

4. Management Of Cray/Lobster/Paua/Scallops/Other Shellfish*

4.1 Preferred Targets

All 612 fishers were asked whether they rarely, sometimes or often tried for cray, lobster, paua, scallops or other shellfish. The following table illustrates the shellfish target frequencies for all fishers:

"How Frequently Do They Target Cray/Lobster/Paua/Scallops/Other Shellfish"										
Shellfish Target Frequencies For All Fishers	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Rarely or never try for one or more of these	50	43	48	64	59	50	42	52	44	51
Sometimes try for one or more of these	28	35	27	20	28	29	27	28	29	26
Often try for one or more of these	15	14	17	11	6	14	23	16	12	15
Try exclusively for one or more of these	7	8	8	5	7	7	8	4	15	8
TOTAL	100	100	100	100	100	100	100	100	100	100
BASE	612	154	309	149	218	162	232	391	120	127

Note: Percentages on all fishers. Percentages read down.

Reader Guide: 43% of all fishers who were 16-34 years of age rarely or never targeted one or more of cray/shellfish species.

Half the fishers rarely or never target cray/shellfish. The older the fishers were, the more likely that they don't/rarely target cray/shellfish. Conversely, the younger they were the more likely they sometimes targeted one or more of these.

As expected, the less frequently they fished (in the most recent year they went fishing), the more likely that they didn't/rarely target these, and vice versa.

* Crayfish is a freshwater species, but fishers often colloquially refer to rock lobster as crayfish. Hence its usage in the questionnaire and in the report.

Cray/Shellfish Species Most Preferred

Those 299 fishers who target cray/shellfish at least some of the time were asked which species they were most commonly targeting when they went seawater fishing for cray, paua, scallops or other shellfish.. The following table details the top six species most commonly aimed for.

"Species Most Commonly Targeted, When They Go Seawater Fishing For Cray/Shellfish "										
Top Six Most Preferred Species	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Crayfish/Lobster	39	50	33	25	27	40	45	38	44	34
Paua	21	26	17	18	20	23	20	13	33	31
Scallops	19	16	21	23	24	15	19	25	4	20
Pipi	7	6	6	10	12	8	2	7	5	6
Mussels	6	1	9	8	7	7	4	5	8	6
Tuatua	4	-	7	7	5	2	5	7	-	-
TOTAL (See Footnote) BASE	299	86	160	53	87	81	131	176	61	62

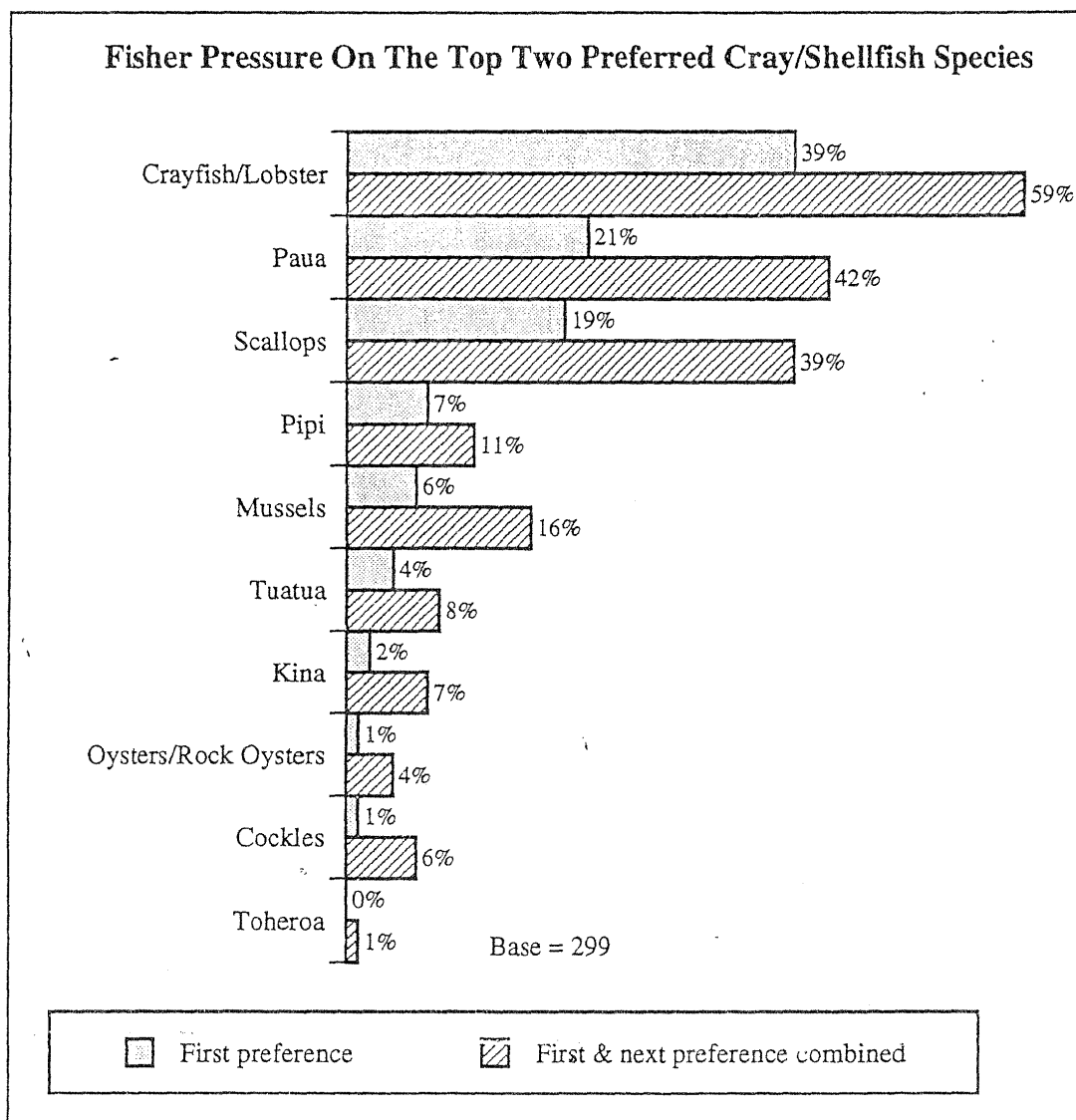
Note: Percentages on subset of fishers who try for cray/shellfish at least some of the time. Percentages will not add up to 100 as only the top six species detailed in their rank order.

Reader Guide: 50% of the cray/shellfish fishers who are 16-34 years of age aim for crayfish/lobster when they go seawater fishing for cray/shellfish etc. This compares with 39% overall, who aim for crayfish/lobster.

A majority 39% of the cray/shellfish fishers targeted crayfish/lobster as their first choice. The younger they were, the more likely that they were targeting crayfish/lobster. Also the more they've fished most recently, the more likely they were targeting crayfish/lobster.

Top Two Cray/Shellfish Species Targeted

All cray/shellfish fishers were also asked which species they were next most commonly hoping to catch/do catch. The following chart illustrates the fisher pressure on the top two preferred cray/shellfish species.



Readers Guide: Cray/lobster is the most preferred catch at 39%. When fishers are allowed to mention their "top two" most preferred catches, cray/lobster increases to 59% of the 'top two' mentions.

Notice the resulting change in the ranking of pipis which slipped from 4 (first preference) to 5 (first and next preference combined). Oysters/rock oysters also slipped from 8 to 9 in the composite preferences ranks.

The following table details fisher pressure on six top two preferred (combined) cray/shellfish species:

"Top Two Cray/Shellfish Species (Combined) Most Commonly Targeted...?"										
Fisher Pressure on Top Two Cray/Shellfish Species Preferred	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Crayfish/Lobster	59	73	56	39	54	56	65	60	64	53
Paua	42	48	37	42	45	41	42	31	61	56
Scallops	39	36	44	34	32	39	44	50	18	30
Pipi	16	14	19	15	16	24	11	15	17	20
Mussels	11	8	10	21	17	10	7	14	8	6
Tuatua	8	1	14	12	11	7	7	11	4	4
TOTAL (See Footnote) BASE	299	86	160	53	87	81	131	176	61	62

Note: Percentages on subset of fishers who try for cray/shellfish at least some of the time. Percentages will not add up to 100 as only the top six species detailed in their rank order.

Crayfish/lobster topped again as most preferred target, but paua and scallops were also highly preferred secondary targets.

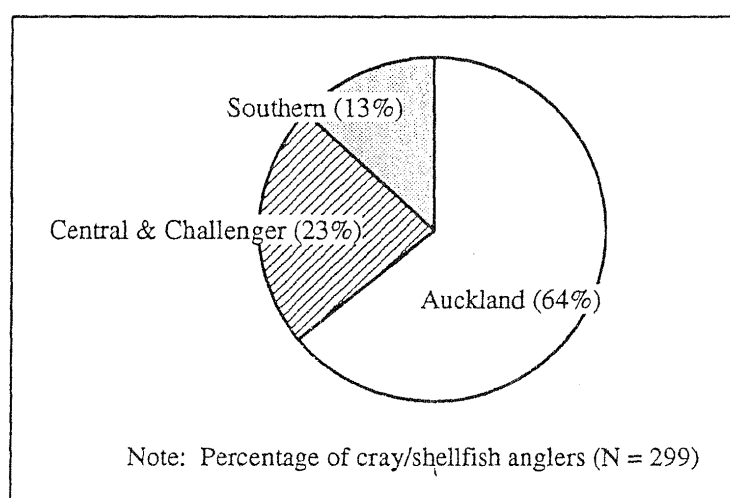
The younger they were, or the more frequently they've fished most recently, the more likely they were targeting crayfish/lobster. Also, the more frequently they've fished recently, the more likely they were targeting scallops.

Crayfish/shellfish fishers who have ever been a member of a fishing/diving club were more likely to target crayfish/lobster and scallops, and less likely to go for paua and mussels.

Reader Guide: Paua is one of the top two targeted species for 42% of these fishers who target cray/shellfish species.

4.2 Preferred Fishing Area

All cray/shellfish fishers were asked to name the area in which they tried for their most preferred cray/shellfish species. The town, district or city closest to where they fished was accepted as a response. The East/West Coast was also probed and recorded. The information was then recoded back into the fishery management areas. The findings are illustrated in the following pie chart.



We also inspected most preferred cray/shellfish species across fishing areas. The following table illustrates the findings for the top six most preferred cray/shellfish species.

Top Six Most Preferred Cray/Shellfish Species	National %	Fishing Area				
		Auckland East %	Auckland West %	Central/Challenger %	Southern %	All Others %
Crayfish	39	39	20	43	36	54
Paua	21	8	21	29	52	22
Scallops	19	26	22	15	4	-
Pipis	7	11	1	5	-	-
Mussels	6	3	12	6	4	24
Tuatua	4	6	10	-	-	-
BASE	299	132	36	85	35	11

Note: Percentages on subset of fishers who try for cray/shellfish at least some of the time. Percentages will not add up to 100 as only the top six most preferred species detail above in their rank order.

Reader Guide: 39% of cray/shellfish fishers who fish in the North East fishing areas (vs. 39% nationally) target crayfish/lobster.

The further north they fished, the more likely they targeted scallops, pipis and mussels. Conversely, the further South they fished, the more likely they targeted paua.

4.3 Awareness Of Legal Limits

All cray/shellfish fishers were asked if they were aware of any legal limit on the number of their most preferred species that they could take home on a given day's fishing in that area. 13% of the cray/shellfish fishers were not aware of any daily limits. Another 28% were aware that a limit exists, but didn't know the number. We inspected the responses for the top six most preferred species, across the areas where they were fished.

The following tables illustrate the findings.

Crayfish/Lobster – Perceived Daily Legal Limit					
	National %	Preferred Fishing Area			
		Auckland East %	Auckland West %	Central/ Challenger %	Southern %
Three to five	8	9	-	8	13
Six	45	50	50	42	35
Over six	9	7	32	11	8
Aware there is a limit, don't know number	29	20	18	38	19
No/not aware of any legal daily limit	9	14	-	1	25
TOTAL	100	100	100	100	100
BASE	108	49	6	36	12

Note: Percentages read down. Percentages on subset. Percentages excluded for 'other' area mentions.

The above table must be viewed in the perspective of the legal daily limits for 'crayfish/lobster' (pack horse and red spiny) of six.

Near half of those who targeted 'crayfish/lobster' and mentioned a number, got it "right" in all areas. The other half need to be made aware of the specific limit.

