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THE WEST COAST AND WESTLAND TROUT FISHERY

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FISHERIES MANAGEMENT DIVISION

MINISTRY OF AGRICULTURE AND FISHERIES

WELLINGTON

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SUMMARY

This report describes the trout fisheries of the West Coast and Westland Acclimatisation Districts. It is based on angling results collected since 1949 in six angling diary schemes.

In the West Coast Acclimatisation District licence sales have been stable for over 15 years. The average mens whole season licence holder fishes for approximately fourteen days to catch about twelve fish per season, the total district catch of approximately 15,000 fish being caught in 18,000 days angling. In the Westland Acclimatisation District licence sales are fairly low but are still increasing. The average mens whole season licence holder fishes for about eleven days to catch seven fish per season. The total district catch is between 3½ and 7,000 fish per season and the total effort between 5,500 and 11,000 days.

Brown trout are the principal species caught, rainbow trout populations being found in some lakes and headwaters of a few rivers, Lake Mapourika contains a stock of land locked quinnat salmon. The trout average between 0.9 and 1.2 kilograms (kg) in weight and have remained stable in size for many years. No surveys of the fish stocks have been carried out but it is thought that the anglers' crop is a small proportion of the stock.

The thirty principal waters and anglers' catches are described. The fisheries regulations are lenient but there is a lack of scientific information on the fisheries. Without this information, management will continue to be somewhat speculative.

INTRODUCTION

The West Coast and Westland Acclimatisation Districts extend between the Southern Alps and the West Coast of the South Island (Fig. 1). The northern limit of the West Coast District is the Kohaihai River, the boundary then extends south down the Lyall and Victoria Ranges to the Southern Alps. The southern boundary with the Westland District is along the Taramakau River. The Westland District extends south of this river, its eastern boundary being the Southern Alps down to a line south west of Makawhio Point. The whole region is subject to heavy rainfall and has a multitude of short rapid rivers running from the Southern Alps to the sea.

The freshwater fisheries of this region have been managed for many years by the West Coast and Westland Acclimatisation Societies. The West Coast Society is an amalgamation of the Grey and Buller Acclimatisation Societies. The Societies are governed by a Council elected by a postal ballot of shooting and fishing licence holders. The Ministry of Agriculture and Fisheries (formerly the Marine Department) provides an advisory service to the Societies and undertakes research projects on request.

In order to collect systematic information on the fishing qualities of the waters in this district, the Marine Department in 1949 initiated an angling diary scheme in the West Coast District. This scheme was taken up in 1950 by the Westland Acclimatisation Society. These schemes continued until 1952, the anglers' results being analysed by Allen and Cunningham (1957). Additional diary schemes were run in the 1957, 1962 and 1967 angling seasons.

Relatively few of the licence holders who were given diaries, returned them at the end of the angling season, consequently the information contained in these diary schemes was not as adequate as could be desired. The errors in diary schemes have been analysed by Allen and Cunningham (1957) and Graynoth (1973) to which reference should be made in respect to the accuracy of the various statistics presented here. A few short scientific surveys have been made in some waters of these Districts but as in most other Acclimatisation Districts in New Zealand, there is a great need for more detailed scientific work.

The aim of this report is to assist the Societies in the management of the fisheries and also to act as a guide to anglers.

THE ANGLERS

West Coast

The number of anglers in this district was fairly low until the early 1950's when licence sales rapidly increased to present day levels (Fig. 2). The numbers of men whole season and children whole season anglers are very similar, around 600 licences each being sold every year. Sales of womens and short term licences have always been low, below 100 in any category.

The percentage of anglers in the adult male population was calculated at 3.0% in 1951. Due to the increase in licence sales the present percentage including short term anglers is probably around 7% as in the Nelson District.

An analysis of where the diarists lived showed fairly obviously that most lived in the large towns of Westport and Greymouth. Quite a number lived in the Grey River Valley and it is highly probable that anglers comprise a higher percentage of the population there than in the towns. Anglers living in the Grey Valley rarely fish the Buller system and vice versa.

The average diarist's annual fishing effort and catch are shown in Table 1. Certain reductions and corrections have to be made to the average diarist's statistics to make them typical of the average angler (Allen and Cunningham 1957, Graynoth 1973).

It seems that the average mens whole season licence holder in the West Coast District fishes for about 14½ days per season to catch just under 12 fish at an average catch rate of 0.81 fish per day. The diaries show no evidence of any change in the average angler's annual effort, catch and catch rate over the past twenty years. This indicates that the fisheries as a whole have not improved or deteriorated over this period.

The total district catch of West Coast anglers in 1967 and probably from 1958 to 1971 is around 12,700 fish. With about 2,200 fish being caught by visiting anglers mainly from Westland and North Canterbury, the total district crop is about 15,000 fish (Table 2). This is a higher crop than in Nelson, Marlborough, Westland, or Hawkes Bay but smaller than in Wellington, Southern Lakes or the Canterbury Districts. To achieve this catch district anglers would fish for about 15,600 days and visitors for about 2,800 days, totalling 18,400 days annually.

In recent years there may have been an increase in the angling effort and catch by visiting anglers from other Acclimatisation Districts. The Society has advised that the following numbers of anglers were checked by their ranger in recent years: March and April 1966 of 33 checked, 11 held North Canterbury licences and 22 West Coast, October 1970 and January 1971, a total of 130 were checked and of these 57 held North Canterbury licences, 1 Nelson, 2 Auckland, 2 Southland, 2 Ashburton and 66 West Coast.

FIG.1

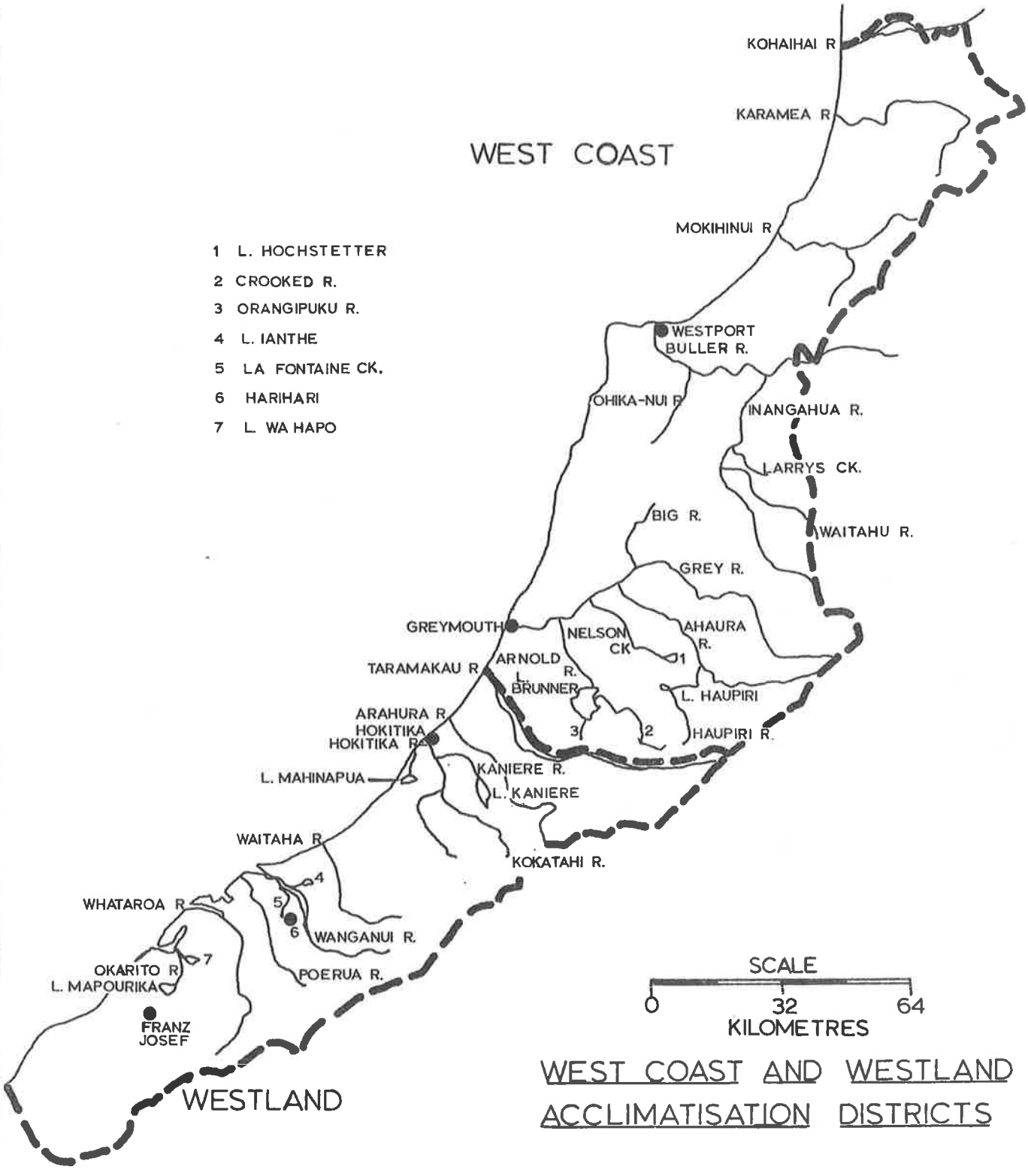

KOHAIHAI R
KARAMEA R
WEST COAST
MOKIHINUI R
1 L. HOCHSTETTER
2 CROOKED R.
3 ORANGIPUKU R.
4 L. IANTHE
5 LA FONTAINE CK.
6 HARIHARI
7 L. WA HAPO
WESTPORT
BULLER R.
OHIKA-NUI R
INANGAHUA R.
LARRYS CK.
BIG R.
WAITAHU R.
GREY R.
GREYMOUTH
NELSON CK
AHAURA R.
TARAMAKAU R
ARNOLD R.
L. BRUNNER
L. HAUPIRI
ARAHURA R
HOKITIKA
HOKITIKA R
HAUPIRI R.
KANIERE R.
L. MAHINAPUA
L. KANIERE
WAITAHA R
KOKATAHI R.
WHATAROA R
WANGANUI R.
POERUA R.
OKARITO R
L. MAPOURIKA
FRANZ JOSEF
WESTLAND
SCALE
0 32 64
KILOMETRES
WEST COAST AND WESTLAND
ACCLIMATISATION DISTRICTS

