



# **Water Safety and Auckland's West Coast Fishers – 2010 - Five Years On**



**Auckland  
Regional Council**  
TE RAUHĪTANGA TAIAO

## Preface and Acknowledgements

This report is an evaluation of the 2010 collaborative project between the Auckland Regional Council (ARC), Surf Life Saving Northern Region (SLSN), Safe Waitakere, and Watersafe Auckland Incorporated (WAI).

The *West Coast Rock Fishing Safety Pilot 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 (5 fatalities in 4 months). As a consequence of the success of the pilot project in 2006-2008, recommendations to continue the rock fishing safety initiative were acted upon and the safety advisory service was re-established for the summer seasons of 2009 and 2010. In addition, a 2 year trial of the installation of angel rings to provide another layer of protection at high risk sites was also initiated. In the 5 years that the safety project has been in place, 4 fishers have drowned.

Our thanks to the New Zealand Chinese Youth Trust for promotion of the project within the Chinese community. Our thanks to Michael Jones for his commitment to promoting water safety within the Pasifika community. The project team is again grateful for the contribution of ARC Cr Sandra Coney and the ARC Parks and Heritage Committee, whose advocacy and support for the project has been pivotal to the success of the venture.

We would also like to thank the Iwi of Te Kawerau a Maki and the Lusk family for allowing some of the Angel Rings to be installed on their land and allowing us access to maintain them.

The project would not have been possible without the enthusiasm and skills of Jo Davidson and Reg Phillips, ARC; Dean Storey of Surf Life Saving Northern Region; Coral Timmins of Safe Waitakere, and Teresa Stanley, WaterSafe Auckland. As was the case in previous years, Stuart Leighton, ARC parks ranger again deserves recognition for his significant contribution and leadership of the project in the field.

Finally, a very special vote of thanks to the field officers, Owen Lee (who has been involved since the beginning of the project), Lina Wang, and Terry Seo. They again were the public face of the project and their importance in making fishers aware of the rock fishing safety project has been critical to the success of the campaign

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### Recommended reference:

Moran, K. (2010, August). *Water safety and Auckland's West Coast fishers – 2010*. Report to the Auckland Regional Council, Surf Life Saving Northern Region and WaterSafe Auckland Inc. Auckland: Watersafe Auckland.

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[www.watersafe.org.nz/page.asp?page=342](http://www.watersafe.org.nz/page.asp?page=342)

# **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 pilot project that built on the rock fishing safety campaign entitled *West Coast Fishing Safety* initiated in the summer of 2006, developed in 2007, and finalised in 2008 that addressed mounting concerns over the increasing number of fishing fatalities on Auckland's west coast. In 2009, after reporting on the 3-year pilot project and the first year of the angel ring project, the organisations agreed to continue with the Project in 2010.

## **2. Purpose**

The purposes of this fifth phase of the project were fourfold:

- 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
- 3) To make recommendations for future rock fishing safety promotion based on the information obtained
- 4) To report on the completion of the pilot stage of the installation of angel rings at high risk sites

## **3. 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 2010. A sample of 107 fishers voluntarily completed a written questionnaire that sought information on whether they had taken part in the previous campaigns and if they were aware of the follow-up 2010 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 14 questions, all of which had been included in the 2009 survey. Further information was sought on fishers opinion on the recently installed angel rings (flotation aids) at high-risk west coast sites.

## **4. Key Findings**

### **4.1 Participant demographics:**

- As was the case in 2006-2009, the sample consisted predominantly of males (males 83%, females 17%) and most fishers were aged between 20-44 years (74%).
- Proportionally more Asian peoples (64%) and proportionally less European (16%), Maori (3%) and Pasifika (11%) peoples took part in the survey.
- More than one third (36%) of fishers were of recent residency (< 4 years).
- More than two thirds (70%) of fishers had visited the site where they were interviewed less than 5 times. For one third (31%) it was their first visit to the site.

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

- Less than one third of fishers (32%) reported that they were aware of the previous West Coast Fishing Safety Projects 2006-2009.
- Of those who had taken part, most thought that the campaign had been highly successful/successful (71%), one fifth (18%) felt that it had been slightly/not successful or did not know (11%).
- Less than half of fishers (48%) reported that they were aware of the current 2010 West Coast Fishing Safety Project.
- Of these, more than one third (39%) identified the fishing advisors as their source of information. Other sources included newspapers (23%), retail outlets (15%), television (12%), radio (6%), and magazines (6%).

### **4.3. Angel ring installation**

- More than one half (57%) of fishers had seen the new on-site angel rings and, of these, 79% considered them to be *essential*
- Most fishers (70%) thought that the angel rings were accompanied with clear instructions, 20% were *unsure* (2009, 48% and 47% respectively)
- Two thirds of the fishers (66%) *agreed/strongly agreed* that angel rings were the best source of public rescue equipment (PRE), one quarter (27%) were *unsure* (2009, 45% and 47% respectively).
- More than half (59%) of the fishers thought that that they were located in the most needed sites, 35% were *unsure* (2009, 43% and 46% respectively).

### **4.4. Perceptions of Drowning Risk**

- More than three quarters of fishers (2010, 82%; 2006, 70%) agreed that getting swept off rocks was likely to result in their drowning.
- More believed that drowning was a constant threat to life when fishing from rocks (2010, 66%; 2006, 50%). This would suggest a beneficial shift in fishers' attitudes over the 4 years to one of having a greater appreciation of the risk of drowning.
- Almost half (41%) of the 2010 cohort thought that others were at greater risk than themselves (2010, 41%; 2006, 32%) and more considered that they were strong swimmers compared with others (2010, 50%; 2006, 46%). This would suggest an underestimation of their risk of drowning
- Slightly fewer disagreed that lifejackets made fishing safer (2010, 10%; 2006, 20%).
- Fewer fishers still thought that their swimming ability would get them out of trouble (2010, 36%; 2006, 44%).

### **4.5. Water Safety Behaviours of Fishers**

- The most noticeable positive change in self-reported behaviour relates to the use of lifejackets/buoyancy aids. Fewer fishers reported *never*

wearing a lifejacket/buoyancy aid (2010, 35%; 2006, 72%) and more reporting wearing them *often/always* (2010, 31%; 2006, 4%).