Paua – Perceived Daily Legal Limit					
Perceived Legal Daily Limits For "Paua"	National %	Preferred Fishing Area			
		Auckland East %	Auckland West %	Central/Challenger %	Southern %
Six to nine	6	21	-	4	-
Ten	44	14	34	52	54
Eleven, Twelve	3	10	-	2	-
Twenty	3	-	-	6	-
Thirty	1	9	-	-	-
Aware there is a limit, don't know number	32	46	47	21	35
No/not aware of any legal daily limit	11	-	19	15	11
TOTAL	100	100	100	100	100
BASE	60	9	7	24	18

Note: Percentages read down. Percentages on subset. Percentages excluded for 'other' area mentions.

Caution: small bases.

The above table must be viewed in the perspective of the legal daily limits for ordinary and yellowfoot paua being 10 each (total 20) in all fishery management areas.

A majority of the paua fishers (except those who fish in the north, especially the North East areas) knew the correct limits.

Scallops – Perceived Daily Legal Limit				
Perceived Legal Daily Limits For "Scallops"	Preferred Fishing Area			
	Auckland East %	Auckland West %	Central/Challenger %	Southern %
Six to fifteen	11	10	-	-
Twenty	53	77	-	-
Twenty five	5	-	-	-
50 or more	3	-	61	-
Aware there is a limit, don't know number	24	13	35	100
No/not aware of any legal daily limit	4	-	4	-
TOTAL BASE	100 37	100 10	100 13	100 1

Note: Percentages read down. Percentages on subset.

Scallops have a legal daily limit of 20 in all fishery management areas, except Southern FMA, where the limit is 10, and Challenger where the limit is 50.

A majority of scallops fishers (especially those who fish in the Northern areas) know the correct limits.

Pipis

Only 18 (out of 299 cray/shellfish fishers) had mentioned pipis as their first preference. Pipis have a daily legal bag limit of 150 in all areas, except the Auckland areas - where the limit is 50 Pipis. Only three pipi fishers mentioned limit 50 and two mentioned limit 150 (all five fished in the Auckland East areas). All the others either didn't know there was a limit or weren't aware of the number or guessed.

Mussels

Only 23 (out of 299 cray/shellfish fishers) had mentioned mussels as their first preference. Mussels have the daily legal bag limit of 50 in all areas except for Southern FMA and the Auckland areas - where the limit is 25. Just over a third of the mussel's fishers mentioned the correct limit. All the others either didn't know there was a limit, or weren't aware of the number or guessed.

Tuatua

Only 13 (out of 299 cray/shellfish fishers) had mentioned tuatua as their first preference and they all fished in the Northern areas. Tuatua has the daily legal bag limit of 150 in all FMAs except for the Auckland areas where the limit is 50. Five tuatua fishers mentioned the correct limit. The other eight either didn't know there was a limit, or weren't aware of the number or guessed.

4.4 Achievement Of Legal Limits

Those 186 cray/shellfish fishers who mentioned a limit (correct or incorrect) for their most preferred species for the areas they target them in, were asked how often they achieved it when they were trying for this species. The following table illustrates the findings:

"How Often Do They Get Up To This (Perceived) Limit When Targeting This Species?"										
Perceived Limit Achievement Frequency	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Most days	39	25	53	38	32	32	46	33	40	58
One out of two or three days	13	19	11	4	14	11	13	13	12	12
One out of four or five days	10	16	5	10	10	11	10	13	8	2
Less Often	17	13	15	27	19	24	12	18	14	16
Rarely/never	21	27	16	21	25	22	19	23	26	12
TOTAL BASE	100 186	100 49	100 100	100 37	100 40	100 52	100 94	100 114	100 36	100 36

Note: Percentages read down. Percentages on cray/shellfish fisher subset who mentioned a limit.

Reader Guide: 25% of cray/shellfish fishers who mentioned a limit and who are 16-34 years of age, achieved their perceived daily limit for their most preferred species (in the area they most commonly fish for it) on most days, as compared with 39% overall.

Below half of cray/shellfish fishers believed they got their perceived daily limit on most days fishing. The further south they lived, the more likely that they believed they got their daily limits on most days.

Inspection of perceived limit achievement frequency across three most preferred individual cray/shellfish species revealed that:

- 29% of crayfish/lobster fishers rarely/never got their perceived limit. 19% did it most days and 15% got their limits less often than one out of five days fishing.
- 52% of paua fishers got their perceived limits on most days. 23% got it less often than one out of five days fishing and 9% rarely/never got them,
- 59% of scallops fishers got their perceived limits on most days, while 14% rarely/never got them. 9% got them less often than one out of five days fishing.

4.5 Perception Of Fairness Of Limits

Those 186 cray/shellfish anglers who mentioned a limit (correct or incorrect) for their most preferred species for the areas they targeted them in, were asked whether they saw this limit as fair, unfair or had no opinion either way. A majority (89%) saw the current limits as fair. The following table illustrates the findings:

"Do They See This (Perceived) Limit As...?"										
Fairness Perceptions	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Fair	89	86	89	93	81	95	89	90	83	93
Unfair	7	6	11	3	15	3	7	9	8	-
No opinion either way	4	8	-	4	4	2	4	1	9	7
TOTAL	100	100	100	100	100	100	100	100	100	100
BASE	186	49	100	37	40	52	94	114	36	36

Note: Percentages read down. Percentages of all cray/shellfish anglers who mentioned a limit.

Inspection across top six most preferred individual cray/shellfish species generally reaffirmed the national perceptions of fairness of daily limits.

Those 167 fishers who perceived the limit as fair were asked to comment on why they felt it was fair. The following table depicts the top five reasons given:

"Why Do They Feel The (Perceived) Limit Is Fair?"										
Top Five Reasons Given	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Preserving resources/conservation	41	50	40	27	37	45	39	42	51	26
Enough/plenty for personal use	38	33	44	33	25	32	45	41	35	31
Should not take more than you need/ wasted	12	13	13	8	21	6	12	15	7	7
Gives everyone a chance	8	7	5	14	8	11	5	5	13	12
Difficult to reach the quota	6	8	5	4	6	5	7	9	-	3
TOTAL (See Footnote) BASE	167	43	89	35	33	50	84	102	30	35

Note: Percentages on subset. Percentages will not add up to 100 as open-ended question. Multiple responses accepted.

Again conservation and need satisfaction were the main reasonings perceived by cray/shellfish fishers in seeing the limit as fair. The younger they were, the more likely they believed conservation as being the fundamental reason behind having daily limits.

Interestingly, the more up north they lived, or the more frequently they've fished in the most recent year they went fishing, the more likely that they offered 'plenty for personal use' as the underlying reason for having daily limits.

Inspection of reasons given species-wise, revealed no noticeable differences from the national reasoning. Other reasons given for perceiving the limit as fair included: need more control/policing (1.8%), restrictions on commercial fishing (1.7%) etc. 3.5% refrained from commenting.

Only 14 (out of 186 cray/shellfish anglers) perceived the limit as unfair. They were asked to comment on why they felt so. Half of them thought that the limits should be higher (ie. thought the limits were too generous as they were now).

4.6 Alternative Restraints Desired/Favoured

Those 186 cray/shellfish fishers who believed there was a daily bag limit, were asked if there was any way, other than bag limits, that they felt should be used to prevent their most preferred species being overfished. Multiple responses were accepted. Almost half the anglers said they couldn't think of anything off the top of their head. The following table illustrates the main findings:

"Is There any <u>Other</u> Way That Should Be Used, To Prevent This Species Being Overfished?"										
Top Five Responses	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
No/Can't think of any/don't know	49	49	53	42	58	44	47	50	47	49
Seasonal limits/closed seasons	18	23	14	18	19	21	17	22	7	20
More control/policing/inspections	14	10	16	17	7	12	20	16	15	7
Size limit/restrictions	9	9	8	12	7	10	10	8	9	12
Restrictions on commercial fishing	8	6	9	8	1	11	11	7	7	12
TOTAL (See Footnote) BASE	186	49	100	37	40	52	94	102	30	35

Note: Percentages on cray/shellfish angler subset. Percentages will not add up to 100 as only the top five responses are detailed above.

Other mentions included: more public responsibility (6.8%), more Marine reserves (2%), keep tourists/Asians out (1.4%), pollution problem (1.1%), dredging stopped/restricted (0.8%) and stop/limit Maori fishing rights (0.7%) etc.

Anglers suggesting seasonal limits/closed seasons were less likely to be from the lower North Island. The older they were, or the more frequently they've fished in the last year they went fishing, or the further North they lived, the more likely they suggested more control/policing/inspections

4.7 Additional Restrictions

All cray/shellfish fishers were asked if they were aware of any restrictions on the length, weight or condition of their most preferred species. 46% of the cray/shellfish anglers were either not aware of any limits or were unsure what it was. Almost a third of the cray/lobster fishers were unaware/unsure of other restrictions. A majority of the rest predominantly mentioned that there was a size/length restriction.

The older they were, or the less frequently they've fished, the more likely that they were unaware/unsure of the restrictions. Other cray/shellfish anglers who were unaware/unsure of the restrictions were more likely to be:

- those who have never been a fishing/diving club member,
- those who are temporarily inactive as regards recreational seawater fishing.

Length/size restrictions were again predominantly mentioned where fishers were aware that restriction(s) existed. The following tables illustrate the findings:

Crayfish/Lobster – Perceived Restrictions Other Than Daily Limits					
Perceived Additional Restrictions For "Crayfish/Lobster"	National %	Fishing Area			
		Auckland East %	Auckland West %	Central/Challenger %	Southern %
Females carrying eggs	33	39	35	25	48
Soft shelled crayfish	25	37	42	8	27
Seasonal restrictions	3	4	18	-	-
Size/length limit (unspec.)	47	58	25	38	43
Male crayfish size (spec.)	12	16	25	5	18
Female crayfish size (spec.)	13	20	-	5	18
Size spec., gender unspec.	10	7	-	14	20
Other restrictions	4	-	25	5	11
There is, but not sure what it is	21	15	32	30	20
Not aware of any	11	11	-	10	-
TOTAL (See Footnote) BASE	108	49	6	36	12

It is pertinent to note here that rock lobster has a size restriction in all FMAs as per:

Spiny - 54 mm tail width (male),
Spiny - 60 mm tail width (female),
Packhorse - 216 mm tail length.

Paua – Perceived Restrictions Other Than Daily Limit					
Perceived Additional Restrictions For "Paua"	National %	Fishing Area			
		Auckland East %	Auckland West %	Central/Challenger %	Southern %
Seasonal restrictions	1	-	-	2	-
Size/length limit (unspec.)	26	34	23	25	27
Size of paua shell (125mm)	23	-	41	23	25
Other spec. sizes for paua shell	17	10	17	23	13
Other restrictions	3	10	-	-	5
There is, but not sure what it is	27	33	20	22	33
Not aware of any	9	23	-	7	7
TOTAL (See Footnote) BASE	60	9	7	24	18

Note: Percentages read down. Percentages on paua fishers subset. Percentages excluded for 'other' area mentions. Percentages will not add up to 100 as open-ended question. Multiple responses accepted.

Over a third of paua fishers were unaware/unsure of other restrictions. A majority of the rest mentioned a size/length restriction on paua. 23% of the paua fishers mentioned a paua shell size of 125 mm (which it is in all areas for ordinary paua. Restriction on yellowfoot paua is 80mm in all areas).

Scallops – Perceived Restrictions Other Than Daily Limit					
Perceived Additional Restrictions For "Scallops"	National %	Fishing Area			
		Auckland East %	Auckland West %	Central/Challenger %	Southern %
Seasonal restrictions	37	38	47	33	-
Size/length limit (unspec.)	20	24	20	10	-
Size of scallops shell (10cm)	37	41	46	27	-
Other spec. sizes for scallop shell	14	7	10	33	-
There is, but not sure what it is	22	24	23	16	-
Not aware of any	6	-	-	14	100
TOTAL (See Footnote) BASE	61	37	10	13	1

Note: Percentages read down. Percentages on scallop fishers subset. Percentages will not add up to 100 as open-ended question. Multiple responses accepted.

Over a quarter of Scallops gatherers were unaware/unsure of other restrictions. A majority of the rest mentioned a size limit. 37% of Scallops gatherers correctly identified the size to be 10cm (which it is in all fishing areas).

Pipis

There is no size restriction on pipis. 18 out of 299 cray/shellfish fishers said they targeted pipis as their first choice. A third of these correctly mentioned that they weren't aware of any restrictions. 42% of the pipi fishers said there were restrictions, but they weren't sure what they were.