FIG. 2

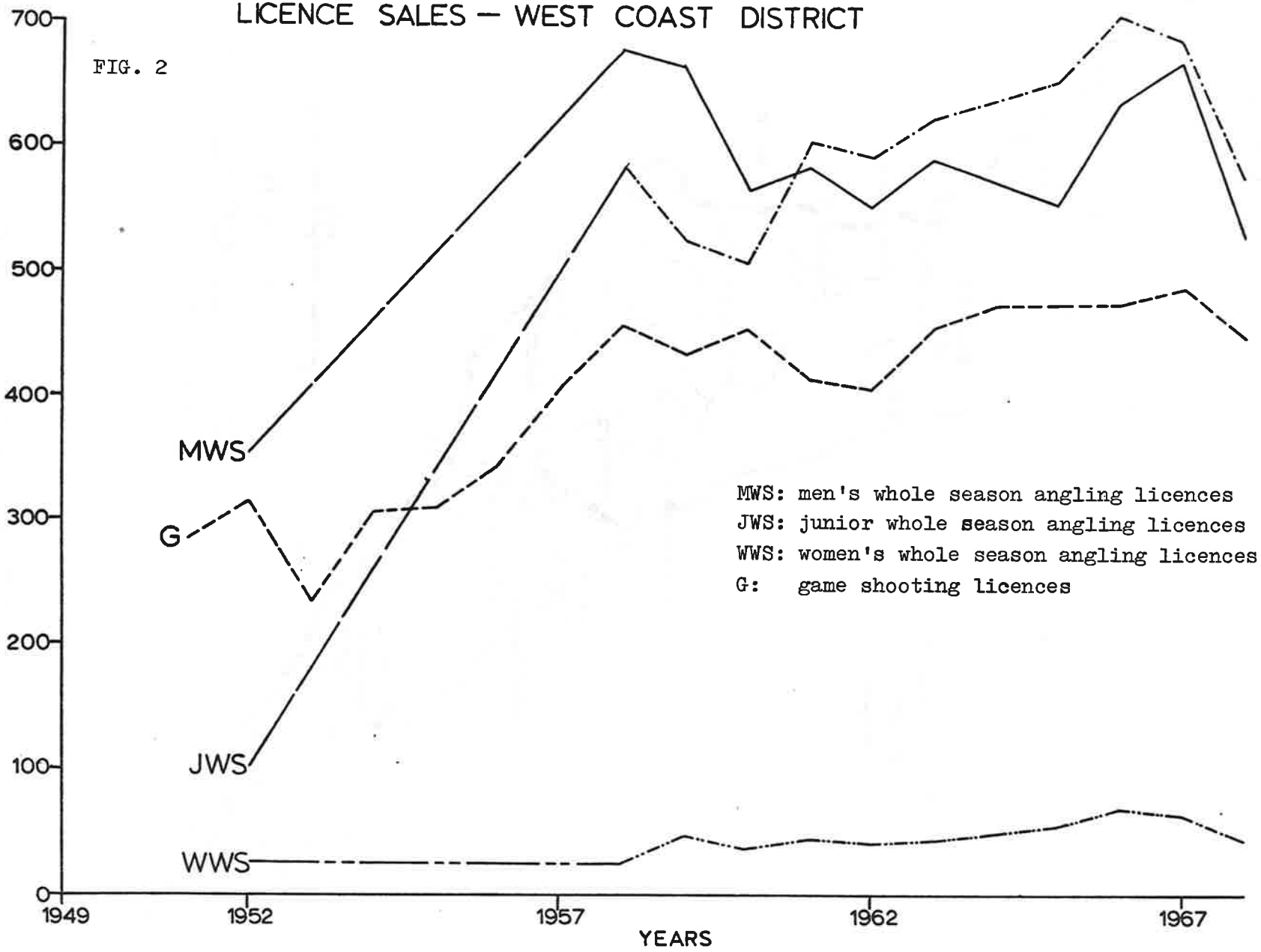

LICENCE SALES — WEST COAST DISTRICT
700
600
500
400
300
200
100
0
MWS
G
JWS
WWS
1949
1952
1957
1962
1967
YEARS
MWS: men's whole season angling licences
JWS: junior whole season angling licences
WWS: women's whole season angling licences
G: game shooting licences

FIG. 3

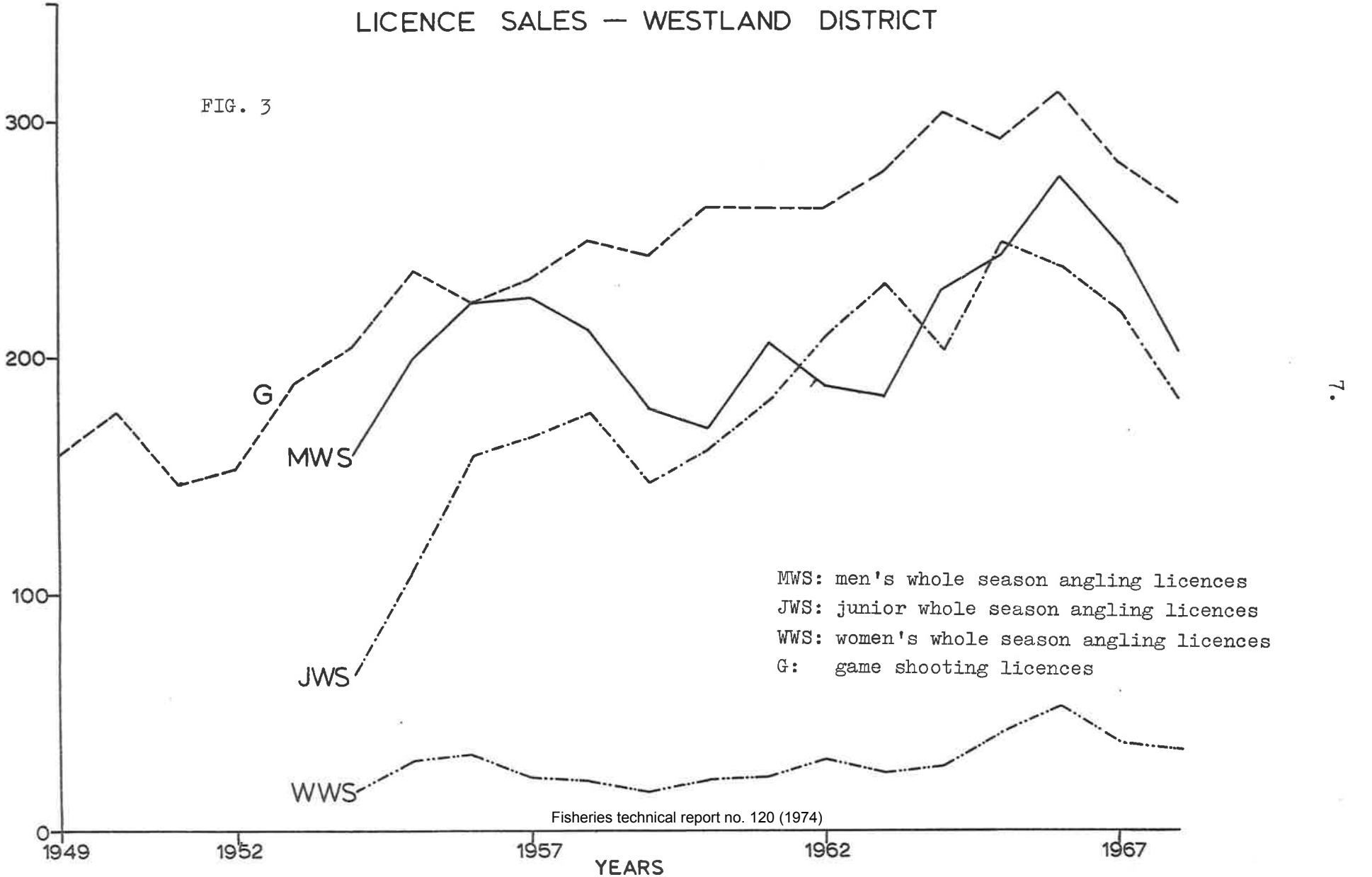

LICENCE SALES — WESTLAND DISTRICT
300
200
100
0
G
MWS
JWS
WWS
MWS: men's whole season angling licences
JWS: junior whole season angling licences
WWS: women's whole season angling licences
G: game shooting licences
1949
1952
1957
1962
1967
YEARS

TABLE 1

Average Annual Fishing Effort and Catch of Mens Whole Season Diarists in West Coast District from 1949 to 1967

Year	1949-52	1957-58	1962-63	1967-68
MWS licence sales per annum	315	690	554	686
Total Diaries returned	28	32	23	2
Percentage Return	2.96 (3 yrs)	4.64	4.15	0.29
Mean days/season (own district)	25.0	15.94	23.91	16.0
Hours/day	3.03	2.72	2.90	2.56
Mean fish kept/season (own district)	41.3	19.75	36.70	15.5
Fish/day	1.65	1.24	1.53	0.97
Fish/hour	0.55	0.46	0.53	0.38

Westland

The licence sales have shown similar trends to those in the West Coast District (Fig. 3). Mens and childrens whole season licence sales are lower and average between 200 and 250 per year. In recent years there has been an increase in the number of day licences sold, probably due to the opening of the Haast road and an increased number of visitors.

Most diaries were returned from Hokitika and a few from Harihari and Franz Joseph. The diarists' annual angling effort and catch were lower than those for the West Coast diarists. All the mens whole season diaries combined (28) averaged 17.2 days per season to catch 20.8 fish at the rate of 1.21 fish per day or 0.47 fish per hour. The angling effort is 26% smaller, the catch rate 19% and the catch 40% smaller than those for the West Coast diarists. It is therefore thought that the average Westland angler fishes less than anglers in the West Coast District and averages about 10.7 days per season to catch 7 fish at the rate of 0.66 fish per day. The average angler's catch is therefore equivalent to that in Marlborough and Hawkes Bay but smaller than that in the West Coast, Nelson and Waimarino.

It is estimated that in 1967 about 3½ thousand fish were kept in this district (Table 2) but due to the low returns of diaries this figure is of low accuracy and it is possible that up to 7,000 fish could be caught in some years. Similarly the district fishing effort is estimated to be between 5,500 and 11,000 days per season.

