

Results of the 1991-92
marine recreational fishing
catch and effort survey
MAF Fisheries
South region

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1. Introduction

1.1 Status of this report

This report contains the results of 1 full year of MAF Fisheries South's marine recreational fishing catch and effort survey. Further to the results contained in the quarterly reports prepared during the survey, this report contains a breakdown of results by geographical zone and fishing method. It does not include estimates of the recreational harvest or analysis of statistical confidence levels: these analyses will be presented in a later report.

1.2 Background

The lack of quantitative information on marine recreational fishing catch and effort in New Zealand has been a serious shortcoming for those involved in making fisheries management decisions. Although catch and effort information is available for the commercial fishery, stock assessments have had to be made without recourse to data on the extent of the recreational catch. For those species where the recreational component of the total catch is likely to be significant, allocation decisions could be made that might place the stocks at risk.

In 1991 MAF Fisheries commissioned a study of marine recreational fishing activities in the South region. The information was required to determine the most appropriate management strategies for a wide range of issues facing the South region, including:

1. daily bag limits for recreational fishers
2. size limit regulations for recreational fishers
3. the allocation of TAC (total allowable catch) between recreational and commercial fishers
4. quota management decisions for each fish species in each quota management area.

The information would also provide baseline data on:

1. total catch by species and area
2. the level of activity of marine recreational fishers
3. fishing methods used
4. species sought
5. average catch
6. average size of the catch
7. average catch per unit effort.

Such information will be used to assess the impact of harvesting pressure on the stocks, thereby providing a guide to effective management decisions.

1.3 Objectives

The overall research goal was to "provide quantitative estimates of the recreational catch and recreational fishers' effort, by fish species and geographical area, for the recreational fishery in the MAF Fisheries South region".

Specific objectives were to address the following questions.

1. How many people in the MAF Fisheries South region go marine recreational fishing?
2. Where do they go fishing?
3. When and how often do they go fishing?

4. What type of fishing do they do?
5. What fish species do they target?
6. What fish species do they catch?
7. How many fish of each species do they catch?
8. What is the average size of each fish of each species they catch?
9. How long do they spend fishing?

1.4 Methods

The study was divided into two stages. The first stage was a telephone survey of over 10 000 households in the MAF Fisheries South region to ascertain the number of marine recreational fishers in the region and to obtain the co-operation of fishers identified for the second stage. The second stage required the fishers contacted in stage one to keep a diary of their marine fishing trips for the following 12 months.

After extensive pre-testing and formal scrutiny of the methodology and survey questionnaires by the Department of Statistics, the telephone survey was carried out in August 1991.

Households were selected at random from the telephone directories of the MAF Fisheries South region (Figure 1). Interviewers asked if anyone in the household had been marine fishing, diving, or gathering in the past 12 months. If someone had done so, the interviewer asked to speak to that person or, if more than one person, the person with the most recent birthday aged 15 or over. This person was then interviewed. At the end of the interview the respondent was asked if they would keep a fishing trip diary for the next 12 months. If they agreed, a diary was sent to them at the end of August.

At 3 month intervals, diarists were telephoned and asked to return their trip records for the period in the reply paid envelopes supplied with the diaries.

A copy of the telephone questionnaire, the instructions to interviewers, the diary instructions, and a diary trip record page are contained in Appendices 1 and 2.

1.5 Participation in the survey

The telephone survey of 10 055 households identified 1073 households (10.7%) that contained people who had been marine recreational fishing in the previous 12 months. To be eligible for inclusion in the diary survey, the fisher interviewed during the telephone survey (one fisher from each household) had to meet the following criteria.

1. They had to have been marine recreational fishing, diving, or gathering in the previous 12 months.
2. They had to be 15 years of age or older.
3. They could not be a commercial fisher.
4. They had to intend going marine recreational fishing, diving, or gathering in the coming 12 months.

Of the 1073 fishers interviewed, 147 (13.7%) were ineligible, 64 (6.0%) declined to keep a diary, and 862 (80.3%) agreed to participate. In addition to the 862 fishers obtained from

the telephone survey, another 45 fishers known to be active, and who had participated in previous MAF Fisheries research, were approached to participate in the diary survey. These "expert" fishers were used as a control group for comparison purposes and to provide a link between previous research (Teirney *et al.* 1992) and this study.

The main body of this report contains the results only from the fishers identified from the telephone survey. The results from the 45 "expert" fishers are given in Appendix 4.

1.6 Response rate

During the study 102 diarists were removed from the sample because they moved out of the region, died, changed address and could not be located, or withdrew for health reasons.

The quarterly response rates obtained from diarists were 92.2%, 91.0%, 92.4%, and 89.5%, respectively.

A "response" was when a diarist either sent in a trip record page, or advised the interviewer when telephoned that they had not fished in the previous 3 month period.

Most (88.2%; 760/862) of the fishers who began the study remained in it to the end of the year.

1.7 Incomplete records

Occasionally respondents did not fill in their trip record details completely. For example, they may have omitted only to record the zone in which they were fishing. These few incomplete records were still included in the analysis. The effect will be noticeable only if, for example, the reader adds up the number of blue cod caught in each of zones 1 to 9 (Tables 48, 53, 58, 63, 68, 73, 78, 83, 88). This total will not match the total catch given in Table 15, the difference being blue cod caught in zones "unspecified".

1.8 Acknowledgments

Thanks to the fishers who took part in the survey and whose co-operation made the study possible: we are most appreciative of your efforts. Thanks also to Mr Allan Kilner, MAF Fisheries, Nelson, for his input into the design and pre-testing of the diary.

1.9 Reference

Teirney, L.D., Bell, S., & Bell, J. 1992: MAF Fisheries South region survey of marine recreational fishers: summary of findings. *N.Z. Fisheries Management: Regional Series No. 1*. 23 p.

2. Results from the telephone survey of households

2.1 Number of fishers

Of the 10 055 households surveyed, 1073 (10.7%) contained people who had been marine recreational fishing in the previous 12 months. The average number of fishers in such households was 1.73.

Table 1: Number of fishers per household

No. of fishers in the household	No. of households	Percent
0	8 976	89.3
1	630	6.3
2	249	2.5
3	77	0.8
4	58	0.6
5	26	0.3
6	11	0.1
7	4	–
Not specified	<u>24</u>	<u>0.2</u>
	10 055	100.0

2.2 Demographic profile of fishers

Table 2: Age of fishers

Age (years)	No.	Percent
15–20	81	7.5
21–30	239	22.3
31–40	350	32.6
41–50	221	20.6
51–60	96	8.9
61 and over	70	6.5
Not specified	<u>16</u>	<u>1.5</u>
	1 073	100.0

Table 3: Sex of fishers

	No.	Percent
Male	903	84.2
Female	154	14.4
Unknown	<u>16</u>	<u>1.5</u>
	1 073	100.0

Table 4: Ethnic group that fishers belonged to

	No.	Percent
Pakeha	973	90.7
Maori	45	4.2
Pacific Island	12	1.1
Other	28	2.6
Not specified	<u>15</u>	<u>1.4</u>
	1 073	100.0

Table 5: Geographical zone that fisher lived in (see Figure 1)

	No.	Percent
Clarence Mouth–Conway Mouth	14	1.3
Conway Mouth–Sumner Beach	41	3.8
Sumner Beach–Rakaia Mouth	476	44.4
Rakaia Mouth–Waitaki Mouth	103	9.6
Waitaki Mouth–Toko Mouth	254	23.7
Toko Mouth–Slope Point	59	5.5
Slope Point–Te Waewae Point	120	11.2
Stewart Island	3	0.3
Te Waewae Point–Awarua Point	<u>3</u>	<u>0.3</u>
	1 073	100.0

2.3 Fishing trips in the 12 months prior to August 1991

Table 6: Number of fishing trips made by fishers in the 12 months prior to August 1991

Trips	No.	Percent
5 or less	578	53.9
6–15	276	25.7
16–30	105	9.8
31 or more	74	6.9
Did not know	<u>40</u>	<u>3.7</u>
	1 073	100.0

2.4 Club affiliations

Table 7: Fishers' club memberships

	No.	Percent
Belonged to fishing club	47	4.4
Belonged to boating club	67	6.2
Belonged to diving club	63	5.9

2.5 Commercial fishers

Forty-three respondents (4.0%) were commercial fishers.

2.6 Fishing Intentions

Table 8: Fishers' intentions for the period 1 September 1991 to 31 August 1992

	No.	Percent
Did intend fishing	969	90.3
Did not intend fishing	24	2.2
Unsure	<u>80</u>	<u>7.5</u>
	1 073	100.0

3. Fishers participating in the diary survey

Of the 926 eligible fishers identified in the telephone survey, 862 (93.1%) began keeping diaries from 1 September 1992. Of the original 862 fishers, 760 (88.2%) were still keeping their diaries at the end of the year on 31 August 1992. An average sample size of 811 $[(760 + 862) / 2]$ has been used to calculate sample percentages in this report.

4. Results from fishers' trip records (the diary survey)

4.1 Analysis of trips

4.1.1 Fishing trips and fishing types

Table 9: Number of trips made by fishers between 1 September 1991 and 31 August 1992

No. of trips	No. of respondents	Percent
0	255	31.4
1	80	9.9
2	77	9.5
3	51	6.3
4	65	8.0
5	52	6.4
6	33	4.1
7	24	3.0
8	24	3.0
9	12	1.5
10	5	1.8
11	17	2.1
12	14	1.7
13	11	1.4
14	6	0.7
15	10	1.2
16	7	0.9
17	7	0.9
18	1	0.1
19	1	0.1
20	9	0.1
21 or more	<u>41</u>	<u>6.0</u>
	811	100.0

Total number of trips: 4461.

Average for total sample: 5.5 trips per respondent.

Average for fishers who made at least one trip: 8.0 trips per respondent.

Range: 0–194 trips.

Table 10: When fishing trips were made

	No. of trips	Percent
September 1991	330	7.4
October 1991	397	8.9
November 1991	370	8.3
December 1991	648	14.5
January 1992	992	22.2
February 1992	556	12.5
March 1992	363	8.1
April 1992	345	7.7
May 1992	181	4.1
June 1992	115	2.6
July 1992	70	1.6
August 1992	<u>94</u>	<u>2.1</u>
	4 461	100.0

Table 11: Zones to which fishing trips were made

	No. of trips	Percent
Clarence Mouth–Conway Mouth	615	13.8
Conway Mouth–Sumner Beach	321	7.2
Sumner Beach–Rakaia Mouth	1 060	23.8
Rakaia Mouth–Waitaki Mouth	435	9.8
Waitaki Mouth–Toko Mouth	716	16.1
Toko Mouth–Slope Point	231	5.2
Slope Point–Te Waewae Point	217	4.9
Stewart Island	294	6.6
Te Waewae Point–Awarua Point	76	1.7
Outside the MAF South region	<u>496</u>	<u>11.1</u>
	4 461	100.0

Table 12: Time spent fishing per trip (to nearest half hour)

Time (h)	No. of trips	Percent
0.5	504	11.3
1	598	13.4
1.5	318	7.1
2	743	16.6
2.5	200	4.5
3	588	13.2
3.5	95	2.1
4	430	9.6
4.5	54	1.2
5	180	4.0
5.5	10	0.2
6	169	3.8
More than 6	<u>572</u>	<u>12.8</u>
	4 461	100.0

Total time spent fishing: was 19 546 h.

Average length of trip: 4.4 h.

Range: 0.5–96 h (the 96 h trip was set netting).

Table 13: Type of fishing done on the trip

	No. of trips	Percent
Shore fishing	1 573	35.3
Boat fishing (charter)	64	1.4
Boat fishing (private)	1 019	22.8
Boat diving (charter)	45	1.0
Boat diving (private)	402	9.0
Shore diving	306	6.9
Netting	399	8.9
Gathering	338	7.6
Other*	<u>315</u>	<u>7.1</u>
	4 461	100.0

* 217 (70.9%) of other trips involved potting for rock lobster.