- However, it is still a concern that one third of fishers (35%) report *never* wearing any lifejacket/flotation aid.
- More than one third (41%) of fishers in 2010 reported *sometimes/often* consuming alcohol when fishing. Further promotional work on the folly of mixing alcohol with fishing from rocks is required.
- More than half of fishers reported *sometimes/often* wearing gumboots/waders (55%) or going down rocks to retrieve snagged lines (53%), both of these dangerous practices need to be targeted in future safety promotion.
- The contributing factors that may explain persistent risky practices in the 2010 survey results include the predominance of males among fishers (83%), the transience of the fisher population (only one third (32%) had taken part in previous surveys), one third (33%) were first time users of the sites, one third had lived in New Zealand for less than 4 years, and more than half (52%) of the survey respondents had completed the non-English version of the questionnaire).

#### **4.6 Self-reported Changes in Fishers' Knowledge, Attitudes and Behaviours**

- Two thirds (66%) of fishers considered that their safety knowledge had improved in the past year
- Almost two thirds (62%) considered that their safety attitudes had improved, though some (12%) considered that their attitude had not improved.
- Almost two thirds (62%) of the fishers in 2010 thought that their safety behaviour when fishing had improved.
- Less than half of fishers thought that the safety behaviour of their mates (47%) or other fishers (42%) had improved.
- From 2007, slight improvements were reported by fishers of their personal safety knowledge (2010, 66%; 2007, 63%), safety attitudes (2010, 62%; 2007, 61%), and safety behaviour (2010, 62%; 2007, 53%)

## **5. Recommendations**

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

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

- Given the transition to the Super City structure in 2011, it is hoped that the ARC would provide ongoing individual and collective support for the Project
- 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 2011 summer campaign and ongoing thereafter
- Given the ethnic diversity of the rock fishing population, retain the multilingual advisory service and look to ways of presenting safety information in multiple languages
- Promote/maintain a regional leadership role in the collaborative venture by allocating funds to support future fishing safety promotion, including the installation of angel rings, or other appropriate PRE, and safety signage at high risk sites
- Consider implementing a regional By-law on the compulsory use of PFD's at designated high-risk west coast fishing sites
- Consider extending the installation of angel rings to other high risk west coast sites as advised

### **2. To WaterSafe Auckland, Surf Life Saving Northern Region 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 2010
- 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
- Scope other methods of PRE

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

- Adopt and endorse the fishing safety messages promoted by the West Coast Fishing Safety Project, especially the wearing of inflatable lifejackets at Auckland's high-risk west coast locations

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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). New Zealand in general and Auckland in particular is not alone in its high fatal drowning toll as a consequence of fishing from rocks. Nearest neighbour Australia has recently reported similar incidents and concerns with 101 recreational fishing fatalities from 2000-2007, of which 62 fatalities occurred at beach/coastal locations (Crosariol, Vasica, & Franklin, 2010). This represents 10% of all coastal drowning fatalities and several Sydney blackspots around Randwick and Sutherland (NSW) have been identified (Thompson, 2010).

To address the high incidence of fatal drowning on Auckland's west coast, 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. Safe Waitakere joined the project team in 2009, assisting with the installation of angel rings and financing for printed resources.

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 years (in 2007-09) before again evaluating responses and again responding to them in the fourth year of the project (in 2009). 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 past two years of the project, fishers were asked their opinion on the installment of angel rings and safety signage (Royal National Lifeboat Institute, 2007) at dangerous west coast fishing locations and their overwhelming support of such an intervention constitutes part of the recommendations of this 2010 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 were 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). The third and fourth year of the project were also fully reported (Moran, 2009, 2009) and presented as an example of best practice using a cyclic 'action research' model at the Australian Injury Prevention Conference in Melbourne (Moran, 2009). Most recently, the Project was reported on during an open forum on fishing safety at the 2010 Australian Water Safety Conference in Brighton-le-Sands, Sydney, in May 2010 (Thompson, 2010). In addition, a recent report from Australia has replicated many of the findings of the Auckland-based reports, especially with regards to the perceptions and behaviours of rock fishers (Mathews, Thompson, & Bracchi, 2010).

This Report provides current evidence of the knowledge, attitudes, and behaviours of west coast fishers and also allows opportunity to reflect on what changes have taken place five years on.

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

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### **2.1 Purpose**

The purposes of this fifth phase of the project were fourfold:

- 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.
- 4) To report on the completion of the two-year pilot stage of the installation of angel rings at high risk sites

### **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 2010,
2. Survey fishers to ascertain whether they had taken part in the previous surveys 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 safety signage and angel ring floatation devices currently being piloted 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 report (Moran, 2009) on the first year of the two-year trial of the angel rings under the auspices of the *West Coast Fishing Safety Project Team* 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 August 2009. Among its recommendations, the following were highlighted as necessary in order to maintain the momentum of the first four years of drowning prevention programme:

- Retain collaborative network between the ARC, SLSN, and WAI.
- Continuation of West Coast Fishing Safety Advisory Service
- Continuation of Fisher Safety Survey: Knowledge-Attitudes -Behaviour
- Complete the second year of the two-year pilot study of Angel Rings at high-risk West Coast sites to ascertain their impact and cost in terms of installation, monitoring, maintenance
- Continued high profile promotion of fishing safety in the community especially males, new migrants, Maori and Pasifika

Preliminary discussion among the Project Team focussed on the availability of public rescue equipment (PRE). Information was sought from the Royal National Lifeboat Institute who had recently completed a feasibility study on public rescue equipment (RNLI, 2007) as well as discussion with their Beach Safety Manager (personal communication, Steve Wills, RNLI, October 23rd 2009), and with key personnel from Australia (personal communication, Peter Agnew, General Manager, SLSA Nov 26<sup>th</sup> 2009).

### 3.2 Procedures

As was the case in 2009, the field officers (n = 3) were trained to conduct all aspects of the fieldwork process from education to data collection and management. 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. 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.

Given the large proportion of fishers of Asian origins previously reported (Moran, 2006, 2007, 2008, & 2009), the questionnaire was again produced in English, Mandarin and Korean. To further assist non-English speaking Chinese/Taiwanese fishers, four of the field officers were fluent Chinese speakers.

The water safety advice and survey data gathering took place during weekends between February and April in the summer of 2010 and included several peak holiday weekends. The sample did not therefore include fishers who used the 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 14 questions, eleven of which had been included in the 2008 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 earlier 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*.

Three new questions seeking information on whether fishers had seen new angel rings being piloted in five high risk locations and what they thought about them using four response categories ranging from *essential* to *waste of money*. Fishers were also asked to suggest other locations they would like to see angel rings on the west coast. They were also asked to comment on the clarity of instruction for their use, whether they were the best source of assistance and whether they were located at the most suitable sites, using five response categories ranging from *strongly agree* to *strongly disagree*.

