



# **Water Safety and Auckland's West Coast Fishers – Final Report 2008**



## Preface and Acknowledgements

This report is the final evaluation of a 3-year collaborative project between the Auckland Regional Council (ARC), Surf Life Saving Northern Region (SLSN), and Watersafe Auckland Incorporated (WAI) entitled the *West Coast Rock Fishing Safety Pilot Project*.

The project was originally set up in October 2005 in response to a spate of rock-fishing fatalities on Auckland's rugged west coast in the previous six months. As a consequence of the success of the initial pilot project in the summer of 2006, recommendations to continue the rock fishing safety initiative for a further two years were acted upon and the safety advisory service was re-established for the summer seasons of 2007 and 2008.

Our thanks to the New Zealand Chinese Youth Trust and the Chinese New Settlers Services Trust for their liaison work and promotion of the project within the Chinese communities. The project team is again grateful for the contribution of ARC Cr Sandra Coney, whose advocacy and public liaison skills were an asset from the outset, and her unstinting support over the duration of the project a great morale booster.

The project would not have been possible without the enthusiasm and skills of Jo Davidson and Gina Tupou, ARC and Reg Phillips, ARC senior parks ranger; Melody Edwards, Dean Storey and Amber Williams (2006-07), Surf Life Saving Northern Region; and Teresa Stanley, WaterSafe Auckland. Special mention must be made of the leadership role of Stuart Leighton, ARC parks ranger who so ably managed the project over the three years.

Finally, a very special vote of thanks to the field officers, Owen Ta Yuan Lee, Tessie Chi-Huei Chen, James Lee, Jae Hee Ban, Philip So (2006-07) and Ivan (Ta-lien) Lee (2006-07) and new advisors, Lina (So Yun) Wang, Esther (Jung Yun) Wang, and Terman Luk. They again were the public face of the project who worked hard in often challenging circumstances with commitment and dedication to the task at hand.

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# Executive Summary

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## 1. Background

The Auckland Regional Council (ARC), WaterSafe Auckland Inc (WAI) and Surf Life Saving Northern Region (SLSNR) jointly conducted the final year of a 3-year project that built on the rock fishing safety campaign entitled *West Coast Fishing Safety* initiated in the summer of 2006 and developed in 2007 that addressed mounting concerns over the increasing number of fishing fatalities on Auckland's west coast. The purposes of this third phase of the project were threefold: 1) to continue the on-site rock fishing safety education promotion in 2006-07; 2) to determine the effect of the project on Auckland's west coast fishers' safety practices and beliefs and 3) to make recommendations for future rock fishing safety promotion based on the information obtained.

## 2. Methods

A cross sectional study of fishers at high risk locations on Auckland's west coast was undertaken at the end of the summer safety campaign in April 2008. A sample of 235 fishers voluntarily completed a written questionnaire that sought information on whether they had taken part in the 2006/07 campaign and if they were aware of the follow-up 2008 fishing safety promotion. The structured written questionnaire (see Appendix 1) was anonymous, designed to be completed on site and take a maximum of 10 minutes to complete. The questionnaire contained 13 questions, seven of which had been included in the 2006 survey. Two new introductory questions sought fishers opinion on the recently installed safety signage and the possible placement of angel rings (flotation aids) at high-risk sites.

## 3. Key Findings

(Important comments on findings are italicized)

### 4.1 Participant demographics:

- As was the case in 2006/07, the sample consisted of ten times as many males (males 86%, females 14%) and most were aged between 20-44 years (63%).

- Proportionally more Asian peoples (45%) and proportionally less European (29%) and Maori (14%) New Zealanders took part in the survey.
- One quarter (25%) of fishers were of recent residency (< 4 years).

#### 4.2 Awareness of the West Coast Fishing Safety Project

- Only one third of fishers (32%) reported that they had taken part in the West Coast Fishing Safety Project in 2006 and /or 2007.
- Of those who had taken part, most thought that the campaign had been highly successful/successful (76%) and a quarter felt that it had been slightly/not successful or did not know (24%).
- Less than two thirds of fishers (61%) reported that they were aware of the current 2007 West Coast Fishing Safety Project.
- Of these, one third (34%) identified the fishing advisors as their source of information. Other sources included television (29%), newspapers (27%), radio (23%), magazines (18%), and retail outlets (15%).
- Two thirds (65%) of fishers had seen the new on-site safety signage and, of these, 79% considered them to be *highly successful/successful*
- More than half (57%) considered the installation of angel rings at high risk sites to be *essential*, a further third (37%) thought they would be *useful*.

#### 4.3. Perceptions of Drowning Risk

- Three quarters of fishers (2008, 75%; 2006, 70%) again agreed that getting swept off rocks is likely to result in drowning. More believed that drowning was a constant threat to life when fishing from rocks (2008, 57%; 2006, 50%).
- One third of the 2008 cohort again thought that others were at greater risk than themselves (2008, 33%; 2006, 32%) and almost half considered that they were strong swimmers compared with others (2008, 49%; 2006, 46%).
- Slightly fewer disagreed that lifejackets made fishing safer (2008, 15%; 2006, 20%). Surprisingly, a slightly smaller proportion of fishers agreed that always wearing a lifejacket made fishing safer (2008, 67%; 2006, 71%) which is at odds with the more frequent self-reported use of lifejackets and observations by the Rock Fishing Advisors and lifeguards at the high risk sites throughout the summer period.
- Almost half of fishers still thought that their swimming ability would get them out of trouble (2008, 48%; 2006, 44%).

- Fewer Asian fishers (43%), recent residents (44%) and young fishers aged 16-29 years of age (46%) considered themselves to be strong swimmers.
- Almost half of the fishers felt that their local knowledge of the site where interviewed meant that they were unlikely to get into difficulties (2008, 45%; 2006, 50%)
- More than half still considered that their knowledge of the sea would help keep them safe (2008, 59%; 2006, 58%).
- *This continued confidence in their supposed knowledge of the site and the sea is a cause for concern given that for one third (31%) of the 2008 respondents it was their first visit to the site (compared with 36% in 2006).*
- *The confidence of many fishers in the protective value of their knowledge of New Zealand sea conditions may also in question given that one quarter (25%) of the fishers had lived in New Zealand for less than 4 years (compared with 42% in 2006).*

#### 4.4. Water Safety Behaviours of Fishers

- The most noticeable positive change in self-reported behaviour relates to the use of lifejackets or buoyancy aids. Fewer fishers reported never wearing a lifejacket/buoyancy aid (2008, 52%; 2006, 72%) and more reporting wearing them often (2008, 22%; 2006, 4%).
- *However, it is still a concern that more than half of fishers (53%) report never wearing any lifejacket/flotation aid. Clearly resistance to the use of lifejackets is still endemic among the rock fishing community.*
- *Of particular concern is that almost half (44%) of fishers in 2008 reported sometimes/often consuming alcohol when fishing. Further promotional work on the folly of mixing alcohol with fishing from rocks would appear prudent.*
- The apparent resistance to adopt safe attitudes and fishing behaviours is consistent throughout the 3-year duration of the project, although several mitigating factors may help explain the persistence of risky attitudes and behaviours among fishers.
- Firstly, the rock fishing community is predominantly male (2008, 86%, 2006, 92%) and other New Zealand studies have reported more unsafe water safety attitudes and risky behaviour among males when compared with females
- Secondly, in each successive year of the Project, almost two thirds (61% in both 2007 and 2008) of the respondents had not taken part in the previous year's study, which suggests that the fishing community is transient in

nature and newcomers may not have been exposed to the on-site promotion of fishing safety in preceding years.

- Thirdly, one third of the respondents were also first time users of the site where interviewed (2008, 31%, 2006, 36%) and thus may not have seen the recently installed safety signage.
- Fourthly, Auckland's west coast rock fishing community is consistently ethnically diverse with almost half of the respondents of Asian origin (2008, 45%, 2006, 49%) with a large proportion preferring to answer the non-English version of the questionnaire (2008, 32%, 2006, 24%).
- Fifthly, many of the respondents in each year of the study had lived for less than 4 years in New Zealand (2008, 25%, 2006, 42%).
- Any one of the above factors may make the task of changing risky attitudes and behaviour challenging. Taken collectively, the combined effects of a predominantly male population, transitory participation, infrequent visits to the fishing sites, English as a second language, and recent residency, offer strong reasons why changes in attitude and behaviour appear resistant to change

#### 4.5 Self-reported Changes in Fishers' Knowledge, Attitudes and Behaviours in the Previous Year

- Two thirds of fishers (69%) considered that their safety knowledge had improved in the past year, a small proportion (9%) thought that it had not
- Three quarters (74%) also considered that their safety attitudes had improved, though some (9%) considered that their attitude had not improved.
- More than two thirds (69%) reported that their own safety behaviour when fishing had improved.
- Two thirds thought that the safety behaviour of their mates (66%) and more than half (59%) thought other fishers had improved their safety behaviour.