4.1.2 Species targeted

Table 14: Number of trips targeting each species

	No. of trips	Percent*
Blue cod	1003	22.5
Moki	233	5.2
Flatfish	312	7.0
Red cod	517	11.6
Groper	77	1.7
Rig	48	1.1
School shark	21	0.5
Barracouta	28	0.6
Tarakihi	75	1.7
Greenbone	257	5.8
Salmon	670	15.0
Kahawai	298	6.7
Jock Stewart	83	1.9
Spiky dogfish	23	0.5
Trumpeter	31	0.7
Wrasse	33	0.7
Large shark†	5	0.1
Rock lobster	625	14.0
Paua	382	8.6
Scallops	120	2.7
Kina	27	0.6
Mussels	155	3.5
Cockles	28	0.6
Pipi	15	0.3
Tuatua	18	0.4

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

† Large shark includes mako, sevengill, hammerhead, porbeagle, blue, bronze, thresher and white pointer.

4.2 Analysis by species

4.2.1 The catch

The following catch details refer to fish killed and exclude those returned to the water alive. Analysis has been restricted to the main species of interest.

Table 15: Number of fish of each species caught (either as target species or bycatch)

	No. caught	Av. no. caught per successful trip	Range
Blue cod	6 606	8.8	1–50
Moki	557	3.1	1–26
Flatfish	2 241	8.2	1–62
Red cod	1 526	3.9	1–23
Groper	101	2.6	1–11
Rig	179	2.8	1–15
School shark	150	2.5	1–30
Barracouta	427	3.5	1–25
Tarakihi	144	2.6	1–10
Greenbone	975	4.3	1–23
Salmon	114	1.2	1–3
Kahawai	623	2.7	1–20
Jock Stewart	2 098	7.9	1–70
Spiky dogfish	1 204	4.9	1–52
Trumpeter	213	2.7	1–16
Wrasse	793	3.6	1–27
Large shark	7	1	1
Rock lobster	1 532	3.2	1–18
Paua	3 729	10.4	1–72
Scallops	3 351	27.9	3–50
Kina	694	18.3	1–50
Mussels	5 648	33.8	3–99
Cockles	1 560	60.0	5–100
Pipi	458	35.2	4–100
Tuatua	552	34.5	1–100

4.2.2 Weight of fish harvested

Table 16: Average weight* of individual fish of each species caught

	Av. weight (kg)†	No. of trips when weight was recorded
Blue cod	1.13	365
Moki	1.58	85
Flatfish	0.48	152
Red cod	0.99	278
Groper	4.46	26
Rig	2.00	33
School shark	3.24	33
Barracouta	2.32	54
Tarakihi	0.57	25
Greenbone	1.20	110
Salmon	4.82	88
Kahawai	2.02	147
Jock Stewart	0.67	113
Spiky dogfish	1.57	134
Trumpeter	0.62	35
Wrasse	0.51	104
Large shark	42.22	6
Rock lobster	1.00	233
Paua	0.43	169
Scallops	0.15	12
Kina	0.56	10
Mussels	0.17	43
Cockles	0.06	13
Tuatua	0.08	7

* Whole fish, ungutted: includes shell for shellfish. Species for which weight was recorded on less than two trips are not included. Pipi not included in this table as weight was recorded on only one trip.

† This figure is affected by the number of trips on which it is based: the lower the number of trips, the less reliable it is.

4.2.3 Catch and effort

Table 17: Percentage of trips targeting each species that were successful in catching at least one takeable fish of that species, average number of fish caught per hour when targeting the species, and average time needed to catch a fish when targeting it

	Percentage of successful trips targeting the species	Av. no. of fish caught per hour	Av. time taken to catch a fish (min)
Blue cod	66.5	1.79	33
Moki	46.8	0.25	241
Flatfish	77.6	1.10	55
Red cod	45.6	0.76	79
Groper	39.0	0.21	289
Rig	29.2	0.10	589
School shark	28.6	0.18	343
Barracouta	46.4	0.27	222
Tarakihi	33.3	0.17	345
Greenbone	61.9	0.43	138
Salmon	13.1	0.04	1 553
Kahawai	29.9	0.32	190
Jock Stewart	74.7	3.00	20
Spiky dogfish	34.8	0.62	97
Trumpeter	45.2	0.34	176
Wrasse	66.7	1.01	59
Large shark*	40.0	0.14	420
Rock lobster	71.2	0.22	270
Paua	88.0	6.75	9
Scallops	95.8	14.98	4
Kina	88.9	8.57	7
Mussels	94.2	26.70	2
Cockles	85.7	60.80	1
Pipi	73.3	23.76	3
Tuatua	77.8	23.79	3

* This species was targeted on less than 10 trips, so the figures should be treated with caution.

4.2.4 Bycatch

Table 18: Percentage of the total catch caught as bycatch (not targeted)

	No. caught as bycatch	Percent of total catch
Blue cod	405	6.1
Moki	207	37.2
Flatfish	214	9.5
Red cod	411	26.9
Groper	20	19.8
Rig	140	78.2
School shark	132	88.0
Barracouta	400	93.7
Tarakihi	84	58.3
Greenbone	384	39.4
Salmon	11	9.6
Kahawai	317	50.9
Jock Stewart	1 378	65.7
Spiky dogfish	1 173	97.4
Trumpeter	178	83.6
Wrasse	714	90.0
Large shark	5	71.4
Rock lobster	108	7.0
Paua	151	4.0
Scallops	145	4.3
Kina	111	16.0
Mussels	569	10.0
Cockles	40	2.6
Pipi	54	11.8
Tuatua	100	18.1

4.2.5 Type of fishing used to target each species

Table 19: Percentage of trips of each type used to target each species

	Shore fishing	Boat fishing (charter)	Boat fishing (private)	Boat diving (charter)	Boat diving (private)	Shore diving	Netting	Gathering	Other	No. of trips
Blue cod	19.1	5.5	66.2	1.7	4.4	0.5	1.8	0	0.6	1003
Moki	27.5	0	12.9	2.6	6.9	7.7	39.5	0	3.0	233
Flatfish	15.1	0	1.0	0.3	0.3	2.2	72.4	0	8.6	312
Red cod	67.5	0.2	26.5	0	0	0	2.9	0	2.9	517
Groper	5.2	14.3	68.8	7.8	3.9	0	0	0	0	77
Rig	60.4	0	6.3	0	0	0	25.0	0	8.3	48
School shark	57.1	0	19.0	0	0	0	9.5	0	14.3	21
Barracouta	17.9	14.3	67.9	0	0	0	0	0	0	28
Tarakahi	6.7	5.3	85.3	1.3	0	0	1.3	0	0	75
Greenbone	16.3	0.8	9.3	0.8	12.8	14.4	41.6	0	3.9	257
Salmon	84.0	0	15.4	0	0	0	0	0	0.6	670
Kahawai	73.2	2.7	17.1	0	0.3	0	0.3	0	6.4	298
Jock Stewart	2.4	0	97.6	0	0	0	0	0	0	83
Spiky dogfish	73.9	4.3	17.4	0	0	0	0	0	4.3	23
Trumpeter	19.4	6.5	25.8	22.6	0	6.5	16.1	0	3.2	31
Wrasse	33.3	0	42.4	3.0	3.0	6.1	0	0	12.1	33
Large shark*	80.0	0	0	0	20.0	0	0	0	0	5
Rock lobster	0	0	0	4.3	46.1	14.2	0.5	0	34.9	625
Paua	0	0	0	0	11.5	40.8	0	46.6	1.0	382
Scallops	0	0	0	8.3	50.0	23.3	0	1.7	16.6	120
Kina	0	0	0	0	51.9	37.0	0	11.1	0	27
Mussels	0	0	0	0	2.6	15.5	0	81.3	0.6	155
Cockles	0	0	0	0	0	7.2	0	92.9	0	28
Pipi	0	0	0	0	6.7	0	0	93.3	0	15
Tuatua	0	0	0	0	0	0	0	94.4	5.6	18

* This species was targeted on less than 10 trips, so the figures should be treated with caution.

4.3 Analysis by type of fishing

4.3.1 Shore fishing with rod or line

Participating fishers made 1573 shore fishing trips during the 12-month period. These trips constituted 35.3% of all trips made.

Table 20: Shore fishing: time spent fishing per trip (to nearest half hour)

Time (h)	No. of trips	Percent
0.5	37	2.3
1	148	9.4
1.5	109	7.0
2	307	19.6
2.5	85	5.4
3	321	20.4
3.5	52	3.3
4	234	14.9
4.5	28	1.8
5	86	5.5
5.5	5	0.3
6	60	3.8
More than 6	<u>101</u>	<u>6.4</u>
	1 573	100.0

Total time spent fishing: 5102 h.

Average length of trip: 3.3 h.

Range: 0.5–15 h.

Table 21: Shore fishing: number of trips targeting each species

	No. of trips	Percent*
Blue cod	192	12.2
Moki	64	4.1
Flatfish	47	3.0
Red cod	349	22.2
Groper	4	0.3
Rig	29	1.8
School shark	12	0.8
Barracouta	5	0.3
Tarakihi	5	0.3
Greenbone	42	2.7
Salmon	563	35.8
Kahawai	218	13.9
Jock Stewart	2	0.1
Spiky dogfish	17	1.1
Trumpeter	6	0.4
Wrasse	11	0.7
Large shark	4	0.3

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 22: Shore fishing: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	296	4.2	1–25
Moki	28	1.9	1–4
Flatfish	109	3.8	1–28
Red cod	900	4.2	1–23
Groper	5	2.5	2–3
Rig	40	2.0	1–8
School shark	44	1.8	1–5
Barracouta	57	5.7	1–25
Tarakihi	9	1.3	1–2
Greenbone	255	5.4	1–23
Salmon	88	1.2	1–2
Kahawai	347	2.7	1–15
Jock Stewart	44	3.4	1–12
Spiky dogfish	435	3.7	1–29
Trumpeter	41	2.3	1–11
Wrasse	321	3.8	1–27
Large shark	4	1	1

Table 23: Shore fishing: total number of finfish (any species) caught per trip

No. of fish caught	No. of trips	Percent
0	877	55.8
1	220	14.0
2	104	6.6
3	76	4.8
4	72	4.6
5	52	3.3
6	40	2.5
7	22	1.4
8	24	1.5
9	13	0.8
10	15	1.0
11 or more	<u>58</u>	<u>3.7</u>
	1 573	100.0

Total number of finfish caught: 3023.

Average number of finfish caught per trip: 1.9.

Range: 0–39.

Table 24: Shore fishing: percentage of trips targeting each species that were successful in catching at least one takeable fish of that species, average number of fish caught per hour when targeting the species, and average time needed to catch a fish when targeting it

	Percentage of successful trips targeting the species	Av. no. of fish caught per hour	Av. time taken to catch a fish (min)	No. of trips
Blue cod	27.1	0.45	132	192
Moki	4.7	0.03	2 292	64
Flatfish	46.8	0.48	124	47
Red cod	45.3	0.82	73	349
Groper*	25.0	0.20	300	4
Rig	20.7	0.16	368	29
School shark	16.7	0.08	780	12
Barracouta*	20.0	0.05	1 200	5
Tarakihi*	40.0	0.03	2 190	5
Greenbone	54.8	0.45	133	42
Salmon	13.3	0.04	1 557	563
Kahawai	28.4	0.28	214	218
Jock Stewart*	0	0	—	2
Spiky dogfish	29.4	0.28	216	17
Trumpeter*	33.3	0.15	390	6
Wrasse	72.7	1.70	35	11
Large shark*	50.0	0.15	390	4

* This species was targeted on less than 10 trips, so the figures should be treated with caution.

4.3.2 Boat fishing with rod or line (includes both private and charter boat trips)

Participating fishers made 1083 fishing trips during the 12-month period. These trips constituted 24.2% of all trips made.

Table 25: Boat fishing: time spent fishing per trip (to nearest half hour)

Time (h)	No. of trips	Percent
0.5	61	5.7
1	107	9.9
1.5	78	7.3
2	204	18.8
2.5	70	6.5
3	154	14.2
3.5	28	2.6
4	126	11.6
4.5	23	2.1
5	62	5.7
5.5	5	0.5
6	80	7.4
More than 6	<u>85</u>	<u>7.8</u>
	1 083	100.0

Total number of hours spent fishing: 3527.

Average length of a trip: 3.3 h.

Range: 0.5–32 h.