### 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).

Because the Project was in its fifth year of implementation, it was decided where possible to provide a longitudinal view of the data gathered over the 5 year period. This was possible because several questions had been carried over with each year of the project. Consequently, the results over the 5-year period are reported in table format for:

- Number of times fishers have fished at the location, 2006-2010
- Took part in previous fishing safety project, 2007-2010
- Comparisons of fisher opinions on the newly-installed angel rings, 2009-2010
- Fishers' perception of the severity of drowning risk, 2006-2110
- Fishers' perception of their vulnerability to drowning risk, 2006-2110
- Fishers' perception of the efficacy of preventive actions, 2006-2110
- Fishers' perception of the self-efficacy of their preventive actions, 2006-2110
- Fishers' self-reported safety behaviours, 2006-2010
- Comparison of self-reported change in fishers' safety knowledge, 2007-2010
- Comparison of self-reported change in fishers' safety attitudes, 2007-2010
- Comparison of observed change in friends' safety behaviours, 2007-2010
- Comparison of observed change in other fishers' safety behaviour, 2007-2010

## 4. Key Findings

The results of the 2010 survey are presented in six 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 107 questionnaires were returned from participants in rock fishing activity at popular locations on the west coast of Auckland at the end of the summer season of 2010. Analysis of respondents' age, gender, length of residency, and ethnicity indicated that the demographic structure of the sample reflected previous findings (Moran, 2006, 2007, 2008, 2009).

Table 1. *Demographic Characteristics of Fishers*

Demographic Characteristic		<i>n</i>	%	Total
Gender	Male	89	83.2	107 (100%)
	Female	18	16.8	
Ethnicity	European	17	15.9	107 (100%)
	Maori	3	2.8	
	Pasifika	12	11.2	
	Asian	68	63.6	
	Other	7	6.5	
Age group	15-19 years	5	4.7	107 (100%)
	20-29 years	45	42.1	
	30-44 years	34	31.8	
	45-64 years	20	18.7	
	65+ years	3	2.8	
Length of residency	< 1 year	11	11.2	107 (100%)
	1-4 years	27	25.2	
	5-9 years	34	31.8	
	>10 years	17	15.9	
	All my life	17	15.9	

As was the case in 2006-2009, the sample population was predominantly male (83% male; 17% female) and most were aged between 20-44 years (74%;  $n = 79$ ). In terms of ethnicity, proportionally more Asian peoples (64%;  $n = 68$ ) were included in the study whereas proportionally less European (16%;  $n = 17$ ) and Maori (3%;  $n = 3$ ) New Zealanders were included. More than one third (36%;  $n = 38$ ) 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 as of Asian ethnicity, self-identified with six Asian region countries (see Table 2). The English language version of the 2010 survey was completed by more half of the fishers (58%;  $n = 62$ ), 24 (22%) fishers completed the Korean version, and 21 (20%) fishers opted to complete the Mandarin language version of the survey.



Table 2. *Self-identified Ethnicity of Fishers*

<b>Ethnic group</b>	<b><i>n</i></b>	<b>%</b>
European	17	15.9
Maori	3	2.8
Pasifika	12	11.2
Chinese/Taiwanese	23	21.5
Korean	36	33.6
Indian	9	8.4
Other (Russian, Middle east, not stated)	7	6.5
<b>Total</b>	<b>107</b>	<b>100</b>

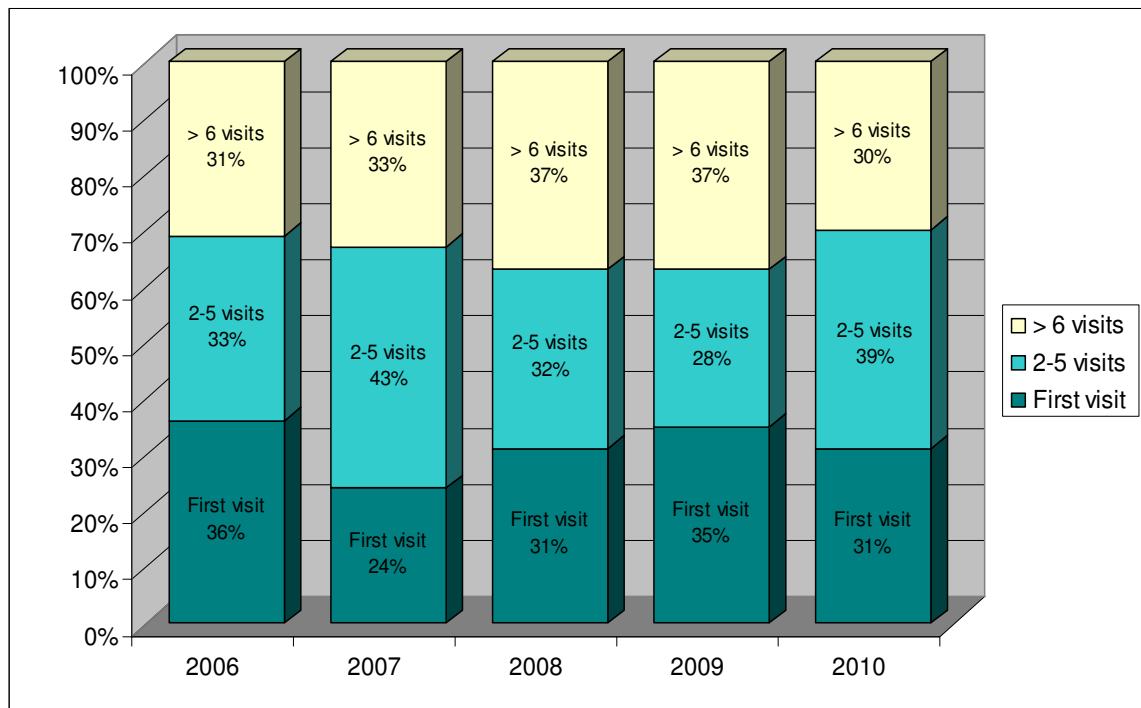
Fishers were asked to describe how often they had fished at the location where they completed the questionnaire (see survey question 8, Appendix 1). Table 3 shows that, as was the case in previous surveys, many of the fishers were not frequent visitors to the site, with almost one third (31%;  $n = 33$ ) reporting that this was their first visit and more than one third (39.3%;  $n = 42$ ) reporting that they had visited the site 2-5 times. Cumulatively, more than two thirds (70%;  $n = 75$ ) had visited the site less than five times. Collectively, only one tenth (10%;  $n = 11$ ) of the fishers had visited the site more than 10 times, with only two fishers (2%) having visited the site (where they completed the survey) more than 20 times.