Mussels

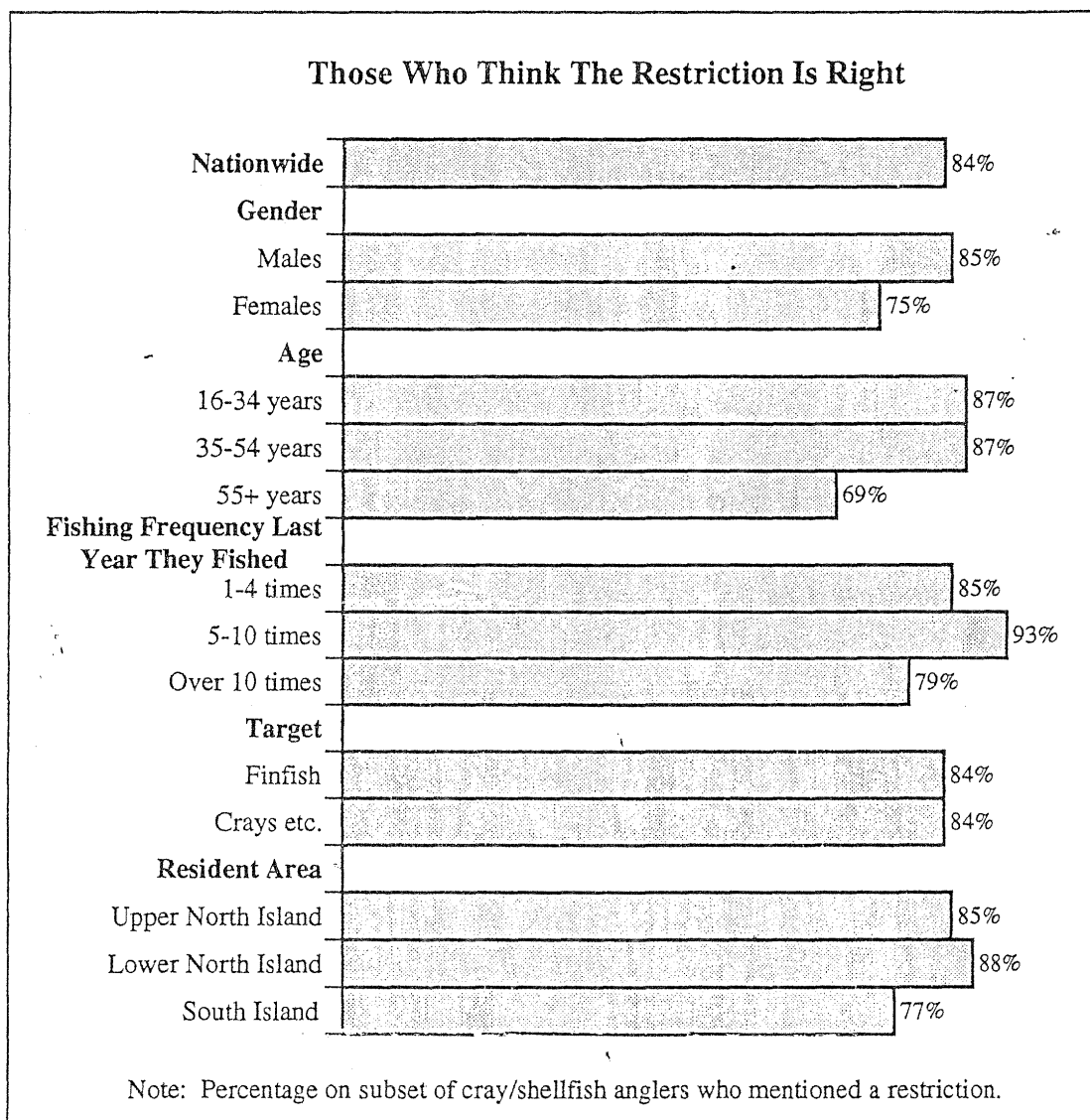
There is no size restriction on mussels. 23 out of 299 cray/shellfish fishers said they targeted mussels as their first choice. 71% of the mussels gatherers correctly mentioned that they weren't aware of any restrictions. The rest said there were restrictions, but they weren't sure what they were.

Tuatua

There is no size restriction on tuatua. Only 13 out of 299 cray/shellfish fishers said they targeted tuatua. 9 of these correctly mentioned that there were no restrictions so far as they were aware, and the rest said that restrictions exist, but they weren't sure what they were.

Are These Restrictions Right?

All cray/shellfish fishers who mentioned a restriction were asked if they thought these restrictions were right, or could usefully be changed. Whatever the perceived restriction, a majority (84%) of cray/shellfish fishers who mentioned a restriction, thought it was right. 12% thought the restrictions could usefully be changed, and 4% offered no opinion. The following chart depicts detailed breaks.



Suggestions For Top Two Cray/Shellfish Species

Ten cray/lobster fishers suggested changes. Multiple responses were accepted. Four suggested increasing size limits and five suggested shorter seasons.

Nine paua fishers suggested changes. Multiple responses were accepted. Four suggested decreasing size limits, while one favoured increasing them.

4.8 Method, Equipment Or Technique Limitations Favoured

All cray/shellfish fishers were asked if there was any method, equipment or technique they felt should not be allowed to be used in the interest of preventing damage to the number or average weight of their most preferred species. A majority (59%) didn't know any/couldn't readily think of any. The following table illustrates the findings:

"Method, Equipment Or Technique That Should <u>Not</u> Be Allowed To Be Used..."										
Top Seven Prohibition Responses	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Nothing/none known/don't know any	59	62	58	53	62	61	55	53	63	71
Scuba diving/tanks/can take too many	9	8	8	12	9	10	7	4	17	14
Dredging/damage to environment and shellfish	7	3	11	6	10	5	6	10	-	2
Metal instruments/sharp objects	5	3	5	7	5	3	5	5	4	2
Hooks/crayfish hooks	4	5	5	-	-	6	6	6	2	1
Commercial fishing	4	4	3	7	4	2	5	4	-	8
Spears	4	4	4	-	2	1	7	4	2	3
TOTAL (See Footnote) BASE	299	86	160	53	87	81	131	176	61	62

Note: Percentages on cray/shellfish fishers subset. Percentages do not add up to 100 as open-ended question. Multiple responses were accepted.

The younger the fishers or the further South they lived, the more likely they couldn't readily think of any/didn't know any. Conversely the older they were or the further North they lived, the more likely that they would like to see the use of metal instruments/sharp objects prohibited.

Other suggestions included: more control/quota is important (3.3%), dragging/dragging baskets/dragnets (3.2%), crayfish pots/traps (2.9%) and digging implements - spades/forks etc. (2.6%). 2.2% mentioned that fishers should only be allowed to use hands.

Species-Wise Suggestions

- Top three prohibitions suggested by cray/lobster fishers were:
 - hooks/crayfish hooks (11%),
 - spears (9%),
 - crayfish pots/traps (8%).
- 27% of paua fishers would like to see use of scuba diving/tanks disallowed. Another 9% suggested prohibition of metal instruments/sharp objects usage.
- 48% of scallops fishers couldn't think of any prohibitions. Top three prohibitions suggested by scallops fishers were:
 - dredging/damage to environment and shellfish (22%),
 - commercial fishing (13%),
 - dragging/dragging baskets/dragnets (13%).
- Mussels gatherers suggested prohibition of:
 - scuba diving/tanks (9%),
 - more control/quota is important (9%),
 - metal instruments/sharp objects (8%).
- Top three suggestions from tuatua fishers were (very small bases):
 - digging implements - spades/forks etc (41%),
 - should only use hands (20%),
 - more control/quota is important (15%).
- Pipsis fishers generally echoed the scallops fishers' suggestions (small bases).

4.9 Perceived Availability Of Cray/Shellfish

All cray/shellfish fishers were asked their perceptions about the numbers of their most preferred species available to catch (disregarding season-to-season ups and downs). The following table illustrates the findings.

"Disregarding Season-To-Season Ups And Downs, The Number Of Their Most Preferred Species Are..."										
Catch Availability Perceptions	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Trending upwards	9	4	14	10	7	11	10	9	12	8
Trending downwards	41	37	40	52	38	42	43	50	36	19
More or less stable	33	35	32	31	32	27	38	27	27	58
No pattern evident	12	18	9	3	17	15	5	7	21	14
Don't know	5	6	5	4	6	5	4	7	4	1
TOTAL	100	100	100	100	100	100	100	100	100	100
BASE	299	86	160	53	87	81	131	176	61	62

Note: Percentages of all cray/shellfish anglers. Percentages read down.

41% of cray/shellfish fishers believed that the catch availability of their most preferred species was trending downwards. However, another third believed that catch availability was more or less stable.

The older the fishers, the more frequently they've fished, or the further north they lived, the more likely that they saw the catch availability trending downwards. Conversely, the younger they were, the more likely that they either believed it to be more or less stable or saw no pattern.

The further north fishers lived, the more likely they:

- perceived a downward trend, or
- didn't know.

Cray/shellfish fishers living in the South Island were more likely to have perceived the numbers to be more or less stable.

Interestingly, the cray/shellfish fishers who saw an upward trend in the catch availability were more likely to be those who:

- were/have been a fishing/diving club member,
- were currently actively involved in fishing.

It must be noted though that less than a tenth of cray/shellfish fishers believed that the number available to catch was trending upwards. The following table illustrates a species-wise analysis.

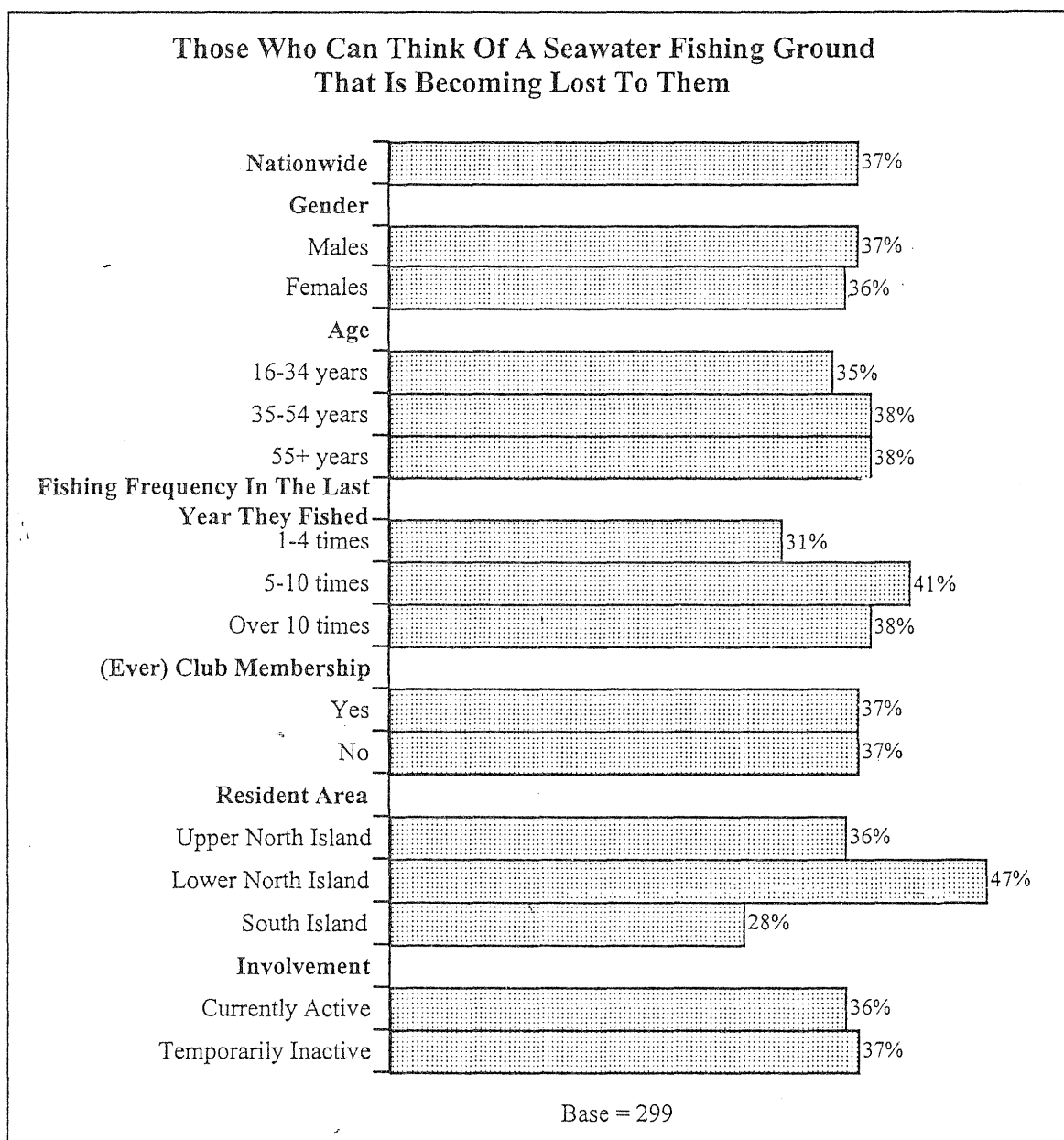
Catch Availability Perceptions	National %	Species					
		Cray/ Lobster %	Paua %	Scallops %	Pipis %	Mussels %	Tuatua %
Trending upwards	9	16	2	6	-	11	6
Trending downwards	41	32	58	43	53	19	79
More or less stable	33	34	19	42	35	58	9
See no pattern	12	12	21	2	5	4	6
Don't know	5	6	-	7	7	8	-
TOTAL	100	100	100	100	100	100	100
BASE	299	108	60	61	18	23	13

Note: Percentages on cray/shellfish angler subset. Percentages read down.