THE FISH STOCKS

Establishment and Distribution of Species

The brown trout were first established and proved an almost universal success. Later attempts to establish rainbow trout were not adequately documented but they continued for a long period over most of the region. Rainbow trout liberations are still continuing in some waters such as the Taramakau River. Small stocks have only been established in the Upper Hokitika and Taramakau Rivers. The rainbow trout population in Lake Kaniere may have died out.

Another valuable species extensively propagated in the region by the Government was quinnat salmon. The established stocks are now confined to three coastal lakes: Mapourika, Paringa and Moeraki (the last two lakes are in South Westland in the area administered by Internal Affairs).

TABLE 2

West Coast and Westland Fishing Statistics for the More Important Waters

Water	Approx. Lgth. Kilo-metres	Approx. Anglers' Crop 1967	Crop per Km	1957 and 1962 Catch Rates Hours per Fish	1957 and 1962 Catch Rates Fish per Hour	Avg. Lgth. Trout cm	Avg. Wgt. Trout kg	Kg per hour
West Coast								
Karamea	80	200	2.5	2.60	0.39	47.0	1.2	0.5
Mokihinui	72	250	4	3.21	0.31	41.1	0.8	0.3
Buller (Lower)	42	650	15	1.56	0.64	41.7	0.9	0.5
Inangahua	72	500	7	2.89	0.35	42.9	1.0	0.3
Waitahu	35	250	7	2.76	0.36	59.2	2.5	0.9
Ohikanui	22	500*	23	2.82	0.35	56.9	2.2	0.8
Grey	120	3400	28	1.50	0.67	41.7	0.9	0.6
Ahaura	64	500	8	1.79	0.56	48.5	1.4	0.8
Haupiri	26	600	23	1.96	0.51	47.5	1.3	0.6
Arnold	26	2200	85	1.44	0.70	42.4	0.9	0.6
L. Brunner	3800ha	1900	0.5fish per hectare	1.33	0.75	46.7	1.2	0.9
Crooked	22	600	27	1.75	0.57	49.8	1.5	0.8
Orangipuku	10	200	20	2.63	0.38	50.3	1.5	0.6
Taramakau	72	400	6	1.60	0.62	42.4	0.9	0.6
		15.000						
Westland				All Years 1950-67				
Arahura	35	675	19	2.94	0.34	41.9	0.9	0.3
Hokitika	64	740	12	2.12	0.47	44.7	1.1	0.5
La Fontaine Creek	10	410	41	2.47	0.40	49.5	1.4	0.6
Lake Mapourika	840ha	745	1 fish per hectare	2.61	0.38	47.2 (quinnat)	1.3	0.5
District Total		3500						

* Probable over-estimate

Lake Mapourika contains mainly quinnat salmon and a small stock of brown trout. A 1957 angling record contained in the catch two brown trout and one perch and at least four brown trout were caught there in 1970.

Sea run brown trout are found in the Hokitika and Grey Rivers and there probably are runs of sea run brown trout in most large rivers on the Coast.

Nothing is known about introductions of other species in the region. Perch were recorded by the diarists from Lake Mahinapua and Kaniere. Catfish are present in Lake Mahinapua.

The Size of Trout

Brown trout in the region are large (Table 3) and the average weight of fish caught has remained between 0.9 and 1.1 kg for the last twenty years, as in the Nelson District. The West Coast and Westland districts have many waters from which there is little or no angling information, so some populations of small fish, similar to those in coastal streams in Nelson probably exist. Also, there are places where very large fish can be caught. In one small tributary of the Inangahua River (Larrys Creek) 14 fish caught in 1962 were all between 56 and 71 cm.

A few rainbows caught in the Hokitika River were smaller than brown trout. Landlocked quinnat salmon from Lake Mapourika averaged 48 cm and the largest was 63.5 cm. All perch recorded were small, but some very large perch are certainly available to those anglers who can develop a method to catch them.

Most rivers in the region are short and the large lakes are lowland, so fishing is concentrated from the coast to about 16 kilometres inland. The high country is steep and inaccessible. In the 50 kilometres of the lower Buller River inside the West Coast District, fishing was recorded only from the lower 16 kilometres. There are only a few rivers where some fishing is done above the 16 kilometre limit. Angling localities were coded into 16 kilometre sections of the rivers for computer tabulation. As a result of this adequate records showing size differences by location are available only for the Grey River, the largest river in the region.

TABLE 3

Waters Where Most Fish Over 2.5 kg or 60 cm Can Be Caught

Water	Number of Fish Over 60 cm recorded by Diarists in 1962 and 1967	Percentage of Total fish kept
West Coast		
Grey	22	7
Ohikanui	15	60
Waitahu	12	44
Haupiri	12	21
Inangahua	9	15
Lake Brunner	9	4
Westland		
Hokitika	6	13
Arahura	5	8
L. Kaniere	4	25

(Some other small rivers have mainly large fish in them but few fish were caught by diarists)

Fish taken up to 32 kilometres from the sea were about 38 cm in average length, from 32 to 48 km inland 41cm and those caught from 48 to 80 km upstream were on average over 43 cm. Most fishing was done up to 48 km from the sea.

The majority of the fish caught in Lakes Brunner and Mapourika were caught from the shore but a few larger fish wer caught from boats. The size differences in trout caught can be due to the angling techniques employed. Most fish in the region were caught on an artificial minnow but they were on average about 5 cm smaller than those caught on worm and live bait. Artificial flies were used little and the trout caught on them were medium in size. Artificial fly and creeper techniques were more popular further south in Westland.

There is not enough information to give an accurate picture of seasonal changes in the size of trout caught. The size tended to increase from October to January and then drop gradually towards the end of the season.

No important long term changes in species composition or size are evident in the last 20 years.

The Stock and Anglers' Crop of Trout

West Coast

In the West Coast District the diarists' catch rate has not changed between 1949 and 1962. Catch rates for individual waters show fluctuations from year to year caused by the differences in anglers' skill, angling methods used and the insufficient number of angling results. In general, where there is sufficient information, no change in catch rate is evident over the thirteen years from 1949 to 1962. This would indicate, but certainly not prove, that the fish stocks have remained at similar densities.

The Haupiri River has shown a slight drop in catch rate and the Taramakau rather large fluctuations. Neither change is statistically significant but possibly reflects an increased crop in the Haupiri in recent years and the effect of floods in the Taramakau.

The total crop in the West Coast District is around 15,000 trout per annum which mainly come from the waters shown in Table 2. The total crop has been distributed to these waters in proportion to the fish kept by the diarists. There are various inaccuracies in this method due to uneven geographic distribution of diaries, individual angler preferences for specific waters and the bias of skilled diarists to fish dry fly waters in preference to using natural bait in other waters. However, the crop per kilometre figures appear to be reasonable and are probably fairly accurate.

The crop of catchable fish by anglers seems to be low in general and similar to that in Wellington District. The Ohikanui crop is almost certainly an over estimate caused by a statistical error. The moderate crop from the Arnold should be of no concern, since this stock can probably receive recruitment from the Grey River or from Lake Brunner which, from the data available, both seem to be underfished.

Westland

There is insufficient information to show any historical changes in anglers' catch rates. The catch rates are poorer than in the West Coast District. Table 2 shows the catch rates of diarists from 1950 to 1967 in the four major waters. Because of the lower catch rates it is suspected that the densities of the fish stocks are lower than in the West Coast waters.

The crop estimates for the four major waters are shown in Table 2. These are subject to a large possible error because of the small number of diaries returned. All other waters have less than 100 fish each caught per annum. It is possible that La Fontaine Creek and the Arahura River are overfished but this is by no means certain.

FISHERIES REGULATIONS

West Coast

The size limit in 1947-52 was 22.9cm (9 inches), this was increased in 1963-64 to 27.9cm (11 inches). Most undersized fish are caught nowadays in the Lower Buller where up to 40% of the catch may be undersized. 25% of the Grey River trout caught are undersized and 20% of the Ahaura and Haupiri fish. Lower numbers of undersized fish are caught in the Taramakau and Arnold and very few indeed in the Crooked River and Lake Brunner.

The bag limit in 1947-52 was 20 fish per day which was achieved less than 0.1% of the time. The present bag limit of ten fish is also rarely achieved. In 1962, skilled anglers (diarists) recorded this catch only four times in the Grey River out of 927 days angling recorded in the district. The bag limit does not limit the crop and should remain at the present level.

Method restrictions are few which is excellent. At present there is no winter angling season in the lower reaches of the main rivers. As in the Hokitika River, runs of sea run brown trout almost certainly occur in the Buller and Grey Rivers and winter angling should be introduced.

Westland

There is a bag limit of ten for trout and four for salmon. Neither bag limit was achieved in 469 days angling in 1957, 1962 and 1967. The former lower bag limit of three for salmon was achieved 5% of the time. The limits have therefore little restrictive action on the anglers' catch. We see no reasons for lowering the bag limit .

The size limits are 22.9 cm (9 inches) for trout and 30.5 cm (12 inches) for salmon. Undersized salmon are very rarely caught and undersized trout only occasionally in the Arahura and Hokitika rivers. It is doubtful whether this limit restricts the catch as most anglers would not keep trout smaller than this. We see no reason for increasing the size limits. A 15.2 cm (6 inch) size limit for perch serves no purpose whatsoever.

There are no angling method restrictions apart from generally illegal methods such as fish roe as bait. This is excellent.

The open season extensions allow anglers to fish the large glacial rivers in September. There should be no closed season at all in these rivers in the lower reaches to allow the anglers to fish for sea run brown trout.