Table 3. *Fishing Frequency at Site where Interviewed 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	33	30.8	30.8
2-5 times	42	39.3	70.1
6-10 times	21	19.6	89.7
11-20 times	9	8.4	98.1
>20 times	2	1.9	100.0
<b>Where else have you fished?</b>	<b><i>n</i></b>		
Other Auckland west coast sites	11		
Northland	3		
Auckland Harbours (inc. Manukau, Waitemata)	9		
Inner Hauraki Gulf (inc. Whangaparoa, Maraetai etc)	5		
Outer Hauraki Gulf (inc. Coromandel, Great Barrier Island)	3		
Other New Zealand sites	2		

A five year comparison of the frequency of visits to the site where the fisher completed the survey consistently indicates that, for each year, many fishers are not familiar with the sites. Figure 1 shows that, in the five years from 2006 to 2010, for almost one third of the fishers ( $M = 31.4\%$ ) it was their first visit to the site, and only one third ( $M = 33.6\%$ ) had visited the site more than 6 times previously.

**Figure 1. Number of times fishers have fished at the location where surveyed, 2006-2010**



Cumulatively, two thirds of fishers ( $M = 65.8\%$ ) had visited the site where surveyed less than 5 times over the 5-year period, a frequency unlikely for them to accumulate an extensive knowledge and experience of the hazards associated with the site in a range of environmental conditions (i.e. variable state of tides, swell, and weather conditions).

This consistency in the pattern of infrequency of fisher visits to west coast high risk sites over the 5-year duration of the Project reinforces concerns previously expressed in annual reports (Moran, 2006, 2007, 2008 & 2009) of a reality gap between the actual number of visits to a site and fishers perception that their local knowledge of the site will keep them safe.

## 4.2 Awareness of West Coast Rock Fishing Safety Project

More than two-thirds of fishers (68%;  $n = 74$ ) reported that they had not taken part in any west coast rock fishing safety surveys (see survey question 1, Appendix 1). As was the case in previous studies, it would appear that the fishing population of the west coast is quite transient, which suggests that educating them on water safety when fishing from high risk sites is an ongoing process.

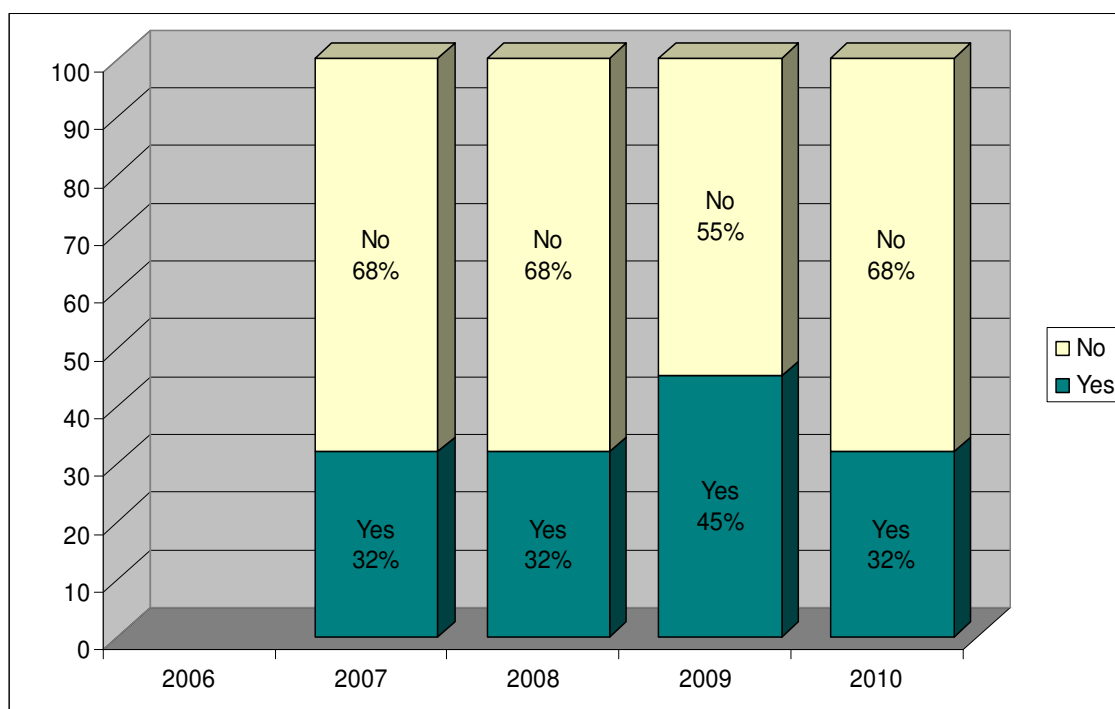
Table 4. *Participation in, and estimation of success of, the previous Fishing Safety Projects*

<b>Did you take part in the previous rock fishing projects?</b>	<b><i>n</i></b>	<b><i>%</i></b>
Yes	34	31.8
No	73	68.2
Total	107	100.0
<b>If Yes, how successful do you think it was?</b>	<b><i>n</i></b>	<b><i>%</i></b>
Highly successful	5	14.7
Successful	19	55.9
Slightly successful	3	8.8
Not successful	3	8.8
Don't know	4	11.8
Total	34	100.0

Table 4 shows that, of the 34 fishers who had taken part in the previous surveys, slightly less than three-quarters (71%;  $n = 24$ ) considered that the campaign had been *highly successful/successful* compared with less than one fifth who either considered it *slightly/not successful* (18%;  $n = 6$ ) or who *did not know* (11.8%;  $n = 4$ ).

Figure 2 shows the fisher recall of previous west coast fishing safety projects initiated in 2006. In the 4 years since the inception of the Project, most fishers surveyed were not aware of previous safety projects ( $M = 64.8\%$ ). This consistent lack of knowledge by almost two thirds of fishers surveyed each year since 2007 may be indicative of the transience of the fisher population from year to year or a reflection of the difficulty of raising awareness of the campaign in remote sites, or both. Whatever the reasons, it would appear prudent to continue to explore ways of effectively reaching this sub-population in order to maximise the preventive effect of the safe fishing messages currently being promoted.