Table 26: Boat fishing: number of trips targeting each species

	No. of trips	Percent*
Blue cod	719	66.4
Moki	30	2.8
Flatfish	3	0.3
Red cod	138	12.7
Groper	64	5.9
Rig	3	0.3
School shark	4	0.4
Barracouta	23	2.1
Tarakihi	68	6.3
Greenbone	26	2.4
Salmon	103	9.5
Kahawai	59	5.4
Jock Stewart	81	7.5
Spiky dogfish	5	0.5
Trumpeter	10	0.9
Wrasse	14	1.3
Large shark	0	0
Rock lobster†	217	—

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

† Pots were used on these trips. Potting trips are recorded in this table because most would have been made from a boat, but have not been included in the percentages because they did not involve a rod or line.

Table 27: Boat fishing: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	5 552	9.6	1–50
Moki	76	3.0	1–10
Flatfish	25	2.8	1–8
Red cod	462	3.7	1–17
Groper	94	2.7	1–11
Rig	56	2.5	1–6
School shark	63	3.0	1–30
Barracouta	327	3.6	1–25
Tarakihi	115	2.6	1–10
Greenbone	120	4.0	1–12
Salmon	19	1.2	1–3
Kahawai	182	2.8	1–20
Jock Stewart	1 997	8.5	1–70
Spiky dogfish	559	5.9	1–52
Trumpeter	140	3.3	1–16
Wrasse	394	3.7	1–16
Large shark	3	1	1
Rock lobster*	390	2.4	1–15

* Caught using pots

Table 28: Boat fishing: total number of finfish (any species) caught per trip

No. of fish caught	No. of trips	Percent
0	234	21.6
1	92	8.5
2	73	6.7
3	62	5.7
4	58	5.4
5	40	3.7
6	39	3.6
7	36	3.3
8	43	4.0
9	29	2.7
10	45	4.2
11	23	2.1
12	30	2.8
13	16	1.5
14	18	1.7
15	19	1.8
16	16	1.5
17	15	1.4
18	12	1.1
19	11	1.0
20	16	1.5
21 or more	<u>156</u>	<u>14.4</u>
	1 083	100.0

Total number of finfish caught: 10 184.

Average number of finfish caught per trip: 9.4.

Range: 0–100.

Table 29: Boat fishing: percentage of trips targeting each species that were successful in catching at least one takeable fish of that species, average number of fish caught per hour when targeting the species, and average time needed to catch a fish when targeting it

	Percentage of successful trips targeting the species	Av. no. of fish caught per hour	Av. time taken to catch a fish (min)	No. of trips
Blue cod	76.1	2.35	26	719
Moki	53.3	0.51	118	30
Flatfish*	100.0	2.67	23	3
Red cod	46.4	0.75	80	138
Groper	42.2	0.22	274	64
Rig*	100.0	0.22	270	3
School shark*	25.0	0.08	750	4
Barracouta	52.2	0.33	185	23
Tarakihi	33.8	0.23	266	68
Greenbone	57.7	0.36	165	26
Salmon	12.6	0.04	1 478	103
Kahawai	32.2	0.49	122	59
Jock Stewart	76.5	3.10	19	81
Spiky dogfish*	40.0	0.31	195	5
Trumpeter	50.0	0.44	136	10
Wrasse	78.6	1.03	58	14
Large shark*	—	—	—	0
Rock lobster†	73.7	0.07	882	217

* This species was targeted on less than 10 trips, so the figures should be treated with caution.

† Caught using pots: average length of a potting trip was 26.3 h.

4.3.3 Diving (includes diving from a charter or a private boat and from the shore)

Participating fishers made 753 diving trips during the 12-month period. These trips constituted 16.9% of all trips made.

Table 30: Diving: time spent fishing per trip (to nearest half hour)

Time (h)	No. of trips	Percent
0.5	237	31.5
1	181	24.0
1.5	62	8.2
2	111	14.7
2.5	19	2.5
3	57	7.6
3.5	7	0.9
4	30	4.0
4.5	1	0.1
5	19	2.5
5.5	0	0
6	12	1.6
More than 6	<u>17</u>	<u>2.2</u>
	753	100.0

Total time spent fishing: 1308 h.

Average length of a trip: 1.7 h.

Range: 0.5–11 h.

Table 31: Diving: number of trips targeting each species (unlisted species were not targeted)

	No. of trips	Percent* of all trips
Blue cod	66	8.8
Moki	40	5.3
Flatfish	9	1.2
Groper	9	1.2
Tarakihi	1	0.1
Greenbone	72	9.6
Kahawai	1	0.1
Trumpeter	9	1.2
Wrasse	4	0.5
Large shark	1	0.1
Rock lobster	391	51.9
Paua	198	26.3
Scallops	98	13.0
Kina	24	3.2
Mussels	26	3.5

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 32: Diving: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	681	8.2	1–40
Moki	98	2.2	1–10
Flatfish	118	10.7	1–28
Red cod	14	4.7	1–12
Groper	2	1	1
Rig	3	3	3
School shark	3	1.5	1–2
Barracouta	5	1.7	1–3
Tarakihi	1	1	1
Greenbone	346	4.9	1–23
Salmon	0	0	0
Kahawai	3	3	3
Jock Stewart	45	4.5	1–12
Spiky dogfish	2	1	1
Trumpeter	12	1.5	1–2
Wrasse	51	3.0	1–10
Large shark	0	0	0
Rock lobster	1 061	3.5	1–18
Paua	2 190	11.3	1–72
Scallops	2 562	26.1	3–50
Kina	614	19.2	1–50
Mussels	1 066	34.4	6–100

Table 33: Diving: total number of finfish or shellfish (any species) caught per trip

No. of fish caught	No. of trips	Percent
0	122	16.2
1	49	6.5
2	56	7.4
3	40	5.3
4	34	4.5
5	28	3.7
6	73	9.7
7	19	2.5
8	21	2.8
9	10	1.3
10	80	10.6
11	17	2.3
12	13	1.7
13	9	1.2
14	8	1.1
15	8	1.1
16	11	1.5
17	10	1.3
18	6	0.8
19	1	0.1
20	18	2.4
21 or more	<u>120</u>	<u>15.9</u>
	753	100.0

Total number of finfish and shellfish caught: 8877.

Average number of finfish and shellfish caught per trip: 11.8.

Range: 0–119.

Table 34: Diving: percentage of trips targeting each species that were successful in catching at least one takeable fish of that species, average number of fish caught per hour when targeting the species, and average time needed to catch a fish when targeting it

	Percentage of successful trips targeting the species	Av. no. of fish caught per hour	Av. time taken to catch a fish (min)	No. of trips
Blue cod	86.4	2.08	29	66
Moki	50.0	0.44	137	40
Flatfish*	77.8	4.36	14	9
Groper*	22.2	0.07	840	9
Tarakihi*	0	0	—	1
Greenbone	68.1	1.52	39	72
Kahawai*	0	0	—	1
Trumpeter*	22.2	0.14	420	9
Wrasse*	25.0	0.42	140	4
Rock lobster	70.1	1.40	43	391
Paua	89.9	6.46	9	198
Scallops	95.9	13.48	4	98
Kina	91.7	8.25	7	24
Mussels	92.3	15.57	4	26

* This species was targeted on less than 10 trips, so the figures should be treated with caution.

4.3.4 Netting

Participating fishers made 399 set or drag netting trips during the 12-month period. These trips constituted 8.9% of all trips made.

Table 35: Netting: time spent fishing per trip (to nearest half hour)

Time (h)	No. of trips	Percent
0.5	9	2.4
1	37	9.3
1.5	26	6.5
2	55	13.8
2.5	12	3.1
3	38	9.5
3.5	4	1.0
4	33	8.3
5–6	25	6.3
7–8	13	3.3
9–10	11	2.8
11–12	57	14.3
13–18	32	8.0
19–24	40	10.0
Over 24	<u>7</u>	<u>1.8</u>
	399	100.0

Total time spent fishing: 3300 h.

Average length of a trip: 8.3 h.

Range: 0.5–72 h.

Table 36: Netting: number of trips targeting each species (unlisted species were not targeted)

	No. of trips	Percent* of all trips
Blue cod	18	4.5
Moki	92	23.1
Flatfish	226	56.6
Red cod	15	3.8
Rig	12	3.0
School shark	2	0.5
Tarakihi	1	0.3
Greenbone	107	26.8
Trumpeter	5	1.3

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 37: Netting: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	73	3.7	1-24
Moki	335	3.9	1-26
Flatfish	1779	8.8	1-62
Red cod	127	3.1	1-17
Groper	0	0	0
Rig	65	3.4	1-15
School shark	18	4.5	1-12
Barracouta	34	2.4	1-15
Tarakihi	12	6	6
Greenbone	226	3.2	1-21
Salmon	4	1	1
Kahawai	70	2.7	1-11
Jock Stewart	12	1.5	1-3
Spiky dogfish	69	4.9	1-32
Trumpeter	19	2.1	1-3
Wrasse	18	2.3	1-6

Table 38: Netting: total number of finfish (any species) caught per trip

No. of fish caught	No. of trips	Percent
0	54	13.5
1	43	10.8
2	46	11.5
3	30	7.5
4	35	8.8
5	24	6.0
6	28	7.0
7	19	4.8
8	16	4.0
9	15	3.8
10	7	1.8
11 or more	<u>82</u>	<u>20.5</u>
	399	100.0

Total number of finfish caught: 2861.

Average number of finfish caught per trip: 7.2

Range: 0–62.

Table 39: Netting: percentage of trips targeting each species that were successful in catching at least one takeable fish of that species, average number of fish caught per hour when targeting the species, and average time needed to catch a fish when targeting it

	Percentage of successful trips targeting the species	Av. no. of fish caught per hour	Av. time taken to catch a fish (min)	No. of trips
Blue cod	50.0	0.38	158	18
Moki	68.5	0.23	263	92
Flatfish	83.6	1.02	60	226
Red cod	80.0	0.43	140	15
Rig	41.7	0.08	792	12
School shark*	100.0	0.18	336	2
Tarakihi*	0	0	0	1
Greenbone	61.7	0.23	256	107
Trumpeter*	80.0	0.73	83	5

* This species was targeted on less than 10 trips, so the figures should be treated with caution.

4.3.5 Gathering

Participating fishers made 338 gathering trips during the 12-month period. These trips constituted 7.6% of all trips made.

Table 40: Gathering: time spent fishing per trip (to nearest half hour)

Time (h)	No. of trips	Percent* of all trips
0.5	149	44.1
1	94	27.8
1.5	27	8.0
2	47	13.9
2.5	6	1.8
3	10	3.0
3 or more	<u>5</u>	<u>1.5</u>
	338	100.0

Total time spent fishing: 376 h.

Average length of a trip: 1.1 h.

Range: 0.5–6.5 h.

Table 41: Gathering: number of trips targeting each species

	No. of trips	Percent* of all trips
Paua	178	52.7
Kina	3	0.9
Mussels	126	37.3
Cockles	26	7.7
Pipi	14	4.1
Tuatua	17	5.0

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 42: Gathering: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Paua	1 498	9.5	1–45
Kina	80	13.3	1–50
Mussels	4 446	34.2	3–99
Cockles	1 560	60.0	5–100
Pipi	358	32.5	4–100
Tuatua	551	36.7	1–100

Table 43: Gathering: total number of shellfish (any species) caught per trip

No. of shellfish caught	No. of trips	Percent
0	30	8.9
1-5	16	4.7
6-10	109	32.2
11-15	21	6.2
16-20	17	5.0
21-25	17	5.0
26-30	27	8.0
31-35	5	1.5
36 or more	<u>96</u>	<u>28.4</u>
	338	100.0

Total number of shellfish caught: 8528.

Average number of shellfish caught per trip: 25.2.

Range: 0-100.

Table 44: Gathering: percentage of trips targeting each species that were successful in catching at least one takeable fish of that species, average number of fish caught per hour when targeting the species, and average time needed to catch a fish when targeting it

	Percentage of successful trips targeting the species	Av. no. of fish caught per hour	Av. time taken to catch a fish (min)	No. of trips
Paua	86.5	7.4	8	178
Kina*	66.7	13.8	4	3
Mussels	95.2	31.4	2	126
Cockles	92.3	66.1	1	26
Pipi	71.4	25.3	2	14
Tuatua	82.4	25.1	2	17

* This species was targeted on less than 10 trips, so the figures should be treated with caution.

4.4 Analysis by zone fished

Figure 1 shows the zones into which the MAF Fisheries South region was divided for the survey.

4.4.1 Zone 1: Clarence Mouth to Conway Mouth

Participating fishers made 615 trips to or in Zone 1 during the 12-month period. These trips constituted 13.8% of all trips made.