Caution: Very small bases for pipis, mussels and tuatua fishers.

4.10 Cray/Shellfish Areas Seemed To Be Lost

All 299 cray/shellfish fishers were asked whether they thought any seawater fishing ground was becoming lost to them, or was no longer worth visiting, for any reason at all. Over a third of the cray/shellfish anglers said there was. The following chart illustrates the findings:



Note: Percentage of cray/shellfish anglers who said 'Yes' only.

Fewer in the lower North Island believed a fishing ground was becoming lost to them. Inspection of yes/no responses species-wise revealed no noticeable differences.

Fishing Area Becoming Lost

All cray/shellfish fishers who believed a fishing ground was becoming lost to them, were asked to specify the ground. Responses were recoded back to the fishing areas.

The following table illustrates the results:

"Which Fishing Ground Is Becoming Lost, Or No Longer Worth Visiting For Their Target Species."											
Fishing Ground Becoming Lost	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Club Member Fish/Diving		Involvement	
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Yes %	No %	Current Active %	Temp. Inactive %
North East	44	38	47	51	53	40	43	58	38	51	34
North West	10	3	15	14	9	10	11	12	9	9	12
Central	37	56	22	29	32	34	41	23	43	33	43
South	7	3	13	3	6	15	3	7	7	7	8
BASE	112	30	61	21	28	32	52	36	76	67	45

Note: Percentages may not add up to 100 as a percentage of "other" area mentions (1.6%) excluded. Percentages read down. Percentages on subset of cray/shellfish fishers who think a fishing ground is becoming lost to them.

44% of the cray/shellfish fishers who said that a fishing ground was becoming lost to them, mentioned area(s) in the North East. Central (37%) was the second area of concern. Also as expected, fishers were more likely to mention fishing areas close to where they physically lived.

Why Do They Feel That?

Those cray/shellfish fishers who did mention a fishing ground, were asked why they felt it was becoming lost to them. The following table illustrates the top five reasons given.

"Why Do They Think That A Seawater Fishing Ground Is Becoming Lost To Them?"				
Top Five Reasons	National %	Fishing Area		
		Auckland %	Central/ Challenger %	Southern %
Overfished/fished out	36	42	32	16
Less shellfish/ becoming depleted	27	31	16	35
Too many people/ over populated	24	22	26	37
Commercial fishing/ trawlers	14	13	14	33
Water pollution	9	9	4	32
TOTAL (See Footnote) BASE	113	63	34	11

Note: Percentages will not add up to 100, as open-ended question. Multiple responses accepted. Percentages read down. Percentages of all cray/shellfish fishers who thought a fishing ground was becoming lost to them. Table excludes "all over New Zealand" (N = 1), other mentions (N = 3) and no area given (N = 1).

(Caution: Small bases of areas mentioned. Multiple areas accepted).

Other mentions included: too accessible/easy to get (7.4%), need more control/illegal fishing (7%), equipment used - dredging/nets (5.7%), size/only small shellfish (5%), moved out/shift from season to season (4.6%), need to go further out (4.2%), environmental changes (3.3%), Maori/Iwi control (2.6%) etc. 4% said don't know/didn't reply.

The national reading was generally echoed when we observed responses amongst fishers who targeted cray/shellfish with one exception. Cray/lobster fishers were more likely to have also mentioned "Too accessible/easy to get". The bases for other species were too small to report percentages.

5. Compliance Perspectives

5.1 Impressions of Non-Compliance

All fishers were asked about their personal impression on how many people, on a given day, did they think, exceed the personal daily limits. The following table illustrates the findings:

"How Many People On A Given Day, Do They Think Exceed The Personal Daily Limit"										
Perceived Proportion Of Fishers Exceeding Limits	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
About 1 out of 2 or 3	10	11	11	8	10	5	14	12	11	4
About 1 out of 5	20	27	14	18	22	17	19	19	20	20
About 1 out of 10	21	21	26	15	17	30	19	19	26	24
About 1 out of 20	13	19	9	8	13	15	11	14	10	11
About 1 out of 50	11	7	13	14	12	12	9	11	6	16
About 1 out of 100 or less	6	5	7	6	4	5	9	5	6	8
Don't know	19	10	20	31	22	16	19	20	21	17
		→								
TOTAL	100	100	100	100	100	100	100	100	100	100
BASE	612	154	309	149	218	162	232	369	114	129

Note: Percentage of all fishers. Percentages read down.

Reader Guide: 10% of the fishers were of the impression that on a given day, one of every 2 or 3 was doing the "wrong" thing, ie. exceeding the personal daily limit.

Perceptions of how other fishers comply with limits is a factor in complying oneself, ie. a normative behaviour effect. Only 10% of fishers felt this form of abuse was as prevalent as every second, or third fisher. The majority thought it was much less prevalent, but nearly a third felt its occurrence is 1 in 5 fishers or more.

All fishers were then asked if they have themselves seen any recreational fisher either exceeding their species limit, or taking undersize fish or shellfish, in the last year. About a third (34%) responded in the affirmative.

Fishers who claimed they've seen abuse of the species limits/restrictions were more likely to be:

- those who targeted crays/shellfish, (43%),
- those who've ever been a member of a fishing/diving club, (43%),
- those living in the North Island (especially the lower north, 42%),
- those who were currently actively involved in fishing (41%).

5.2 Interpretation of Non-Compliance

All fishers were asked which of the various precoded reasons they thought accounted for those situations where people take an excessive number of fish, shellfish or lobster. Multiple responses were accepted. The following table illustrates the choices given.

"Which Of These Reasons Accounts For Situations Where People Take Excessive Fish/Shellfish"										
Top Six Interpretations Of Non-Compliance	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Knowing the rules, but exploiting them	82	79	84	82	81	79	85	79	89	85
Beginners - haven't got the knowledge	13	15	12	12	13	13	13	13	17	12
See the rules as unfair in some way	11	14	9	10	13	12	8	11	16	8
Believe the limits are not based on sound information	9	10	10	6	14	7	6	7	16	8
Asians/immigrants overfishing	3	3	3	3	2	3	5	4	1	3
Greed	3	1	4	4	3	2	4	2	6	3
TOTAL (See Footnote) BASE	612	154	309	149	218	162	232	369	114	129

Note: Semi-open-ended question with multiple response accepted, so percentages will not add up to 100. Percentage of all fishers. Percentages read down.

82% of the fishers believed that the people who took excessive fish/shellfish knew what the rules were, but were just exploiting them for their own advantage. In fact, as shown earlier (pg 47-50) knowledge of the rules was not good, particularly for finfish. Other mentions regarding why people do the "wrong" thing were: cultural issues/Maori fishing rights (2.4%), fishing for profit/commercial purposes (1.6%), don't go out often/make up for bad days (1.3%), economic necessity/food purposes (1.2%) and don't know (2.2%) etc.

5.3 Reasons For Having Limits On Certain Species

All fishers were asked what they believed were the main reasons behind having limits on certain species. Multiple responses were accepted. The following table illustrates the top six reasons given:

"What Do They Believe Is The Main Reason Behind Having Limits On Certain Species"										
Reasons Behind Having Limits	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Conservation/save from extinction	47	42	48	54	50	44	47	50	51	36
Stop being overfished/keep numbers up	45	48	44	42	43	45	47	44	43	49
To allow fish to breed/replenish stock	15	12	14	20	16	13	15	16	12	12
Gives everyone a chance/fair to all	13	11	13	16	10	15	14	12	13	15
Protect them for future generations	10	7	15	8	10	11	10	11	7	12
To allow fish to grow	5	5	4	4	5	5	4	5	7	2
TOTAL (See Footnote) BASE	612	154	309	149	218	162	232	369	114	129

Note: Open-ended question, so percentages will not add up to 100. Percentage of all fishers. Percentages read down.

A majority of fishers believed that limits were required on certain species for conservation reasons - saving them from extinction/stopping them being overfished/keeping their numbers up.

Other mentions included: people take too many/being greedy (3.6%), commercial/economic reasons (2.3%), restrictions for commercial fishers (1.3%), to keep control/management (1.3%), and don't know (1.4%) etc.

5.4 *Perceived Fairness Of Regulations*

All fishers were asked whether there were situations in any kind of recreational fishing (both fin and cray/shellfish), where they felt that the present regulations on number, size, condition or closed areas were unfair, or not sensible in some way. 84% of the fishers couldn't think of any.

As expected, the less frequently they have fished in the most recent year they went fishing, the more likely that they didn't know/comment.

However, situations that were mentioned included: Maori/racial rights/should be equal rights (3.1%), quota too low/raise the limit (2.5%), effects of commercial fishing on recreational fishing (1.5%), closure of areas unnecessary/draconian (1.2%), seasonal changes needed/more closures (1.2%). Quota too high/lower the limit (1%) etc.

5.5 Visibility Of Inspectors*

All fishers were asked what they thought about the adequacy of the number of recreational fishery inspectors. The following table illustrates the results:

"The Number Of Recreational Fishery Inspectors"										
Visibility Perceptions	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
There are not enough	52	49	54	54	47	52	56	55	53	40
There are too many	1	1	1	1	1	1	2	1	2	1
The numbers are about right	23	25	22	21	19	27	23	21	21	32
No opinion either way	24	25	23	24	33	20	19	23	24	27
TOTAL	100	100	100	100	100	100	100	100	100	100
BASE	612	154	309	149	218	162	232	369	114	129

Note: Percentage of all fishers. Percentages read down.

* More correctly "Fisheries officers" now, but the colloquial "inspectors" was used in the questionnaire.

Visibility is important to enforcement. Visibility of inspectors was lower than desirable to comfort a majority of fishers that an effective invigilation was in place. The further north they lived, or the more frequently they've fished in the most recent year they went fishing, the more likely that they felt there were not enough inspectors out there. As expected, those who've fished less frequently were more likely to have no opinion regarding the visibility of inspectors.

Other fishers who believed there were not enough inspectors, were more likely to be:

- those who've ever belonged to a fishing/diving club,
- those who were currently actively involved in fishing.

All fishers were also asked if they had seen a fisheries inspector in the last 12 months checking bag limits or sizes at any of the places that they go to fish (regardless of whether they themselves were checked). About a quarter (27%) of fishers said they had.

6. Information/Education Issues

6.1 Reach Of Pamphlets Amongst Fishers

All fishers were asked about their familiarity with/awareness of pamphlets on fishing rules. Precoded options were read out. The following table illustrates the findings.

"With Respect To Any Pamphlets On Fishing Rules, Which Of These Best Fits Their Situation?"										
Reach Of Pamphlets	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Never seen or heard of them	17	21	18	10	23	14	14	18	19	12
Haven't had or read them, but got information from others who have	16	26	12	8	22	14	12	17	16	14
Have had or read some in past, but don't have any at present	30	32	31	29	35	32	25	29	31	36
Have one or more that were obtained in the last year or two	37	21	39	53	20	40	49	36	34	38
TOTAL	100	100	100	100	100	100	100	100	100	100
BASE	612	154	309	149	218	162	232	369	114	129

Note: Percentages read down. Percentage of all fishers.

Two thirds of the fishers have either had/read them in the past, or have one/more of them now. Only a third have either never seen/heard of them or have never had/read them.

The older they were, or the more frequently they fished (in the most recent year they went fishing), the more likely that they currently had one or more pamphlets that they had obtained in the last year or two. Those who had ever been a member of a fishing/diving club were more likely to have pamphlets that they had obtained in the last year or two.

6.2 Sources Of Information

All fishers were asked how much information on fishing they had got from a variety of sources in the last year or two. Precoded sources were read to them, and an answer coded for each source. The following table illustrates the results:

Rating How Much Information Was Obtained From Each Source			
Sources Of Information	Quite A Lot %	A Little %	Hardly Any/None %
Fishing, boating or diving club newsletter	12	13	75
A specialist fishing magazine	28	29	43
A general daily newspaper or weekly paper	12	36	52
Television or radio	14	37	49
Pamphlets and brochures and verbal advice from Mfish and its representatives	15	23	62
Websites on the Internet	2	4	94
By talking to other people who fish	55	35	10

Base = 612

Note: Percentages read across. Percentages of all fishers.

Word-of-mouth seemed to be the realistic and most common conduit for information transfer. How this can be utilised is a moot point...