**Figure 2. Percentage of fishers who took part in previous rock fishing safety projects, 2007-2010**



Fishers were also asked whether they were aware of the current safety project (see survey question 2, Appendix1). Table 5 shows that slightly less than half of the fishers (48%;  $n = 51$ ) reported that they were aware of the current project. Several possibilities may help explain why relatively few fishers were aware of the campaign. Firstly, as was reported in previous surveys (Moran, 2006, 2007, 2008, & 2009), many of the participants were relatively infrequent visitors to the sites where they were interviewed (see Table 3, 71% had visited the site <5 times). Secondly, many of the participants were of recent residency (see Table 1, 36% had been resident <4 years). Thirdly, many fishers (42%) completed the survey in a language other than English which may suggest that targeted promotion of the campaign may not have reached those of culturally and linguistically diverse background, a problem also reported in water safety campaigns in Australia (Mitchell & Haddrill, 2003). Fourthly, the remoteness of the sites and the logistic difficulties of providing onsite information to a transient population as identified above makes the promotion of the campaign very problematic. Finally, given the cultural and linguistic diversity of the rock fishing community, the use of non-traditional avenues of communication need to be further explored.

When those who were aware of the current project were asked how they had found out about the project, more than one third of the fishers (39%;  $n = 25$ ) identified the fishing safety advisors as their source of information. Other sources of information, in descending order of frequency, included newspapers (23%), radio (28%), retail outlets (15%), television (12%), magazines (4%) and radio (4%). As was the case in the previous years, many fishers 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).

Table 5. *Are you aware of, and how did you find out about, the current (2010) project?*

<b>Are you aware of the current (2010) project?</b>	<b><i>n</i></b>	<b><i>%</i></b>
Yes	51	47.7
No	56	52.3
Total	107	100.0
<b>If Yes, how did you find out about the current project?*</b>	<b><i>n</i></b>	<b><i>%</i></b>
Fishing safety advisors	25	39.0
Newspapers	15	22.7
Retail outlets	10	15.1
Television	8	12.1
Radio	4	6.1
Magazines	4	6.1
Other sources (friends)	0	0
Total	66	100.0

\*respondents were able to tick more than source of information

### 4.3 The Installation and Usage of Angel rings

Angel rings were installed at eight dangerous fishing sites at five west coast beaches. During the summer months, weekly checks of the angel rings were made by lifeguards at the local surf clubs and parks staff would complete any necessary maintenance. The exception was Whatipu which was checked year round by parks staff because there is no surf club at that location. The winter checks were completed by ARC parks staff. Seven angel rings have had to be replaced. It is assumed that these rings have been lost due to adverse weather and surf conditions. There were anecdotal reports of one angel ring being used at Bethells Beach to affect a rescue.

Fishers were asked whether they had seen the new angel rings recently installed and being trialled on dangerous fishing sites (see survey question 9, Appendix 1) and asked their opinion of how effective they considered them to be. More than one half of the respondents (57%;  $n = 61$ ) reported having seen the new angel rings and, of these, 79% ( $n = 48$ ) considered them to be *essential*, 20% ( $n = 12$ ) considered them to be *useful*, and 2% ( $n = 1$ ) reported that they were *not very useful*.

Table 6. *Awareness and success of the newly-installed angel rings, 2010*

<b>Have you seen the newly installed angel rings?</b>	<b><i>n</i></b>	<b>%</b>
Yes	61	57.0
No	46	43.0
Total	107	100.0
<b>If YES, how effective do you think they are?*</b>	<b><i>n</i></b>	<b>%</b>
Essential	48	78.7
Useful	12	19.7
Not very useful	1	1.6
Don't know	-	-
Total	61	100.0

Fishers were also asked to comment on the clarity of the instruction for their use, whether they were considered to be the best source of assistance and whether they were located in the most suitable sites (see question 10, Appendix 2). Table 7 shows that almost three-quarters (70%;  $n = 75$ ) *agreed/strongly agreed* that the angel rings were accompanied with clear instructions, 10% *disagreed/strongly disagreed* and 20% ( $n = 21$ ) were *unsure*. Table 7 shows that these figures are a considerable improvement on the approval ratings received from fishers in the 2009 survey after the initial year of installation. As was the case in 2009, most of those who were unsure about the

clarity of instructions were recent immigrants for whom English was a second language (70%;  $n = 75$ ) which suggest that further multilingual signage may be necessary for the angel rings.

Table 7 also shows that more fishers (66% in 2010 vs. 45% in 2009) *agreed/strongly agreed* that angel rings were the best source of public rescue equipment (PRE). More fishers agreed that the angel rings were located in the best possible sites (59% in 2010 vs. 43% in 2009). In response to each of the three questions about the value of the angel rings, fewer fishers were *unsure* as to whether they had the clearest instruction (21% in 2010 vs. 47% in 2009), whether they were the best form of assistance (27% in 2010 vs. 47% in 2009), or whether they were located in the best possible sites (35% in 2010 vs. 46% in 2009).

Table 7. Comparisons of fisher opinions on the newly-installed angel rings, 2009 and 2010

Do you think that-	Year	Strongly agree/ Agree		Unsure		Strongly disagree/ Disagree	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>-the angel rings have clear instructions</b>	2010	75	70.1	21	19.6	11	10.3
	2009	62	48.4	60	46.9	10	7.8
<b>- the angel rings are the best source of assistance</b>	2010	71	66.4	29	27.1	7	6.5
	2009	58	45.3	60	46.9	10	7.8
<b>- the angel rings are located at the most suitable sites</b>	2010	63	58.9	37	34.6	7	6.5
	2009	55	43.0	59	46.1	14	10.9

The greater acceptance of the angel rings as a part of the chain of drowning prevention in the form of Public Rescue Equipment (PRE) reported above is encouraging because, in the event of an emergency use of such equipment, familiarity and acceptance of their value are important precursors to their deployment by bystanders. With one fifth of fishers (20%) still unsure about the clarity of instructions, further work is required to make sure that all potential users have clear instructions on how best to use the angel rings.

## 4.4 Fisher perceptions of drowning risk

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 12, 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.

Table 8 shows responses to statements 1-12 (Question 11) that relate to fisher perceptions of the risk of drowning when fishing from rocks (see Appendix 1 – survey questionnaire).

