

Attitudes and perceptions of New Zealand marine recreational fishers towards the management of their fishery

Kim Walshe contact: kwalshe@xtra.co.nz

ABSTRACT

New Zealand marine recreational fisher's attitudes to their fisheries and fisheries management are discussed in the light of the findings from two studies. The first study, a national telephone survey of more than 600 fishers, investigated why fishers seek to go recreational fishing and their attitudes towards the fisheries management. The second study (a follow-up survey), assessed fisher's attitudes to fisheries management from a series of focus group sessions in the main recreational fishing region of New Zealand. The research provides insight into:

- The reasons for recreational fishing and their relative importance
- Why fishers generally do not know the rules
- Fisher's attitudes towards the fisheries management regime and how fishers could contribute to the management of their fishery.
- Fisher's views of the level of compliance with the recreational fishing regulations
- Why recreational fisher rules adopted /rejected by fishers
- How information is transferred between fishers.

The research also indicated that there is a high level of support for the current management regime and that fishers are prepared, in some activities at least, to take a greater role in management.

INTRODUCTION

Little research has been undertaken in New Zealand on the attitudes and perceptions of recreational fishers. Two studies by the Ministry of Fisheries were completed in the southern and central regions of New Zealand in the early 1990s (Kilner & Bell, 1992, Teirney *et. al*, 1992). Prior to the research discussed in this paper no surveys had been undertaken in the major recreational fishing area (North region) or nationally.

In 1998 the Ministry commissioned Akroyd Walshe Ltd to undertake a national survey of recreational fishers. In 2000 the Ministry also commissioned Akroyd Walshe Ltd to undertake a follow-up survey to explore some of the finding from the telephone survey in greater depth. These research projects provided the basis for this paper.

METHODOLOGY

For the telephone survey a research company National Research Bureau (NRB) was subcontracted to contact 7000 households throughout New Zealand and interview around 600 active fishers on their views on recreational fishing.

For the follow-up survey a focus group approach was used. Participants also completed a short anonymous questionnaire. Sixteen meetings comprising 178 fishers in total were held all in the North region. As many of the fishing rules relate to a specific fishing method, participants were chosen *inter alia* based on their experience in fishing one of four methods. Four meetings of each of the following groups were held; net fishers, divers, line fishers, and shellfish harvesters. Meeting locations were chosen to represent a geographical spread and to reflect urban and rural communities. NRB were again subcontracted to source a representative sample of participants. Participants were told only that they were attending a meeting to discuss recreational fishing.

RESULTS AND DISCUSSION

The Ministry's research brief required a number of research questions to be investigated. The results from six of these are discussed below.

1. Why do recreational fishers seek to go fishing?

Fishers in the telephone survey were asked what they felt were their main motivations to go fishing. On average each fisher gave two answers. The top seven responses are given in Table 1.

The top seven motivators	Fisher total %
Enjoyment/pleasure/fun	46
Relaxation/leisure	33
Recreation/recreational activity	22
Food supply/fish to eat	18
Environment/outdoors/fresh air	17
To get away/escape/time out	11
Sport/exercise	10
Sample size	612

Almost half the fishers fish for enjoyment pleasure or fun, less than one in five fishers stated they go fishing to catch food or get fish to eat.

2. Why do recreational fishers generally not know the rules, and why is recall of the bag limits by fin-fish fishers much poorer than for shellfish/rock lobster fishers?

The 1999 telephone survey results indicated that recreational fishers had a poor knowledge of the rules. Table 2 gives the percentage of fishers from the telephone survey who commented on the bag limit for the species they target. The statistics are drawn from a sample of fishers targeting the species in the main target fishing region; the three species identified are the most caught recreational species.

	Snapper (<i>Pagrus auratus</i>)	Kahawai (<i>Arripis trutta</i>)	Blue Cod (<i>Parapercis colias</i>)
Primary target fishery (fisher sample)	Auckland East	North region	Southern region
% stated correct limit	39	25	21
Sample size	241	8	36

Table 3 gives the recall statistics for shellfish/rock lobster fishers. Fisher recall of the correct bag limits for the primary shellfish species was much higher than for finfish.