THE WATERS

West Coast

Karamea River

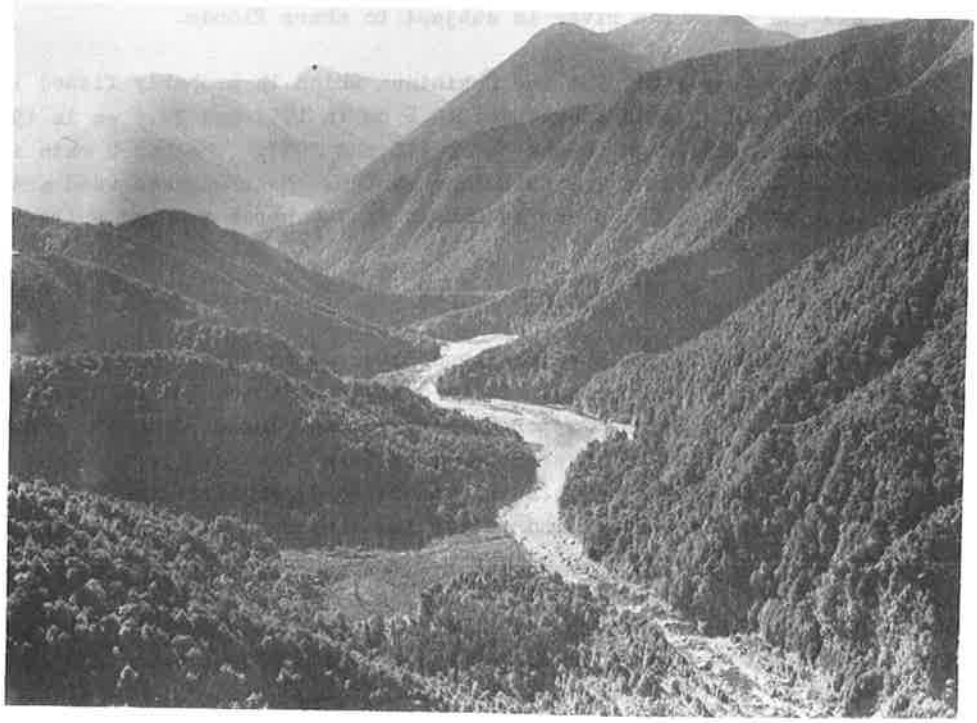
The Karamea River is approximately 80 kilometres long and has numerous small tributaries. Only about 10 kilometres above the mouth are in settled country, the rest is in the densest bush in the region. The river is stable, although numerous slips occurred during the 1929 earthquake which made conditions for trout and their spawning less favourable. The river still holds a good stock of brown trout up to at least 2.5 kg in weight. The river was surveyed in 1961 by the Technical Field Service of the Marine Department and a very good description of it and fishing conditions is given in Investigation Report 31.

The diarists in 1962 recorded no fishing in the Karamea, but in 1957, 35 fish of average length 47 cm were taken. The rate of catch was 0.38 fish/hour and a high percentage of undersized fish (43%) were caught. No information from previous years is available. The crop in 1967 was estimated at 200 fish. This is an insignificant portion of the stock.

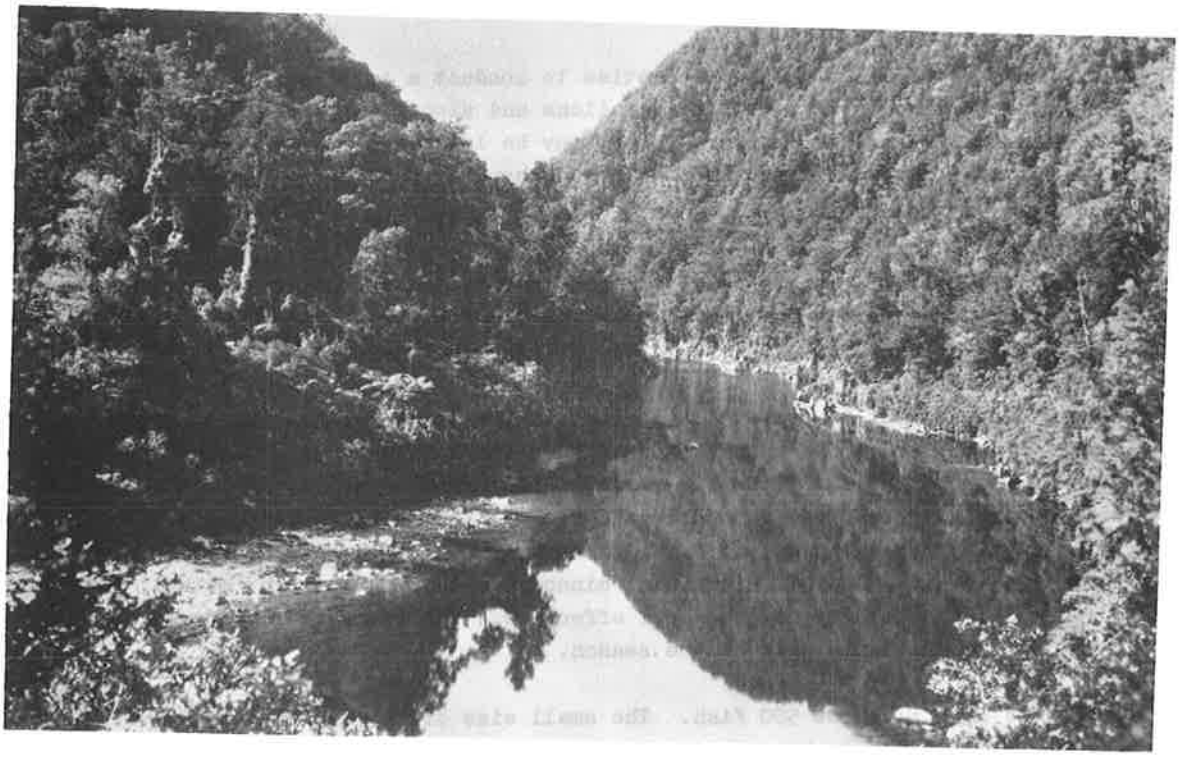
If the tourism in the area increases, it may be worthwhile to open tracks and build huts in the bush in the upper reaches, where deerstalkers and local residents have reported good trout.

UPPER KARAMEA RIVER

(N.Z. Forest Service photo by J.H.G. Johns A.R.P.S.)



LOWER KARAMEA RIVER
(National Publicity Studios)



Mokihinui River

The Mokihinui is a fast flowing river of about 70 kilometres in two main branches and has a catchment area of about 800 km^2. Much of the catchment is in bush and access is easy only near the main road near the sea. The river is subject to sharp floods.

Very little fishing was reported from the Mokihinui which is probably fished largely by local residents. The brown trout caught averaged 45.5 cm in 1957 and 39.6 cm in 1962 with a sizeable percentage of undersized fish in the catch (18 and 29%). The catch rate is rather poor and the fishing is not as good as in the Buller system. Most anglers used artificial minnow. Considerably larger fish averaging 56 cm can be caught in the upper reaches while the average size near the sea is 37.3 cm.

Lower Buller River

The Upper Buller River from above the Inangahua River is in the Nelson District where it is comparatively more important for angling. It is described in the Nelson District report together with some of the more important upper tributaries and lakes (Graynoth and Skrzynski 1973). Less than 50 kilometres of the lower reaches of this river are in the West Coast District together with some important tributaries described separately: the Ohikanui, Inangahua and Waitahu. The Buller is a large river and in its lower reaches it exceeds 100 metres in width, the discharges varying from 600,000 litres per second to 9,000,000 l/s in flood conditions.

Rainbow trout are sometimes caught in the upper reaches, but none have been reported in the lower reaches. The trout caught in the upper reaches have always been much larger (from 47.2 cm to 52.1 cm) than in the lower reaches, the average size being stable at 41.7 cm or 0.9 kg. The percentage of undersized fish in the catch tends to be higher than in the upper reaches. The catch rates are better in the lower reaches.

The estimated crop in 1967 was 650 fish, an insignificant portion of the stock, the river being more heavily fished in its upper reaches.

It would be beneficial for the two Societies to conduct a joint survey of the Buller trout stocks, to determine their possible migrations and also the reason for the apparent lower average size of fish in the lower Buller. There may be large fish in the lower Buller but it may be much more difficult for the anglers to catch them.

Inangahua River

The Inangahua River is about 70 kilometres long and is one of the largest tributaries of the Buller River and the largest Buller tributary in the district. The road running along most of its length provides good access. No surveys of this river have been undertaken.

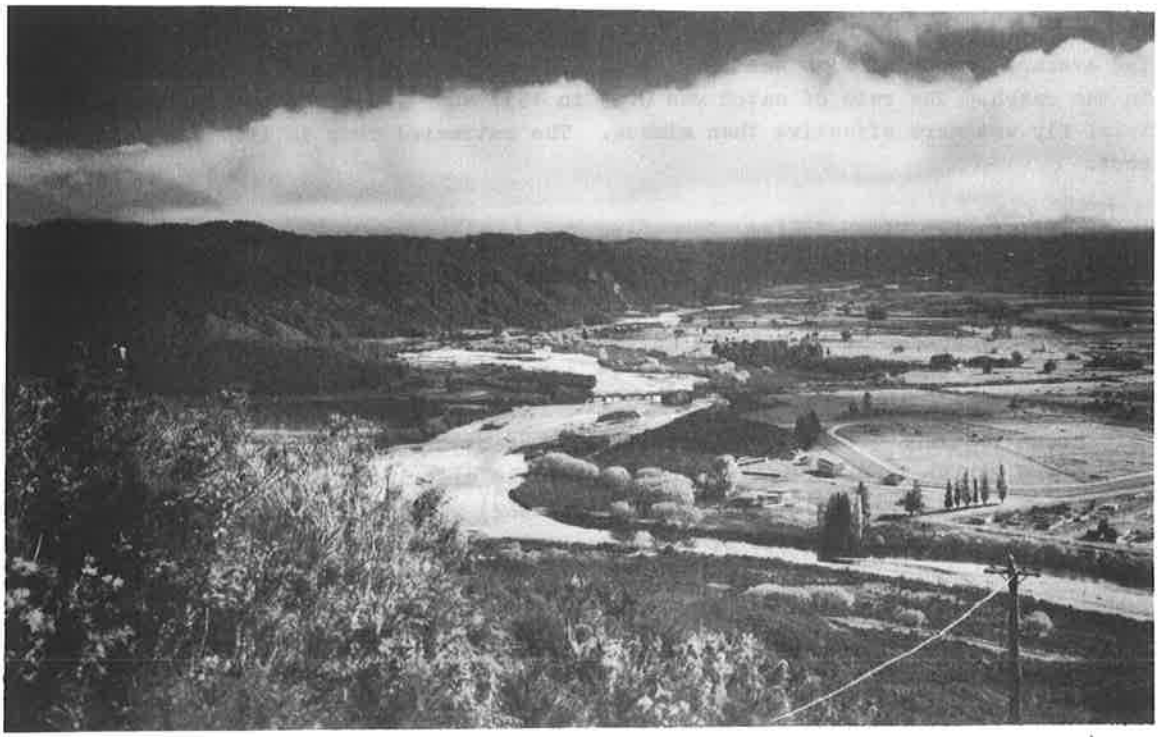
The size of brown trout is comparable to that in the lower Buller, but much smaller than in the Ohikanui River, Larrys Creek and the Waitahu. The average size of fish caught by diarists was 42.9 cm or 0.95 kg. Fish are smaller below Reefton and wet fly catches the smallest fish. There was a high percentage of undersized fish in the catch in all years. The rates of catch have fluctuated from a minimum of 0.2 fish/hour to 0.68 fish/hour averaging 0.35 fish/hour or 1 fish every 2.9 hours. In 1962 artificial minnow was the most popular method, with wet fly second and spoon third. Wet fly was the most effective. The river is fished mostly below Reefton and mainly in the early part of the season.