Table 45: Fishing trips made to or in Zone 1: zone that the fisher lived in

Zone lived in	No. of trips	Percent
Zone 1 Clarence Mouth–Conway Mouth	348	56.6
Zone 2 Conway Mouth–Sumner Beach	48	7.8
Zone 3 Sumner Beach–Rakaia Mouth	183	29.8
Zone 4 Rakaia Mouth–Waitaki Mouth	9	1.5
Zone 5 Waitaki Mouth–Toko Mouth	26	4.2
Zone 6 Toko Mouth–Slope Point	0	0
Zone 7 Slope Point–Te Waewae Point	1	0.2
Zone 8 Stewart Island	0	0
Zone 9 Te Waewae Point–Awarua Point	<u>0</u>	<u>0</u>
	615	100.0

Table 46: Zone 1: type of fishing done on the trip

	No. of trips	Percent
Shore fishing	27	4.4
Boat fishing (charter)	0	0
Boat fishing (private)	84	13.7
Boat diving (charter)	1	0.2
Boat diving (private)	97	15.8
Shore diving	76	12.4
Netting	67	10.9
Gathering	49	8.0
Other	<u>214</u>	<u>34.8</u>
	615	100.0

Table 47: Zone 1: number of trips targeting each species

	No. of trips	Percent*
Blue cod	59	9.6
Moki	39	6.3
Flatfish	1	0.2
Red cod	3	0.5
Groper	6	1.0
Rig	1	0.2
School shark	1	0.2
Barracouta	6	1.0
Tarakihi	1	0.2
Greenbone	83	13.5
Salmon	8	1.3
Kahawai	18	2.9
Jock Stewart	42	6.8
Spiky dogfish	0	0
Trumpeter	0	0
Wrasse	10	1.6
Large shark	0	0
Rock lobster	327	53.2
Paua	100	16.3
Scallops	2	0.3
Kina	14	2.3
Mussels	3	0.5
Cockles	0	0
Pipi	0	0
Tuatua	0	0

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 48: Zone 1: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	232	4.5	1–15
Moki	110	2.4	1–24
Flatfish	0	0	0
Red cod	15	3.0	1–8
Groper	6	1	1
Rig	9	1.8	1–3
School shark	2	2	2
Barracouta	18	1.6	1–5
Tarakihi	2	1	1
Greenbone	275	3.9	1–23
Salmon	3	1	1
Kahawai	50	2.8	1–11
Jock Stewart	713	12.7	1–70
Spiky dogfish	7	3.5	3–4
Trumpeter	2	1	1
Wrasse	62	3.4	1–10
Large shark	0	0	0
Rock lobster	671	2.7	1–15
Paua	1000	9.8	1–60
Scallops	3	3	3
Kina	342	26.3	1–50
Mussels	120	40	20–50
Cockles	0	0	0
Pipi	0	0	0
Tuatua	0	0	0

Table 49: Zone 1: average weight of individual fish of each species caught*

	Av. weight (kg)†	No. of trips when weight was recorded
Blue cod	0.91	25
Moki	1.87	24
Red cod	1.03	3
Rig	2.66	4
Barracouta	2.33	4
Greenbone	1.12	42
Kahawai	1.48	10
Jock Stewart	0.65	24
Spiky dogfish	1.81	2
Trumpeter	1.65	2
Wrasse	0.58	7
Rock lobster	0.65	111
Paua	0.41	83
Kina	0.33	3

* Whole fish, ungutted: includes shell for shellfish. Species for which weight was recorded on less than two trips are not included.

† This figure is affected by the number of trips on which it is based: the lower the number of trips, the less reliable it is.

4.4.2 Zone 2: Conway Mouth to Sumner Beach

Participating fishers made 321 trips to or in Zone 2 during the 12-month period. These trips constituted 7.2% of all trips made.

Table 50: Fishing trips made to or in Zone 2: zone that the fisher lived in

Zone lived in	No. of trips	Percent
Zone 1 Clarence Mouth–Conway Mouth	6	1.9
Zone 2 Conway Mouth–Sumner Beach	45	14.0
Zone 3 Sumner Beach–Rakaia Mouth	262	81.6
Zone 4 Rakaia Mouth–Waitaki Mouth	3	0.9
Zone 5 Waitaki Mouth–Toko Mouth	1	0.3
Zone 6 Toko Mouth–Slope Point	2	0.6
Zone 7 Slope Point–Te Waewae Point	2	0.6
Zone 8 Stewart Island	0	0
Zone 9 Te Waewae Point–Awarua Point	0	0
	<u>321</u>	<u>100.0</u>

Table 51: Zone 2: type of fishing done on the trip

	No. of trips	Percent
Shore fishing	212	66.0
Boat fishing (charter)	0	0
Boat fishing (private)	22	6.9
Boat diving (charter)	1	0.3
Boat diving (private)	15	4.7
Shore diving	11	3.4
Netting	19	5.9
Gathering	30	9.3
Other	<u>11</u>	<u>3.4</u>
	321	100.0

Table 52: Zone 2: number of trips targeting each species

	No. of trips	Percent*
Blue cod	31	9.7
Moki	8	2.5
Flatfish	35	10.9
Red cod	42	13.1
Groper	3	0.9
Rig	10	3.1
School shark	3	0.9
Barracouta	3	0.9
Tarakihi	0	0
Greenbone	8	2.5
Salmon	93	29.0
Kahawai	55	17.1
Jock Stewart	1	0.3
Spiky dogfish	6	1.9
Trumpeter	2	0.6
Wrasse	0	0
Large shark	0	0
Rock lobster	19	5.9
Paua	9	2.8
Scallops	1	0.3
Kina	0	0
Mussels	6	1.9
Cockles	0	0
Pipi	7	2.2
Tuatua	9	2.8

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 53: Zone 2: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	303	11.7	1–35
Moki	23	4.6	2–8
Flatfish	69	3.6	1–14
Red cod	131	3.7	1–12
Groper	0	0	0
Rig	2	1	1
School shark	20	2.9	1–8
Barracouta	14	2.8	1–6
Tarakihi	0	0	0
Greenbone	23	3.8	2–6
Salmon	11	1.1	1–2
Kahawai	80	2.1	1–6
Jock Stewart	124	9.5	1–25
Spiky dogfish	180	4.5	1–20
Trumpeter	2	2	2
Wrasse	0	0	0
Large shark	0	0	0
Rock lobster	63	3.9	1–6
Paua	122	9.4	2–20
Scallops	18	18	18
Kina	19	9.5	7–12
Mussels	346	57.7	15–100
Cockles	35	35	35
Pipi	105	21.0	6–30
Tuatua	305	33.9	1–72

Table 54: Zone 2: average weight* of individual fish of each species caught

	Av. weight (kg)†	No. of trips when weight was recorded
Blue cod	0.96	14
Moki	1.55	2
Flatfish	0.24	12
Red cod	0.78	26
Rig	1.40	2
School shark	1.50	5
Barracouta	4.19	2
Greenbone	1.02	3
Salmon	5.27	10
Kahawai	1.75	35
Jock Stewart	0.83	6
Spiky dogfish	1.61	28
Rock lobster	1.27	9
Paua	0.47	3
Mussels	0.12	5

* Whole fish, ungutted: includes shell for shellfish. Species for which weight was recorded on less than two trips are not included.

† This figure is affected by the number of trips on which it is based: the lower the number of trips, the less reliable it is.

4.4.3 Zone 3: Sumner Beach to Rakaia Mouth

Participating fishers made 1060 trips to or in Zone 3 during the 12-month period. These trips constituted 23.8% of all trips made.

Table 55: Fishing trips made to or in Zone 3: zone that the fisher lived in

Zone lived in	No. of trips	Percent
Zone 1 Clarence Mouth–Conway Mouth	0	0
Zone 2 Conway Mouth–Sumner Beach	85	8.0
Zone 3 Sumner Beach–Rakaia Mouth	941	88.8
Zone 4 Rakaia Mouth–Waitaki Mouth	27	2.5
Zone 5 Waitaki Mouth–Toko Mouth	7	0.7
Zone 6 Toko Mouth–Slope Point	0	0
Zone 7 Slope Point–Te Waewae Point	0	0
Zone 8 Stewart Island	0	0
Zone 9 Te Waewae Point–Awarua Point	0	0
	<u>1 060</u>	<u>100.0</u>

Table 56: Zone 3: type of fishing done on the trip

	No. of trips	Percent
Shore fishing	517	48.8
Boat fishing (charter)	0	0
Boat fishing (private)	213	20.1
Boat diving (charter)	0	0
Boat diving (private)	80	7.5
Shore diving	40	3.8
Netting	131	12.4
Gathering	60	5.7
Other	19	1.8
	<u>1 060</u>	<u>100.0</u>

Table 57: Zone 3: number of trips targeting each species

	No. of trips	Percent*
Blue cod	176	16.6
Moki	43	4.1
Flatfish	110	10.4
Red cod	323	30.5
Groper	2	0.2
Rig	16	1.5
School shark	8	0.8
Barracouta	4	0.4
Tarakihi	3	0.3
Greenbone	28	2.6
Salmon	140	13.2
Kahawai	75	7.1
Jock Stewart	2	0.2
Spiky dogfish	5	0.5
Trumpeter	4	0.4
Wrasse	10	0.9
Large shark	0	0
Rock lobster	77	7.3
Paua	58	5.5
Scallops	1	0.1
Kina	5	0.5
Mussels	53	5.0
Cockles	1	0.1
Pipi	5	0.5
Tuatua	2	0.2

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 58: Zone 3: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	308	4.3	1–22
Moki	69	2.7	1–16
Flatfish	639	6.3	1–23
Red cod	856	4.3	1–19
Groper	2	2.0	2
Rig	62	3.0	1–8
School shark	44	4.4	1–30
Barracouta	26	1.7	1–9
Tarakihi	3	1.0	1
Greenbone	121	4.7	1–21
Salmon	32	1.2	1–3
Kahawai	117	2.4	1–10
Jock Stewart	35	2.3	1–10
Spiky dogfish	385	4.3	1–29
Trumpeter	25	2.5	1–11
Wrasse	185	3.3	1–16
Large shark	1	1	1
Rock lobster	221	3.7	1–6
Paua	595	10.6	1–45
Scallops	50	50.0	50
Kina	201	28.7	1–50
Mussels	1 516	28.1	3–99
Cockles	0	0	0
Pipi	219	54.8	28–100
Tuatua	134	67.0	35–99

Table 59: Zone 3: average weight of individual fish of each species caught

	Av. weight (kg)†	No. of trips when weight was recorded
Blue cod	1.17	49
Moki	1.33	14
Flatfish	0.43	88
Red cod	1.08	148
Rig	1.56	16
School shark	3.13	6
Barracouta	2.54	8
Tarakihi	0.95	2
Greenbone	1.32	21
Salmon	4.49	27
Kahawai	2.30	34
Jock Stewart	0.60	9
Spiky dogfish	1.48	58
Trumpeter	0.40	9
Wrasse	0.58	35
Rock lobster	1.32	36
Paua	0.36	18
Mussels	0.29	17

* Whole fish, ungutted: includes shell for shellfish. Species for which weight was recorded on less than two trips are not included.

† This figure is affected by the number of trips on which it is based: the lower the number of trips, the less reliable it is.

4.4.4 Zone 4: Rakaia Mouth to Waitaki Mouth

Participating fishers made 435 trips to or in Zone 4 during the 12-month period. These trips constituted 9.8% of all trips made.