## 5. Recommendations

In light of these findings, several recommendations are made. These are:

### 1. To the Auckland Regional Council (ARC):

- Given the transient nature of the rock fishing population and the persistence of risky attitudes and behaviours as reported, retain the services of the

- safety advisors for a 2009 summer campaign. Explore ways of maintaining a fishing safety presence on the west coast beyond 2009
- Given the ethnic diversity of the rock fishing population, retain the multilingual advisory service
  - Maintain a regional leadership role in the collaborative venture by allocating funds to support future fishing safety promotion, including the installation of angel rings and safety signage at high risk sites thereby affirming ARC's commitment to its mandate to maintain harbour and coastal safety
2. To WaterSafe Auckland, Surf Life Saving Northern and other safety organizations:
- Consider ways of addressing the concerns highlighted in this Report by reinforcing and extending the current provision of public safety information and resources.
  - Commit resources and personnel to the ongoing work collaboratively with all partners to promote best practice for West Coast fishing safety education beyond 2008.
  - Disseminate the findings of the study to member organizations, national water safety organisations, community organisations (especially migrant community organisations), recreational fishing groups and businesses and the public at large.
2. To recreational fishers, fishing clubs and fishing organizations:
- Learn and implement the fishing safety messages promoted by the West Coast Fishing Safety Project.
  - Encourage others in the rock fishing fraternity to adopt safe practices - especially the wearing of inflatable lifejackets when fishing at Auckland's high-risk west coast locations.
  - Support the work of frontline fishing advisors and lifeguards in their efforts to make rock fishing a safe and happy experience without undue risk for all concerned.

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# 1. Background

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Rock fishing is one of New Zealand's most dangerous pastimes. In the 16 years from 1980-1995, 63 people lost their lives while fishing off New Zealand's rugged coastline (Davies, 1996). More recently, 11 fatalities have occurred on Auckland's west coast from 1999-2005 prompting concerns both nationally and regionally for the targeted promotion of rock fishing safety advice (Moran, 2006). In response to these concerns, The Auckland Regional Council (ARC), WaterSafe Auckland Inc (WAI) and Surf Life Saving Northern Region (SLSNR) jointly conducted a rock fishing safety campaign entitled *West Coast Fishing Safety* in the summer of 2006 aimed at reducing the number of fishing fatalities on Auckland's rugged west coast.

The purpose of the campaign was twofold. Firstly, the campaign piloted a fishing safety education programme that would help fishers identify and manage the risks associated with fishing on Auckland's west coast. Secondly, the organisers conducted a survey of fishers towards the end of the summer campaign in order to enhance understanding of their fishing safety knowledge, beliefs and behaviours. The project has been unique in that the fishing safety education programme was conducted on-site at high-risk fishing locations with supplementary promotion of safety messages via the relevant media outlets of television and radio, newspapers and magazines as well as through retail outlets and community organisations. Furthermore, the programme is believed to be the first of its kind to utilize an 'action research' model that initially identified fishers safety beliefs and behaviours and then integrated the findings of the summative surveys (in 2006) into the subsequent prevention programme in the following year (in 2007) before again evaluating responses and again responding to them in the final year of the project (in 2008). For example, having recognized the gap between what fishers think and what they do with regards to the wearing of buoyancy aids at dangerous locations in the first year of the programme, subsequent promotions focused on the wearing of inflatable lifejackets and offered incentives to fishers to purchase lifejackets at reduced cost. In addition, in the final year of the project, fishers were asked their opinion on the installment of angel rings and safety signage at dangerous west coast fishing locations and their overwhelming support of such an intervention constitutes part of the recommendations of this final report. Details of the first two years of the project were published in reports entitled *Water Safety and Auckland's West Coast Rock Fishers* (Moran, 2006) and again the following year in a report entitled *Water Safety and Auckland's West Coast Rock Fishers: Follow-up study* (Moran, 2007a). In addition, the results of the initial 2006 study have been reported internationally at the *World Water Safety Conference* in Oporto, Portugal (Moran 2007b) and in the research literature via the *International Journal of Aquatic Research and Education* (Moran, 2008).

## **2. Purpose and Outcomes of the Study**

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### **2.1 Purpose**

The purposes of this third phase of the project were threefold:

- 1) To continue the on-site rock fishing safety education promotion initiated in 2006
- 2) To determine the effect of the project on Auckland's west coast fishers' safety practices and beliefs, and
- 3) To make recommendations for future rock fishing safety promotion based on the information obtained.

### **2.2 Outcomes**

The specific outcomes of this report are:

1. Ascertain the effect of on-site rock fishing safety promotion via the deployment of field officers during the summer months of 2006-2008,
2. Survey fishers to ascertain whether they had taken part in the 2006 and/or 2007 studies and, if so, what effect that safety campaign had had on their current understanding and practice of water safety when fishing from rocks,
3. Survey fishers opinions on the value of placing safety signage and angel ring floatation devices at high risk west coast fishing locations,
4. Compare and contrast:
  - a. fishers' perception of drowning risk,
  - b. their safety behaviour and
  - c. self-reported changes in knowledge, attitudes and behaviours, and,
5. Make recommendations and suggest future strategies that enhance fishers' understanding and practice of safety when fishing from rocks on Auckland's west coast.

## 3. Methods

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### 3.1 Preliminary Organisation

A follow-up report (Moran 2007) on the second year of the *West Coast Fishing Safety Project* was presented to representatives of the collaborating partners from WaterSafe Auckland Inc [WAI], the Auckland Regional Council [ARC] and Surf Life Saving Northern [SLSN], as well as to other water safety organizations, in May 2007. Recommendations from the report were accepted and all collaborating partners agreed to support a continuation of the project for 2008.

The original four Chinese-speaking field officers used in 2006 and two additional Korean-speaking advisors were employed as safety advisors and survey administrators. The same four well-known black spots for rock fishing fatalities were again targeted as key locations for disseminating safety advice and surveying rock fishers, these included Karekare, Piha, Whatipu and Muriwai. As in previous two years of the study, the latter two sites were visited more frequently because of their popularity among fishers.

### 3.2 Procedures

As was the case in 2007, the field officers ( $n = 6$ ) were trained to conduct all aspects of the fieldwork process from education to data collection and management. The field officers operated in pairs and were allocated to one of the four sites to be surveyed. The participants in the survey were all those who were either fishing from the chosen sites or in transit to and from the site. Rock fishing was again defined as not only fishing with rod and reel but also included activities that used other devices such as baskets or hand lines as well as those gathering shellfish from the rocks.

Given the large proportion of fishers of Asian origins previously reported (Moran, 2006, 2007), the questionnaire was again produced in English and Mandarin. To further assist non-English speaking Chinese/Taiwanese fishers, four of the field officers were fluent Chinese speakers. An additional two Korean speaking advisors were also employed in both the safety promotion and survey phases of the 2007 study. On the advice of the field advisors and based on language difficulties of some Korean participants in the 2007 survey, the 2008 survey was also produced in the Korean language as well as in Mandarin for the Chinese/Taiwanese participants.

Potential participants were approached, the purpose of the Project explained and a request to voluntarily participate in an anonymous written survey was made to all adult fishers over 16 years of age.

The water safety advice and survey data gathering took place during weekends between February and April in the summer of 2006 and included several peak holiday weekends. The sample did not therefore include fishers who used the four sites during the weekdays or at times outside of 'peak' hours (such as night fishing) or fishers who frequented other high-risk west coast locations.

### 3.3 Measures

The structured written questionnaire (see Appendix 1) was anonymous, designed to be completed on site and take a maximum of 10 minutes to complete. The questionnaire contained 13 questions, nine of which had been included in the 2007 survey. Five questions sought socio-demographic information on gender, length of residency, age, ethnicity, and their previous rock fishing activity.

Two questions on at-risk fishing behaviours and perceptions of drowning risk from the 2006/7 surveys were again included in order to compare fishing safety behaviours and attitudes. The question on behaviours asked fishers to self-report on six behaviours (for example, *when rock fishing, do you wear a lifejacket/buoyancy aid*) using four response categories *never, sometimes, often* and *always*. The question on attitudes consisted of 12 statements and required fishers to state whether they *strongly agreed, agreed, were unsure, disagreed, or strongly disagreed* with the statement. A five-part question asked fishers to estimate whether their knowledge, attitudes and behaviours (as well as that of fishing mates and other fishers) had improved in the intervening year by using three response categories - *agree, disagree* or *don't know*. Two new questions seeking information on whether fishers had seen new safety signage and what they thought about the placing of angel rings on west coast sites were included in the 2008 survey.

### 3.4 Data analysis

Data from the completed questionnaires were entered into Microsoft Excel 2003 for statistical analysis using SPSS Version 16.0 in Windows. Descriptive statistics such as means and proportions were used to describe the baseline characteristics of the population. Frequency tables were generated for all questions and, unless otherwise stated, percentages are expressed in terms of the number of respondents to each survey question within groups.