	Scallop (<i>Pecten novaezelandiae</i>)	Paua (<i>Haliotis sps</i>)	Rock lobster (<i>Jasus sps</i>)
Primary target fishery (fisher sample)	North region	Central/South regions	North region
% stated correct limit	60	53	49
Sample size	47	42	55

The 2001 focus group survey also collected information on fisher's recall of the rules. This survey found a greater proportion of fishers (significantly greater for snapper [$p < 0.001$]) recalled the correct bag limits. Sixty seven % of those fishers targeting snapper ($n=93$) and 36% of those targeting kahawai ($n=22$) stated the correct bag limit. However even these recall levels indicate that many fishers are ignorant of the bag limits.

The focus group survey also found a greater proportion of fishers correctly stated the bag limit for scallops and rock lobster (82% and 81% respectively). Sample sizes ($n=22$ and 27 respectively) in the 2001 survey were too small to assess whether the results from the telephone and focus groups were

significantly different. The reason for the discrepancy between the two surveys results is possibly due to the samples for the two surveys in that the participants in the focus group session may have been a more experienced group of fishers than those sampled in the telephone survey.

The discrepancy in recall of the bag limits between finfish and shellfish/rock lobster was discussed at each of the focus group sessions. A common comment was that recall of bag limits did not necessarily reflect the behaviour on the fishing ground since fishers use a range of devices to help them remember the limits. For example, at nine of the meetings fishers were asked how many currently had Ministry of Fisheries pamphlets with bag limit and other information, 34 % of fishers had pamphlets.

One reason for the discrepancy in recall is the likelihood of the fisher exceeding the bag limit. In the focus group sessions fishers completed an individual written questionnaire on a range of issues including catch rates. Table 4 gives the analysis of the data on catch rates. Fishers targeting snapper were unlikely to get the bag limit on an average day where as some rock lobster fishers and especially the scallop fishers would take their limit. In more than half the meetings fishers stated they did not need to know the snapper bag limit because they would catch sufficient for a 'good feed' without needing to take the bag limit.

	Snapper Bag limit = 9/15*	Scallops Bag limit = 20	Rock lobster Bag limit = 6
mean	4.3	22.1	3.7
Standard deviation	1.99	8.09	1.78
Sample size	53	6	18

* The bag limit in Auckland East is 9 snapper per day, and in Auckland West the limit is 15 snapper per day

One concern about the level of correct bag limit recall is that fishers may fish in excess of the bag limit. Table 5 uses the results of the focus group data to estimate the level of overfishing. It seems that even on a good day's fishing few fishers would, in ignorance, over fish their limits.

	Snapper	Kahawai	Scallops	Rock lobster
Fishers who targeted a species and stated a bag limit	76	22	21	23
Fishers who catch the bag limit or less on a good day	67	21	20	23
Fishers who were ignorant of the bag limit and caught more than the bag limit on a good day	9	1	1	0
Percentage of fishers who would in ignorance fish more than the bag limit on a good day	11.8%	4.5%	4.8%	0%

3. How do recreational fishers feel they could contribute to the management of their fishery?

In the telephone survey fishers were asked a range of questions on the role of fishers in the management of their fishery. One question asked about the benefits of recreational fishers taking over some of the control and management of marine fishing areas from the Ministry. The results are given in Table 6.

	Fisher total %
Will benefit fishers	37
Will disadvantage fishers	25
Neither/nor	19
No idea/no opinion	19
Sample	612

About a third of fishers supported the concept of some control or self management. Unlike other management issue canvassed in the survey, self management is not currently a major concern since a large group of respondents (around 40% of fishers), were ambivalent or held no view either way.

A related question posed the scenario: “*One alternative is to have the fisheries around each area managed by an association of recreational fishing people. They would keep watch on the fish stocks and decide bag limits, closures, and most other decisions. They would provide volunteer staff for informing people and checking compliance. They would use the Ministry for matters of expert advice on marine life or policy.*”

Fishers were asked for their opinion on the scenario. Table 7 summarises the responses:

Option	Fisher total %
By local associations of recreational fishers	38
Through the Ministry of Fisheries as at present	41
No feelings either way/don't know	15
Combination of both MFish and recreational fishers	6
Sample	612

Fishers were equally divided on management by local associations or management by the Ministry; few however supported a combination of the two management bodies. In considering the percentage of fishers who do not hold a view or don't know, the issue of area management appears to polarise recreational fishers more than does the concept of self management.