Table 60: Fishing trips made to or in Zone 4: zone that the fisher lived in

Zone lived in	No. of trips	Percent
Zone 1 Clarence Mouth–Conway Mouth	0	0
Zone 2 Conway Mouth–Sumner Beach	8	1.8
Zone 3 Sumner Beach–Rakaia Mouth	119	27.4
Zone 4 Rakaia Mouth–Waitaki Mouth	293	67.4
Zone 5 Waitaki Mouth–Toko Mouth	15	3.4
Zone 6 Toko Mouth–Slope Point	0	0
Zone 7 Slope Point–Te Waewae Point	0	0
Zone 8 Stewart Island	0	0
Zone 9 Te Waewae Point–Awarua Point	0	0
	<u>435</u>	<u>100.0</u>

Table 61: Zone 4: type of fishing done on the trip

	No. of trips	Percent
Shore fishing	402	92.4
Boat fishing (charter)	0	0
Boat fishing (private)	14	3.2
Boat diving (charter)	0	0
Boat diving (private)	0	0
Shore diving	4	0.9
Netting	1	0.2
Gathering	9	2.1
Other	<u>5</u>	<u>1.2</u>
	435	100.0

Table 62: Zone 4: number of trips targeting each species

	No. of trips	Percent*
Blue cod	20	4.6
Moki	27	6.2
Flatfish	0	0
Red cod	129	29.7
Groper	0	0
Rig	14	3.2
School shark	4	0.9
Barracouta	0	0
Tarakihi	0	0
Greenbone	4	0.9
Salmon	167	38.4
Kahawai	59	13.6
Jock Stewart	1	0.2
Spiky dogfish	8	1.8
Trumpeter	0	0
Wrasse	0	0
Large shark	4	0.9
Rock lobster	4	0.9
Paua	3	0.7
Scallops	0	0
Kina	0	0
Mussels	10	2.3
Cockles	0	0
Pipi	0	0
Tuatua	0	0

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 63: Zone 4: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	37	4.1	1-13
Moki	4	2.0	1-3
Flatfish	12	4.0	1-8
Red cod	373	4.5	1-23
Groper	3	3	3
Rig	27	2.7	1-15
School shark	37	1.9	1-5
Barracouta	7	3.5	1-6
Tarakihi	0	0	0
Greenbone	9	1.5	1-2
Salmon	35	1.2	1-2
Kahawai	130	3.1	1-14
Jock Stewart	0	0	0
Spiky dogfish	216	5.0	1-32
Trumpeter	0	0	0
Wrasse	16	2.7	1-4
Large shark	3	1	1
Rock lobster	0	0	0
Paua	12	6.0	2-10
Scallops	0	0	0
Kina	0	0	0
Mussels	341	37.9	20-50
Cockles	0	0	0
Pipi	0	0	0
Tuatua	0	0	0

Table 64: Zone 4: average weight* of individual fish of each species caught

	Av. weight (kg)	No. of trips when weight was recorded
Blue cod	0.62	7
Moki	1.08	2
Red cod	0.78	70
Rig	1.77	3
School shark	3.80	9
Barracouta	2.24	2
Greenbone	0.50	3
Salmon	5.16	28
Kahawai	2.74	26
Spiky dogfish	1.68	27
Wrasse	0.45	3
Large shark	75.37	3

* Whole fish, ungutted: includes shell for shellfish. Species for which weight was recorded on less than two trips are not included.

† This figure is affected by the number of trips on which it is based: the lower the number of trips, the less reliable it is.

4.4.5 Zone 5: Waitaki Mouth to Toko Mouth

Participating fishers made 716 trips to or in Zone 5 during the 12-month period. These trips constituted 16.1% of all trips made.

Table 65: Fishing trips made to or in Zone 5: zone that the fisher lived in

Zone lived in	No. of trips	Percent
Zone 1 Clarence Mouth–Conway Mouth	0	0
Zone 2 Conway Mouth–Sumner Beach	6	0.8
Zone 3 Sumner Beach–Rakaia Mouth	29	4.1
Zone 4 Rakaia Mouth–Waitaki Mouth	48	6.7
Zone 5 Waitaki Mouth–Toko Mouth	617	86.2
Zone 6 Toko Mouth–Slope Point	7	1.0
Zone 7 Slope Point–Te Waewae Point	4	0.6
Zone 8 Stewart Island	0	0
Zone 9 Te Waewae Point–Awarua Point	<u>5</u>	<u>0.7</u>
	716	100.0

Table 66: Zone 5: type of fishing done on the trip

	No. of trips	Percent
Shore fishing	273	38.1
Boat fishing (charter)	8	1.1
Boat fishing (private)	249	34.8
Boat diving (charter)	1	0.1
Boat diving (private)	33	4.6
Shore diving	27	3.8
Netting	52	7.3
Gathering	59	8.2
Other	14	2.0
	<u>716</u>	<u>100.0</u>

Table 67: Zone 5: number of trips targeting each species

	No. of trips	Percent*
Blue cod	192	26.8
Moki	60	8.4
Flatfish	54	7.5
Red cod	14	2.0
Groper	14	2.0
Rig	0	0
School shark	2	0.3
Barracouta	4	0.6
Tarakihi	0	0
Greenbone	68	9.5
Salmon	257	35.9
Kahawai	27	3.8
Jock Stewart	1	0.1
Spiky dogfish	3	0.4
Trumpeter	2	0.3
Wrasse	5	0.7
Large shark	0	0
Rock lobster	37	5.2
Paua	50	7.0
Scallops	0	0
Kina	1	0.1
Mussels	17	2.4
Cockles	19	2.7
Pipi	0	0
Tuatua	1	0.1

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 68: Zone 5: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	1578	10.1	1-30
Moki	181	3.5	1-25
Flatfish	155	3.8	1-24
Red cod	86	3.1	1-15
Groper	17	1.9	1-9
Rig	8	2.7	2-3
School shark	2	2.0	2
Barracouta	316	5.5	1-25
Tarakihi	10	2.0	1-3
Greenbone	316	5.3	1-23
Salmon	32	1.1	1-2
Kahawai	81	3.5	1-15
Jock Stewart	400	5.6	1-24
Spiky dogfish	223	5.1	1-36
Trumpeter	44	2.2	1-6
Wrasse	100	2.9	1-15
Large shark	1	1.0	1
Rock lobster	75	2.7	1-6
Paua	312	7.4	1-15
Scallops	0	0	0
Kina	22	22.0	22
Mussels	687	34.4	10-50
Cockles	1145	71.6	5-100
Pipi	4	4.0	4
Tuatua	5	5.0	5

Table 69: Zone 5: average weight of individual fish of each species caught *

	Av. weight (kg)†	No. of trips when weight was recorded
Blue cod	1.38	98
Moki	1.23	20
Flatfish	0.61	25
Red cod	1.35	15
Groper	4.08	6
Barracouta	2.25	31
Tarakihi	0.72	4
Greenbone	1.10	17
Salmon	4.20	21
Kahawai	2.86	5
Jock Stewart	0.78	43
Spiky dogfish	1.25	11
Trumpeter	0.56	10
Wrasse	0.50	18
Rock lobster	1.07	24
Paua	0.28	13
Cockles	0.06	12

* Whole fish, ungutted: includes shell for shellfish. Species for which weight was recorded on less than two trips are not included.

† This figure is affected by the number of trips on which it is based: the lower the number of trips, the less reliable it is.

4.4.6 Zone 6: Toko Mouth to Slope Point

Participating fishers made 231 trips to or in Zone 6 during the 12-month period. These trips constituted 5.2% of all trips made.

Table 70: Fishing trips made to or in Zone 6: zone that the fisher lived in

Zone lived in	No. of trips	Percent
Zone 1 Clarence Mouth–Conway Mouth	0	0
Zone 2 Conway Mouth–Sumner Beach	0	0
Zone 3 Sumner Beach–Rakaia Mouth	11	4.8
Zone 4 Rakaia Mouth–Waitaki Mouth	1	0.4
Zone 5 Waitaki Mouth–Toko Mouth	31	13.4
Zone 6 Toko Mouth–Slope Point	158	68.4
Zone 7 Slope Point–Te Waewae Point	30	13.0
Zone 8 Stewart Island	0	0
Zone 9 Te Waewae Point–Awarua Point	0	0
	<u>231</u>	<u>100.0</u>

Table 73: Zone 6: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	574	10.3	1–31
Moki	26	4.3	2–14
Flatfish	64	5.8	2–8
Red cod	17	1.9	1–3
Groper	32	4.0	1–11
Rig	2	1.0	1
School shark	11	2.2	1–5
Barracouta	6	1.0	1
Tarakihi	14	4.7	2–9
Greenbone	23	2.6	1–8
Salmon	1	1.0	1
Kahawai	10	1.7	1–3
Jock Stewart	319	11.0	2–26
Spiky dogfish	113	11.3	1–52
Trumpeter	19	3.2	1–9
Wrasse	45	2.5	1–5
Large shark	0	0	0
Rock lobster	29	3.6	1–7
Paua	898	11.8	2–72
Scallops	0	0	0
Kina	6	2.0	1–3
Mussels	804	34.9	8–99
Cockles	265	44.2	5–80
Pipi	0	0	0
Tuatua	0	0	0

Table 71: Zone 6: type of fishing done on the trip

	No. of trips	Percent
Shore fishing	49	21.2
Boat fishing (charter)	0	0
Boat fishing (private)	49	21.2
Boat diving (charter)	0	0
Boat diving (private)	12	5.2
Shore diving	59	25.5
Netting	11	4.8
Gathering	44	19.0
Other	<u>7</u>	<u>3.0</u>
	231	100.0

Table 72: Zone 6: number of trips targeting each species

	No. of trips	Percent*
Blue cod	74	32.0
Moki	14	6.1
Flatfish	12	5.2
Red cod	0	0
Groper	16	6.9
Rig	2	0.9
School shark	1	0.4
Barracouta	1	0.4
Tarakihi	3	1.3
Greenbone	17	7.4
Salmon	1	0.4
Kahawai	11	4.8
Jock Stewart	2	0.9
Spiky dogfish	0	0
Trumpeter	8	3.5
Wrasse	5	2.2
Large shark	0	0
Rock lobster	12	5.2
Paua	84	36.4
Scallops	0	0
Kina	0	0
Mussels	18	7.8
Cockles	5	2.2
Pipi	0	0
Tuatua	0	0

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 74: Zone 6: average weight* of individual fish of each species caught

	Av. weight (kg)†	No. of trips when weight was recorded
Blue cod	0.84	17
Red cod	0.98	3
Groper	2.72	4
School shark	3.25	2
Barracouta	2.90	2
Greenbone	1.17	4
Kahawai	2.65	5
Jock Stewart	0.62	9
Wrasse	0.55	5
Rock lobster	0.56	3
Paua	0.51	30
Kina	1.00	2
Mussels	0.06	7

* Whole fish, ungutted: includes shell for shellfish. Species for which weight was recorded on less than two trips are not included.

† This figure is affected by the number of trips on which it is based: the lower the number of trips, the less reliable it is.

4.4.7 Zone 7: Slope Point to Te Waewae Point

Participating fishers made 217 trips to or in Zone 7 during the 12-month period. These trips constituted 4.9% of all trips made.

Table 75: Fishing trips made to or in Zone 7: zone that the fisher lived in

Zone lived in	No. of trips	Percent
Zone 1 Clarence Mouth–Conway Mouth	1	0.5
Zone 2 Conway Mouth–Sumner Beach	0	0
Zone 3 Sumner Beach–Rakaia Mouth	5	2.3
Zone 4 Rakaia Mouth–Waitaki Mouth	0	0
Zone 5 Waitaki Mouth–Toko Mouth	13	6.0
Zone 6 Toko Mouth–Slope Point	38	17.5
Zone 7 Slope Point–Te Waewae Point	160	73.7
Zone 8 Stewart Island	0	0
Zone 9 Te Waewae Point–Awarua Point	0	0
	<u>217</u>	<u>100.0</u>

Table 76: Zone 7: type of fishing done on the trip

	No. of trips	Percent
Shore fishing	18	8.3
Boat fishing (charter)	0	0
Boat fishing (private)	36	16.6
Boat diving (charter)	1	0.5
Boat diving (private)	17	7.8
Shore diving	25	11.5
Netting	63	29.0
Gathering	40	18.4
Other	<u>17</u>	<u>7.9</u>
	217	100.0

Table 77: Zone 7: number of trips targeting each species

	No. of trips	Percent*
Blue cod	42	19.4
Moki	1	0.5
Flatfish	78	35.9
Red cod	1	0.5
Groper	5	2.3
Rig	1	0.5
School shark	0	0
Barracouta	0	0
Tarakihi	0	0
Greenbone	8	3.7
Salmon	1	0.5
Kahawai	1	0.5
Jock Stewart	0	0
Spiky dogfish	0	0
Trumpeter	0	0
Wrasse	0	0
Large shark	1	0.5
Rock lobster	18	8.3
Paua	41	18.9
Scallops	0	0
Kina	2	0.9
Mussels	19	8.8
Cockles	2	0.9
Pipi	1	0.5
Tuatua	2	0.9

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 78: Zone 7: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	564	13.4	1–30
Moki	5	1.2	1–2
Flatfish	1170	16.2	1–62
Red cod	12	3.0	1–8
Groper	7	3.5	3–4
Rig	22	4.4	1–8
School shark	10	2.0	1–5
Barracouta	3	1.5	1–2
Tarakihi	0	0	0
Greenbone	44	4.4	1–10
Salmon	0	0	0
Kahawai	1	1.0	1
Jock Stewart	46	7.7	1–20
Spiky dogfish	9	1.8	1–3
Trumpeter	6	2.0	1–3
Wrasse	19	3.2	1–6
Large shark	0	0	0
Rock lobster	58	3.6	1–7
Paua	510	13.4	2–60
Scallops	0	0	0
Kina	16	4.0	1–10
Mussels	987	44.9	15–60
Cockles	75	37.5	30–45
Pipi	0	0	0
Tuatua	30	15.0	10–20

Table 79: Zone 7: average weight* of individual fish of each species caught

	Av. weight (kg)†	No. of trips when weight was recorded
Blue cod	1.22	20
Flatfish	0.55	17
School shark	11.08	3
Barracouta	3.73	2
Greenbone	1.66	4
Jock Stewart	0.41	3
Spiky dogfish	5.00	3
Wrasse	0.49	4
Rock lobster	1.83	9
Paua	0.44	12
Mussels	0.19	2

* Whole fish, ungutted: includes shell for shellfish. Species for which weight was recorded on less than two trips are not included.