Data were analysed using a number of socio-demographic variables including gender, age length of residency and ethnicity. Mann Whitney *U* tests and Chi-square analyses were used to determine significant differences between dependent variables (such as behaviour and attitudes) and independent variables (such as gender and ethnicity).

## 4. Key Findings

The results of the survey are presented in five related sections:

### 4.1 Demographics of Fishers

All fishers at the sites chosen to survey were invited to take part in the survey but several declined. A total of 241 questionnaires were returned and, of these, 6(2.5%) were considered invalid because of incorrect completion and were excluded from the data analysis. Thus, the final database for this study included 235 adults who were interviewed while participating in rock fishing activity at popular locations on the west coast of Auckland at the end of the summer season of 2008. Analysis of respondents' age, gender, length of residency, and ethnicity indicated that the demographic structure of the sample reflected the findings of the 2006 and 2007 surveys (Moran, 2006, 2007).

Table 1. *Demographic Characteristics of Fishers Surveyed*

Demographic Characteristic		<i>n</i>	%	Total
Gender	Male	201	85.5	235 (100%)
	Female	34	14.5	
Ethnicity	European	68	28.9	235 (100%)
	Maori	33	14.0	
	Pasifika	22	9.4	
	Asian	105	44.7	
	Other	7	3.0	
Age group	16-24 years	16	6.8	235 (100%)
	20-29 years	77	32.8	
	30-44 years	71	30.2	
	45-64 years	60	25.5	
	65+ years	11	4.7	
Length of residency	< 1 year	19	8.1	235 (100%)
	1-4 years	40	17.0	
	5-9 years	61	26.0	
	>10 years	37	15.7	
	All my life	78	33.2	

As was the case in 2006 and 2007, the sample consisted of almost ten times as many males than females and most were aged between 20-44 years. In terms of ethnicity, proportionally more Asian peoples (45%;  $n = 105$ ) were included in the study whereas proportionally less European (29%;  $n = 68$ ) and Maori (14%;  $n = 33$ ) New Zealanders were included. One quarter (25%;  $n = 59$ ) of those surveyed were of recent residency (< 4 years). Further analysis of the ethnicity of respondents revealed a diverse range of backgrounds among Auckland's west coast rock fishers. Those who were broadly categorised in Table 2 as of Asian ethnicity, self-identified with six Asian region countries. The English language version of the 2008 survey was completed by two thirds of the fishers (68%;  $n = 159$ ) and 43 (18%) fishers

completed the Mandarin version, 33 (14%) fishers opted to complete the Korean language version of the survey.

Table 2. *Self-identified Ethnicity of Fishers*

<b>Ethnic group</b>	<b><i>n</i></b>	<b>%</b>	<b>Cumulative %</b>
European	68	28.9	28.9
Maori	33	14.0	43.0
Pasifika	22	9.4	52.3
Chinese/Taiwanese	52	22.1	74.5
Korean	35	14.9	89.4
Indian	11	4.7	94.0
Philippino	7	3.0	97.0
African/South African	4	1.7	98.7
Other European	3	1.3	100.0
<b>Total</b>	<b>235</b>	<b>100.0</b>	

Fishers were asked to describe how often they had fished at the location where they completed the questionnaire (see survey question 8, Appendix 1). Table 2 shows that, as was the case in 2006 and 2007, many of the fishers were not frequent visitors to the site, with almost one third (31%;  $n = 73$ ) reported that this was their first visit to the site and a further one third (32%;  $n = 75$ ) reported that they had visited the site 2-5 times. Cumulatively, almost two thirds (63%;  $n = 148$ ) had visited the site less than five times. Collectively, only one fifth (20%;  $n = 47$ ) of the fishers had visited the site more than 10 times, with one tenth (10%;  $n = 24$ ) having visited the site more than 20 times.

Table 3. *Fishing Frequency at Site and Other Places Fished*

<b>How often have you fished at this site?</b>	<b><i>n</i></b>	<b>%</b>	<b>Cumulative %</b>
First time at site	73	31.1	31.1
2-5 times	75	31.9	63.0
6-10 times	40	17.0	80.0
11-20 times	23	9.8	89.8
>20 times	24	10.2	100.0
<b>Where else have you fished?</b>	<b><i>n</i></b>		
Other Auckland west coast sites	33		
Northland	13		
Auckland Harbours (inc. Manukau, Waitemata)	26		
Inner Hauraki Gulf (inc. Whangaparoa, Maraetai etc)	19		
Outer Hauraki Gulf (inc. Coromandel, Great Barrier Island)	16		
Other New Zealand sites	8		

When asked where else they had fished from rocks (see survey question 5, Appendix 1), almost one half of the respondents reported fishing at other locations (see Table 3). Of these, 33 reported fishing at other Auckland west coast locations, or at Auckland's Manakau (n = 8) and Waitemata (n = 18) harbours. Other fishing sites reported being used in the previous year included inner Hauraki Gulf sites such as Whangaparoa, Maraetai, and Waiheke (n = 7), and outer Hauraki Gulf sites including Great Barrier Island and the Coromandel Peninsula (n = 13). A small number (n = 8) reported fishing further afield in other New Zealand coastal locations.

## 4.2 Awareness of West Coast Rock Fishing Safety Project

Two thirds of fishers (68%; n = 159) reported that they had not taken part in the 2006/2007 rock fishing safety surveys (see survey question 1, Appendix 1).

Table 4. *Participation in, and estimation of success of, the 2006/2007 Fishing Projects*

<b>Did you take part in the 2006 and/or 2007 rock fishing projects?</b>	<b>n</b>	<b>%</b>
Yes	76	32.3
No	159	67.7
Total	235	100.0
<b>If Yes, how successful do you think it was?</b>	<b>n</b>	<b>%</b>
Highly successful	21	27.6
Successful	37	48.7
Slightly successful	10	13.2
Not successful	2	2.6
Don't know	6	7.9
Total	76	100.0

Table 4 shows that, of the one third of participants (32%; n = 76) who had taken part in the previous two surveys, three quarters (76%; n = 58) considered that the campaign had been *highly successful/successful* compared with less than one quarter who either considered it *slightly/not successful* (16%; n = 12) or who *did not know* (8%; n = 6)

Fishers were also asked whether they were aware of the current safety project (see survey question 2, Appendix 1). Table 5 shows that almost two thirds of fishers (61%; n = 143) reported that they were aware of the current project. When those who were aware of the current project were asked how they had found out about the project, one third of the fishers (34%; n = 48) identified the fishing safety advisors as their source of information. Other sources of information, in descending order of frequency, included television (29%), newspapers (27%), radio (23%), magazines (18%), and retail outlets (15%). Other sources of information reported by fishers included signage (n = 4), pamphlets (n = 2), friends (n = 2) and the internet (n = 1).



Table 5. Are you aware of, and how did you find out about, the current (2008) project?

<b>Are you aware of the current (2008) project?</b>	<b><i>n</i></b>	<b>%</b>
Yes	143	60.9
No	92	39.1
Total	235	100.0
<b>If Yes, how did you find out about the current project?*</b>	<b><i>n</i></b>	<b>%</b>
Fishing safety advisors	48	33.6
Television	42	29.4
Newspapers	39	27.3
Radio	33	23.1
Magazines	26	18.2
Retail outlets	22	15.4
Other sources (signage, pamphlets, friends, internet)	8	5.6
Total	218*	

\*several fishers identified more than one source of information

As was the case in the previous year, most fishers (34%;  $n = 48$ ) had heard of the current safety promotion through the advisors, which again suggests the benefit of engaging staff for on-site safety promotion to a group that is characteristically diverse and who may be difficult to reach through traditional channels such as television, radio and magazines as indicated by the lesser recall of the current project via these channels (see Table 5).

Fishers were also asked whether they had seen the new safety signage put up on the dangerous fishing sites during 2007-08 (see survey question 9, Appendix 1) and asked their opinion of how effective they considered them to be. Two thirds of the respondents (65%;  $n = 153$ ) reported having seen the new safety signs and, of these, 79% ( $n = 121$ ) considered them to be *highly successful/successful*, 16% ( $n = 24$ ) considered them to be *slightly/not successful* and 3% ( $n = 8$ ) reported that they *did not know*. Fishers were also asked their opinion on the value of placing angel rings (flotation devices) at west coast fishing sites (see question 13, Appendix 2). More than half (57%;  $n = 135$ ) considered them to be *essential*, more than one third (37%;  $n = 86$ ) considered they *may be useful*, and a small proportion either thought they were *not necessary* (4%;  $n = 9$ ) or *did not know* (2%;  $n = 5$ ).