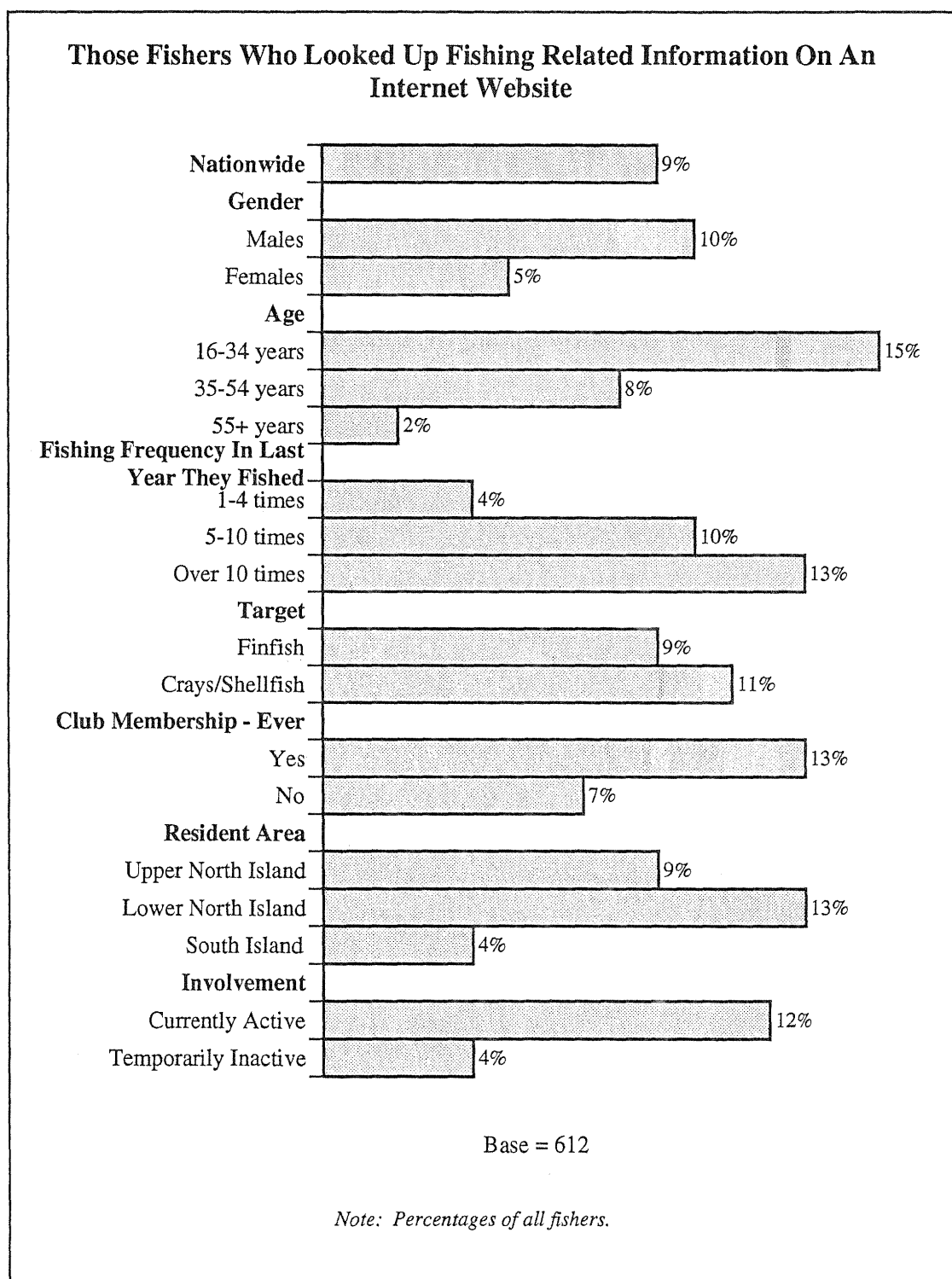
Second as a source for information to fishers was a specialist fishing magazine. Pamphlets and brochures and verbal advice received in the last year or two, from Mfish and its representatives was the third most common source of information for the fishers.

It is interesting to note that word-of-mouth, TV/radio and Internet were more effective in reaching young people.

Mfish pamphlets were more effective in reaching older fishers and those who targeted crays/shellfish etc. Generally speaking, the effectiveness of almost all of these as a source of information for fishers grew with an increase in their fishing frequency. Put simply, the more times they've fished the more likely they've found useful information from these sources.

6.3 Internet Access

All fishers were asked if they've ever looked up anything specifically to do with fishing on an Internet website. The following chart illustrates the profile of those who have.



Almost a tenth of all fishers have been on the net for a fishing related browse. As expected, the younger they were, or the more frequently they've fished in the most recent year they went fishing, the more likely that they've been on the net.

Other fishers more likely to have ever looked up fishing related information on a website were:

- those who've ever been a fishing/diving club member,
- those living in the North Island,
- those currently actively involved in fishing.

Fishers who've never looked up any fishing-related information on a website, were asked if they'd ever looked up any information on any other subjects on the web. Many had done so. Amongst all fishers as defined in this survey, 44% had looked up something on the Internet, whether fishing related or non-related. Comparing this "any use" figure with the fishing related use of 9% leaves a 35% gap of opportunity to reach more fishers.

7. Management Options

7.1 Appeal Of Self Management

All fishers were asked whether they thought that recreational fishers taking over some of the control and management of seawater fishing areas from the Ministry would benefit or disadvantage recreational fishers in the long run or do neither. The following table illustrates the findings.

"Recreational Fishers Taking Over Some Of The Control And Management Of Seawater Fishing?"										
Perceptions Regarding Self Management	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Will benefit fishers	37	34	38	39	35	37	38	38	39	32
Will disadvantage fishers	25	23	25	26	23	27	25	20	35	29
Neither/nor	19	22	21	13	20	19	18	19	17	19
No idea/no opinion	19	21	16	22	22	17	19	23	9	20
TOTAL	100	100	100	100	100	100	100	100	100	100
BASE	612	154	309	149	218	162	232	369	114	129

Note: Percentages of all fishers. Percentages read down.

Over a third of all fishers believed self management will benefit fishers. A quarter of fishers however, thought it will disadvantage them. The "neither/nor" and "don't know" group represent a large body of fishers with unformed views on the issue.

7.2 Appeal Of Closures

All fishers were asked whether they thought that greater use of temporary closures of fishing areas to encourage re-stocking would benefit or disadvantage fishers in the long run or do neither. The following table illustrates the findings.

"Greater Use Of Temporary Closures Of Fishing Areas To Encourage Re-Stocking"										
Appeal Of Closures	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Will benefit fishers	76	72	82	74	76	74	79	78	77	73
Will disadvantage fishers	7	7	6	9	7	7	7	6	10	6
Neither/nor	8	10	7	6	4	13	8	8	4	12
No idea/no opinion	9	11	5	11	13	6	6	8	9	9
TOTAL BASE	100 612	100 154	100 309	100 149	100 218	100 162	100 232	100 369	100 114	100 129

Note: Percentages of all fishers. Percentages read down.

Over three quarters of fishers believed that greater use of temporary closures of fishing areas to encourage re-stocking will benefit fishers in the long run.

7.3 Fee Or Licence Options

All fishers were asked whether they thought recreational fishers paying some form of fee or licence to support research, compliance, and representation of their interest to government would benefit or disadvantage recreational fishers in the long run or do neither. The following table illustrates the findings:

"Fishers Paying Some Form Of Fee/Licence To Support Research, Compliance...?"										
Fee Or Licence Options	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Will benefit fishers	29	33	28	27	31	29	28	30	21	35
Will disadvantage fishers	42	34	47	46	39	41	46	41	50	39
Neither/nor	16	19	14	14	14	14	19	15	19	14
No idea/no opinion	13	14	11	13	16	16	7	14	10	12
TOTAL	100	100	100	100	100	100	100	100	100	100
BASE	612	154	309	149	218	162	232	369	114	129

Note: Percentage of all fishers. Percentages read down.

A substantial proportion of fishers believed a fee or licence would disadvantage fishers in the long run. The younger they were, or the less frequently they've fished in the most recent year they went fishing, the more likely that they believed a fee/licence will benefit fishers. Fishers living in the lower North Island were less likely to believe that a fee/licence will benefit fishers and more likely to think that it will disadvantage them in the long run.

The more they've fished more recently, the more likely they believed a fee or licence will disadvantage fishers.

Fishers who stated that a fee/licence would disadvantage them, were asked reasons why they felt that. The following table illustrates the top seven reasons mentioned.

"Why Or How Would A Fee/Licence Disadvantage Fishers In The Long Run...?"										
Top Seven Reasons Mentioned	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Shouldn't have to pay for recreational fishing	24	23	23	24	(31)	14	24	20	(36)	19
Pay enough taxes already/bureaucracy	18	13	21	17	17	19	17	19	15	17
Some people wouldn't pay/illegal fishing	13	16	15	5	13	8	15	14	9	11
Too many licences/inconveniences of it	11	6	9	19	14	11	7	10	13	8
Will put people off fishing	9	14	7	8	10	17	4	10	11	6
Commercial fishermen should pay	9	8	7	14	6	14	8	4	(21)	11
Extra cost/adds to the cost of fishing	9	13	6	11	7	14	8	9	13	6
TOTAL (See Footnote) BASE	278	59	152	67	89	74	115	167	58	53

Note: Percentage on subset. Open-ended question, and multiple responses accepted. So percentages will not add up to 100.

The top reasons centred around the feeling that they shouldn't have to pay for recreational fishing, that they pay enough taxes already and that some people wouldn't pay/fish illegally. The older they were, the more likely they were bothered by the inconvenience of it/felt there were too many licences. The less frequently they have fished recently, the more likely that they felt encumbered by the inconvenience of it.

Fishers who mentioned they shouldn't have to pay for recreational fishing were more likely to be:

- those who've only fished 1-4 times in the most recent year they went fishing,
- those living in the lower North Island.

Lower North Island fishers are also more likely to believe that commercial fishermen should pay. Other reasons mentioned included: difficult to police (8.9%), it's everyone's right to fish (7.9%), affordability/the poor would miss out (6.9%), not worthwhile for occasional fishers (6.1%), money wouldn't be used for that purpose (5.2%), should be government funded/use other source (3.7%), cost of administering licence too high (2.7%) etc.

7.4 Decentralisation Of Recreational Fishery Management

This question was introduced with the following preamble.

"Management of the fishery in your area is about decisions like setting bag limits, minimum sizes, closed areas, the creation of reserve areas, and having officers to give out information and check that the decisions are complied with. At present, this is done by the Ministry of Fisheries or the Department of Conservation.

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."

All fishers were then asked whether they would prefer management by a local association of recreational fishers, or through the Ministry of Fisheries as at present, or whether they had no feelings either way/didn't know. The following table illustrates the findings.

"Management Options They'd Prefer For Management Of Fishery In Their Area"										
Preferred Management Options	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
By a local association of recreational fishers	38	42	39	32	36	35	44	38	36	44
Through the Ministry of Fisheries as at present	41	33	42	51	42	44	38	40	42	43
No feelings either way/don't know	15	20	13	11	17	13	14	17	13	10
Combination of both MAF and recreational fishers	6	5	6	6	5	8	4	5	9	3
TOTAL BASE	100 612	100 154	100 309	100 149	100 218	100 162	100 232	100 369	100 114	100 129

Note: Percentage of all fishers. Percentages read down.

The thought that fishers may self manage to a greater extent, had almost equal support as management through Ministry. Fishers were almost evenly divided on the management issue.

Fishers preferring self management were more likely to be younger.

8. Contribution

8.1 *Would Definitely Do*

All fishers were asked whether they would definitely do, possibly do or definitely not do a variety of roles, as regards giving voluntary time and effort to fishing as an amateur sport and recreation. The following table illustrates the results for roles fishers would definitely do.

"Would They Do The Following Roles As A Voluntary Contribution Of Time/Effort...?"										
Queried Roles*	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Inspection duties at beach/ramp	17	19	17	15	14	10	(25)	18	14	17
Administration for fishing association	19	19	18	22	17	14	(26)	20	24	13
Research and interviewing activities	13	11	12	17	10	7	(20)	12	16	12
Pay a levy in lieu of time	15	11	19	14	13	13	(18)	18	13	9
Maintenance of fishing diary	(46)	43	48	45	39	41	(55)	42	(55)	46
TOTAL (See Footnote) BASE	612	154	309	149	218	162	232	369	114	129

Note: Percentages of fishers who said they would definitely do the above roles. Percentages will not add up to 100, as roles are not mutually exclusive.