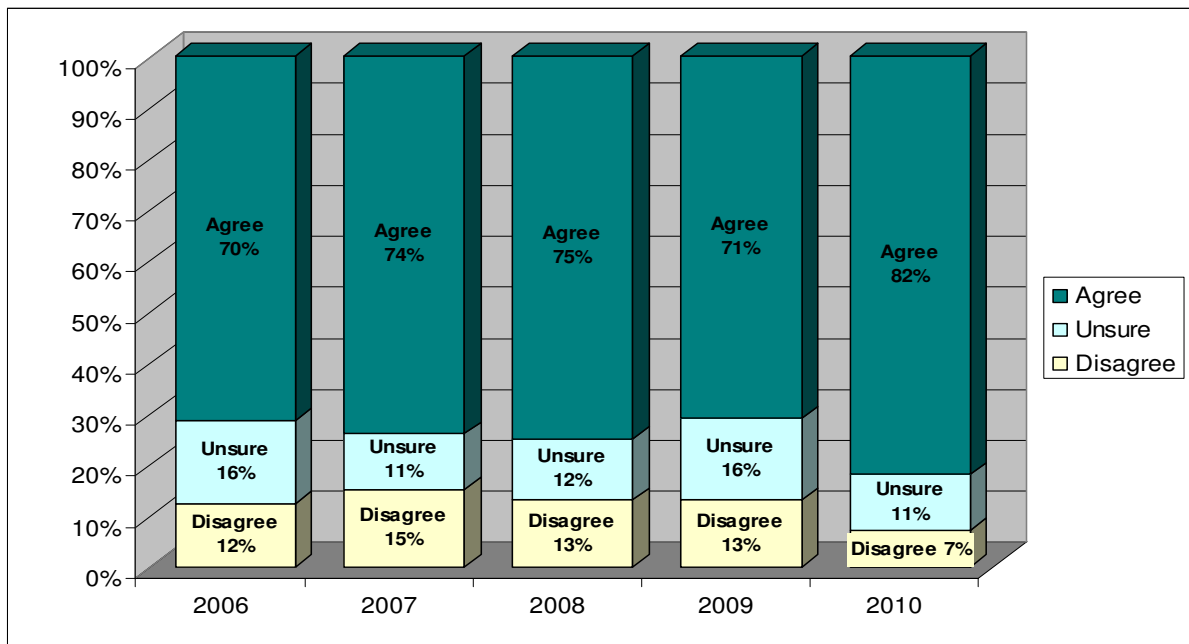
Table 8. *Fishers' Perceptions of Risk of Drowning, 2010*

Do you think that-	Strongly agree/ Agree		Unsure		Strongly disagree/ Disagree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
1. Getting swept off the rocks is likely to result in my drowning	88	82.2	12	11.2	7	6.5
2. Rock fishing is no more risky than other water activities	44	41.1	22	20.6	41	38.3
3. Drowning is a constant threat to my life when rock fishing	71	66.4	20	18.7	16	15.0
4. I am not concerned about the risks of rock fishing	34	31.8	19	17.8	64	51.8
5. Others rock fishers are at greater risk of drowning than me	46	43.0	34	31.8	27	25.2
6. I am a strong swimmer compared with most other people	53	49.5	28	26.2	26	24.3
7. I avoid fishing in bad conditions to reduce the risk of drowning	92	86.0	11	10.3	4	3.7
8. Always wearing a lifejacket makes fishing a lot safer	73	68.2	23	21.5	11	10.3
9. Turning my back to the waves when rock fishing is very dangerous	86	80.4	12	11.2	9	8.4
10. My local knowledge of this site means I'm unlikely to get caught out	43	40.2	28	26.2	36	33.6
11. My experience of the sea will keep me safe when rock fishing	44	41.1	28	26.2	35	68.7
12. My swimming ability means I can get myself out of trouble	38	35.5	28	26.2	41	38.3

To determine whether the promotion of fishing safety messages via Regional safety advisors and /or written material promoted during the Project were changing behaviours, a comparison was made of the responses of fishers perception of drowning risk and fishing safety (see Question 12, statements 1-12) from 2006-2010. Figure 3 shows that fishers' perceptions of the severity of the risk of drowning associated with west coast fishing had gradually changed over the 5 year period. Most fishers consistently thought that the severity of the risk associated with fishing off Auckland's west coast was high with almost three quarters of all fishers ( $M = 74.4\%$ ) interviewed from 2006-2010 believing that getting swept off rocks was likely to result in their drowning (see Figure 3).

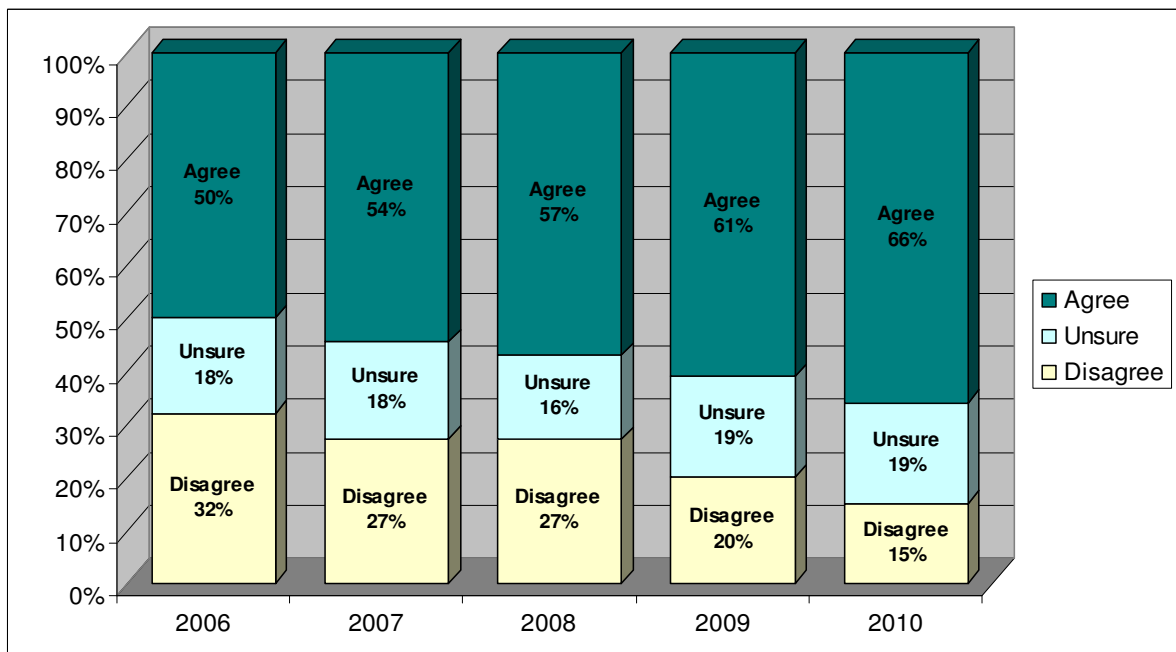


**Figure 3. Fishers’ perception of the severity of risk of drowning, 2006-2010**  
 “getting swept off rocks is likely to result in my drowning” (Q12, part 1)



Similarly, a positive shift of perception of the severity of risk associated with fishing from rocks is seen in Figure 4 in response to the statement that, when fishing from rocks, drowning was constant threat to life.