The telephone survey also sought views on what contribution fishers might make to a management role. Respondents were asked would they definitely provide a voluntary contribution of time/effort to five activities. The responses are summarised in Table 8.

Activity	Fisher total %*
Maintenance of a fishing diary	46
Inspection duties at beach/ramp	37
Administration for fishing associations	25
Research and interviewing activities	19
Pay a levy in lieu of time	19
Sample	612

*Fishers could make multiple responses

Almost half of the sample would assist with fishing diary. It is interesting that the percentage of fishers who would undertake the two face to face activities (inspection duties at beach/ramp and research and interviewing activities) are significantly different ($p < 0.001$), and that the percentage who would volunteer for research and interview activities has the lowest level of support (This low level is equal to that of paying a fee.)

A related question reversed the enquiry emphasis. Respondents were asked if they would definitely not provide a voluntary contribution of time/effort to five activities. Table 9 summarises the responses.

Opposition to their voluntary involvement in:	Fisher total %
Research and interviewing activities	56
Pay a levy in lieu of time	56
Inspection duties at beach/ramp	53
Administration for fishing associations	44
Maintenance of a fishing diary	22
Sample	612

Around half the sample would definitely not provide a voluntary contribution of time/effort for any activity other than maintenance of a fishing diary. Half the fishers would not pay a levy in lieu of not assisting with a voluntary contribution.

The issue of paying for a licence or management fee to support research compliance and representation of their interest to government was canvassed in question in the telephone interviews. Fishers were asked about whether such a charge would benefit fishers or not. Table 10 summarises the responses.

Table 10. Attitude to charging a licence or management fee	
	Fisher total %
Will disadvantage fishers	42
Will benefit fishers	29
Neither advantage nor disadvantage fishers	16
No idea/no opinion	13
Sample	612

Less than a third of the sample thought the payment would benefit fishers. Respondents who started the payment would disadvantage fishers were asked why they had that view. The seven most prevalent responses are summarised in Table 11.

Table 11. Seven most prevalent reasons for not supporting a payment	
	Fisher total %
Shouldn't have to pay for recreational fishing	24
Pay enough taxes already/ create bureaucracy	18
Some wouldn't pay – lead to illegal fishing	13
Inconvenience of a fee/too many licences now	11
Will put people off fishing	9
Commercial sector should pay	9
Creates extra cost /adds to the cost of fishing	9
Sample	278

In the author's experience the opposition to the payment of a fee for recreational fishing has been widely voiced since at least the early 1980s. Opposition to licensing was often expressed in the 65,000 submissions associated with the Ministry of Fisheries review of marine recreational fishing in 2000.

4. Identify fisher's views on compliance with recreational fishing regulations.

In the telephone survey fishers were asked, "How many people in a given day, do you think exceed the personal daily limits?". Table 12 summarises the responses.

Table 12. Perceived proportion of fishers who exceed daily limit	
Frequency of fishers exceeding limit	Fisher total %
About 1 out of 2 or 3	10
About 1 out of 5	20
About 1 out of 10	21
About 1 out of 20	13
About 1 out of 50	11
About 1 out of 100	6
Don't know	19
Sample	612

Around half the respondents believe that at least 90 % of fishers catch within their bag limits when fishing and about a third of fishers believe it would be as high as 95 % of fishers. A subsequent question asked fishers if they had seen in the last year any recreational fishers exceeding their species limit or taking undersize fin-fish or shellfish/rock lobster, 34% of fishers said they had. Abuse of the rules was observed more often in the shellfish/rock lobster fishery (43%) than in the fin-fish fishery.

A subsequent question in the telephone questionnaire asked respondents to chose the reason they believed accounted for fishers taking excessive numbers of fish, shellfish or lobster. Five pre-coded options were provided and an option of stating 'something else' Table 13 summarises the responses.