* See questionnaire for full text

Nearly half of fishers were happy to maintain a diary of their fishing times and what they caught, that could be used as data for a regional or national monitor of recreational fishing. Other contributory roles were less popular, with less than a fifth of fishers willing to do them. Research and interviewing activities to do regular surveys of fishing catch and effort and stock levels, in the area they fish seemed to be the least popular, amongst queried roles.

8.2 Would Definitely Not Do

The following table illustrates the results for roles fishers would definitely not do

"Would They Do The Following Roles As A Voluntary Contribution Of Time/Effort..."										
Queried Roles*	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Inspection duties at beach/ramp	53	54	52	55	61	51	48	51	58	55
Administration for fishing association	44	40	46	47	52	45	37	43	43	51
Research and interviewing activities	56	60	54	54	67	53	47	54	56	62
Pay a levy in lieu of time	56	53	55	61	59	54	54	50	64	65
Maintenance of fishing diary	22	21	22	22	28	15	21	21	24	21
TOTAL (See Footnote) BASE	612	154	309	149	218	162	232	369	114	129

Note: Percentages of fishers who said they would definitely not do the above roles. Percentages will not add up to 100, as roles are not mutually exclusive.

* See questionnaire for full text.

Research activities, voluntary levies and inspection duties were contribution roles, which a majority of fishers will definitely not undertake. The least resistance seemed to be towards maintaining a fishing diary.

As expected, the less frequently they had fished (in the most recent year they went fishing), the more likely that they resisted these contributory roles.

9. Viewpoints On Maori Customary Seawater Fishing Rights

All fishers were asked if they wished to put forward any viewpoint on Maori customary fishing rights as regards seawater fishing. The following table illustrates the findings:

"Viewpoint On Maori Customary Fishing Rights As Regards Seawater Fishing"										
Top Five Viewpoints Offered	Fisher Total %	Age			Fishing Frequency Last Year They Fished			Resident Area		
		16-34 yrs %	35-54 yrs %	55+ yrs %	1-4 times %	5-10 times %	Over 10 times %	Upper North Island %	Lower North Island %	South Island %
Equal rights/same rules and regulations	40	32	45	43	39	42	39	38	37	47
Against it/should be abolished	15	13	13	20	14	12	18	15	12	18
Abused/exploit/take too many/sell off	11	10	11	11	7	10	15	12	9	8
Gone overboard/have too many rights	6	4	5	10	5	5	8	5	8	6
More control/policing/enforcement	5	5	5	5	5	4	6	5	6	4
Don't know/No viewpoint	28	37	24	22	32	29	25	29	28	26
TOTAL (See Footnote) BASE	612	154	309	149	218	162	232	369	114	129

Note: Percentages of all fishers. Percentages will not add up to 100 as open-ended question. Multiple responses accepted.

Fishers' most commonly voiced viewpoint was that everybody should have equal rights and be governed by the same rules and regulations.

Other viewpoints offered included: Maoris don't own the sea/no territorial rights (4.4%), agree with Maori customary rights (4.4%), need to protect the fish/shellfish (3.4%), accept customary rights if not abused (3.8%), and for customary rights, use traditional methods (3%) etc.

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DISCUSSION

The fishing population

Measurement of fisher incidence is subject to some complexity. Comparisons across different studies can be misleading when different definitions are used. Given that nationwide surveys of reasonable quality are being considered it is necessary in making comparisons to check...

- the age range being covered, eg persons aged 16 yrs and older vs those including persons younger than 16.
- the activities defined as fishing, ideally they should be individually probed in the interview question for clarity of measurement.
- the time frame being referred to, eg last 12 months.

In addition it will, we believe, be appropriate for some applications of fisheries data to distinguish people who fish by active choice, from those who participate by periodically tagging along.

This survey (REC9802) refers to a nationwide phone survey of the population aged 16 plus years. Of this population it found that 35% had fished by one or more of the 5 avenues included in the question, viz seawater from a boat, from land, at rivermouth for seagoing species, underwater in seawater, and by hand collecting or trapping in seawater.

The survey introduced into the conceptualisation of the incidence figure, questions to distinguish fishers who had chosen fishing from those who simply tagged along, eg with their partner or friends. The justification for this emerges from the social character of much fishing with its ability to be enjoyed without high entry cost in skill or money terms, or longer term commitment. Since a very casual engagement is available, those so engaged swell the incidence figure to beyond the practical use of such a concept. We note in this regard that a little under half of those who had fished in the last year had done so only once or twice.

Our survey asked fishers what types of fishing they had ever undertaken. A similar percentage of fishers had fished from boats (61%) and land (59%) using rod, net dredge spear or line. The next most frequent type of fishing was hand gathering or trapping (44%), and a relatively small number of fishers (13%) had fished underwater.

The following sections discuss the results by each to the six topic areas identified by the Ministry of Fisheries' REC9802 research brief.

Why people go marine fishing and determine their relative importance.

Motivation has tended to be addressed by way of the question, "Why do people go (recreational) fishing?" Phrased this way, it has entailed for some researchers the implication that the answer may or indeed does lie elsewhere than in the activity of fish catching, and has led them to propose a spread of other reasons for going fishing. This train of thinking has tended to confuse the benefits received, many of them contingent/incidental to fishing, with the principal reason for fishing.

Progress in examining motivation can be made by distinguishing the satisfactions and needs connected specifically with fishing, from associated benefits frequently received during fishing activity, but readily available without fishing itself. These are discussed below as the "integral" and the "contingent" rewards of fishing, respectively.

Integral rewards or those relating to fish catching are always present in some form,
 the preparation for the hunt
 the tension and excitement of the hunt
 anticipation of the type and size of the prey
 the encounter with the prey
 the fish as a reflection of the hunters skill, as a superior meal, and as a gift.

Contingent rewards are those that may or may not be present on any outing.

the natural environment
 socialising
 relaxation and refreshment
 solitariness
 boating

There are trains of enquiry which can lead the researcher to displace the integral benefits with one or more of the contingent ones as the motivation for fishing. We offer these five points.

- i) There is a method problem invited by asking fishers "Why do you go fishing?" The fisher may feel that the answer "To catch fish" is self-evident and that the asker is looking for other or additional explanation. This elicits all the associated or secondary rewards.
- ii) The question "Why do you go fishing?" requires the fisher to introspect into the original motives of what may well have become an entrenched and habitual past time. Reaching the original initiators for behaviours that have become autonomous is rarely possible by introspection.
- iii) When a person who has not specifically gone on a fishing trip, carries out fishing as incidental to their main past time is asked the question "Why do you go fishing?" the answer is one which patches across the two activities.
- iv) The problems above are compounded when a researcher lists a number of integral and contingent rewards of fishing together in a list and asks the fisher to "tick one or more". Interpreting the most frequently "ticked" item as the most explanatory confuses the

identification of what is fundamentally driving fishing, with what may be the most frequently associated contingent rewards.

- v) Problems are also present in the attempt to "rank in importance". The first is an inherent ambiguity. Are we ranking the frequency with which a factor is mentioned by the population who fish recreationally e.g. (60% of those interviewed), or are we ranking the relative indispensability of the factor in driving the person to fish? Some factors may be frequent, but superficial.

The second is a problem generic to attempts to "rank-in-importance" factors that are part of a complex interactive behaviour. Can one thing be more important than one of the others, if they are interdependent, for the whole effect?

With this reasoning in mind the REC9802 survey adopted a questioning approach which required respondents to say whether they would still go fishing if a given reward or reason for fishing was absent. From this order-of-sacrifice approach the absence of good companionship /sociability on the fishing trip was the most likely to lead to surrender of the trip, followed by the requirement to fish in a capture area - ie. one where species, size, equipment etc. were all known, eliminating the chance, the surprise, and the hunt. Having plenty of money to buy the fish, and also having the preferred species cheaply available in stores were least likely to deter the fisher from going out to try and catch fish.

Of the two apparent top drivers for seawater fishing, one is what we defined as a contingent benefit and the other is one we defined as an integral benefit. While we included both in the same analysis neither revealed itself as a unique driver and we are left with a perspective of heterogenous motivators for this recreation.

A number of overseas surveys of fishers have found that the motivation to catch and eat fish is a relatively minor motivation for fishing. 'Most research on angler motivations has revealed not only the diversity of reasons why people participate in fishing but the low reported importance of catching and keeping fish vis-à-vis other motivations.' Felder and Ditton (1994).

Of 2119 fishers interviewed only 612 identified themselves as active fishers. 25 percent of these active fishers had at some time been a member of a marine fishing or diving club. Of all those who had ever fished the percentage was much lower -10 percent. Kilner and Bell (1992) stated that nationally seven percent of marine fishers are estimated to be members of clubs, the source of this information was a New Zealand Department of Statistics survey (1987).

In our survey fishers were also classified into two categories – fisher who chose recreational marine fishing as a pastime, and tag-along fisher. The self-classification of respondents into these two categories was made because it may impact on the choice of management and policies. For example, there are a large number of tag-along fishers in the population, but their pressure on the fishing resource may be minor.

Both of the previous Ministry marine fisher perception surveys involved a high proportion of respondents who were members of clubs. Forty seven percent of boat fishers, 70 percent of divers and 21 percent of shore fishers who participated in the MAF Fisheries South survey were

club members (Teirney *et. al.* 1992). Fifty percent of respondents to the 1990 Central Region marine recreational fishing survey were members of fishing clubs (Kilner and Bell 1992).

Teirney *et. al.* (1992) found the main motivations for southern fishers were to have an enjoyable social activity, enjoy the coastline, and being outdoors. Shore and boat fishers rated the challenge of catching fish highly. The majority of gatherers rated the harvest and gifting of fish highly.

Davies (1996) found 65.8 percent of rock fishers interviewed stated they fished for fun and a further 25.8 percent indicated they fished for fun and food. Although 8.5 percent stated they fished for food, 16.8 percent commented that the catch was part of their food budget; only 14.4 percent of these were New Zealanders. However of those who indicated their catch was part of their food budget, only 4.5 percent fished fortnightly or more frequently.

Marine recreational fishers' attitudes towards specific aspects of fisheries management controls

The six most preferred finfish species targets identified (in priority order) by the survey were snapper, blue cod, kahawai, tarakihi kingfish and salmon. Fishers were also asked to identify the second target species. The combined two species target species ranking was snapper, kahawai, tarakihi, kingfish, blue cod, gurnard and groper/hapuka. Fisher and Bradford (1988) reporting on the 1996 marine recreational fishing survey identified a similar ranking of trip target species. Snapper was the most targeted, followed by kahawai, blue cod, tarakihi kingfish and gurnard.

The combined two species targets for shellfish/rock lobster fishers were rock lobster, paua, scallops, pipi, mussels and tuatua. Fisher and Bradford (1988) reported a similar ranking for the 1996 survey trip target species of rock lobster, scallops, paua, mussels, pipi and tuatua.

Fishers were asked what the daily take limit was for their most preferred species. Fishers targeting finfish generally demonstrated poor recall of the daily take limits. The survey indicates that a significant proportion of those interviewed (13% of those targeting rock lobster / shellfish, and 28% of those targeting finfish) had no knowledge that daily limits were in place for their targeted species.

For the major Finfish target species, identification of the correct limit was highest for kahawai and snapper fishers in the North East of the North Island (45% and 39% respectively). For the other areas and other species, less than a quarter of fishers correctly identified the limit. This result contrasts strongly with the recall of rock lobster / shellfish fishers. More than forty percent of fishers targeting the three major shellfish species (rock lobster, paua and scallops) identified the correct daily limits.

Recall of the combined finfish daily limits was also poor. Forty two percent of finfish anglers were unaware of a limit. Only eight percent of fishers in the Auckland region and six percent in Central region identified the correct limit.

On the issue of minimum fish sizes, finfish anglers showed a similar lack of knowledge about limits. Half the anglers were either unaware of the restrictions or stated they did not know the limit. The proportion of fishers who could recall the correct minimum size varied widely. For

example the majority of blue cod fishers accurately reported the minimum size, where as less than twenty percent of snapper and tarakihi fishers accurately reported the minimum size. The reported poor recall of the correct minimum fish size may not reflect the true level of compliance behaviour. For example it may be that some fishers carry written information on the daily limits when they go fishing.

The results may also reflect the situation that many fishers do not need to know the limits because they rarely if ever catch in excess of the daily limit. The survey did not assess the frequency fishers caught in excess of the daily catch limit, but did determine how often fishers felt they caught their perceived daily limit. Almost forty percent believed they achieved their limit on at least one fishing day in five. This would seem to suggest that fishers are not concerned about checking the accuracy of their daily limit knowledge, even though they believe they regularly achieve their perceived limit. The poor level of recall may also indicate perceptions about the level of enforcement and checking of catches by the Ministry.