**Figure 4. Fishers’ perception of the severity of risk of drowning, 2006-2010**  
 “drowning is a constant threat to my life when rock fishing” (Q12, part 3)

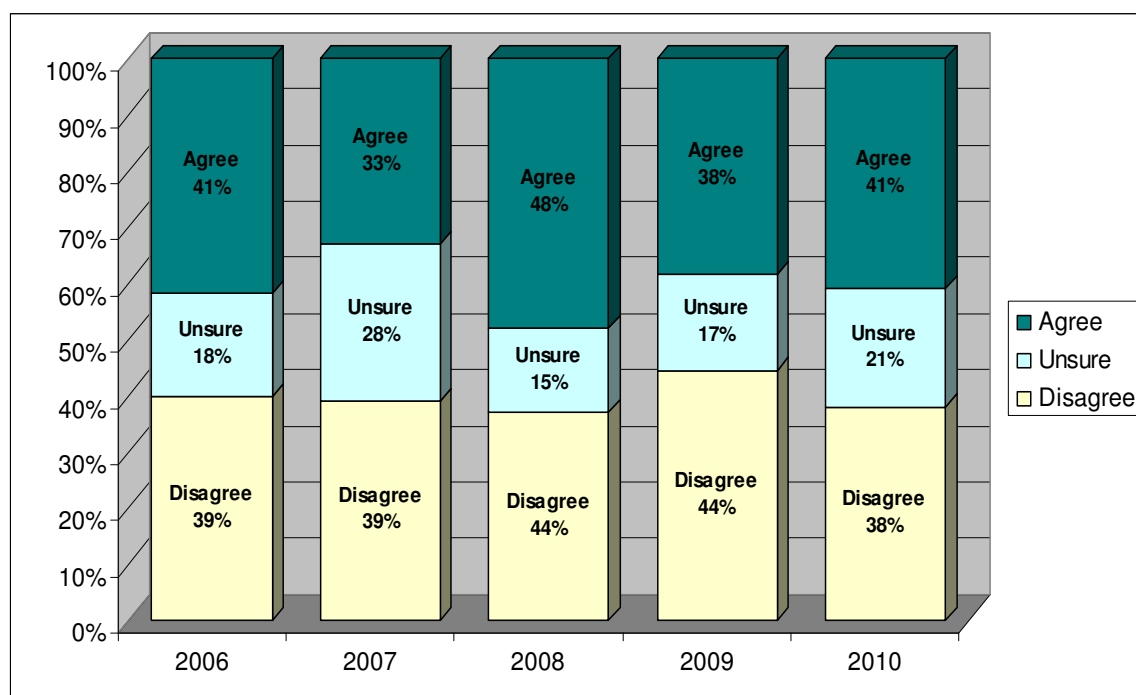


In 2006, one third of the fishers (32%) surveyed *disagreed/strongly disagreed* that drowning was a constant threat to their life, yet five years later only 15% were of that opinion. In addition the

proportion of fishers who had *agreed /strongly agreed* with that statement had increased from half (50%) in 2006 to two-thirds (66%) in 2010.

In contrast to these beliefs about the severity of the risk of drowning, opinions of the risk of drowning compared with other aquatic activities was split fairly evenly between those who agreed and disagreed, and this divergence of opinion was relatively constant throughout the 5-year duration of the study (see Figure 5).

**Figure 5. Fishers’ perception of the severity of risk of drowning, 2006-2010**  
**“rock fishing is no more risky than other water activities” (Q12, part 2)**



Whether the attitudinal shifts towards a more realistic appreciation of the dangers leads to a concomitant shift towards safer behaviour is difficult to determine, especially given the male propensity to underestimate risk and overestimate ability to cope with that risk in an aquatic context, as previously reported among fishers (Moran, 2009), among American males (Howland, Hingson, Mangione, Bell, & Bak, 1996), New Zealand male beachgoers (McCool, Moran, Ameratunga & Robinson, 2009; McCool et al., 2008) and New Zealand male youth (Moran. 2009; Langley, Warner, Smith, & Wright, 2001; Langley, & Smeijers, 1997).

Figures 6, 7, and 8 show the changes from 2006-2010 in fisher responses to statements about their vulnerability to the risk of drowning. The perception that fishers were not concerned about the risks of rock fishing remained relatively constant throughout the five year period with most fishers ( $M = 60\%$ ; range 56-62%) disagreeing that they were not concerned about the risks of rock fishing. In addition, the similar proportion of fishers who agreed that they were not concerned about the risk of drowning remained relatively constant (27-32%).

**Figure 6. Fishers' perception of their vulnerability to drowning, 2006-2010**  
 -“not concerned about the risks of rock fishing” (Q12, part 4)

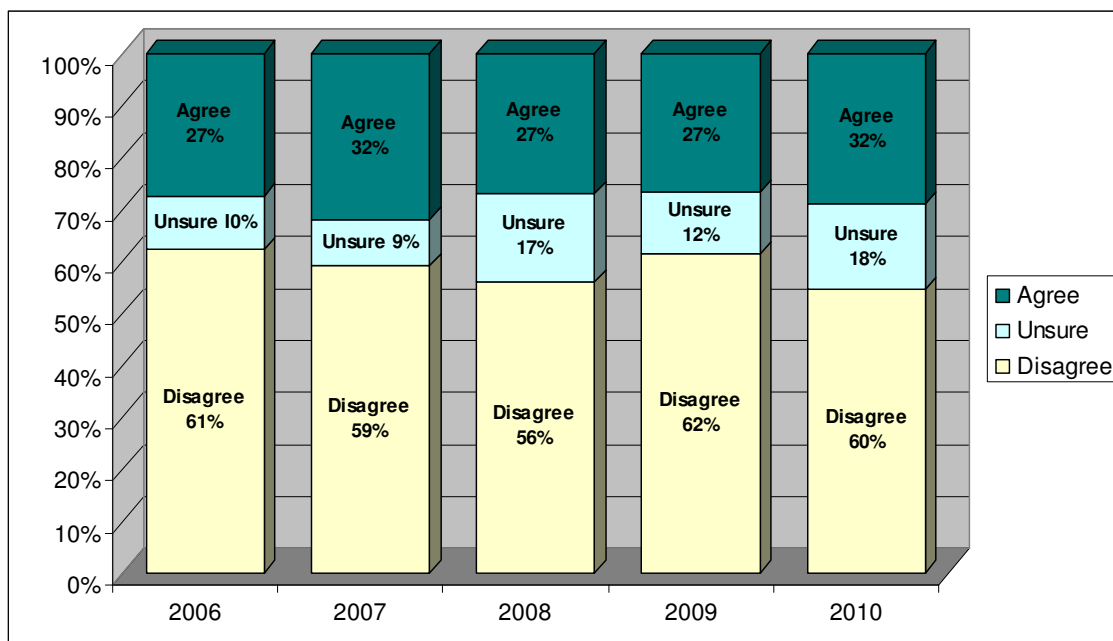


Figure 7 shows that many fishers (2010, 43%) continued to believe that they were at less risk of drowning than others even though most disagreed that they were not concerned about the risk of drowning (Figure 6). Slightly less than one third of fishers over the five year period were *unsure* of their vulnerability to drowning compared with fellow fishers.