† This figure is affected by the number of trips on which it is based: the lower the number of trips, the less reliable it is.

4.4.8 Zone 8: Stewart Island

Participating fishers made 294 trips to or in Zone 8 during the 12-month period. These trips constituted 6.6% of all trips made.

Table 80: Fishing trips made to or in Zone 8: zone that the fisher lived in

Zone lived in	No. of trips	Percent
Zone 1 Clarence Mouth–Conway Mouth	0	0
Zone 2 Conway Mouth–Sumner Beach	3	1.0
Zone 3 Sumner Beach–Rakaia Mouth	49	16.7
Zone 4 Rakaia Mouth–Waitaki Mouth	16	5.4
Zone 5 Waitaki Mouth–Toko Mouth	103	35.0
Zone 6 Toko Mouth–Slope Point	50	17.0
Zone 7 Slope Point–Te Waewae Point	73	24.8
Zone 8 Stewart Island	0	0
Zone 9 Te Waewae Point–Awarua Point	<u>0</u>	<u>0</u>
	294	100.0

Table 81: Zone 8: type of fishing done on the trip

	No. of trips	Percent
Shore fishing	14	4.8
Boat fishing (charter)	25	8.5
Boat fishing (private)	96	32.7
Boat diving (charter)	34	11.6
Boat diving (private)	55	18.7
Shore diving	35	11.9
Netting	16	5.4
Gathering	14	4.8
Other	<u>5</u>	<u>1.7</u>
	294	100.0

Table 82: Zone 8: number of trips targeting each species

	No. of trips	Percent*
Blue cod	166	56.5
Moki	25	8.5
Flatfish	3	1.0
Red cod	2	0.7
Groper	8	2.7
Rig	1	0.3
School shark	0	0
Barracouta	1	0.3
Tarakihi	2	0.7
Greenbone	30	10.2
Salmon	0	0
Kahawai	0	0
Jock Stewart	1	0.3
Spiky dogfish	1	0.3
Trumpeter	14	4.8
Wrasse	1	0.3
Large shark	0	0
Rock lobster	65	22.1
Paua	24	8.2
Scallops	39	13.3
Kina	3	1.0
Mussels	5	1.7
Cockles	1	0.3
Pipi	0	0
Tuatua	0	0

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 83: Zone 8: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	1 908	12.2	1–50
Moki	102	3.5	1–26
Flatfish	6	2.0	1–3
Red cod	14	1.6	1–2
Groper	9	9	9
Rig	38	4.2	1–14
School shark	3	1.5	1–2
Barracouta	6	1.2	1–2
Tarakihi	15	5.0	2–7
Greenbone	103	3.8	1–9
Salmon	0	0	0
Kahawai	3	3.0	3
Jock Stewart	74	4.1	1–12
Spiky dogfish	16	1.6	1–4
Trumpeter	79	2.6	1–12
Wrasse	77	2.9	1–10
Large shark	1	1.0	1
Rock lobster	199	3.9	1–18
Paua	145	7.6	1–25
Scallops	574	14.4	5–45
Kina	16	4.0	2–6
Mussels	110	22.0	5–50
Cockles	40	40.0	40
Pipi	0	0	0
Tuatua	0	0	0

Table 84: Zone 8: average weight* of individual fish of each species caught

	Av. weight (kg)†	No. of trips when weight was recorded
Blue cod	0.94	69
Moki	1.73	16
Flatfish	0.50	2
Red cod	1.57	4
School shark	10.00	2
Greenbone	1.24	11
Jock Stewart	0.95	8
Spiky dogfish	1.60	3
Trumpeter	0.61	10
Wrasse	0.88	10
Rock lobster	1.07	20
Paua	0.85	6
Scallops	0.28	6
Kina	0.59	3

* Whole fish, ungutted: includes shell for shellfish. Species for which weight was recorded on less than two trips are not included.

† This figure is affected by the number of trips on which it is based: the lower the number of trips, the less reliable it is.

4.4.9 Zone 9: Te Waewae Point to Awarua Point

Participating fishers made 76 trips to or in Zone 9 during the 12-month period. These trips constituted 1.7% of all trips made.

Table 85: Fishing trips made to or in Zone 9: zone that the fisher lived in

Zone lived in	No. of trips	Percent
Zone 1 Clarence Mouth–Conway Mouth	0	0
Zone 2 Conway Mouth–Sumner Beach	8	10.5
Zone 3 Sumner Beach–Rakaia Mouth	0	0
Zone 4 Rakaia Mouth–Waitaki Mouth	2	2.6
Zone 5 Waitaki Mouth–Toko Mouth	35	46.1
Zone 6 Toko Mouth–Slope Point	3	3.9
Zone 7 Slope Point–Te Waewae Point	25	32.9
Zone 8 Stewart Island	0	0
Zone 9 Te Waewae Point–Awarua Point	<u>3</u>	<u>3.9</u>
	76	100.0

Table 86: Zone 9: type of fishing done on the trip

	No. of trips	Percent
Shore fishing	6	7.9
Boat fishing (charter)	2	2.6
Boat fishing (private)	28	36.8
Boat diving (charter)	0	0
Boat diving (private)	33	43.4
Shore diving	1	1.3
Netting	2	2.6
Gathering	4	5.3
Other	<u>0</u>	<u>0</u>
	76	100.0

Table 87: Zone 9: number of trips targeting each species

	No. of trips	Percent*
Blue cod	31	40.8
Moki	2	2.6
Flatfish	2	2.6
Red cod	0	0
Groper	14	18.4
Rig	0	0
School shark	2	2.6
Barracouta	1	1.3
Tarakihi	3	3.9
Greenbone	0	0
Salmon	1	1.3
Kahawai	2	2.6
Jock Stewart	0	0
Spiky dogfish	0	0
Trumpeter	0	0
Wrasse	0	0
Large shark	0	0
Rock lobster	35	46.1
Paua	3	3.9
Scallops	4	5.3
Kina	0	0
Mussels	0	0
Cockles	0	0
Pipi	1	1.3
Tuatua	0	0

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 88: Zone 9: number of fish of each species caught (either as target species or bycatch)

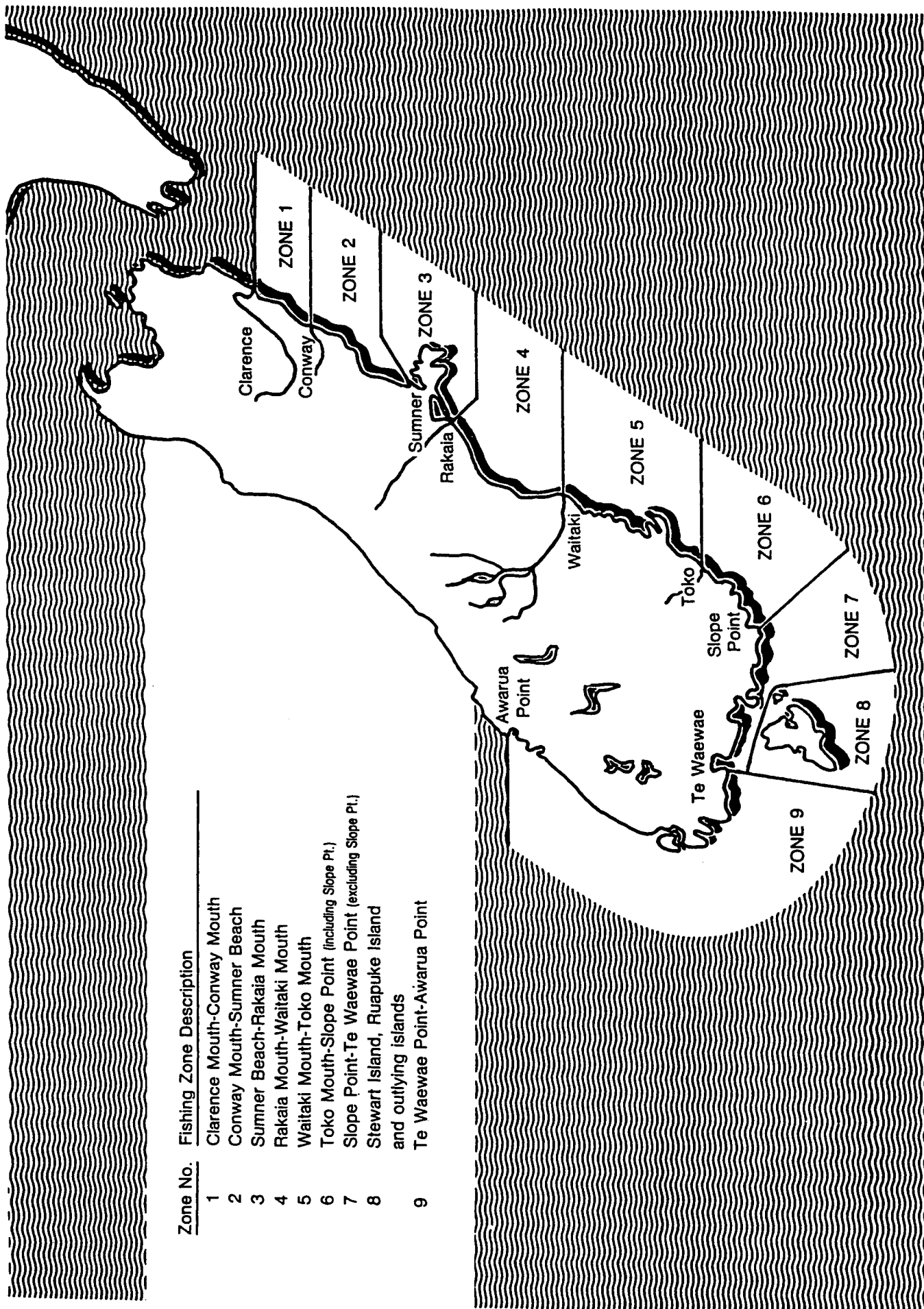
	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	229	7.9	1–30
Moki	1	1.0	1
Flatfish	28	9.3	4–19
Red cod	0	0	0
Groper	20	1.8	1–4
Rig	2	1.0	1
School shark	2	2	2
Barracouta	1	1.0	1
Tarakihi	5	2.5	2–3
Greenbone	0	0	0
Salmon	0	0	0
Kahawai	6	6	6
Jock Stewart	147	12.3	3–33
Spiky dogfish	0	0	0
Trumpeter	0	0	0
Wrasse	56	7.0	3–10
Large shark	0	0	0
Rock lobster	154	4.8	1–6
Paua	10	10	10
Scallops	75	18.8	15–20
Kina	0	0	0
Mussels	16	16	16
Cockles	0	0	0
Pipi	30	30	30
Tuatua	0	0	0

Table 89: Zone 9: average weight* of individual fish of each species caught

	Av. weight (kg)†	No. of trips when weight was recorded
Blue cod	1.56	11
Flatfish	1.09	2
Groper	5.92	8
Rig	4.90	2
Wrasse	0.33	3
Rock lobster	1.63	6

* Whole fish, ungutted: includes shell for shellfish. Species for which weight was recorded on less than two trips are not included.