Fishers views on compliance with recreational fishing regulations

Perceptions about the level of illegal fishing (specifically exceeding daily limits) show a mixed response. Around thirty percent of fishers believe one out of five fishers or more are exceeding their limits, and another 30 percent believe one in 20 fishers or less are exceeding their limits.

A quarter of fishers reported seeing illegal fishing activity in the previous 12 months. Fifty two percent of fishers considered there needed to be more Fisheries Officers, while 23 percent considered the number of Fisheries Officers to be about right. Twenty seven percent of fishers saw at least one fisheries Officer in the last 12 months.

Teirney *et. al.* (1992) found that many fishers believed that enforcement and control of amateur limits could be improved by increasing the enforcement resources - specifically better equipment, increased permanent and honorary staff and more effort to identify unlicensed fish receivers. In the Southern Region survey a significant number of respondents believed the high levels of some bag limit encouraged the illegal sale of excess catch.

Fishers educational and information needs of marine recreational fishers

The poor recall noted in our survey may also reflect the way in which fishers gather fishing information. Given the lack of knowledge about the controls it is not surprising that 55 percent of the fishers gathered most of their information through talking to other people who fish. Only 28 percent of fishers gathered most of their information from specialist fishing magazines and 16 percent by contact with the Ministry staff or publications. However 36 percent of fishers had one or more fishing rule pamphlets. Only two percent of fishers used the internet as a major source of fishing information, although ten percent of fishers had used the internet to find some fishing information.

Issues of concern to marine recreational fishers

Fishers were asked about the restrictions/controls in their fishery what could usefully be changed. Of those who identified restrictions, more than three quarter of fishers thought no further changes were necessary. However for those responses identifying a change in controls

more than three quarters of the finfish angler responses wanted an increase in minimum fish size.

Recall of the correct daily catch limits was much higher for fishers targeting rock lobster / shellfish fishers than for fishers targeting finfish. There could be several possible reasons for this.

For the rock lobster and scallop fishers the catch is usually taken by underwater breathing apparatus (UBA). Many fishers undertake a formal training programme before using UBA. Part of the training course covers instruction on the fisheries regulations related to shellfish/rock lobster. Finfish fishers require no such training.

Of those shellfish/rock lobster fishers who were aware of the daily limit on catch, and stated what they believed that limit to be; almost forty percent of these fishers stated they took their perceived limit on most days. Such a situation may encourage fishers to be more aware of the limits.

There have been a number of well-publicised Ministry of Fisheries exercises to catch illegal shellfish/rock lobster fishers. Although these activities are not targeted to recreational fishers, the publicity may make fishers more aware of the need to fish within limits.

However accuracy of recall by shellfish/rock lobster fishers about length, weight or condition controls was generally poor. Forty six percent of fishers were either unaware of these limits or unsure what they were.

There appears to be strong acceptance amongst fishers for maintaining the current management controls. Most fishers (who when questioned identified a catch limit) were supportive of the daily catch limits, 86 percent of these fin fish anglers and 89 percent of shellfish/rock lobster anglers stated the limit as fair. Most of the responses supported the limits because they were in place for conservation of fish or because the limit provided for plenty of fish to be caught.

There was wider divergence in the fishers when commenting on the need for banning of methods, equipment or techniques. Forty seven percent of finfish anglers and 59 percent of shellfish/rock lobster fishers said there was no need for change, or they did not know of any prohibitions required. For those who supported further prohibition, one method in particular was identified, netting by finfish anglers, and Scuba by shellfish/rock lobster fishers.

Kilner and Bell (1992) commented that Central Region recreational fishers frequently expressed concern about set netting (both recreational and commercial).

On the issue of overfishing, similar percentages of finfish (38 percent) and shellfish/rock lobster (41 percent) fishers considered fish stocks were decreasing. These statistics contrasts with the views held by a large number of fishers that recreational controls did not need further change. One reason could be that fishers considered that the overfishing problem lay with the commercial fishery. However further controls on commercial fishing were not often mentioned as a management strategy. Only 16 percent of finfish anglers specifically identified restrictions on commercial fishing as strategy for reducing overfishing. Only 23 percent of finfish anglers, and 14 percent of shellfish/rock lobster fishers specifically identified commercial fishing as the

reason fishing grounds were being lost to recreational fishers. Only four percent of fishers identified commercial fishing as a method, equipment or technique that should be banned.

On a related issue 37 percent of fishers believe fish grounds are being lost to them. This view is most strongly held in the north east of the North Island. Fifty five percent of finfish anglers and 44 percent of shellfish/rock lobster fishers stated the fishing grounds in the north east of the North Island are being lost to them, or were no longer worth visiting.

Kilner and Bell (1992) reported that for the Central region fishers concern consistently focused on a perceived reduction in both numbers and size of the major recreational species. Removal of recreational access and the level of commercial catches were also common themes. Poaching and quota busting in the paua, rock lobster and blue cod fisheries were of particular concern. In general Central region respondents considered stocks to be overfished with both numbers and average size of fish were in decline.

In our survey almost half of the lower North Island rock lobster/ shellfish fishers believed grounds were being lost to them or were not worth visiting. However a lesser percentage (28 – 40 percent) of finfish fishers in the lower North Island /South Island and South Island rock lobster /shellfish fishers considered beds had been lost or were no longer worth visiting.

Closure of areas to allow rebuild of stocks was one option favoured by finfish anglers (7%) and shellfish/rock lobster fishers (18 %). Although relatively few fishers identified this option as necessary for their target fisheries, there appears to be widespread support for the control as a management strategy. In response to the question of whether greater use of temporary closures of fishing areas would encourage re-stocking, 76 percent of fishers stated the control would benefit fishers.

On the issue of Maori Customary fishing rights, 40 percent of fishers believed there should be equality of fishing rights between Maori and non-Maori. Fifteen percent were against Customary fishing rights, and 28 percent did not know or had no viewpoint. There appears to be considerable concern about the perceived inequity of the rights and controls.

Recreational fishers' contribution to the management of their fishery

The Ministry of Fisheries and the New Zealand Recreational Fishing Council are currently considering options for the future management of the recreational fishery. Our survey canvassed fisher's views on several management options.

Similar numbers of fishers support the option of future management by regional fisher associations (38 percent) or continued management by the Ministry of Fisheries (41 percent). Attitudes to this option appear to be polarised, only six percent of fishers supported joint management by fisher associations and the Ministry, and 15 percent did not hold a view on the option.

Although 38 percent of fishers supported the concept of a regional fishers association (RFA), fishers do not appear (with one exception) to see themselves as offering an active role in the RFA. Less than 20 percent of fishers stated they would definitely assist with inspections at boat ramps, administration of the RFA, assist with research and interview activities, or pay a \$50

levy to fund paid staff. However 46 percent of fishers stated they would maintain a fishing diary to assist with research. Strong opposition was expressed about assisting with inspections, research and interview activities, and payment of a \$50 levy, more than 50 percent of fishers stated they definitely would not undertake these activities.

One reason fishers are not more supportive of the RFA concept may be due to scepticism about the benefits of the option. Thirty seven percent of fishers believed some fisher control / management of recreational fisheries would be beneficial. However 25 percent did not believe fishers would benefit and 19 percent believed the net benefit would be neutral.

Some of the perceived scepticism may reflect attitudes to how funds might be raised to support such management, one option being a licence fee paid by recreational fishers. Forty two percent of fishers stated a licence or fee to support compliance, research and advocacy would disadvantage fishers. Twenty nine percent of fishers stated a licence or fee would benefit, and 16 percent believed the net benefit would be neutral to fishers.

Although the majority of fishers appear to show little support for assisting in the management of their recreational fisheries, the proportion of fishers who stated they definitely would assist with initiatives (13% to 22%) may be a large enough resource to develop self management regimes for recreational fisheries

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CONCLUSIONS

The survey is the first nation wide marine recreational fisher motivations and perceptions survey. Unlike the previous Ministry regional surveys, the population of fishers was a statistically valid random sample.

The survey results confirm the findings of other New Zealand and overseas research that fishing for food and for sport are not major motivators for most recreational fishers.

The sociability of other fishers and the chance nature of fishing/catch appear to be important factors in determining whether the fisher will fish. In contrast the availability or cost of the target species as a purchased product is a minor factor in determining whether the fisher will fish.

There is widespread recognition that the daily catch limits are adequate and fair. In the minds of the fishers there is a strong positive link between the types of controls and the conservation ethic. Based on the response to temporary closed areas, there may also be strong support for increasing some short-term restrictions if they create a long run benefit.

Perceptions about the level of illegal fishing (specifically exceeding daily limits) show a mixed response. Given that almost a third of fishers believe illegal activity is prevalent, some action may be required by the Ministry.

Most fishers have the perception that there are inadequate numbers of Fisheries Officers. The Ministry may need to address that perception to ensure there is an adequate deterrence level in the minds of fishers.

The level of accurate recall about fisheries controls is low. However the distribution of fisheries pamphlets to fishers appears to be relatively high. The Ministry may need to consider alternative information and communication strategies in addition to the supply of fishing pamphlets to fishers. One option would be to promote the wider use of the Ministry's website to keep fishers informed. Use of the internet by fishers (particularly those over 34 years of age) is low at present.

There is a widespread (although not a majority) perception amongst recreational fishers that their fisheries are overfished and catches are trending downwards. There is however a view by 55 percent of finfish anglers and 44 percent of shellfish/rock lobster fishers that the fishing grounds in the north east of the North Island are being lost to them.

Fishers gather most of their fishing information by talking to other fishers. Specialist fishing magazines are also an important information source. Information on the internet is rarely sourced by fishers.

There appears to be a moderate level of support for fishers taking self management initiatives. There is limited support (and a higher level of opposition) for the introduction of a fee or licence.

Generally the percentages of active fishers prepared to assist in fisheries management initiatives was low. However based on the percentages of fishers (13% to 22%) who stated they definitely would assist there appears to be a more than adequate resource base to develop and maintain these initiatives.

A large percentage of fishers are concerned about the Maori customary fishing rights. There appears to be considerable concern about the perceived inequity of the rights and controls.

The survey results suggest a number of potential research areas, including:

- Many fishers believe their fisheries are declining yet most fishers see no need for changes to the controls.
- Accurate recall of bag limits by finfish anglers is much poorer than that for shellfish/rock lobster fishers.
- Are there differences in attitudes and perceptions between fishing methods, for example bulk fishing (longlines and nets) compared with hand line or rod fishers, or line fishers and divers?

Fisher attitudes and perceptions should be monitored over time. Follow up surveys at regular intervals would provide information on changing attitudes to fisheries management. The current survey was designed to provide a national overview. Attitude and perception surveys may be particularly important if changes to recreational fisheries management are introduced (such as RMAs) and/or controls are modified or proposed to be modified.

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APPENDIX 1: Observation And Comment From The Qualitative Preview

The focus group or qualitative preview step led to the following observations and comments which influenced the construction of the questionnaire. The sections referred to are those of the questionnaire.

Section A: Who Is A Fisher? - Screening and Qualifying

One measure of who is a marine fisher is to ask whether the person has been marine fishing in the past 12 months. This gives one kind of measure, but it is a very simple one in what is a much more complex definitional requirement. We may note in this regard that:

- Fishing in the marine context takes many forms. In order to secure the boundaries of inclusion/exclusion, it will be safer to define each form and check whether the person has or has not done it. For example, a scuba enthusiast may not immediately see themselves as having gone “fishing” - they typically talk “diving”.
- Fishing takes place in a social and family context, such that some people who have gone fishing in the year are merely accompanying a recreational fisher of far greater commitment, even if they undertook the activity. The definitional problem is that while taking part incidentally and casually certainly counts in measuring “activity”, it is not satisfactory in determining the population base that are true fishers or adherents to the sport.

If we recognise that “activity” is one measure and “fishers” another, then we can use a qualifying question to distinguish the two.

- The use of the 12 month time frame, covering as it does all four seasons, seems at first to give a satisfactory frame for netting people active in fishing. Certainly it would work well for many sports.

Fishing, however, is for many people something they begin very young. It subsequently comes and goes through phases of their life. Since it can be experienced at both physically demanding and physically undemanding levels, fishing can last well into the senior years.

With this background, a definition that is too narrow will not serve a public consultation context well. It may exclude a proportion of people who regard this recreation as their own, and who see themselves as having been temporarily inactive over the year defined in the survey. A better underlying model for classifying a fisher may be to include people who self classify as fishers, using some measure of recency or frequency of fishing to achieve greater focus on current activity, where this is desired.

- By employing a time frame in the definition of who is a fisher, we recognise that there is a flow-through in this recreation, as in others. People may be currently involved, in the course of entering, or in the course of exiting the recreation.