The estimated crop is about 500 fish. The small size of the fish in this river as compared to a much larger size in its tributary, the Waitahu, warrants investigation.

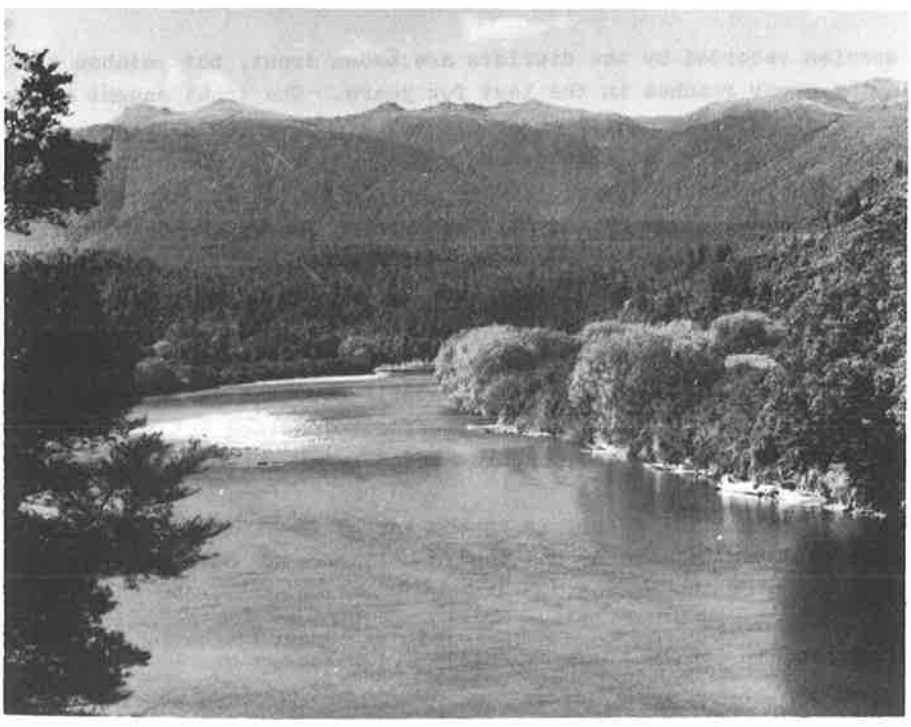
Waitahu River, Inangahua tributary

The Waitahu River is about 35 kilometres long and flows into the Inangahua River below Reefton. No surveys of it have been undertaken and there is road access at only a few points.

INANGAHUA RIVER AT REEFTON (N.P.S.)



LOWER INANGAHUA RIVER
(N.Z. Forest Service photo by
J.H.G. Johns A.R.P.S.)



Only brown trout have been recorded and they are some of the largest in the Buller system, similar in size to the Ohikanui fish. Both these rivers flow through mostly unsettled areas with bush catchments.

The average length of fish was 59.9 cm in 1957 and 58.7 cm in 1962 with no undersized fish in the catch. The rate of catch was 0.29 in 1957 and 0.45 fish/hour in 1962. Artificial fly was more effective than minnow. The estimated crop in 1967 was approximately 250 trout.

Ohikanui River, Buller River System

The Ohikanui River is a tributary of the Buller and joins it about 15 kilometres from the mouth. It is approximately 22 kilometres in length. No surveys of it have been undertaken and the only access is by walking up the river bed from the road bridge at the confluence with the Buller.

Only brown trout have been recorded. In 1962 about twice as much fishing was recorded as in the lower Buller, accounting for about 3% of the district's fishing. The average size of fish was large (53.6 cm in 1957 and 59.4 cm in 1962) with no undersized fish or fish under 43 cm in the catch. The rate of catch was 0.38 to 0.33 fish/hour using artificial fly.

The average size of fish is one of the largest in the whole Buller system and also in the district and the rate of catch also good, making this river the best in the district in terms of weight of fish caught per hour. The estimated crop in 1967 was 500 fish, possibly up to half the stock.

It would be worthwhile to encourage more anglers to fish in this river but first a survey should ascertain whether the fish stocks can withstand this rate of crop.

Grey River

The Grey River is one of the largest rivers of the West Coast and with its numerous tributaries and lakes it is the most important for angling. The Grey River is about 120 km long and it drains an area of 3,900 km^2. It floods frequently and the maximum discharges recorded are up to 6,000,000 l/s. The main river has not been surveyed.

The only species recorded by the diarists are brown trout, but rainbow trout ova have been planted in the upper reaches in the last few years. The trout caught are rather small, as in the lower Buller, averaging 41.7 cm or 0.9 kg. In 1957 the average length was 36.8 cm and in 1962 it was 40.9 cm with a large percentage of undersized fish in the catch (25 and 38%). The fish caught averaged 37.6 cm in the lowest 32 kilometres rising to 41.1 cm in length, 32-48 km upstream and 43.7 cm average length 48-64 km upstream. Some very large fish can be caught in the upper reaches. Wet fly catches the largest fish. The average size of fish rises during the season from 40.1 cm in October to 45.0 cm in January, then remaining stable.

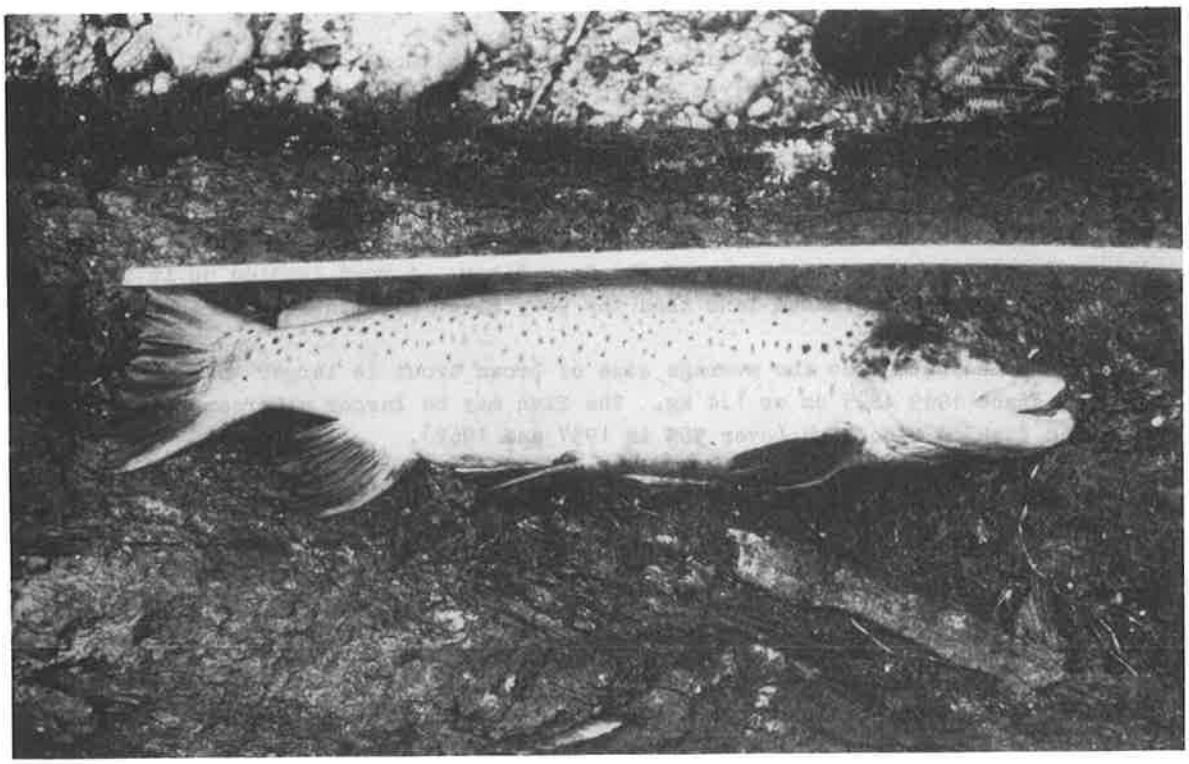
The rate of catch has been good and fairly stable over the years, averaging 0.67 fish per hour - 1½ hours per fish. Worm is the most effective method but minnow is most popular and with wet fly, which is little used, records lower catch rates.

The majority of the angling effort is in the lowest 16 kilometres but the best catch rates were recorded between Stillwater and Ahaura . The catch rate drops to December then improves towards the end of the season.