### 4.3 Fishers' perceptions of drowning risk

As was the case in the 2006 Rock Fishing Safety Project, fishers were asked to respond to a series of 12 statements relating to their perception of the risk of drowning associated with fishing from rocks (see survey question 10, Appendix 1). The question consisted of a 5-point scale that included the categories *strongly agree*, *agree*, *unsure*, *disagree* and *strongly disagree*. For ease of interpretation, the *strongly agree/agree* and *disagree/strongly disagree* responses were aggregated and subdivided into four separate tables. In addition, comparable data from the 2006 survey have been included and are reported in italics and parentheses in Tables 6-9 below.

Table 6 shows responses to statements 1-3 (Question 10) that relate to fisher perceptions of the severity of the risk of drowning when fishing from rocks (see Appendix 1 – survey questionnaire). Little change in the perception of severity of risk was evident in response to the first statement, with three quarters of fishers (2008, 75%; 2006, 70%) again agreeing that getting swept off rocks is likely to result in drowning. Almost half of the fishers believed that rock fishing was no more risky than other aquatic activities (2008, 48%; 2006, 41%) although more believed that drowning was a constant threat to life when fishing from rocks (2008, 57%; 2006, 50%).

Table 6. *Fishers' Perceptions of the Severity of Risk of Drowning, 2006-2008*

Do you think that-	Year	Strongly agree/ Agree		Unsure		Strongly disagree/ Disagree	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>1. Getting swept off the rocks is likely to result in my drowning</b>	2008	176	74.9	29	12.3	30	12.8
	<i>(2006)</i>	<i>(176)</i>	<i>(70.2)</i>	<i>(39)</i>	<i>(15.6)</i>	<i>(31)</i>	<i>(12.4)</i>
<b>2. Rock fishing is no more risky than other water activities</b>	2008	112	47.7	35	14.9	88	37.4
	<i>(2006)</i>	<i>(103)</i>	<i>(41.2)</i>	<i>(46)</i>	<i>(18.4)</i>	<i>(97)</i>	<i>(38.8)</i>
<b>3. Drowning is a constant threat to my life when rock fishing</b>	2008	133	56.6	37	15.7	64	27.3
	<i>(2006)</i>	<i>(126)</i>	<i>(50.0)</i>	<i>(45)</i>	<i>(18.0)</i>	<i>(75)</i>	<i>(30.0)</i>

When analysed by ethnicity, proportionally more Asian and Pasifika fishers than other ethnic groups thought it likely that they would drown if swept off rocks (76 and 77% respectively) or disagreed that rock fishing was no more risky than other aquatic activities (46% each) (See Table 4.3b, Appendix 2). When analysed by age group, the younger 16-29 year age group were more likely to perceive lesser risk of drowning than the older 30-44 and 45year+ year age groups. For example, fewer considered that getting swept off the rocks was likely to result in drowning (69% compared with 79% for each of the older age groups) (see Table 4.3c, Appendix 2). Few differences were evident when perceptions of the severity of the risk were analysed by length of residency (see Table 4.3d, Appendix 2).

Table 7 shows responses to statements 4-6 (Question 10) relating to fisher perceptions of their vulnerability to drowning when fishing from rocks (see Appendix 1 – survey questionnaire). Little change in the perception of vulnerability to drowning was evident in response to the three statements with most fishers disagreeing that they were not concerned about the risk of drowning (2008, 56%; 2006, 61%). Surprisingly, one third of the 2008 cohort again thought that others were at greater risk than themselves (2008, 33%; 2006, 32%). Table 7 also shows no changes were evident in the proportions of fishers who considered that they were strong swimmers compared with others (2008, 49%; 2006, 46%).

Table 7. *Fishers' Perceptions of their Vulnerability to Drowning, 2006-2008*

Do you think that-	Year	Strongly agree/ Agree		Unsure		Strongly disagree/ Disagree	
		n	%	n	%	n	%
4. I am not concerned about the risks of rock fishing	2008	64	27.2	40	17.0	131	55.8
	(2006)	(68)	(27.2)	(26)	(10.4)	(152)	(60.5)
5. Others rock fishers are at greater risk of drowning than me	2008	78	33.2	76	32.3	81	34.5
	(2006)	(81)	(32.4)	76	(30.4)	(89)	(35.6)
6. I am a strong swimmer compared with most other people	2008	115	48.9	53	22.6	67	28.6
	(2006)	(116)	(46.4)	48	(19.2)	82	(32.8)

When perceptions of vulnerability to drowning were analysed by ethnicity, age group and length of residency, fewer Asian fishers (43%), recent residents (44%) and young fishers aged 16-29 years of age (46%) considered themselves to be strong swimmers. In addition, more young fishers (16-29 years), those with recent residency (<4 years) and of Asian origin disagreed that other fishers were at greater risk of drowning than themselves (See Tables 4.3b, 4.3c and 4.3d, Appendix 2).

Table 8 shows responses to statements 7-9 (Question 10) relating to fisher perceptions of the efficacy of preventive action in reducing drowning risk when fishing from rocks (see Appendix 1 – survey questionnaire). As was the case in 2006, most fishers taking part in the 2008 survey responded positively to all three statements of the efficacy of preventive actions to reduce drowning risk (See Table 8). Responses to perceptions of the efficacy of avoiding fishing in bad conditions (2008, 84%; 2006, 86%) and not turning your back to the sea (2008, 87%; 2006, 92%) did not differ greatly. Slightly fewer disagreed that lifejackets made fishing safer (2008, 15%; 2006, 20%). Surprisingly, a slightly smaller proportion of fishers agreed that always wearing a lifejacket made fishing safer (2008, 67%; 2006, 71%) which is at odds with the more frequent use of lifejackets reported in Section 4.4 and observations by the Rock Fishing Advisors and lifeguards at the high risk sites throughout the summer period.

Table 8. *Fishers' Perceptions of the Efficacy of Preventive Action in Reducing Drowning Risk, 2006-2008*

Do you think that-	Year	Strongly agree/ Agree		Unsure		Strongly disagree/ Disagree	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
7. I avoid fishing in bad conditions to reduce the risk of drowning	2008	197	83.8	20	8.5	18	7.7
	(2006)	(219)	(85.8)	(10)	4.0	(17)	6.8
8. Always wearing a lifejacket makes fishing a lot safer	2008	158	67.2	42	17.9	35	14.9
	(2006)	(177)	(70.6)	(20)	(8.0)	(49)	(19.6)
9. Turning my back to the waves when rock fishing is very dangerous	2008	189	80.4	28	11.9	18	7.6
	(2006)	(229)	(91.8)	(14)	(5.6)	(3)	(1.2)

When perceptions of the efficacy of preventive action in reducing drowning risk were analysed by ethnicity, age group and length of residency, fewer fishers of European origin, older fishers (45+ years), and those who had lived in New Zealand more than 10 years thought that always wearing a lifejacket made fishing a lot safer (See Tables 4.3b, 4.3c and 4.3d, Appendix 2).

Table 9 shows responses to statements 10-12 (Question 10) relating to fisher perceptions of the self-efficacy of their preventive behaviours in reducing drowning risk when fishing from rocks (see Appendix 1 – survey questionnaire). As can be seen in Table 9, responses from the participants in 2008 to each of these three statements were similar to those of the fisher who took part in the 2006 survey.

Table 9. *Fishers' Perceptions of Self-efficacy of Preventive Behaviours in Reducing Drowning Risk, 2006-2008*

Do you think that -	Year	Strongly agree/ Agree		Unsure		Strongly disagree/ Disagree	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
10. My local knowledge of this site means I'm unlikely to get caught out	2008	106	45.1	52	22.1	77	32.8
	(2006)	(127)	(50.4)	(46)	(18.4)	(73)	(29.2)
11. My experience of the sea will keep me safe when rock fishing	2008	138	58.7	42	17.9	55	23.4
	(2006)	(144)	(57.8)	(51)	(20.4)	(51)	(20.4)
12. My swimming ability means I can get myself out of trouble	2008	113	48.1	45	19.1	77	32.8
	(2006)	(110)	(44.0)	(56)	(22.4)	(80)	(32.0)

Almost half of the fishers felt that their local knowledge of the site where interviewed meant that they were unlikely to get into difficulties (2008, 45%; 2006, 50%) and over half in both

surveys considered that their knowledge of the sea would help keep them safe (2008, 59%; 2006, 58%). In addition, almost half of fishers still thought that their swimming ability would get them out of trouble (2008, 48%; 2006, 44%).

However, this continued confidence in their supposed knowledge of the site and the sea is a cause for concern given that for one third (31%) of the 2008 respondents it was their first visit to the site (compared with 36% in 2006). In addition, Table 3 shows that two thirds (63%) of fishers had visited the site less than five times, very similar to the proportions found in 2006 (69%) which again suggests that many fishers are unlikely to be as knowledgeable about the site as they imagine themselves to be. Furthermore, the confidence of many fisher in the protective value of their knowledge of New Zealand sea conditions may also be in question given that more than one quarter (25%) of the fishers had lived in New Zealand for less than 4 years (compared with 42% in 2006). As was the case in the 2006 and 2007 evaluations, it would appear that fishers' beliefs in the protective value of their local and general knowledge of site and sea have not changed in the intervening years. It is again possible that overconfidence in their ability to identify hazards and manage the potentially dangerous conditions inherent at many of these high-risk sites may exacerbate their risk of drowning. Further emphasis in future fishing safety promotion on the dangers of underestimation of risk and overestimation of ability may help address these entrenched attitudes.