- For public consultation purposes, the expectations of the incoming participants may have a place in formulating future policy. Those exiting may exercise influence through imparting their experience and perspective, and could, in principle, carry some weight.
- “Motivation and Perception” studies can be done on fishers active in the past 12 months. This is not problematical except for a possible need to discount the “incidental” fisher. The wider framework of “fishers” described here must form the eventual frame of reference when extrapolating from the findings to policy considerations.

Section B: Motivation For Fishing

- Motivation has tended to be addressed by way of the question, “Why do people go (recreational) fishing?”. Phrased this way, it has entailed for some researchers the implication that the answer may or indeed does lie elsewhere than in the activity of fish catching, and has led them to propose a spread of other “reasons” for going fishing. This train of thinking has tended to confuse the benefits received, many of them contingent/incidental to fishing, with the principal reason for fishing.
- Progress in examining motivation can be made by distinguishing the satisfactions and needs connected specifically with fishing, from associated benefits frequently received during fishing activity, but readily available without fishing itself. These are discussed below as the “integral” and the “contingent” rewards of fishing, respectively.
- Motivation, generally defined as the cause of a behaviour, is explained at a relatively practical level in the case of recreation by referring to the rewards which the recreation delivers. [Why these rewards are rewarding is the subsequent question, with answers lying in the basic make-up and nature of the human. The contribution of instinct and socialisation (nature and nurture) from this level are not within the scope of this project.]
- **Integral** rewards, or those relating to fish catching, are always present, in some form or mix. These are:
 - * The preparation for the “hunt”, consisting of acquiring equipment and expertise, with the (pleasurable) anticipation of pursuing, outwitting and triumphing over the fish, or other marine quarry.
 - * The tension and excitement of the hunt, exercising reconnoitering, equipment choice, baiting, boat positioning, changing strategy, exercising patience by waiting out the caution of the prey.
 - * The tension of wondering what prey, size, type, if any at all, may be encountered.

- * The encounter with the prey, whether by net, trap, spear or hook, is the climax of the hunt, carrying with it the excitement of success or failure in the critical closure of the hunt.
- * The fish as a self-caught meal is food with status at three levels:
 - it reflects satisfyingly on the competence of the fisher, a sense of accomplishment,
 - it is believed to taste different (superior) to purchased fish and thereby constitutes a premium food,
 - it is gifted to family or friends, an act that satisfies the giver in their being able to bring something special to another person's life.
- Contingent rewards are those that may or may not be present on any fishing outing. The mix of these can vary far more than the integral rewards, and it is possible for none of them to be present, in a fishing trip which the fisher finds fully rewarding. They frequently act in a compensatory role, or so the fisher rationalises, when the hunt is unsuccessful. Revealingly, they may be contradictory.
- * Natural Environment - Nature: Time spent on or in or by the sea, in the open air, outdoors.
- * Socialising, Interaction: Time spent socially with friends or family in a pastime which is relaxing and frictionless, yet diverting enough to give interest and purpose to the outing.
- * Relaxation and Refreshment: Time and activity that is stress reducing or refreshing, because the environment, the activity and the rewards contrast so markedly with their world of work.
- * Solitariness, Escape: Time spent alone with your own thoughts, away from others.
- * Boating: A supporting or complementary rationale for being on the water and/or in a boat - a boating accompaniment.

- There are trains of enquiry which can lead/lure the researcher to displace the integral benefits with one or more of the contingent ones as the motivation for fishing.
 - (i) There is a method problem invited by asking a fisher "Why do you go fishing?" The fisher may feel that the answer "To catch fish" is self evident and that the asker is looking for other or additional explanation. This elicits all the associated or secondary rewards.
 - (ii) The question "Why do you go fishing?" requires the fisher to introspect into the original motives of what may well have become an entrenched and habitual pastime. Reaching the original initiators for behaviours that have become autonomous is rarely possible by introspection. Even if they were skilled in introspection, which few people are, they would also need to be able to articulate at a relatively sophisticated level. The answers most readily available to the fisher are polite, but finite comments about the outdoors, friends, relaxation, etc. - satisfactions which could be obtained in numerous ways, which fail to distinguish the choice of fishing and which essentially don't answer the question.
 - (iii) When a person who has not specifically gone on a fishing trip, e.g. motor boat, yacht, or cruiser, carries out fishing as incidental to their main pastime is asked the question "Why do you go fishing?", the answer is one which patches across the two activities.
 - (iv) The problems above are compounded when a researcher lists a number of integral and contingent rewards of fishing together in a list and asks the fisher to "tick one or more". Interpreting the most frequently "ticked" item as the most explanatory confuses the identification of what is fundamentally driving fishing, with what may be the most frequently associated contingent rewards.
- There is a possible reward which motivates recreational fishing which should, strictly speaking, be viewed separately. This is fishing for subsistence or as a necessary food supplement. By definition, fishing for survival is not truly "recreation" in any accepted understanding of the word recreation. The true cases of subsistence or supplement fishing should not be treated as recreational. They are non-commercial in NZ fishing policy terms, but not recreational.

A worthwhile caution here is that there are cases of non-true or claimed subsistence fishing that on closer questioning turn out to reflect a preference for the activity or for the fish, or both. A fisher claiming subsistence or food supplement should be viewed in the light of, and perhaps give answers to:

- * Whether he/she would be able to obtain the same quantity of fish more cheaply by purchasing it, retail.
- * Whether he/she has income from work, income support, or pensions which would cover normal non-fish food requirements.

- * Whether he/she has chosen a sea-based lifestyle in preference to conventional income generating work, so that it is a preference for fishing which drives a need to use fishing for food, rather than the other way around.

In summary, we may progress the understanding of motives and drivers in recreational fishing ...

- by distinguishing fishers from people who have fished incidentally - much in the way we might distinguish people who play rugby as a chosen sport, from people who have been roped into casual rugby games in the course of a firm's outdoor picnic.
- by probing the "for food" or subsistence fishing explanation to see whether it holds up to the fuller requirements of qualifying as such in economic terms.
- by differentiating rewards (incentives) integral to fishing, from those contingent to fishing.
- by refraining from asking survey questions which either require introspection skills from the respondent, or suggest to them an answer set which fails to distinguish integral from contingent "reasons" for (going) fishing.

With this in place, we can reflect on an attempt that is commonly made to "rank in importance" the factors that motivate people into recreational fishing. Two issues undermine this aspiration to have a simple ranked table of factors to hand to policy makers.

- (i) The first is an inherent ambiguity. Are we ranking the frequency with which a factor is mentioned by the population who fish recreationally, e.g. (60% of those interviewed), or are we ranking the relative indispensability of the factor in driving the person to fish? Some factors may be frequent, but superficial.
- (ii) The second is a problem generic to attempts to "rank-in-importance" factors that are part of a complex interactive behaviour. Can one thing be more important than one of the others, if they are interdependent, for the whole effect?

The least problematical approach to ranking may be to identify each factor in a fishing trip and place these in front of the fisher. We then ask for each factor in turn, whether they would still go fishing if that was removed. For example, if 90% of people say they would still go to fish when the factor ...

"Having a fish to take home to eat"

was removed, e.g. by compulsory catch-and-release, then we would conclude that this factor was low in ranking as a driver.

Section C: Management Controls

Participants in the discussion groups appeared to be well aware of bag limits and minimum sizes on their preferred or mainly targeted species. There appeared to be little pressure on the bag limits in the sense that many claimed that catching their limit was rare. For the minimum size, that for snapper was well known. The prevailing opinion was that the minimum size for snapper was too small, with the more experienced fishers claiming to return minimum size to the sea as not worth keeping. There would very likely be a measure of support for increasing the minimum size.

Bag limits and boat limits were generally thought to be more than adequate on the grounds that a family would not need more than the limit in a day, and that freezing fish for another day contradicted one of the values of catching it yourself - that is to have it fresh from the sea.

Notwithstanding that the number and size of fish allowed seemed to have general acceptance, some recreational fishers felt the exactness of the expectations placed on them was not matched with those placed on commercial fishers. Visions of several tonnes of fish being hauled onto a commercial boat in a single trip did not square in their minds with much or any attention to minimum size or concern to leave sufficient stocks for the fishery to recover. A common train of thought was that the average fisher would not catch in a lifetime, what some commercial boats would take in one haul. This led to scepticism about the impact that controls on recreational fishers might have on sustainability, and doubts about the effect of lowering the bag limits on them, in times of reduced stock.

The questions in this section are designed to give a quantitative measure to the apparent acceptance of compliance and to probe the underlying thinking. They also probe for any variations perceived to be needed, and determine whether there is a desire for method controls in relation to their preferred species.

Concerns

The concerns of recreational fishers tended to revolve around the continuity of their recreation and threats to it. Among these were:

The depletion of stocks as against years past, when fish could be caught at lower cost, over less time, with less sophisticated equipment.

The impact of commercial fishers, particularly when nets or dredges were used. They were thought by some to "clean out" a whole area of fish, leaving none to rebuild the stock.

Violation of the bag/size regulations by other recreational fishers, with insufficient fishery officers to detect them.

A feeling of pressure from the Ministry to contain recreational bag limits which some felt was not credible or useful when compared with hauls that were seen as huge and indiscriminate by commercial boats.

An opposition to the use of certain fishing methods which either damaged the habitat (scallop dredges) or caught all species indiscriminately (nets) or cleaned out whole areas of fish (pair trawling?)

Encroachment of commercial fishers into the inshore fishery.

Expectations that reserves or closed areas would be to the disadvantage of the person with a small boat, i.e. close in shore.

A wariness that the Ministry was now, or would in future, withdraw from managing the recreational fishers' interests.

The thought that licences may be introduced, for marine fishing.

Anxiety that what was seen as a simple and basic civic right was being progressively restricted and made more conditional.

The concern that Maori were perceived to be beyond the conservation regulations, resulting in abuse.

The concern that Maori may confront them in their fishing, with consequent unpleasantness.

Section D: Compliance

The discussion of compliance is naturally linked to that of the management controls. It explores further the extent of knowledge of the controls as the basis for compliance, and then tries to determine whether there is the will to comply as well as the knowledge to do so.

It is unrealistic to expect people to own up to non-compliance except in special circumstances. However, one can still usefully determine whether there is a general state of compliance as seen by individual fishers. The principle for this is that if other fishers are seen to be complying, then the individual is more likely to comply also.

Along the same lines, we might try to understand the basis for non-compliance through the eyes of fishers indirectly. If, for example, fishers understand non-compliance by others to be based on a sense of unfairness of the regulations, we have a valuable clue for what to do next.

The certainty of detection, or uncertainty as the case may be, is widely held to be the ultimate restraining factor on self serving, anti-social or even criminal behaviour. A proxy measure of the certainty of detection can be obtained by determining how commonly fisheries officers are seen to be in action and how effective their prosecutions are when taken to court.

Perceived soundness, credibility and fairness are naturally the preferred bases for self sustained compliance by recreational fishers. We probe the understanding of the basis for limits on the catch, and the perceived fairness.

A positive attitude toward the fisheries officers who monitor compliance is similarly likely to reinforce compliance.

Section E: Information and Education Needs

There needs to be a distinction made at the outset between what fishers themselves actually recognise as a personal need, and needs which the greater picture of sustainability call into consideration.

At first cut, fishers seem to want no more than information specific to the enjoyment of their recreation. This refers to fishing expertise, tides, equipment niceties, fish movements, and so on. Naturally it is not the Ministry's concern to inform people how to become competent fishers. The information-education role must be defined as helping fishers understand the resource and its requirements in the interests of sustainability.

The most likely way to succeed in this is to ...

- present the sustainability story, in total and by species, in a way which brings the fisher on side, recognising that the goal is in fact their own,
- associate with and use the sources of information which fishers prefer and enjoy. This increases their likelihood of encountering sustainability information and simultaneously prevents a rift developing between catching fish, and conserving fish.

Knowledge, and thereby gaps in knowledge, need to be probed in this and other surveys, but largely at an operational level. The real gap in understanding is evident if we compare the fishers' appreciation of the lifecycle and habitat of their quarry with that of say the duck hunter. The fisher knows much less, and with less certainty, what the lifecycle of the targeted species is, what its food chain is and, most importantly, when it breeds. A partial exception is with lobster/cray, where the eggs on the breeding female are outwardly visible.

Consciousness of the need and value of knowing the lifecycle of the targeted fish was readily evident in the discussion groups, but there was also a passivity and a resignation to never being able to know. This tended to lead to an outlook of making the best of it, and vaguely encouraging all fishers, specially commercial, to exercise restraint.

Questions on information sources were included, as were questions on knowledge of the regulations and probes on the understanding of why the regulations are in place. Questions on the breeding cycle, habitat, food sources, harvesting times were not. This is because there appears to be little knowledge we can expect fishers to know or be acting upon. If there is such knowledge, it would enhance voluntary behaviour and should be benchmarked in subsequent surveys.

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