	Fisher total %
Knowing the rules, but exploiting them	82
Beginners haven't got the knowledge	13
See the rules as unfair in some way	11
Believe the limits are not based on sound information	9
Asian/immigrant over fishing	3
Greed	3
Sample	612

The respondents apparently believed that there was widespread understanding of the rules (a view not supported by the two research studies presented here) and that fishers were knowingly breaking the limits.

Fishers were asked in the telephone survey about the visibility of enforcement officers. Table 14 summarises the responses.

	Fisher total %
There are not enough	52
There are too many	1
The number is about right	23
No opinion either way	24
Sample	612

In the focus group sessions 46 % of the participants reported never having their gear or catch checked by a Fisheries Officer. These results may be seen to indicate that the level of enforcement does not provide a deterrent effect. However this does not seem to be the case. In the focus group sessions fishers were asked why they comply with the rules. The results given in Table 16 indicate that fear of loss of equipment/the level of fines was the second most-often stated reason for complying with the rules, and that fear/embarrassment of being caught was also a compliance factor for fishers in the majority of meetings.

5. Why are recreational rules adopted / rejected by recreational fishers? What factors are likely to influence non-compliant behaviour?

Participants at the focus group sessions were asked 'why do fishers support the rules?'. Table 15 summarises the responses.

	No. of meetings identifying the reason
Need for conservation	13
Fear of loss of equipment/level of fines	12
Resource for future generations	10
Fear/embarrassment of being caught	10
Support for the law/behaviour norm	7
Controls make sense	6
Bag limits are sufficient for a feed	5
Peer pressure/not socially acceptable behaviour	3
Support for the local resource	3

In the focus group sessions fishers were asked their primary reason for supporting the rules, 75% of the meetings stated the need for conservation was the primary reason. The bag limits and minimum fish sizes were considered the most important controls for conservation. The threat of prosecution was stated as the primary reason in less than 20% of the meetings.

Focus group discussions on the reasons recreational fishers would reject rules covered the same items as given in Table 13, and also the excitement of a good catch, and fishing to sell the catch. Focus group conclusions on factors likely to influence non-compliant behaviour generally emphasised better publicity of the rules (and the related need for conservation), and increasing the enforcement presence, particularly on the fishing grounds and at boat ramps. Three quarters of the focus group sessions with divers identified equity issues as a reason why divers break the rules. One example often quoted is the ban on the use of underwater breathing apparatus (UBA) for the taking of some shellfish such as mussels (*Perna canaliculus*) but not for others (eg scallops). Prosecution can result if mussels and UBA are found together in a vehicle or boat when the UBA may have been only used for collecting scallops. Another example is the ban of divers collecting the bag limit for the skipper of the surface tender or for the standby diver, while it is legal for the skipper to take a bag limit when he/she assists in the landing of a recreational scallop dredge. Divers stated the removal of such inequities would lead to better overall compliance by divers as they would feel they were being treated even handedly by the rules.

A general conclusion at some of the focus sessions was that fishers are less likely to comply if they believe the rules are not based on sound scientific information. Examples of such rules included different size limits for the commercial fishery compared to the recreational fishery (for example for scallops and snapper), and obvious regional differences in the growth rate and maximum size for some species (eg paua) yet where one size limit exists nationally. Fishers stated that as a consequence they openly breached these rules

6. How is information transferred between fishers?

The focus group sessions discussed information sources. Fishers were asked to identify from a list they had previously developed whether the source was a major source, a source of only limited value, or a source they did not use. Table 16 summarises the responses.

Table 16. How do you get your knowledge on the fishing rules?