When perceptions of the self-efficacy of their preventive behaviours in reducing drowning risk when fishing from rocks were analysed by ethnicity, age group and length of residency, Maori fishers (76%) were most likely and Asian fishers (36%) least likely to consider that their experience of the sea would keep them safe and that their swimming ability would get them out of trouble (Maori, 64%, Asian 30%) (See Table 4.3b, Appendix 2). Similarly, fishers in the 45+ years age groups were more likely than 16-29 and 30-44 year age groups to agree that their experience would keep them safe (65% compared with 56% for both groups (See Table 4.3c, Appendix 2).

## 4.4 Water Safety Behaviours of Fishers

Fishers were asked to report previous water safety behaviours (see survey question 11, Appendix 1) using a four-point frequency scale including *never*, *sometimes*, *often* and *always* in order to describe whether they had performed at-risk behaviours when fishing from rocks. Because there were relatively few *always* responses the latter two responses were aggregated and are reported in the tables and text as *often* (see Table 10).

Table 10 shows the self-reported fishing behaviours in 2008 compared with 2006 results (italicized and in parentheses). The most noticeable positive change in self-reported behaviour relates to the use of lifejackets or buoyancy aids. Fewer fishers reported *never* wearing a lifejacket/buoyancy aid (2008, 52%; 2006, 72%) and more reporting wearing them *often* (2008, 22%; 2006, 4%). This positive change in self-reported behaviour was reinforced by observation of greater use of buoyancy aids reported by the Advisors in the Project debrief at the end of the 2008 summer season.

Table 10. *Fishers' Self-reported Water Safety Behaviours, 2006, 2008*

When rock fishing, do you -	Year	Never		Sometimes		Often	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Wear a lifejacket or other flotation device	2008	121	51.5	62	26.4	52	22.1
	<i>(2006)</i>	<i>(180)</i>	<i>(72.0)</i>	<i>(58)</i>	<i>(23.2)</i>	<i>(11)</i>	<i>(4.4)</i>
Turn your back to the sea when fishing	2008	124	52.8	88	37.4	23	9.8
	<i>(2006)</i>	<i>(146)</i>	<i>(58.4)</i>	<i>(90)</i>	<i>(36.0)</i>	<i>(13)</i>	<i>(5.2)</i>
Wear gumboots or waders	2008	131	55.7	65	27.7	39	16.6
	<i>(2006)</i>	<i>(159)</i>	<i>(63.6)</i>	<i>(58)</i>	<i>(23.2)</i>	<i>(32)</i>	<i>(12.8)</i>
Drink alcohol when you are fishing	2008	131	55.7	65	27.7	39	16.6
	<i>(2006)</i>	<i>(200)</i>	<i>(80.0)</i>	<i>(39)</i>	<i>(15.6)</i>	<i>(10)</i>	<i>(4.0)</i>
Take a cell phone in case of emergencies	2008	19	8.1	35	14.9	181	77.0
	<i>(2006)</i>	<i>(24)</i>	<i>(9.6)</i>	<i>(33)</i>	<i>(13.2)</i>	<i>(192)</i>	<i>(76.6)</i>
Check weather/water conditions first	2008	23	9.8	44	18.7	168	71.5
	<i>(2006)</i>	<i>(11)</i>	<i>(4.4)</i>	<i>(40)</i>	<i>(16.0)</i>	<i>(198)</i>	<i>(79.6)</i>
Go down rocks to retrieve snagged line	2008	120	51.1	80	34.0	35	14.9
	<i>(2006)</i>	<i>(129)</i>	<i>(51.6)</i>	<i>(95)</i>	<i>(38.0)</i>	<i>(25)</i>	<i>(10.0)</i>

The most noticeable negative change in self-reported behaviour in the 2008 survey related to the consumption of alcohol, with fewer fishers reporting *never* drinking alcohol (2008, 56%; 2006, 80%) and more reporting *often* drinking alcohol when fishing (2008, 17%; 2006, 4%)

Perhaps surprisingly, given the amount of publicity of fishing safety in the preceding two years of the Project, other self-reported risky behaviours did not differ significantly. Table 10 shows that slightly fewer fishers reported *never* turning their back to the sea (2008, 53%; 2006, 58%) and *never* wearing gumboots or waders (2008, 56%; 2006, 64%). Similar proportions reported *never* going down the rock to the water to retrieve snagged fishing lines (2008, 51%; 2006, 52%) and *never* taking a cell phone in case of emergencies (2008, 8%; 2006, 10%). Slightly more fishers reported that they *never* or only *sometimes* checked the weather/water conditions beforehand (2008, 29%; 2006, 20%).

While the positive change in behaviour related to the use of flotation devices, one of the key safety messages of the 2008 fishing safety promotion, is gratifying for participating organisations, it is still a concern that more than half of fishers (52%) report *never* wearing any lifejacket/buoyancy aid. Resistance to the use of buoyancy aids at high-risk fishing sites, even the inflatable type recommended because of their less intrusive design than traditional lifejackets, would appear to still be endemic among the rock fishing community. As was suggested in the 2007 Report (Moran, 2007), further exposure to the sight of fishers wearing inflatable jackets at high-risk locations, publicity about the convenience and survival benefits of such jackets, and the sale of jackets at reduced prices should all continue to be strategies in future on-site fishing safety campaigns.

The apparent resistance to adopt safe attitudes and fishing behaviours is consistent throughout the 3-year duration of the project, although several mitigating factors may help explain the persistence of risky attitudes and behaviours among fishers. Firstly, the rock fishing community is predominantly male (2008, 86%, 2006, 92%) and other New Zealand studies have reported more unsafe water safety attitudes and risky behaviour among males when compared with females (McCool, Moran, Ameratunga & Robinson, 2008, among adult beachgoers; Gulliver & Begg, 2005, among young adults; Moran, 2008, among youth). Secondly, in each successive year of the Project, almost two thirds (61% in both 2007 and 2008) of the respondents had not taken part in the previous year's study, which suggests that the fishing community is transitory in nature and newcomers may not have been exposed to the on-site promotion of fishing safety in preceding years. Thirdly, one third of the respondents were also first time users of the site where interviewed (2008, 31%, 2006, 36%) and thus may not have seen the recently installed safety signage. Fourthly, Auckland's west coast rock fishing community is consistently ethnically diverse with almost half of the respondents of Asian origin (2008, 45%, 2006, 49%) with a large proportion preferring to answer the non-English version of the questionnaire (2008, 32%, 2006, 24%). Fifthly, many of the respondents in each year of the study had lived for less than 4 years in New Zealand (2008, 25%, 2006, 42%). Any one of the above factors may make the task of changing risky attitudes and behaviour challenging. Taken collectively, the combined effects of a predominantly male population, transitory participation, infrequent visits to the fishing sites, English as a second language, and recent residency, offer strong reasons why changes in attitude and behaviour appear resistant to change.

## 4.5. Changes in Fishers' Knowledge, Attitudes and Behaviours in the previous year

Fishers were asked to estimate whether their fishing safety knowledge, attitudes and behaviour and that of their mates and other fishers had improved in the previous year (see question 11, Appendix 1). Table 11 shows that more than, in 2008 two thirds of fishers (69%) considered that their safety knowledge had improved in the past year, a small proportion (9%) thought that it had not improved and more than one fifth (22%) didn't know whether it had improved. Three quarters (74%) also considered that their safety attitudes had improved, though some (9%) considered that their attitude had not improved. Substantially more fishers in 2008 thought that their safety behaviour when fishing had improved (2008, 69%; 2007, 53%).

*Table 11. Self-Reported Changes in Fishers' Safety Knowledge, Attitudes and Behaviours*

In the past year -		Agree		Disagree		Don't know		Total	
		n	%	n	%	n	%	n	%
Your rock fishing safety knowledge has improved?	2008	163	69.4	21	8.9	51	21.7	235	100.0
	2007	71	63.4	7	6.3	34	30.4	112	100.0
Your rock fishing safety attitude has improved?	2008	174	74.0	21	8.9	39	16.6	235	100.0
	2007	70	62.5	10	8.9	32	28.6	112	100.0
Your rock fishing safety behaviour has improved?	2008	163	69.4	24	10.2	48	20.4	235	100.0
	2007	59	52.7	17	15.2	36	32.1	112	100.0
Your mates rock fishing behaviour has improved?	2008	155	66.0	20	8.5	60	25.5	235	100.0
	2007	59	52.7	8	7.1	45	40.2	112	100.0
Other rock fisher's behaviour has improved?	2008	139	59.1	20	8.5	76	32.3	235	100.0
	2007	61	54.5	9	8.0	42	37.5	112	100.0

To ascertain whether there had been an overall improvement in safety behaviour among the fishing community, fishers were asked to indicate whether they thought the safety behaviour of friends or other rock fishers had improved. Table 11 shows that more participants in 2008 compared with the previous year thought that the safety behaviour of their mates (2008, 66%; 2007, 53%) or other fishers (2008, 59%; 2007, 55%) had improved.