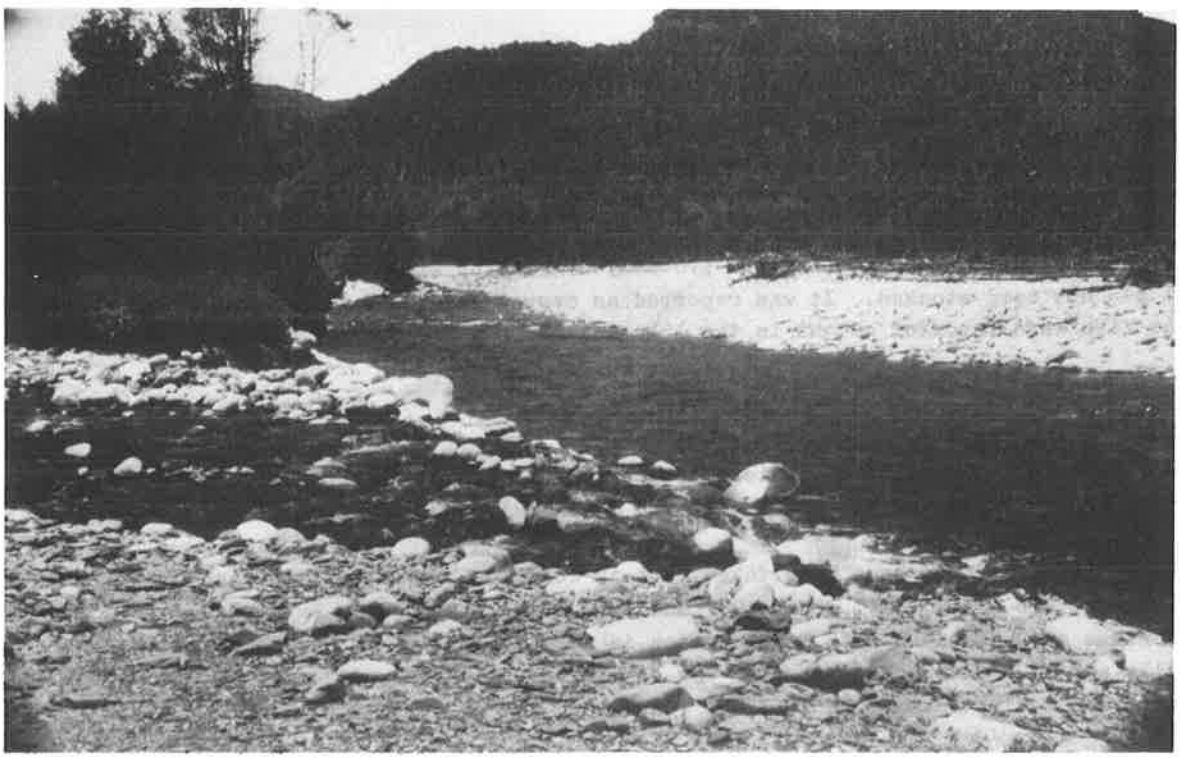
The estimated crop in 1967 was approximately 3,400 fish.

The Grey River is the most popular river for angling in the West Coast District and with its tributaries and lakes supports about three quarters of the district's fishing. The angling pressure for such a large river is still small. If even a brief survey indicated that the numbers of fish are high, then it may be beneficial to lower the size limit.

BROWN TROUT FROM A TRIBUTARY OF INANGAHUA RIVER



WAITAHU RIVER WITH STATION CREEK ENTERING FROM LEFT



The Grey River is the only river in the district where limit bags of 10 fish are sometimes reached, but their percentage is still insignificant. In 1962 it was below 3%.

Big River

This Grey River tributary is fished very little, although a road provides access up it. It has not been surveyed and the first record of fishing in it is from 1962, when 26 fish caught averaged 46.0 cm with no undersized fish in the catch and the rate of catch was high 1.5 fish /hour. Practically all these fish were caught on a worm.

Ahaura River

The Ahaura River is a major tributary of the Grey River. A road leading up it for 37 km provides good access but it is fished less than the Grey River and its lower tributaries.

The diary data indicate that the average size of brown trout is larger than in the Grey River, averaging since 1949 48.5 cm or 1.4 kg. The fish may be larger upstream. The percentage of undersized fish is also high (over 30% in 1957 and 1962).

The catch rate averages 0.56 fish per hour. The most popular methods in 1962 were minnow and worm. Minnow was much less successful (0.50 fish/hour) than worm (1 fish/hour).

The estimated crop in 1967 was 500 fish.

Haupiri River

The Haupiri River is one of the tributaries of Ahaura River in the Grey River system. It is more important for angling than the Ahaura River, but it also has not been surveyed.

The brown trout caught are of very similar length to Ahaura River fish and the percentage of undersized fish caught is smaller at about 20%. There was no difference in the size of fish caught by different methods, though larger fish were caught later in the season.

The catch rate averages 0.51 fish per hour and may have decreased in recent years. The most popular methods are minnow and worm, the minnow being the most popular and successful at 0.62 fish/hour.

The estimated crop in 1967 was 600 fish.

Lake Haupiri

This lake is in the headwaters of Haupiri River. It has been surveyed and described in the Marine Department Investigation Report 52 in 1963.

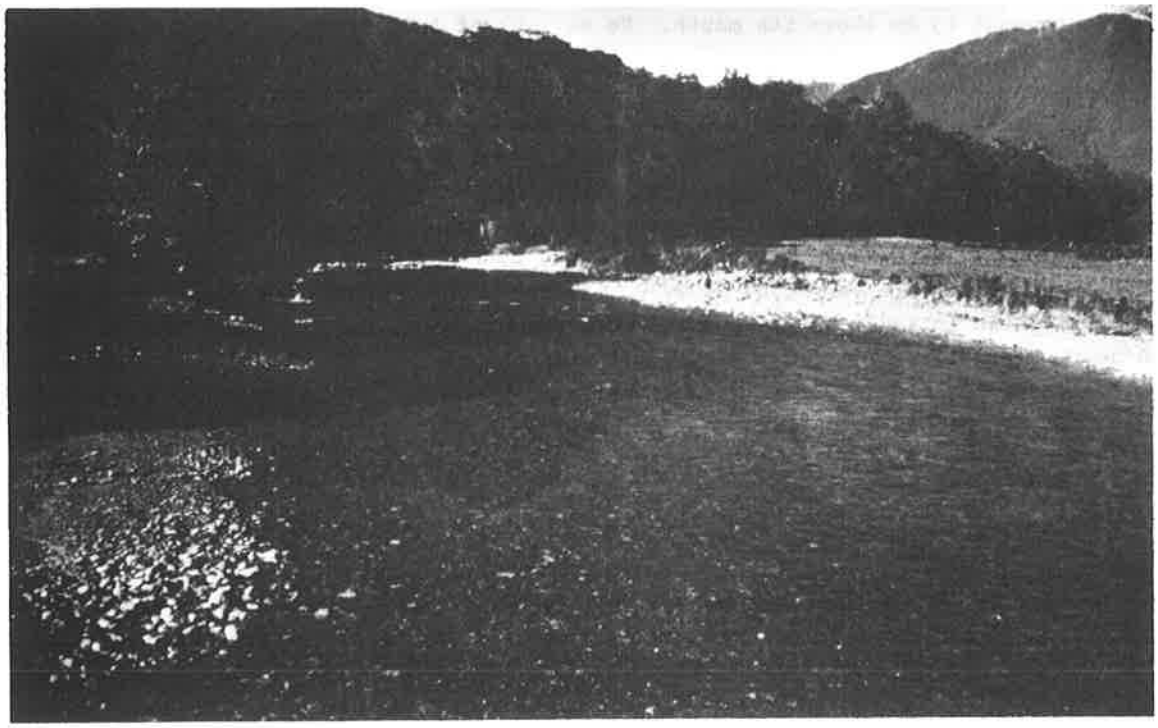
The population of brown trout in it probably originated from the Haupiri River, because the lake has not been stocked. It was reported as overstocked, the fish being in poor condition. Only nine fish were reported caught in the lake in 1962 and there are no earlier records of catches.

Lake Hochstetter (Nelson)

This small lake is at the headwaters of the left branch of Nelson Creek, a tributary entering Grey River about halfway between the Arnold and Ahaura Rivers,

No surveys of it have been undertaken, but it contains brown trout and supports some angling. The fish caught are small (39.1 cm in 1957 and 1962), smaller than in Lakes Brunner or Haupiri, and the percentage of undersized fish in the catch is very large (65% in 1957 and 56% in 1962). Practically all fishing recorded in 1962 was on a minnow and the rate of catch was high at 1.2 fish/hour. The estimated crop in 1967 was 100 fish.

BROWN GREY RIVER



CLARKE RIVER

Arnold River

The Arnold River is the outlet stream of Lake Brunner. It is about 25 km long and joins the Grey River about 13 km above its mouth. No surveys of this river have been undertaken.

The diary records suggest that the stock of brown trout in this river is associated with the Grey River rather than with Lake Brunner. The average size of fish caught (45.0 cm in 1957 and 41.7 in 1962) and percentage of undersized fish (4.4% in 1957 and 17.7% in 1962) are much closer to the Grey River than Lake Brunner figures. Live bait catches the largest fish, there being no seasonal or locality size differences shown by the diarists.

The rates of catch are very good at 0.70 fish per hour. Wet fly and minnowwere the two most popular methods in 1962, but minnow was more successful at 0.8 fish/hour than wet fly at 0.5 fish/hour. Less popular dry fly caught 0.46 fish/hour. The majority of the angling is done in the lowest 16 km,the greatest pressure being in October. The catch rates may be best in the last few months of the season.

The estimated crop in 1967 was 2,200 fish.

Lake Brunner

Lake Brunner is the largest lake on the West Coast (41 km^2) situated at 85 metres above sea level. It has been surveyed in 1961 and described in the Investigation Report 29 and its important spawning streams have been described in Reports 14 and 59. It is the second most important angling water in the West Coast District after the Grey River.

The brown trout in the lake and its inflow tributaries are slightly larger than in the Arnold River, which drains the lake, and the Grey River. The average length of trout caught by diarists was 46.2 cm in 1957 and 48.0 cm in 1962 with a percentage of undersized fish of only 1% in both years. The largest fish were caught using live bully, the fish caught increasing in length from 45.7 cm in October to 50.8 and 53.3 cm in January and February. No real difference in the size of fish by locality was shown.

The rate of catch of diarists averaged 0.75 fish per hour. By far the most popular method in 1962 was bully and other live bait, which accounted for about ⅔ of the fishing effort, minnow was the second most popular. Bully was also the most effective method at 0.85 fish/hour but minnow caught only 0.28 fish/hour. Trolling was very unsuccessful at 0.03 fish per hour. The lake is mainly fished early in the season. The 1961 survey showed that bullies are the most important trout food in the lake and this probably accounts for the success of the bully method.

The estimated crop in 1967 was 1,900 fish. It appears that the lake is well stocked, if not overstocked with fish competing for a limited food supply. The stock may benefit from increased cropping by anglers.