	Major source	Limited source	Not a source
	Number of meetings identifying the source		
Other fishers and friends	15	1	0
Fisheries pamphlets and rulers	14	2	0
Fisheries staff	8	7	1
Sport, boat and dive shops	8	0	8
Fishing /boating magazines	7	8	1
Boat ramp signs	4	7	5
AM/FM Radio	3	3	10
Television	3	6	7
Newspapers –weekly community	2	6	8
Newspapers – daily	1	6	9
Newsletters	1	9	6
Fisheries regulations	0	3	13
Web sites	0	4	12

Word of mouth information from other fishers and friends was the most important source and a similar result was gained a question in the telephone survey on information sources for fishers. The next most important source was contact with Fisheries staff and sport, boat and dive shop staff. Both these sources were considered expert advisors and providers of the most up-to-date information. An equal number of focus groups did not identify the sport, boat and dive shop staff as a source. These focus groups usually comprised net fishers (who generally had very limited information sources) and fishers in isolated areas. Surprisingly, less than 5% of fishers used web sites as an information source. This result is consistent with the response to a similar question in the telephone survey.

Final focus group comments

The final discussion at each focus group canvassed the general satisfaction levels of fishers by the following prompt: ‘All things considered, are you satisfied/not satisfied with....

The size of fish you catch?’

The number of fish you catch?’

The level of fisheries information you get?’

The responses to these questions are summarised in Table 17.

Table 17. 'All things considered I am satisfied with:

	% meeting where <u>all</u> fishers were satisfied	% meeting where the <u>majority</u> of fishers were satisfied
The size of fish you catch?'	46	76
The number of fish you catch?'	75	100
The level of fisheries information you get?'	58	83

CONCLUSIONS

The main motivation for fishing is for recreation. Other motivations are to catch fish, to exercise, to get a break from other activities (presumably work), and to enjoy the outdoors. Fishers tend to recall the correct bag limits only for species where they are likely to exceed the limits. Many fishers use aids to assist recall while fishing. However recall levels in the telephone and focus group surveys may not reflect behaviour on the fishing beds as these aids were not at hand. The level of fishers exceeding the limits out of ignorance appears to be low.

The majority of fishers did not believe that self-management will benefit fishers. However if area management was in place, fishers are equally divided on their support for management by local associations verses the status quo of management by the Ministry of Fisheries. There is little support for a combined role. The majority of fishers would definitely not want voluntarily involvement in management activities apart from maintaining fishing diaries. However there are probably sufficient levels of support from the minority of fishers to administer such a regime. (A number of the roles are already in place, staffed by volunteers and supported by the Ministry.) The main stumbling block would seem to be that the majority are not convinced of the benefit of self-management and therefore may not support such a regime. In particular there is strong opposition to fishers contributing financially to the regime and also to research gathering activities in the field (although fishing diaries is clearly a facet of research).

About half the fishers perceive compliance levels in the recreational fishery are high (90% compliance) for bag limits at least. In spite of a perceived inadequate number of Fisheries Officers the level of fines and the fear/ embarrassment of prosecution and or forfeiture provide a significant deterrent. This perception needs to be tempered with the caveat that the fishers who agree to participate in surveys are likely to be those who seek to conform to general public compliance norms rather than fishers who are committed to breaking the rules or seeking pecuniary gain.

Most fishers are satisfied with the level of information they receive on fishing rules. The major sources of information are contacts with friends, Ministry written material and professionals with expert knowledge.

There is a high level of support for the current recreational fisheries regime. Our conclusion from analysis of the data and comments at focus group sessions is that there are likely four significant factors underlying the support. These are:

- Fishers believe conservation is needed and the rules support conservation
- There is an understanding of why the rules are necessary
- The rules are equitable and the enforcement is effective
- Fishers are able to take an adequate catch within the bag limits

Compliance could be improved by better publicity of the rules and the need for conservation (particularly for species where the bag limit is likely to be taken on an average day's fishing), by increasing the number of fisheries officers and their deployment, and by the removal of perceived inequities in the rules, along with rules based on perceived inadequate scientific advice.

REFERENCES

- Kilner, A., Bell, J. 1992. Marine Recreational fishing survey - fishing habits, perceptions and attitudes of marine recreational fishers residing in MAF Fisheries Central Region New Zealand. Ministry of Fisheries. Nelson.
- Teirney, L., Bell, S., and Bell, J. 1992. MAF Fisheries South Region Survey of marine recreational fishers. Ministry of Fisheries. Dunedin.