Three quarters (73%) of fishers who self-identified as Pacific Islanders or as European (79%) thought that their fishing safety knowledge had improved compared with Maori (69%), Asian (63%) and other ethnic groups (57%). They were also more likely to report that their safety behaviour (82% and 77%) when fishing had improved (See Table 4.5b Appendix 2).



When analysed by age group, older fishers in the 30-44 and 45+ years were more likely to report an improvement in knowledge than the younger 16-29 year age groups (73% and 72% compared with 65% for the younger group). They were also more likely to report improvements in their personal safety attitudes and behaviours (see Table 4.5c Appendix 2).

When analysed by length of residency, no significant differences were found between short (<4 years) and long-term residents (>5 years), although those more fishers who had been resident for >10 years considered that their personal fishing safety knowledge, attitudes and behaviours had improved in the previous year (See Table 4.5d, Appendix 2).

## 5. Recommendations

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In light of these findings, several recommendations are made. These are:

### 1. To the Auckland Regional Council (ARC):

- Given the transient nature of the rock fishing population and the persistence of risky attitudes and behaviours as reported, retain the services of the safety advisors for a 2009 summer campaign. Explore ways of maintaining a fishing safety presence on the west coast beyond 2009
- Given the ethnic diversity of the rock fishing population, retain the multilingual advisory service
- Maintain a regional leadership role in the collaborative venture by allocating funds to support future fishing safety promotion, including the installation of angel rings and safety signage at high risk sites thereby affirming ARC's commitment to its mandate to maintain harbour and coastal safety

### 2. To WaterSafe Auckland, Surf Life Saving Northern and other safety organizations:

- Consider ways of addressing the concerns highlighted in this Report by reinforcing and extending the current provision of public safety information and resources.
- Commit resources and personnel to the ongoing work collaboratively with all partners to promote best practice for West Coast fishing safety education beyond 2008.
- Disseminate the findings of the study to member organizations, national water safety organisations, community organisations (especially migrant community organisations), recreational fishing groups and businesses and the public at large.

### 3. To recreational fishers, fishing clubs and fishing organizations:

- Learn and implement the fishing safety messages promoted by the West Coast Fishing Safety Project.
- Encourage others in the rock fishing fraternity to adopt safe practices - especially the wearing of inflatable lifejackets when fishing at Auckland's high-risk west coast locations.
- Support the work of frontline fishing advisors and lifeguards in their efforts to make rock fishing a safe and happy experience without undue risk for all concerned.

## References

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# 7. Appendix

**7.1 Appendix 1 - The survey questionnaire**

**7.2 Appendix 2 – Additional frequency tables**

## Rock-Fishing in Auckland: 2006-2008

In 2006, a pilot study asked Auckland's west coast rock fishers their opinions on rock fishing water safety. This follow-up survey is designed to gather further information from you about your current views. Many of the questions ask you about the possible dangers of fishing from rocks and your opinions on rock fishing safety.

Most questions offer a range of responses, for these questions there are no right or wrong answers – an answer is correct if it is true for you.

Please do not take too long over each question – normally your first answer is best. Please be honest in your responses, the survey is voluntary and anonymous so no names will ever be known.

If you have any queries about the survey please ask the researcher who will be happy to assist you.

### Did you take part in the Auckland west

#### 1. coast rock-fishing project in the past two years?

Yes  No

#### If Yes, do you think the pilot project was:

- Highly successful  
 Successful  
 Slightly successful  
 Not successful  
 Don't know

#### 2. Are you aware of the current rock fishing safety promotion in Auckland?

Yes  No

#### If Yes, how do you know about it?

- Radio  
 Television  
 Rock fishing advisors  
 Newspapers  
 Magazines  
 Retail outlets (eg fishing shops, gas stations)  
 Other

#### 3. Are you?

Male  Female

#### 4. How old are you?

- 15-19 years  
 20-29 years  
 30-44 years  
 45-64 years  
 65+years

#### 5. Where else have you fished in the last year?

#### 6. How would you best describe yourself?

- European New Zealander  
 Maori  
 Pasifika  
 Chinese/Taiwanese  
 Korean  
 Indian  
 Other,

#### 7. How long have you lived in New Zealand?

- Less than 1 year  
 Between 1-4 years  
 Between 5-9 years  
 More than 10 years  
 All my life

#### 8. How often have you fished at this location?

- This my first time  
 Between 2-5 times  
 Between 6-10 times  
 Between 11-20 times  
 More than 20 times

#### 9. Have you seen the new fishing safety signage on the west coast?

Yes  No

#### If Yes, do you think it is -

- Highly successful  
 Successful  
 Slightly successful  
 Not successful  
 Don't know

(PLEASE TURN OVER)

**10. Do you think that-**

	<b>Strongly Agree</b>	<b>Agree</b>	<b>Unsure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1 - Getting swept off the rocks while fishing is likely to result in my drowning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 - Rock fishing is no more risky than other water activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 - Drowning is a constant threat to my life when rock fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 - I am not concerned about the risks of rock fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 - Other fishers are at greater risk of drowning than me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 - I am a strong swimmer compared with most other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 - I avoid fishing in bad conditions to reduce the risk of drowning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 - Always wearing a lifejacket makes rock fishing a lot safer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 - Turning my back to the waves when rock-fishing is very dangerous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 - My local knowledge of this site means I'm unlikely to get caught out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 - My experience of the sea will keep me safe when rock fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 - My swimming ability means I can get myself out of trouble	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**11. When rock fishing, do you –**

	<b>Never</b>	<b>Sometimes</b>	<b>Often</b>	<b>Always</b>
1 Wear a lifejacket/buoyancy aid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Check weather forecast beforehand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Drink alcohol when fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Wear gumboots or waders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Turn your back on the sea	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Take a cell phone in case of emergencies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Go down the rocks to retrieve snagged line	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**12. Do you believe that:**

	<b>Agree</b>	<b>Disagree</b>	<b>Don't know</b>
1 My knowledge of rock fishing safety has improved in the past two years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 My practice of rock fishing safety has improved in the past two years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 My attitudes towards rock fishing safety have improved in the past two years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 My rock fishing mates seem more safety conscious in the past two years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Other rock fishers around me seem more safety conscious in the past two years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**13. Finally, do you think putting angel rings (flotation aids) on west coast fishing locations is -**

(Fishing Safety Advisor has a picture if you're not sure what they are)

	<b>Essential</b>	<b>May be useful</b>	<b>Not necessary</b>	<b>Don't know</b>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Thank you for taking part in the survey, please return this form to the Fishing Safety Advisor**



## 7.2. Appendix 2: Additional Tables of Results

### Question 10. Fishers perceptions of risk of drowning

(See Section 4.3 of the Key Findings)

Table 4.3a. Fishers' Perceptions of risk of drowning when fishing from rocks

Do you think that -	Strongly agree/ Agree		Unsure		Strongly disagree/ Disagree	
	n	%	n	%	n	%
Getting swept off the rocks is likely to result in my drowning	176	74.9	29	12.3	30	12.8
Rock fishing is no more risky than other water activities	112	47.7	35	14.9	88	37.4
Drowning is a constant threat to my life when rock fishing	134	57.0	37	15.7	54	27.3
I am not concerned about the risks of rock fishing	64	27.3	40	17.0	131	55.8
Others rock fishers are at greater risk of drowning than me	78	33.2	76	32.3	81	34.5
I am a strong swimmer compared with most other people	115	48.9	53	22.6	67	28.5
I avoid fishing in bad conditions to reduce the risk of drowning	197	83.8	20	8.5	18	7.7
Always wearing a lifejacket makes fishing a lot safer	158	67.2	42	17.9	35	14.9
Turning my back to the waves when rock fishing is very dangerous	189	80.4	28	11.9	18	7.7
My local knowledge of this site means I'm unlikely to get caught out	106	45.1	52	22.1	77	32.8
My experience of the sea will keep me safe when rock fishing	138	58.7	42	17.9	55	23.4
My swimming ability means I can get myself out of trouble	113	48.1	45	19.1	77	32.8