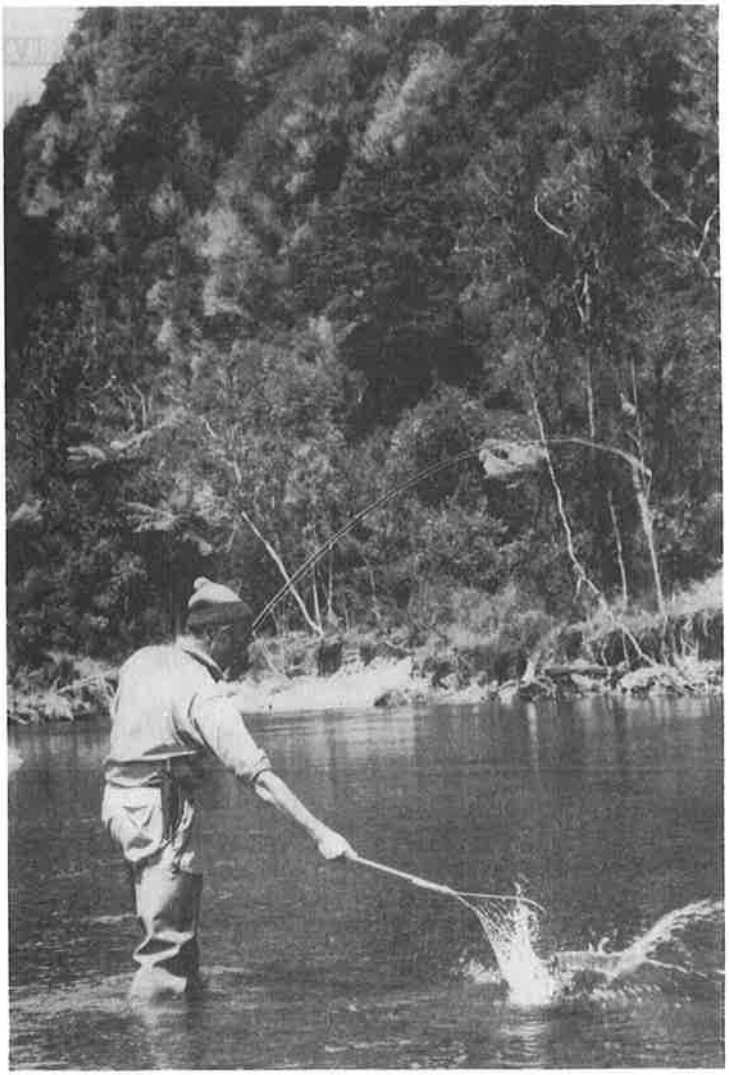
We have advised against the stocking of Lake Brunner with smelt unless this stocking is carried out in a scientific way with temperature, chemical and plankton measurements of the water of origin and of Lake Brunner. The fish should be kept for a period in cages so that any mortality is noted and possibly related to the various factors measured.

Crooked River

The Crooked River is the major feeder stream of Lake Brunner. It is about 22 km long with numerous tributaries.

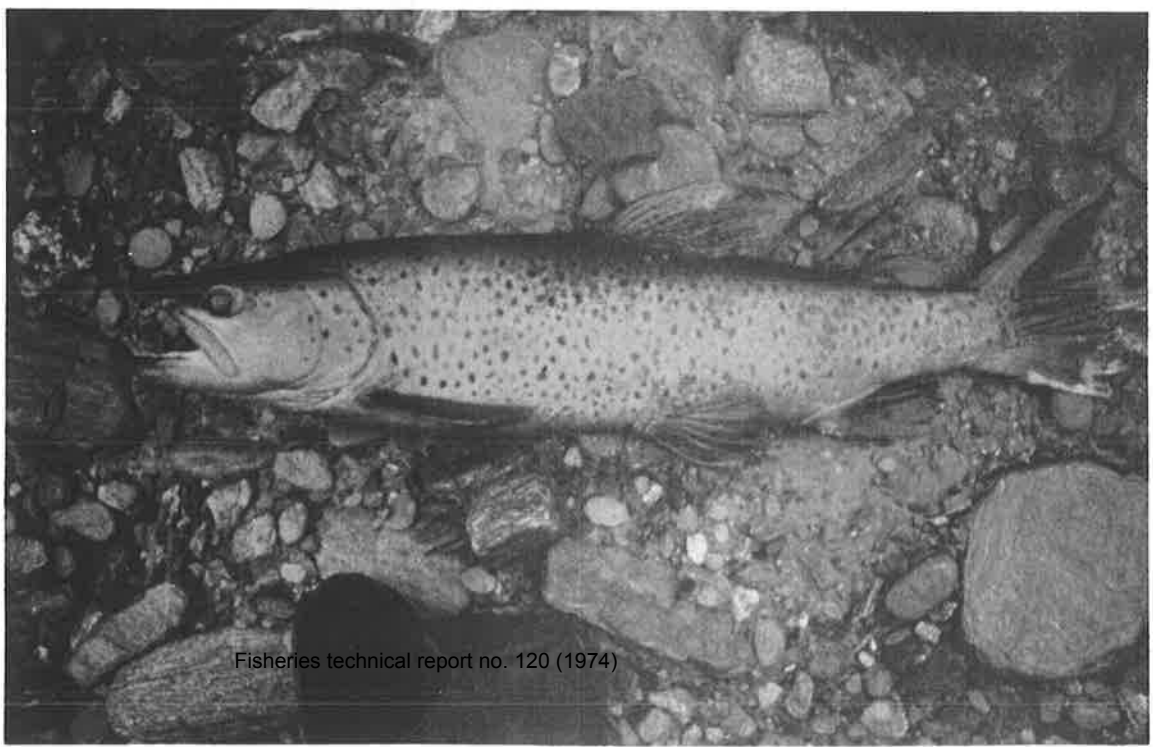
The diaries show that the brown trout caught are large at 49.8 cm or 1.5 kg average. The percentage of undersized fish in the catch was negligible.

The most popular method was worm and practically all fish recorded were taken on it, giving a rate of catch 0.84 fish/hour. Artificials and minnow were used a little but with very little success.



LAKE BRUNNER (N.P.S.)

BROWN TROUT FROM EVANS RIVER, A TRIBUTARY OF THE CROOKED RIVER



CROOKED RIVER

UPPER TARAMAKAU RIVER (N.Z. Forest Service photo by J.H.G. Johns, A.R.P.S.)

The recommendation from Investigation Report 14 to liberalise the size and bag limits would be completely without effect on the catches in Lake Brunner and its tributaries, because the percentage of undersized fish was usually nil and never exceeded 2%, while the limit bag was never reached by diarists in 1962.

Orangipuku River

The Orangipuku River is one of the Lake Brunner feeder streams. It is about 10 km long, 3-5 m wide with very stable banks in pasture and scrub. Its tributaries are important for spawning and were surveyed several times (Hobbs 1937, Investigation Reports 14 and 59).

In 1962 the average size of fish caught was 50 cm or about 1.5 kg with no undersized fish in the catch and the rate of catch was 0.38 fish/hour. Worm was the most popular and most successful method and recorded 0.83 fish/hour.

The estimated crop in 1967 was 200 fish which should not affect the stock as it is probably migratory.

Taramakau River (West Coast - Westland boundary)

The Taramakau is a large river, about 72 km long and it drains an area of 1,000 km^2. No surveys of it have been undertaken.

It has contained brown trout for many years, but liberations of rainbows were made in the last few years. The diary information for 1962 is not sufficient to show the degree of success of these liberations, of 9 fish caught one was a rainbow. Both the West Coast and Westland Societies have stated that there is a well established stock of river dwelling rainbow trout in the upper reaches of this river and in the Taipo, Whinimi and Clear Creek tributaries.

Although a road runs along the river for most of its length, it is little fished. The fish caught are similar in size to the Grey River fish, the average length being 42.4 cm or 0.9 kg, with the percentage of undersized fish 6% in 1957 and 33% in 1962. The rate of catch was 0.8 in 1957 and fell to 0.23 in 1962, the average being 0.62 fish per hour. Several methods were used in 1962, but dry fly was the most popular and also most successful at 0.53 fish/hour. Most angling was done in the lowest 16 km.

The estimated crop in 1967 was 400 fish. At present an anomalous situation appears to exist in that the size limit on the north bank of the Taramakau River in the West Coast District is 27.9 cm (11 inches) while a limit of 22.9 cm (9 inches) is in force on the south bank (Westland District).

It would be beneficial to find why this river is less popular with anglers than the Grey, although the fish size and catch rates obtained are similar. Perhaps its attractiveness could be increased in some way.

There was reputedly a quinnat salmon run in the Taramakau but there is no recent evidence of this (Society, pers. comm.).

Westland

Arahura River

The Arahura River is approximately 35 km in length and it is probably the second most important trout angling river in Westland. No surveys have been made.

The brown trout caught are rather small averaging 41.9 cm or 0.9 kg with a large percentage of undersized fish in the catch in some years. The average catch is about 0.34 fish per hour. Dry fly, wet fly and artificial minnow are used with equal success.

The estimated crop in 1967 was 675 fish, possibly quite a high crop rate. The stocking of this river with either rainbow or brown trout does not appear to have any justification.

Detailed surveys should precede any stocking. The Society reported that few undersized fish were present in this river in 1970-71 as floods had destroyed the bottom fauna which was practically non-existant for three quarters of the season.

Hokitika River

The Hokitika River is one of the largest river systems in Westland and drains an area of about 1,140 km^2. It is fishable for about 65 km but most angling is carried out in the lowest 32 km.

It is important for angling and appears to have provided a reasonable catch over the years. No rainbows were recorded in the 1950 52 period, but in 1962-63 nineteen fish caught were brown and ten were rainbow trout and 38 brown and 5 rainbow trout were caught in 1967-68.

The average size since 1950 was between 38 and 46 cm, averaging 44.7 cm or 1.1 kg. The rate of catch was reasonably stable and averaged 0.47 fish per hour. The most popular method was minnow followed by spoon then wet fly. Minnow seems to be the best method to use, dry fly when used in the upper reaches caught more rainbow.

The estimated crop is about 740 fish per annum.

Stocking may be unjustified, as this river provides reasonable catches. However, spawning streams have been upset by draglines and bush clearance and stocking may be required in the future. There is no evidence that rainbows fish better than brown trout in these waters. The catch rates in the Hokitika in 1962, when about 35% of fish caught were rainbows, do not differ significantly from catch rates in other Westland rivers, where no rainbows were recorded.

Kaniere River, Hokitika River System

The Kaniere River drains Lake Kaniere into Hokitika River and it is about 13 km long.