† This figure is affected by the number of trips on which it is based: the lower the number of trips, the less reliable it is.



Zone No.	Fishing Zone Description
1	Clarence Mouth-Conway Mouth
2	Conway Mouth-Sumner Beach
3	Sumner Beach-Rakaia Mouth
4	Rakaia Mouth-Waitaki Mouth
5	Waitaki Mouth-Toko Mouth
6	Toko Mouth-Slope Point (including Slope Pt.)
7	Slope Point-Te Waewae Point (excluding Slope Pt.)
8	Te Waewae Point-Awarua Point
9	Awarua Point and outlying islands

Appendix 1: Telephone survey questionnaire and instructions to interviewers

PILOT CATCH AND EFFORT SURVEY TELEPHONE SURVEY QUESTIONNAIRE

Res.
No.
1-5

-
1. Hello. My name is I am conducting some research for the Ministry of Agriculture and Fisheries. Could you tell me, is there anyone living in your household who went sea fishing or diving for or gathering seafood in the last 12 months?
- 6
- Yes [] continue No [] interview complete - go to end details
-
2. Is there just one person or is there more than one person who does this?
- IF ONE: Would it be possible to talk to that person for about 2 minutes?
- IF MORE THAN ONE: Of these people would it be possible to talk to the person who has had the most recent birthday and is 15 or older . . . it would take about 2 minutes.
- IF NO: Get call back details _____
- IF YES: Reintroduce yourself if another person comes to the phone.
- How many people in your household went sea fishing or diving for or gathering seafood in the last 12 months? Enter number _____.
- 7
- How many of these people do it commercially? Enter number _____.
- 8
- IF RESPONDENT IS A COMMERCIAL FISHERMAN THE INTERVIEW IS COMPLETE - GO TO QUESTION 7.
-
3. In the last 12 months, how many times did you personally go sea fishing or dive for or gather seafood? - READ OUT SCALE.
- 9
- 1) Less than 6 times [] 2) 6-15 times [] 3) 16-30 times [] 4) 31 times or more [] 5. D.K. []
-
4. Do you belong to a marine fishing club? Yes [] No [] 10
- Do you belong to a marine boating club? Yes [] No [] 11
- Do you belong to a diving club? Yes [] No [] 12
-
5. Do you think that you will go sea fishing or dive for or gather seafood in the coming 12 months?
- 13
- Yes [] No [] DK []
- IF YES: CONTINUE
- IF NO or DON'T KNOW: GO TO 7.
-

6. The Ministry of Agriculture and Fisheries is carrying out a year-long study on marine recreational fishing. We need fisherpeople to keep a diary recording when and where they went fishing and what they caught. This information is vital if the Ministry is to make sensible fisheries management policy. Would you be prepared to keep such a diary if we sent you one? You fill it in each time you go fishing. It doesn't matter to us whether you go out once or 100 times, or whether you catch nothing or 100 fish. We just want you to keep an accurate record so we can calculate statistics.

IF NO: GO TO 7.

IF YES: Name _____
(First name) (Surname)

Address _____

Phone Number (0) _____

In the next couple of weeks we will send you a package with the diary and all the information, including details of the prizes you could win.

-
7. Finally, just a couple of questions about yourself

Sex: Male ☐ Female ☐

1

Which of the following age groups are you in?

- | | | | |
|----------------|--------------------------|----------------------|--------------------------|
| 1. 15-20 years | <input type="checkbox"/> | 4. 41-50 years | <input type="checkbox"/> |
| 2. 21-30 years | <input type="checkbox"/> | 5. 51-60 years | <input type="checkbox"/> |
| 3. 31-40 years | <input type="checkbox"/> | 6. 61 years or older | <input type="checkbox"/> |

1

Which of the following ethnic groups do you belong to?

- | | | | |
|-----------------------|--------------------------|-------------------|--------------------------|
| 1. European or Pakeha | <input type="checkbox"/> | 3. Pacific groups | <input type="checkbox"/> |
| 2. NZ Maori | <input type="checkbox"/> | 4. Other _____ | <input type="checkbox"/> |

1

Thank you very much for helping with our research. We really appreciate it. If you have any questions about the study the person to contact is Laurel Teirney from the Ministry in Dunedin. Would you like her phone number? (03) 474 0333

Interviewer Name: _____

Number called _____

PILOT CATCH AND EFFORT SURVEY
TELEPHONE SURVEY
INTERVIEWER INSTRUCTIONS

Interviewer Name: _____

Interviewer Number: _____

Telephone Directory used: _____

Directory page numbers to be used: _____ to _____ inclusive.

Number of completed interviews required: _____

Instructions

Align the bottom of your selector card with the bottom of the page from your allotted telephone directory. The arrows on the selector card indicate those households to be sampled. Rule a line across the page of the directory corresponding to each arrow on the selector card, thus underlining all those households on the page to be phoned.

If the name selected is not a private household then select the first private household that appears below the number originally selected. Underline this household and its number.

Fill in the first 3 columns of the call record sheet before phoning the number. Fill in the Date/result column immediately after completing the call.

The result options are:

Eng	-	engaged
NA	-	no answer
Unav	-	fisherperson is unavailable
No	-	wouldn't comply with request to be interviewed
Inc	-	incomplete interview
OK	-	completed successful interview.

If an interview is successfully completed then put a tick in the "OK" column.

If the first call to a particular number is inconclusive then you are to make 2 further attempts to contact the desired person. Either call back the next day or at the time suggested by the person you spoke to on the first call. Record such details (e.g. the name of the person to ask for and the suggested time to call) in the comments column. If the first two calls to a number are made on a weekday, the final call-back should be made on a weekend day and vice versa.

If anything happens during the interview that you feel needs to be brought to the coordinator's attention, note this in the comments column and briefly describe it on the back of the questionnaire.

Fill in a questionnaire for each interview you begin. If you have to call back to speak to the person in the household who goes fishing, then simply put the partially completed questionnaire aside until you call back.

Conduct the interviews during the following times:

Weekdays	7.00pm-9.00pm
Saturdays	10.30am-12 noon, 1.30pm-5.00pm, 7.00pm-9.00pm
Sundays	1.30pm-5.00pm

Question 2: A commercial fisher is someone who regularly receives income from selling some or all of their catch. Occasional sales or bartering of their catch does not make someone a commercial fisher.

If the respondent is not a commercial fisher, continue with the interview even if others in the household are commercial fishers.

Question 4: "Belonging" means currently financial and/or participating in club activities. For example, if a son participates in the club because his father is a financial member, then the son is considered to "belong".

A "fishing" club is one in which the primary common interest of the members is fishing as opposed to boating etc., and vice versa.

Question 7: Do not ask the respondent for their sex; merely deduce it from their voice. Only allow respondents to choose one category of ethnic group.

Appendix 2: Diary instructions and sample trip record page

Diarist Number _____

Name _____

Address _____

Thank you for participating in this, the most comprehensive study of marine recreational fishing ever undertaken in New Zealand. The records of your fishing trips along with those of 1000 other South Island fisherpeople will provide the Ministry of Agriculture and Fisheries with vital information on catch rates, fish sizes and the "effort" people spend on marine fishing. Such information is essential if the Ministry is to make sensible and effective fisheries management policies.

At the end of the study you will receive a copy of the survey results as well as going into a draw to win fishing equipment from Kilwell Sports and a week's holiday fishing and diving at Kisbee Lodge.

Thank you once again for taking part.

John Bell
Survey Coordinator

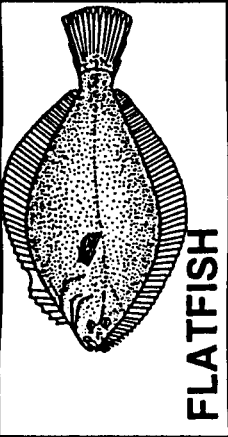
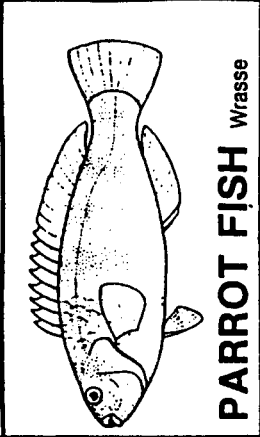
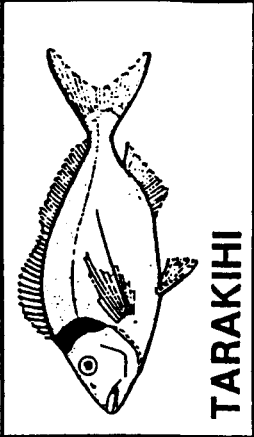
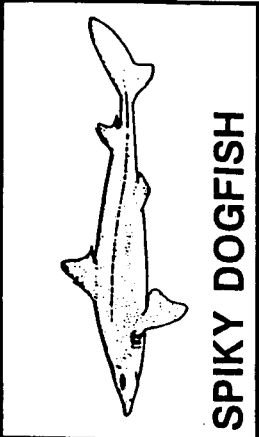
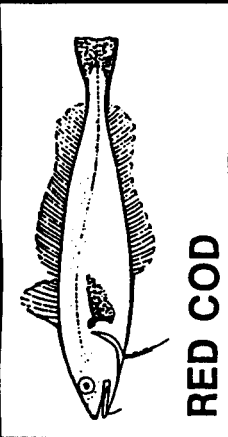
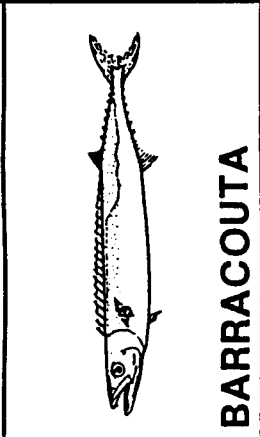
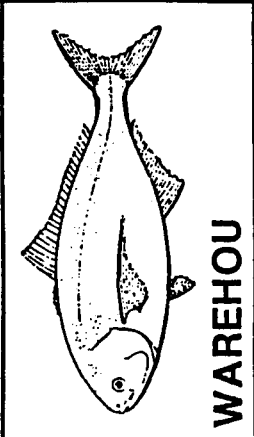
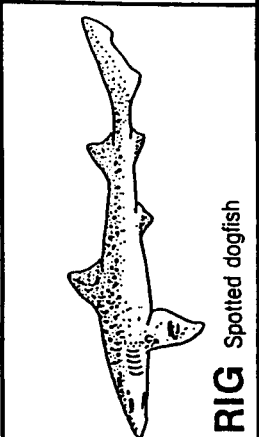
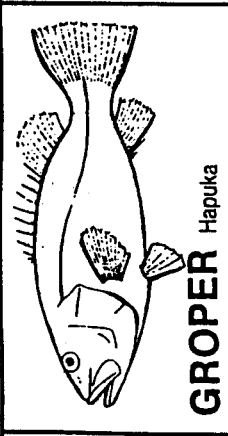
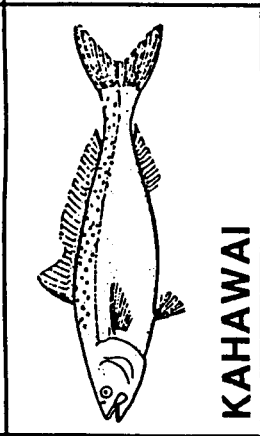
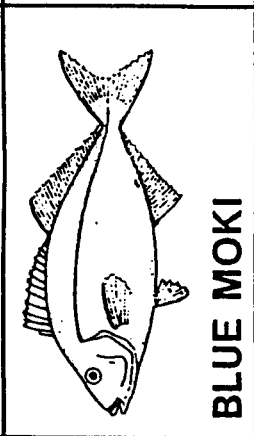
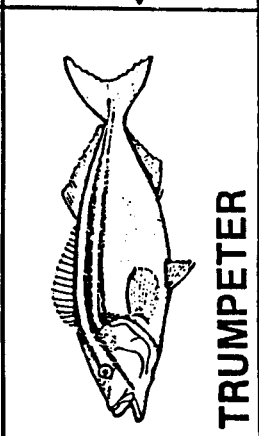
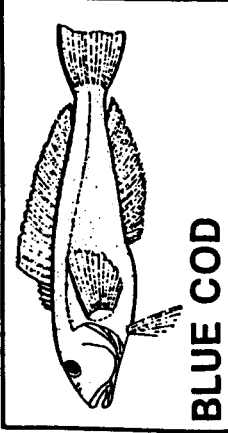
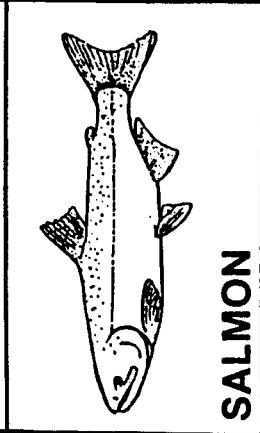
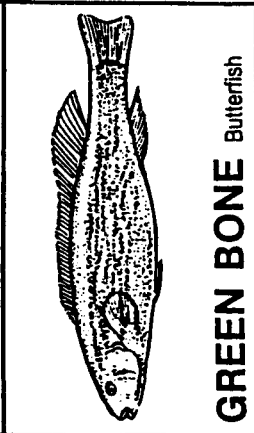
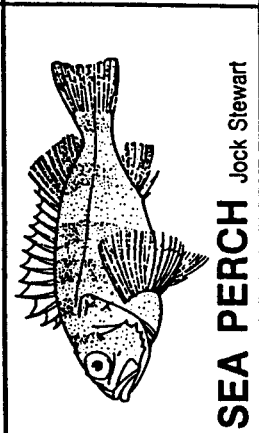
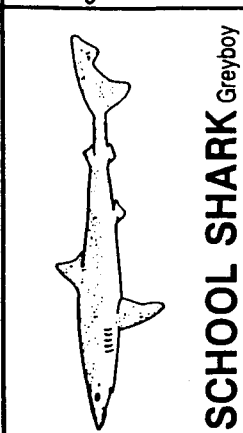
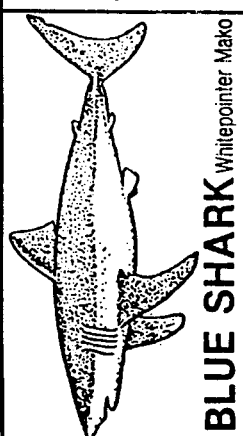
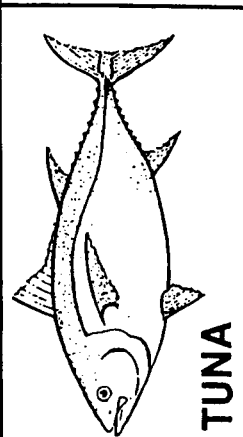
INSTRUCTIONS