Table 4.3b. Fishers' Perceptions of Drowning Risk by Ethnicity

Do you think that -	Strongly agree/agree					Strongly disagree/disagree				
	Eur n/%	Maori n/%	Pac n/%	Asian n/%	Other n/%	Eur n/%	Maori n/%	Pac n/%	Asian n/%	Other n/%
Getting swept off the rocks is likely to result in my drowning	51 75.0	23 69.7	17 77.3	80 76.2	5 71.4	9 13.2	6 18.2	3 13.6	11 10.5	1 14.3
Rock fishing is no more risky than other water activities	34 50.0	19 57.6	9 40.9	47 44.8	3 42.9	25 36.8	11 33.3	10 45.5	39 45.5	3 42.9
Drowning is a constant threat to my life when rock fishing	37 54.4	17 51.5	12 54.5	65 61.9	2 28.6	22 32.4	7 21.2	6 27.3	25 23.8	4 57.1
I am not concerned about the risks of rock fishing	21 30.9	9 27.3	8 36.4	25 23.8	1 14.3	39 57.4	16 48.5	8 36.4	64 61.0	4 57.1
Others rock fishers are at greater risk of drowning than me	20 29.1	12 36.4	14 63.6	31 29.5	1 14.3	30 44.1	9 27.3	4 18.2	65 61.9	4 57.1
I am a strong swimmer compared with most other people	37 54.4	20 60.6	11 50.0	45 42.9	2 28.6	18 26.5	4 12.1	4 18.2	39 37.1	2 28.6
I avoid fishing in bad conditions to reduce the risk of drowning	59 86.8	29 87.9	16 72.7	86 81.9	7 100.0	5 7.4	2 6.1	3 13.6	8 76.0	0 0.0
Always wearing a lifejacket makes fishing a lot safer	35 51.5	23 69.7	17 77.3	78 74.3	5 71.4	17 25.0	6 18.2	2 9.1	10 9.5	0 0.0
Turning my back to the waves when rock fishing is very dangerous	60 88.2	23 69.7	19 86.4	91 86.7	6 85.7	5 7.4	3 9.1	2 9.1	6 5.7	1 14.3
My local knowledge of this site means I'm unlikely to get caught out	32 47.1	15 45.5	12 36.4	29 27.6	5 71.4	26 38.2	11 33.3	3 13.6	35 33.3	2 28.6
My experience of the sea will keep me safe when rock fishing	38 55.9	25 75.8	15 68.2	38 36.1	7 100.0	14 20.6	3 9.1	2 9.1	36 34.3	0 0.0
My swimming ability means I can get myself out of trouble	35 51.5	21 63.6	13 59.1	41 39.0	3 42.9	22 32.4	7 21.2	5 22.7	42 40.0	1 14.3

Note: *Unsure* responses not included

Table 4.3c. Fishers' Perceptions of Drowning Risk by Age Group

Do you think that -	Strongly agree/agree			Strongly disagree/disagree		
	16-29 yrs	30-44 yrs	45yrs+	16-29 yrs	30-44 yrs	45yrs+
	n/%	n/%	n/%	n/%	n/%	n/%
Getting swept off the rocks is likely to result in my drowning	64 68.8	56 78.9	56 78.9	14 15.1	6 8.5	10 14.1
Rock fishing is no more risky than other water activities	38 40.9	36 50.7	38 53.5	39 41.9	32 45.1	47 66.2
Drowning is a constant threat to my life when rock fishing	41 44.1	50 70.4	42 59.2	30 32.3	14 19.7	20 28.2
I am not concerned about the risks of rock fishing	29 31.2	17 23.9	18 25.4	47 50.5	47 66.2	36 50.7
Others rock fishers are at greater risk of drowning than me	33 35.5	21 29.6	24 33.8	36 38.7	21 29.6	17 23.9
I am a strong swimmer compared with most other people	43 46.2	37 52.1	35 49.3	27 29.0	21 29.6	19 26.8
I avoid fishing in bad conditions to reduce the risk of drowning	75 80.6	68 90.1	58 81.7	8 8.6	3 4.2	7 9.9
Always wearing a lifejacket makes fishing a lot safer	61 65.6	51 71.8	46 64.8	11 10.8	11 15.5	13 18.3
Turning my back to the waves when rock fishing is very dangerous	73 77.4	57 80.3	60 84.5	11 10.8	4 5.6	3 4.2
My local knowledge of this site means I'm unlikely to get caught out	39 41.9	32 45.0	35 49.3	30 32.3	24 33.8	25 32.4
My experience of the sea will keep me safe when rock fishing	52 55.9	40 56.3	46 64.8	24 25.8	18 25.4	13 18.3
My swimming ability means I can get myself out of trouble	51 54.8	35 49.3	27 38.0	30 32.3	23 32.4	24 33.8

Note: *Unsure* responses not included

Table 4.3d. Fishers' Perceptions of Drowning Risk by Length of Residency

Do you think that -	Strongly agree/agree			Strongly disagree/disagree		
	< 4 yrs	5-9 yrs	10yrs+	< 4 yrs	5-9 yrs	10yrs+
	n/%	n/%	n/%	n/%	n/%	n/%
Getting swept off the rocks is likely to result in my drowning	43 72.9	50 82.0	84 73.0	7 11.9	5 8.2	18 15.7
Rock fishing is no more risky than other water activities	25 42.4	17 27.9	55 47.8	23 39.0	20 32.8	45 39.1
Drowning is a constant threat to my life when rock fishing	35 59.3	42 68.9	56 48.7	18 30.5	11 23.0	35 30.4
I am not concerned about the risks of rock fishing	12 20.3	17 27.9	35 30.4	35 59.3	39 63.9	57 49.6
Others rock fishers are at greater risk of drowning than me	14 23.7	20 32.8	44 38.3	27 45.8	18 29.5	36 31.3
I am a strong swimmer compared with most other people	26 44.1	30 49.2	59 51.3	21 35.6	19 31.1	27 23.5
I avoid fishing in bad conditions to reduce the risk of drowning	50 84.7	49 80.3	98 85.2	4 6.8	5 8.2	9 7.8
Always wearing a lifejacket makes fishing a lot safer	38 64.4	49 80.3	71 61.7	7 11.9	4 6.6	24 20.9
Turning my back to the waves when rock fishing is very dangerous	43 72.9	49 80.3	97 84.3	6 10.2	4 6.6	7 6.1
My local knowledge of this site means I'm unlikely to get caught out	25 42.4	24 39.3	57 49.6	20 33.9	22 36.1	35 30.4
My experience of the sea will keep me safe when rock fishing	35 59.3	27 44.3	76 66.1	16 27.1	24 39.3	15 13.0
My swimming ability means I can get myself out of trouble	25 42.4	23 39.0	65 56.5	19 32.2	27 44.3	31 27.0

Notes: *Unsure* responses not included



## Question 11. Self-reported behaviours of fishers

(See Section 4.4 of the Key Findings)

Table 4.4a. *Water Safety Behaviours of Fishers*

When fishing from rocks, do you	Never		Sometimes		Often		Always	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Wear a lifejacket or other flotation device	121	51.5	62	26.4	32	13.6	20	8.5
Turn your back to the sea when fishing off rocks	124	52.8	88	37.4	15	6.4	8	3.4
Wear gumboots or waders when fishing off rocks	131	55.7	65	27.7	21	8.9	18	7.7
Drink alcohol when you are fishing	148	63.2	61	26.1	16	6.8	9	3.8
Take a cell phone in case of emergencies	19	8.1	35	14.9	46	19.6	135	57.4
Check weather/water conditions first	23	9.8	44	18.7	58	24.7	110	46.8
Go down rocks to retrieve snagged lines	120	51.1	80	34.0	19	8.1	16	6.8

Table 4.4b. *Water Safety Behaviours of Fishers by Ethnicity*

When fishing from rocks, do you –	Never					Sometimes					Often				
	Eur <i>n</i> / %	Ma <i>n</i> / %	Pac <i>n</i> / %	Asia <i>n</i> / %	Other <i>n</i> / %	Eur <i>n</i> / %	Ma <i>n</i> / %	Pac <i>n</i> / %	Asia <i>n</i> / %	Other <i>n</i> / %	Eur <i>n</i> / %	Ma <i>n</i> / %	Pac <i>n</i> / %	Asia <i>n</i> / %	Other <i>n</i> / %
Wear a lifejacket or other flotation device	42 61.8	18 54.5	7 31.8	51 48.6	3 42.9	15 22.1	5 15.2	6 27.3	33 31.4	3 42.9	11 16.2	10 30.3	9 30.9	21 20.0	1 14.3
Turn your back to the sea when fishing	31 45.6	18 54.5	12 54.5	57 54.3	6 85.7	33 48.5	9 27.3	6 27.3	39 37.1	1 14.3	4 5.9	6 18.2	4 18.2	9 8.6	0 0.0
Wear gumboots or waders	52 76.5	21 63.6	9 40.9	45 42.8	4 57.1	11 16.2	8 24.2	3 13.6	41 39.1	2 28.6	5 7.4	4 12.1	10 45.5	19 18.1	1 14.3
Drink alcohol when you are fishing	33 48.5	13 40.6	17 77.3	78 74.3	7 100.0	28 41.2	8 25.0	3 13.6	22 21.0	0 0.0	7 10.2	11 34.3	2 9.1	5 4.8	0 0.0
Take a cell phone in case of emergencies	1 1.5	6 18.2	0 0.0	9 8.8	2 28.6	6 8.8	6 18.2	3 13.6	19 18.1	1 14.3	61 89.7	21 63.6	19 86.4	76 72.4	4 57.1
Check weather/water conditions first s	2 2.9	7 21.2	0 0.0	14 26.6	0 0.0	17 25.0	6 18.2	3 13.6	17 16.2	1 14.3	49 72.1	20 60.6	19 86.4	74 70.5	6 85.7
Go down rocks to retrieve snagged lines	32 47.1	14 42.4	10 45.5	60 57.1	4 57.1	29 42.6	11 33.3	9 40.9	29 27.6	2 28.6	7 10.3	8 24.2	3 13.6	16 15.2	0 0.0