Diary information is very scanty, but it appears that Kaniere River fish may be slightly larger than fish in the Hokitika River.

Lake Kaniere

Lake Kaniere is one of the largest lakes in Westland District.

Diary information is available only from 1962 when 16 brown trout and four perch were recorded. The trout were of 50.8 cm average length with no undersized fish caught. The rate of catch was 0.48 fish/hour. The most popular and successful methods were minnow and spoon. The data indicate that the average size of trout in the lake may be one of the largest in Westland. As in other waters of the district, more fishing should be encouraged.

A spawning survey of Lake Kaniere was carried out in 1958 (Investigation Report 9). It appears that rainbow trout may have died out as predicted in the report, because no rainbows were recorded in Kaniere Lake and River in the 1962 or 1967 angling diary schemes. A barrier has been erected to prevent trout entering a power station race, as suggested in the report. The increased spawning may decrease the average size of fish.

Kokatahi River, Hokitika River System

The Kokatahi River is the largest tributary of the Hokitika.

There are diary records from 1962 only, insufficient to make any analysis, but they suggest that the average size of trout caught may be larger than in the Hokitika River and similar to Lake Kaniere fish.

In February 1963 a survey of three lower Hokitika tributaries was carried out by the Marine Department to determine the reasons for the apparently low trout population (Investigation

LAKE KANIERE (N.P.S.)

WAITAHA RIVER (N.P.S.)

Report 49). If no stocking was done then no stocking could be recommended now without a more comprehensive survey of the whole Kokatahi River, which appears to provide reasonable sport for the very few anglers who fish it.

A few angling records from 1962 show that Murray Creek was quite popular (more popular than Kokatahi River) and Harris Creek was also fished. The fish caught were of similar length to Kokatahi fish, about 50 cm.

Lake Mahinapua

This medium sized lake appears to provide very good fishing for perch only. There is some diary information from 1962 only, when seven perch were caught of an average length 16 cm. The rate of catch was better than for trout at 0.93 fish/hour. Minnow and spoon were used and minnow appeared to be much more successful.

Perch fishing provides good sport, especially for inexperienced anglers and it should be publicised.

Waitaha River

Little is known about this large river. Only five hours fishing were recorded in it in 1951 and one hour in 1957. Each time only one small fish was caught (34.5 cm and 30.5 cm). The Society reports that this river has returned reasonable bags.

Wanganui River

This is a large river originating in alpine glaciers. It has not been surveyed and there are no angling records from recent years.

The only two angling records are from the 1950 and 1951 seasons, when a total of ten fish were caught of an average length of about 50 cm. The average catch was 0.35 fish/hour. This suggests that at the time the river carried a stock of trout which made fishing it worthwhile. The Society reports that this river fishes well in and near tidal waters.

Lake Ianthe

Lake Ianthe drains into the lower Wanganui River through the 1.5 km long Ianthe Creek. The only angling was recorded in 1962 when in six hours fishing with a minnow one brown trout 56 cm long was caught.

La Fontaine Stream

La Fontaine Stream is a small lowland stream about 10 km long originating near Harihari. It is one of the more popular waters in the Westland District.

The brown trout are large averaging 49.5 cm or 1.5 kg and no undersized fish are usually caught. The rate of catch averaged 0.40 fish per hour. Dry and wet fly were the most popular methods, dry fly being most successful.

The estimated crop is about 410 fish per annum. For its size the La Fontaine Stream may be the heaviest fished water in Westland.

Poerua River

This quite large river is probably very little fished. There is only one angling record from 1950, when two fish of 51 cm average length were caught in five hours fishing.

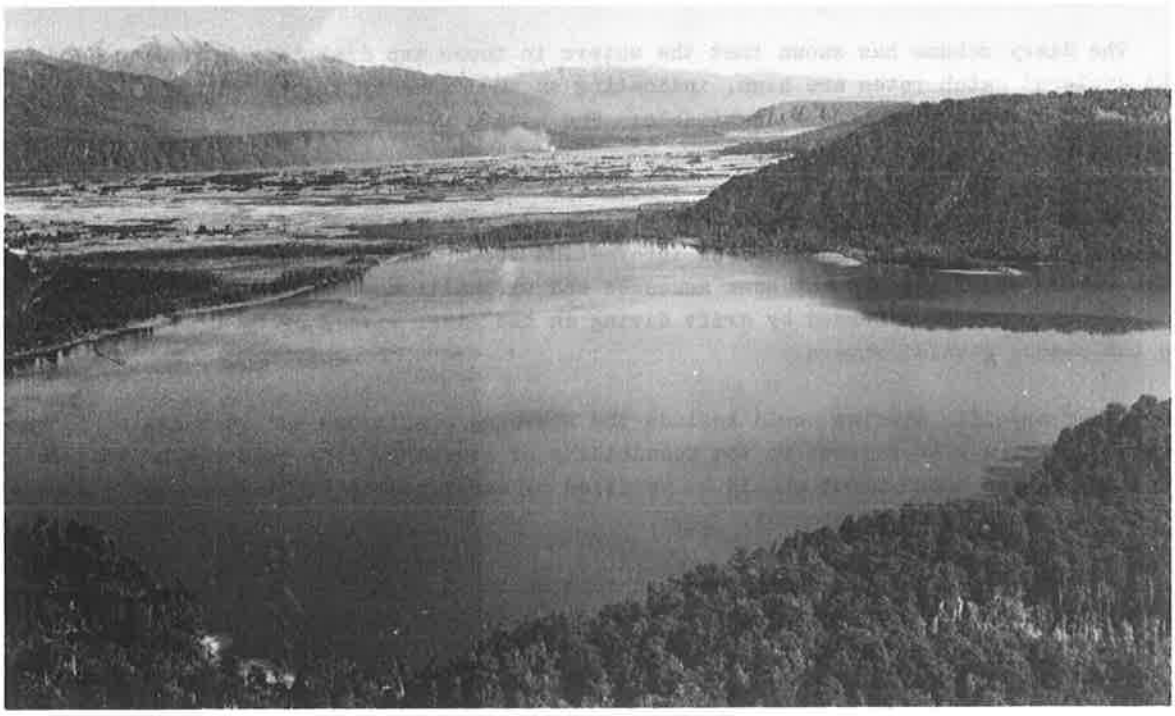
Whataroa River

This large glacial river is probably fished very little. There is only one angling record from 1962, when seven fish of average length 41.7 cm were reported caught in 11.5 hours fishing with minnow and spoon.

UPPER REACHES WANGANUI RIVER

(N.Z. Forest Service photo by J.H.G. Johns, A.R.P.S.)

LAKE IANTHE (N.Z. Forest Service photo by J.H.G. Johns, A.R.P.S.)



Lake Mapourika, Okarito System

Lake Mapourika has an area of about 840 hectares and lies close to the sea. Like most Westland lakes it is deep (73 metres recorded).

Lake Mapourika is one of the most important angling waters in Westland because of its landlocked stock of quinnat salmon which were released in the 1930's and became quickly established. Brown and rainbow trout failed previously, although large liberations were made of both species. Brown trout became established only below the lake in the Okarito River and Lake Wahapo. An old survey report suggests that trout were unsuccessful, because the limited spawning areas available in the lake tributaries contain gravel too loose, from which trout eggs would become dislodged, while deeper placed salmon eggs may survive. The Society recently reported that brown trout are present but are rarely caught.

The average size of quinnat salmon caught was 46.7 cm in 1957 and 48.8 cm in 1962 with no undersized fish in the catch. The catch rate was 0.69 in 1957 and 0.55 fish/hour in 1962.

The methods used in 1962 were minnow, spoon and trolling. Minnow was the most popular, but trolling was slightly more successful. In 1962 there was a bag limit of three salmon which was later increased to four. The percentage of limit bags of three fish in 1962 was only 5%, so this has very little effect on the catch.

The estimated crop in 1967 was 745 fish. Because of the limited amount of spawning this stock should be closely watched. An increase in angling pressure coupled with a bad spawning year could have a severe effect on the population. It would be beneficial to find out the age composition of this landlocked population, especially the age at spawning. This would assist in introducing suitable regulations if spawning in any year failed.

Okarito River

The Okarito is a short river, about 11 km long, flowing out of lakes Mapourika and Wahapo into a large salt-water Okarito lagoon.

There is only one angling record from the Okarito River in 1957 when six fish of average length 43 cm were caught in 9.5 hours.

FISHERIES MANAGEMENT

The diary scheme has shown that the waters in these two districts produce good fishing. The anglers' catch rates are high, indicating an abundance of trout. The fish caught are large and there are a variety of species available. The waters appear to be underfished, the angling regulations hence being lenient.

The management problems in these districts are relatively minor compared to other districts. There is, however, a decided lack of information about the fisheries. The number of fish in the main rivers and lakes has not been assessed and virtually nothing is known about their biology. The stocks could be assessed by drift diving in the clear rivers or by trapping spawning runs in the opaque glacial rivers.

Other specific studies could include the spawning conditions and recruitment in the larger unstable rivers with respect to the feasibility of stocking. The presence or absence of large runs of sea run brown trout should be verified by experimental angling and the closed season relaxed if such runs are present.

Lake Mapourika quinnat salmon stock should be investigated and the causes for its predominance over brown trout found. The drop in numbers of Lake Kaniere rainbow trout is probably related to the deterioration of the single spawning stream and an investigation of the reasons why only this stream is used would be valuable. The anglers' results show Lake Brunner to be a good fishery without the need for smelt as forage fish. Any introduction should be done scientifically and the reasons for its success or failure determined.

LAKE MAPOURIKA (N.P.S.)

At present, without the aid of scientific staff, the Societies can probably best act to protect the fisheries by trying to stop pollution and shingle abstraction and protecting spawning fish. Also many of the catchments are being extensively logged or will be in the future, It is important for the Societies to monitor and protect their fisheries from any damaging effects of these operations.

ACKNOWLEDGMENTS

We wish to thank the Staff and Councils of both the West Coast and Westland Societies for their valuable comments on a draft of this report and Mr V. Hinds for improvements to the text.

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FISHERIES TECHNICAL REPORT
No. 120

THE WEST COAST AND WESTLAND TROUT FISHERY

E. GRAYNOTH AND W. SKRZYNSKI

WELLINGTON, NEW ZEALAND
1974