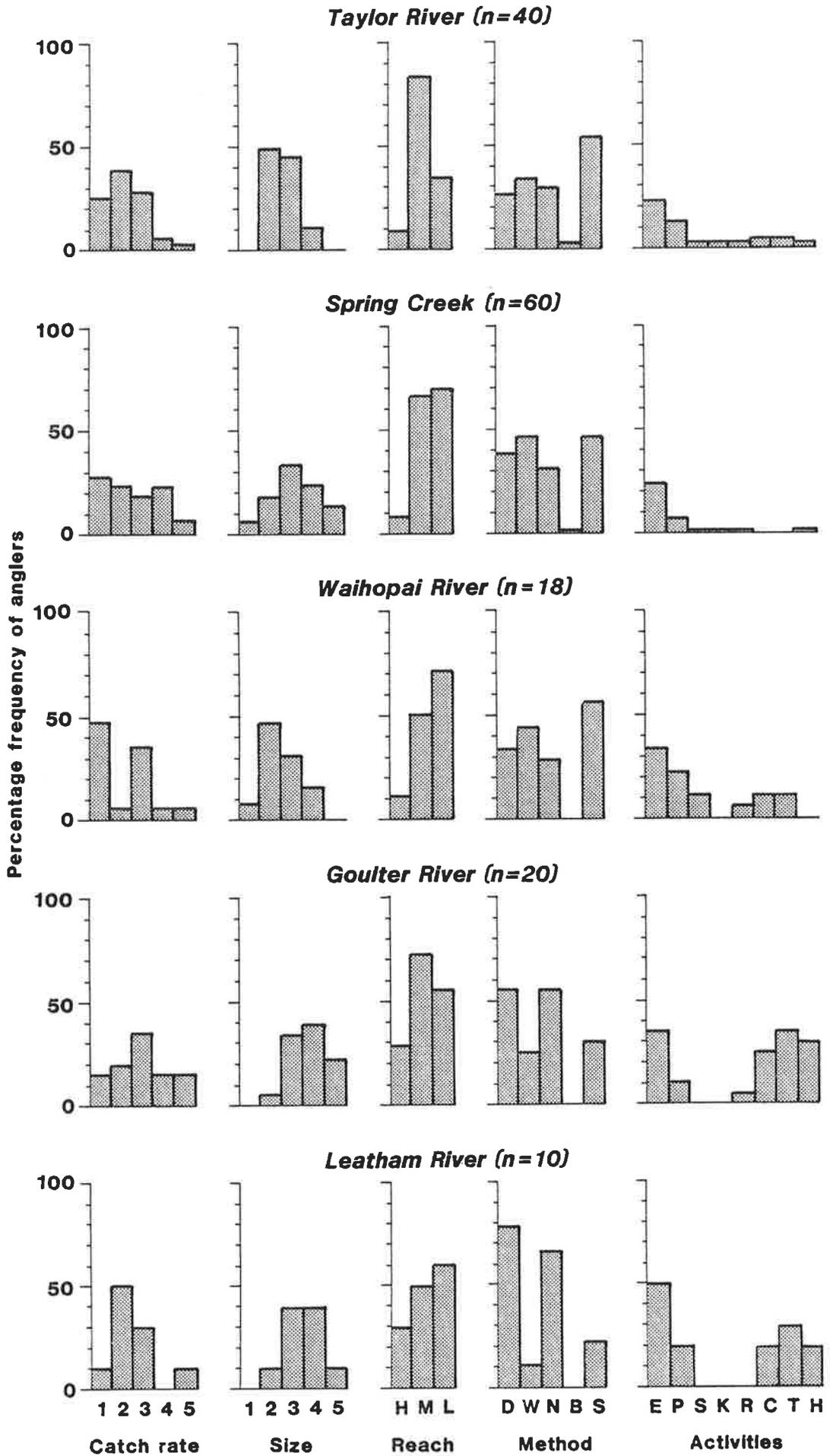


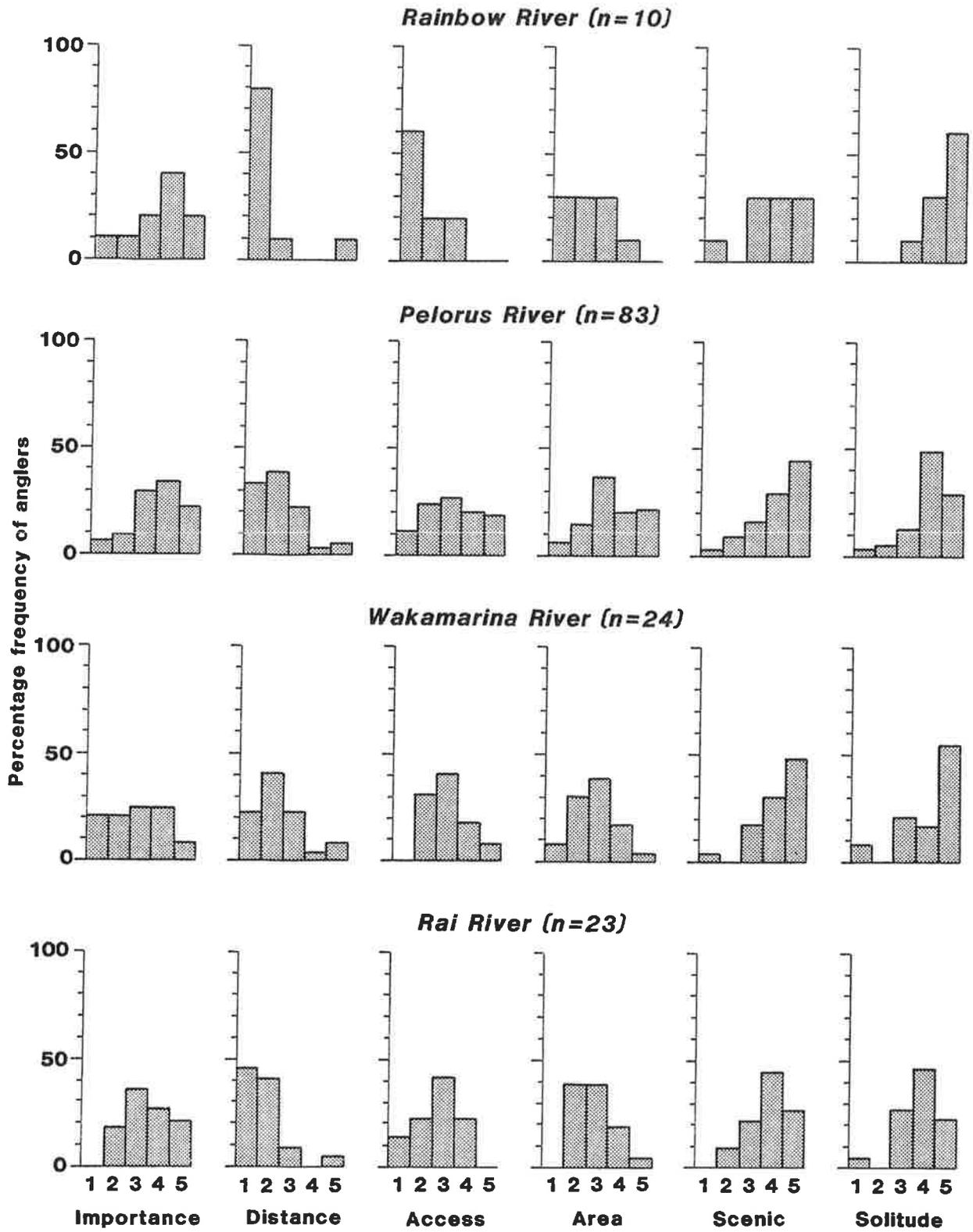
**Leatham River (n=10)**

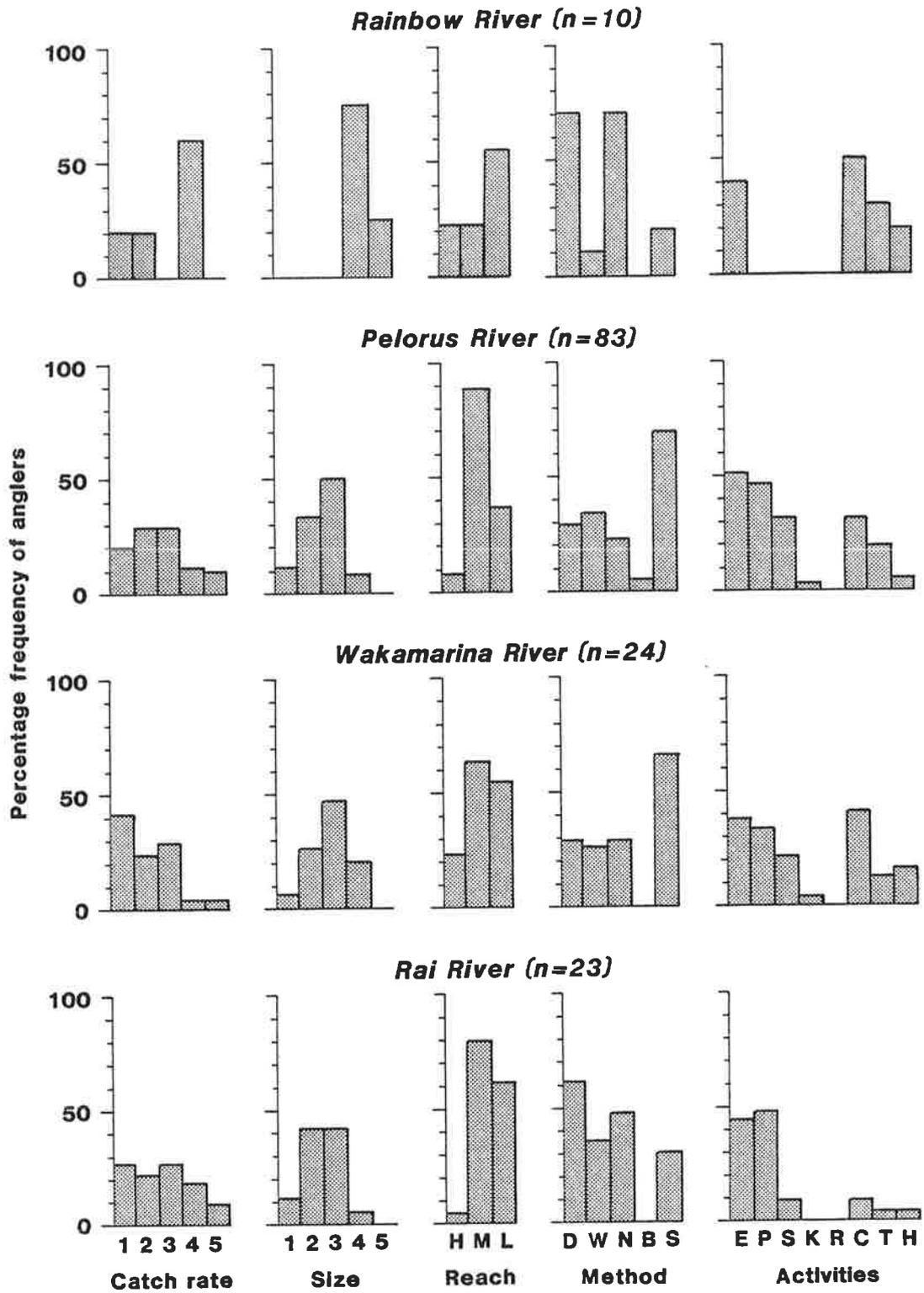


Percentage frequency of anglers

1 2 3 4 5  
**Importance Distance Access Area Scenic Solitude**







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**Fisheries Research Division  
Ministry of Agriculture and Fisheries  
Wellington**