Table 4.4c. *Water Safety Behaviours of Fishers by Age Group*

When fishing from rocks, do you -	Never			Sometimes			Often		
	16-29	30-44	45-64	16-29	30-44	45-64	16-29	30-44	45-64
	n/%	n/%	n/%	n/%	n/%	n/%	n/%	n/%	n/%
Wear a lifejacket or other flotation device	53 57.0	32 45.1	36 50.7	23 24.7	19 76.8	20 28.2	17 18.3	20 28.2	15 21.1
Check weather/water conditions first	10 10.8	7 10.0	6 8.5	27 29.0	9 12.7	6 8.5	56 60.2	55 77.5	57 80.3
Drink alcohol when you are fishing	46 49.5	47 66.2	55 77.5	33 35.5	18 25.4	11 15.5	14 15.1	6 8.5	5 7.0
Wear gumboots or waders	51 54.8	38 53.5	42 59.2	27 29.0	24 33.8	14 19.7	15 16.1	9 12.7	15 21.1
Turn your back to the sea when fishing	41 44.1	38 53.5	45 63.4	44 47.3	26 28.0	18 25.4	8 8.6	7 9.9	8 11.3
Take a cell phone in case of emergencies	5 53.4	6 8.5	8 11.3	16 17.2	8 11.3	11 15.5	72 77.4	57 80.3	52 73.2
Go down rocks to retrieve snagged lines	43 46.2	41 57.7	36 50.7	32 34.4	25 35.2	23 19.4	18 19.4	5 7.0	12 16.9

Table 4.4d. *Water Safety Behaviours of Fishers by Length of Residency*

When fishing from rocks, do you -	Never			Sometimes			Often		
	< 4 yrs	5-9 yrs	10 yrs+	< 4 yrs	5-9 yrs	10 yrs+	< 4 yrs	5-9 yrs	10 yrs+
	n/%	n/%	n/%	n/%	n/%	n/%	n/%	n/%	n/%
Wear a lifejacket or other flotation device	30 50.8	32 52.5	59 51.3	16 27.1	15 24.6	31 27.0	13 22.0	14 23.0	25 21.7
Check weather/water conditions first	3 4.1	9 14.8	11 9.6	11 18.6	9 14.8	24 20.9	45 76.3	43 70.5	80 69.6
Drink alcohol when you are fishing	44 74.6	47 77.0	57 49.6	13 22.0	12 11.7	36 31.3	2 3.4	2 3.2	21 18.3
Wear gumboots or waders	31 52.5	27 44.3	73 63.5	16 27.1	24 39.3	25 63.0	12 20.3	10 16.4	17 14.8
Turn your back to the sea when fishing	35 59.3	32 52.5	57 49.6	22 32.3	22 36.1	44 38.3	2 3.4	7 11.5	14 12.2
Take a cell phone in case of emergencies	5 8.5	6 9.8	8 7.0	10 17.0	6 9.8	19 16.5	44 74.6	49 80.3	88 76.5
Go down rocks to retrieve snagged lines	36 61.0	36 59.0	48 41.7	15 25.4	18 29.3	47 40.9	8 13.6	7 11.5	20 17.4

## Question 12. Perceived Changes in Water Safety Knowledge, Attitudes and Behaviours in the Previous Year

(See Section 4.5 of the Key Findings)

Table 4.5a. *Self-reported Improvements in Rock Fishing Safety Knowledge, Attitudes and Behaviours (of Self, Friends and Other Fishers)*

In the past year -	Yes n/%	No n/%	Don't know n/%	Total n/%
Your rock fishing safety knowledge has improved?	163 69.4	21 8.9	51 21.7	235 100.0
Your rock fishing safety attitude has improved?	175 74.0	21 8.9	39 16.6	235 100.0
Your rock fishing safety behaviour has improved?	163 69.4	24 10.2	48 20.4	235 100.0
Your mates rock fishing behaviour has improved?	155 66.0	20 8.5	60 25.5	235 100.0
Other rock fishers behaviour has improved?	139 59.1	20 8.5	76 32.3	235 100.0

Table 4.5b. *Self-reported Improvements in Rock Fishing Safety Knowledge, Attitudes and Behaviours (of Self, Friends and Other Fishers) by Ethnicity*

In the past year -	European n/%	Maori n/%	Pasifika n/%	Asian n/%	Other n/%	Total n/%
Your rock fishing safety knowledge has improved?	54 79.4	23 69.7	16 72.7	66 62.8	4 57.1	235 100.0
Your rock fishing safety attitude has improved?	52 76.5	24 72.7	18 81.8	77 73.3	4 57.1	235 100.0
Your rock fishing safety behaviour has improved?	52 76.5	21 63.6	18 81.8	69 65.7	4 57.1	235 100.0
Your mates rock fishing behaviour has improved?	46 66.2	22 66.7	14 63.6	68 64.8	6 85.7	235 100.0
Other fishers behaviour has improved?	42 61.8	21 63.6	13 59.1	58 55.2	5 71.4	235 100.0

Table 4.5c. *Self-reported Improvements in Rock Fishing Safety Knowledge, Attitudes and Behaviours (of Self, Friends and Other Fishers) by Age Group*

In the past year -	16-29 years	30-44 years	45 -64 years	Total
	n/%	n/%	n/%	n/%
Your rock fishing safety knowledge has improved?	60 64.5	52 73.2	51 71.8	163 69.4
Your rock fishing safety attitude has improved?	60 64.5	58 81.7	56 78.9	174 74.0
Your rock fishing safety behaviour has improved?	60 64.5	51 71.8	52 73.2	163 69.4
Your mates rock fishing behaviour has improved?	55 59.1	50 70.4	50 70.4	155 66.0
Other rock fishers behaviour has improved?	55 59.1	42 59.2	42 59.1	139 59.1

Table 4.5d. *Self-reported Improvements in Rock Fishing Safety Knowledge, Attitudes and Behaviours (of Self, Friends and Other Fishers) by Length of Residency*

In the past year -	< 4 years	5-9 years	10 years+	Total
	n/%	n/%	n/%	n/%
Your rock fishing safety knowledge has improved?	37 62.7	38 62.3	88 76.5	163 69.4
Your rock fishing safety attitude has improved?	42 71.2	44 72.1	88 76.5	174 74.0
Your rock fishing safety behaviour has improved?	35 59.3	43 70.5	85 73.9	163 69.4
Your mates rock fishing behaviour has improved?	34 57.6	42 68.9	79 68.7	155 66.0
Other rock fishers behaviour has improved?	32 54.2	32 52.5	75 65.2	139 59.1

**Question 13. Value of putting angel rings (flotation aids) on west coast fishing locations by ethnicity, age group, and length of residency.**

(See Section 4.2 of the Key Findings)

Table 4.6. *Fishers' opinions on the value of placing angel rings at Auckland's west coast fishing sites by ethnicity, age group and length of residency*

	Essential	May be useful	Not necessary	Don't know
	n/%	n/%	n/%	n/%
European	29 42.6	34 50.0	4 5.9	1 1.5
Maori	21 63.6	11 33.3	1 3.0	0 0.0
Pasifika	13 59.1	7 31.8	1 4.5	1 4.5
Asian	65 61.9	24 22.9	3 2.9	3 2.9
Other	7 100.0	0 0.0	0 0.0	0 0.0
16-29 years	43 46.2	41 44.1	7 7.5	2 2.2
30-44 years	46 61.7	23 32.4	0 0.0	2 2.8
45+ years	46 64.8	22 28.1	2 2.8	1 1.4
< 4 years	33 55.9	22 37.3	3 0.5	1 0.4
5-9 years	35 57.4	22 36.1	1 0.2	3 1.3
10+ years	67 58.3	52 45.2	5 4.3	1 0.4
All respondents	135 57.4	86 36.6	9 3.8	5 2.1