1. Please fill in the diary each and every time you go sea fishing or dive for or gather seafood.
2. Record YOUR efforts only. DO NOT record the efforts of your companions.
3. Please keep this diary for the coming 12 months. Every 3 months someone will ring you, asking you to send in your record for that period. Simply tear out the relevant page(s) from the diary and post them back in the reply paid envelopes supplied in the pocket on the back cover.
4. Even if you didn't catch anything we still want you to record the fact that you went fishing, diving or gathering. It is just as important that we know you didn't catch anything as it is that we know what you caught when you did catch something.
5. It is very important that we know what time of year people DON'T GO fishing, so please send in your 3-monthly trip record sheet even if it is blank, showing that you didn't go fishing during the period.
6. REMEMBER, every 3-monthly return that we receive, whether it be blank (showing that you didn't go fishing during the period) or one detailing several trips, will go into a draw to win fishing equipment supplied by Kilwell Sports. At the end of the year all returns will go into a draw to win a week's holiday for 4 people at Kisbee Lodge in Fiordland.
7. Please fill in the diary for each trip you make as shown in the example over the page.
8. If you have any questions about the diary or the survey please phone John Bell (03) 479-8165 during the day or (03) 464-0994 after hours, or write to P.O. Box 6233, Dunedin.

FOR EXAMPLE

Date of trip	Name of place and number of zone fished in (see pg3)	Hours spent fishing	Type of fishing (see pg2)	Fish species targeted (see pg4)	Catch Species caught Number of each species caught	Total weight (kilos) of each species caught whole fish ungutted incl. shell to nearest 100g
8/2/92	Otago Harbour Zone 5	4½ hrs	Boat fishing from a private boat	Salmon	BARBARACOUTA 3	9.2 kg
9/2/92	Dodgers Point Zone 5	3 hrs	Gathering	Tuatua Paua	TUA TUA 20	0.6 kg

- Date of trip:** Please record the day / month / year. If your trip lasted more than one day please treat each day as a separate trip filling out a record for each day.
- Name of place and number of zone fished in:** Please record the name of the place where you went fishing AND, referring to the map on page 3, work out which zone the place is in; record this also.
—If you fished outside the nine zones shown in the map, record the zone as being zone 10.
—If you fished in more than one zone during the trip, please treat each zone as being a separate trip and fill out a record for each zone fished in.
- Hours spent fishing:** In this space please record, to the nearest half hour, the hours you actually spent fishing / diving / gathering. DO NOT count the time spent travelling or resting.
- Type of fishing:** Please specify the type of fishing you did on the trip. The options are 1) shore fishing, 2) boat fishing from a charter boat, 3) boat fishing from a private boat, 4) diving from a charter boat, 5) diving from a private boat, 6) diving from the shore, 7) netting, 8) gathering, 9) other—please specify.
—If you did more than one type of fishing during the trip, please treat each type as being a separate trip and fill out a record for each type.
- Fishing species targeted:** Please specify the species of fish that you set out to catch on this trip.
- Catch:** Please record here all the details of what you actually caught, the number of each species and, if possible, the total weight of each species (to nearest 100 grams). If you are unable to weigh the fish, please leave the "total weight" column blank. PLEASE DON'T TRY TO GUESS THE WEIGHT.
—If the catch was the result of a group effort (e.g. set netting) then divide the catch evenly among the people involved (even if in reality some people received more than others) and record YOUR SHARE ONLY.
—Record the weight of the whole fish ungutted. If shellfish then weigh them while still in the shell.
- Comments:** If you have any comments that you would like to make, please write these on the back of the trip record page.

	FLATFISH		PARROT FISH <small>Wrasse</small>		TARAKIHI		SPIKY DOGFISH	FISH IDENTIFICATION CHART
	RED COD		BARRACOUTA		WAREHOU		RIG <small>Spotted dogfish</small>	
	GROPER <small>Hapuka</small>		KAHAWAI		BLUE MOKI		TRUMPETER	
	BLUE COD		SALMON		GREEN BONE <small>Butterfish</small>		SEA PERCH <small>Jock Stewart</small>	
							SCHOOL SHARK <small>Greyboy</small>	
							BLUE SHARK <small>Whitepointer Mako</small>	
							TUNA	

Diarist name
Diarist number

If you have any comments please write these on the back of this page.

Appendix 3: Comparison of fishers who declined or were ineligible to take part in the diary survey with those who did take part

	Participants (<i>n</i> = 862)	Non-participants (<i>n</i> = 211)
Males	85.7%	77.9%
Pakeha	91.6%	87.1%
Under 40 years of age	62.5%	61.8%
Average number in households who went fishing	1.73	1.70
Made less than 6 fishing trips in previous 12 months	50.6%	65.9%
Belong to a fishing club	5.1%	1.4%
Belong to a boating club	6.9%	3.7%
Belong to a diving club	7.0%	1.4%

Appendix 4: Results from the sample of "expert" fishers

Table 1: Expert fishers: number of trips made by fishers between 1 September 1991 and 31 August 1992

No. of trips	No. of respondents*	Percent
0	2	4.7
1-5	11	26.2
6-10	7	16.7
11-15	4	9.5
16-20	3	7.1
21-25	5	11.9
Over 25	<u>10</u>	<u>23.8</u>
	42	100.0

* Of the 45 expert fishers who began the study, 38 remained to the end, giving an average of 42 for the duration of the study.

Total number of trips: 636.

Average for fishers who made at least one trip: 15.9.

Range: 0-62 trips.

Table 2: Expert fishers: when fishing trips were made

	No. of trips	Percent
September 1991	26	4.1
October 1991	68	10.7
November 1991	52	8.2
December 1991	109	17.1
January 1992	148	23.3
February 1992	77	12.1
March 1992	44	6.9
April 1992	46	7.2
May 1992	28	4.4
June 1992	15	2.4
July 1992	11	1.7
August 1992	<u>12</u>	<u>1.9</u>
	636	100.0

Table 3: Expert fishers: zones that the fishing trips were made to

	No. of trips	Percent
Clarence Mouth–Conway Mouth	78	12.3
Conway Mouth–Sumner Beach	41	6.4
Rakaia Mouth–Waitaki Mouth	89	14.0
Rakaia Mouth–Waitaki Mouth	15	2.4
Waitaki Mouth–Toko Mouth	148	23.3
Toko Mouth–Slope Point	51	8.0
Slope Point–Te Waewae Point	25	3.9
Stewart Island	180	28.3
Te Waewae Point–Awarua Point	5	0.8
Outside the MAF South region	<u>4</u>	<u>0.6</u>
	636	100.0

Table 4: Expert fishers: time spent fishing per trip (to nearest half hour)

Time (h)	No. of trips	Percent
0.5	179	28.2
1	84	13.2
1.5	47	7.4
2	77	12.1
2.5	29	4.6
3	82	12.9
3.5	15	2.4
4	46	7.2
4.5	5	0.8
5	20	3.1
5.5	0	0
6	11	1.7
Over 6	<u>41</u>	<u>6.4</u>
	636	100.0

Total time spent fishing: 1499 h.

Average length of a trip: 2.4 h.

Range: 0.5–15 h.

Table 5: Expert fishers: type of fishing done on the trip

	No. of trips	Percent
Shore fishing	75	11.8
Boat fishing (charter)	5	0.8
Boat fishing (private)	201	31.6
Boat diving (charter)	0	0
Boat diving (private)	150	23.6
Shore diving	62	9.7
Netting	96	15.1
Gathering	28	4.4
Other	<u>19</u>	<u>3.0</u>
	636	100.0

Table 6: Expert fishers: number of trips targeting each species

	No. of trips	Percent*
Blue cod	208	32.7
Moki	47	7.4
Flatfish	49	7.7
Red cod	46	7.2
Groper	12	1.9
Rig	12	1.9
School shark	5	0.8
Barracouta	1	0.2
Tarakihi	1	0.2
Greenbone	65	10.2
Salmon	22	3.5
Kahawai	20	3.1
Jock Stewart	18	2.8
Spiky dogfish	3	0.5
Trumpeter	17	2.7
Wrasse	0	0
Large shark	3	0.5
Rock lobster	115	18.1
Paua	71	11.2
Scallops	47	7.4
Kina	9	1.4
Mussels	3	0.5
Cockles	3	0.5
Pipi	0	0
Tuatua	0	0

* This column does not add up to 100% because fishers could target more than one species, or have no target species, on a trip.

Table 7: Expert fishers: number of fish of each species caught (either as target species or bycatch)

	No. of fish caught	Av. no. caught per successful trip	Range
Blue cod	2074	10.6	1–30
Moki	180	4.3	1–20
Flatfish	545	10.7	1–39
Red cod	123	3.4	1–20
Groper	20	2.9	1–5
Rig	5	1.3	1–2
School shark	27	2.7	1–6
Barracouta	113	5.4	1–38
Tarakihi	16	2.3	2–4
Greenbone	305	5.9	1–30
Salmon	6	1.2	1–2
Kahawai	43	2.5	1–10
Jock Stewart	439	6.8	1–23
Spiky dogfish	89	2.9	1–10
Trumpeter	128	4.4	1–17
Wrasse	48	2.4	1–9
Large shark	0	0	0
Rock lobster	276	3.1	1–6
Paua	656	9.1	2–20
Scallops	654	13.6	4–50
Kina	245	27.2	2–50
Mussels	18	9.0	8–10
Cockles	130	65	50–80
Pipi	0	0	0
Tuatua	0	0	0

Table 8: Expert fishers: total number of finfish (any species) caught per trip

No. of fish caught	No. of trips	Percent
0	1155	52.5
1	197	8.9
2	124	5.6
3	99	4.5
4	98	4.5
5	63	2.9
6	54	2.5
7	39	1.8
8	56	2.5
9	27	.2
10	39	1.8
Over 10	<u>251</u>	<u>11.4</u>
	2202	100.0

Total number of finfish caught: 8667.

Average number of finfish caught per trip: 3.9.

Range: 0–100.