**Figure 7. Fishers' perception of their vulnerability to drowning, 2006-2010**  
 -“other fishers at greater risk of drowning than me” (Q12, part 5)

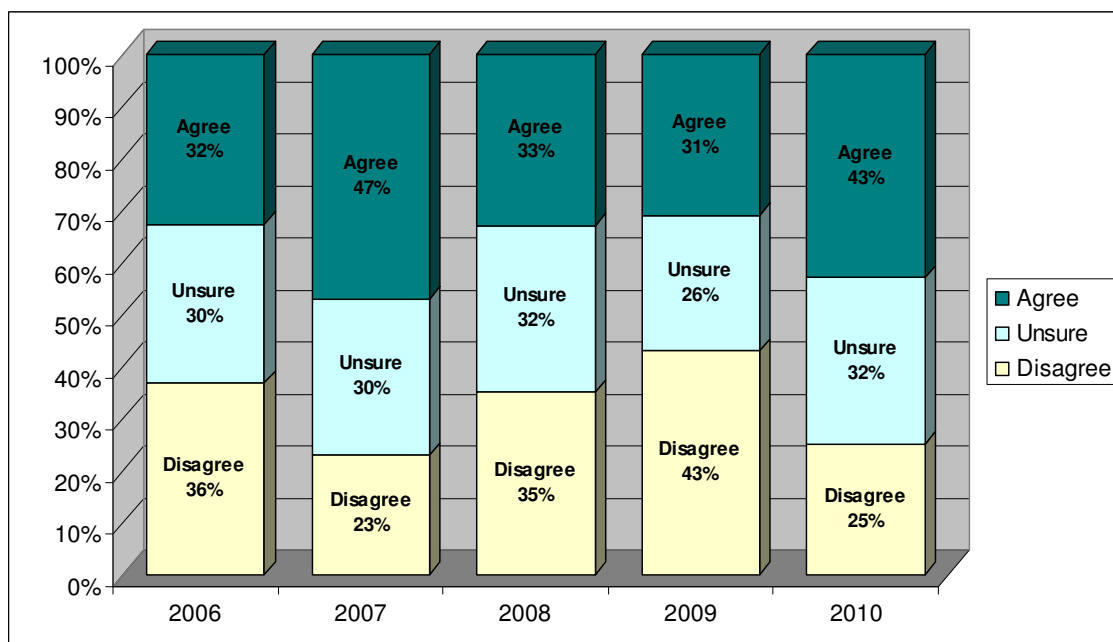
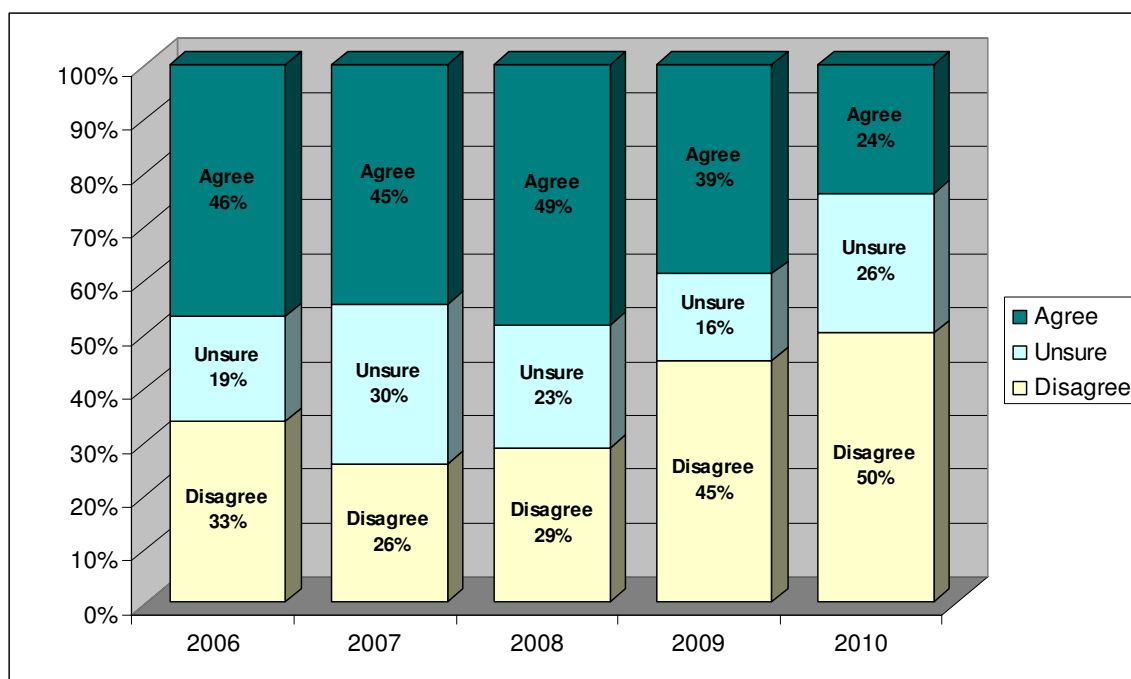


Figure 8 shows that, whereas almost half of fishers (46%) *agreed/strongly agreed* that they were strong swimmers when compared with other fishers in 2006, a gradual shift in

perception was apparent so that by 2010 one half of fishers *disagreed/strongly disagreed* that they were strong swimmers in comparison with other fishers.

**Figure 8. Fishers' perception of their vulnerability to drowning, 2006-2010**  
**-“I am a strong swimmer compared to other fishers” (Q12, part 6)**



Figures 9, 10 and 11 show the fishers' perception of the efficacy of preventive action from 2006-2010. Figure 9 shows strong support for the efficacy of avoiding fishing during bad weather with most fishers ( $M = 82.4%$ ) agreeing each year from 2006-2010.

**Figure 9. Fishers' perception of the efficacy of preventive action, 2006-2010**  
**-“I avoid fishing in bad weather” (Q12, part 7)**

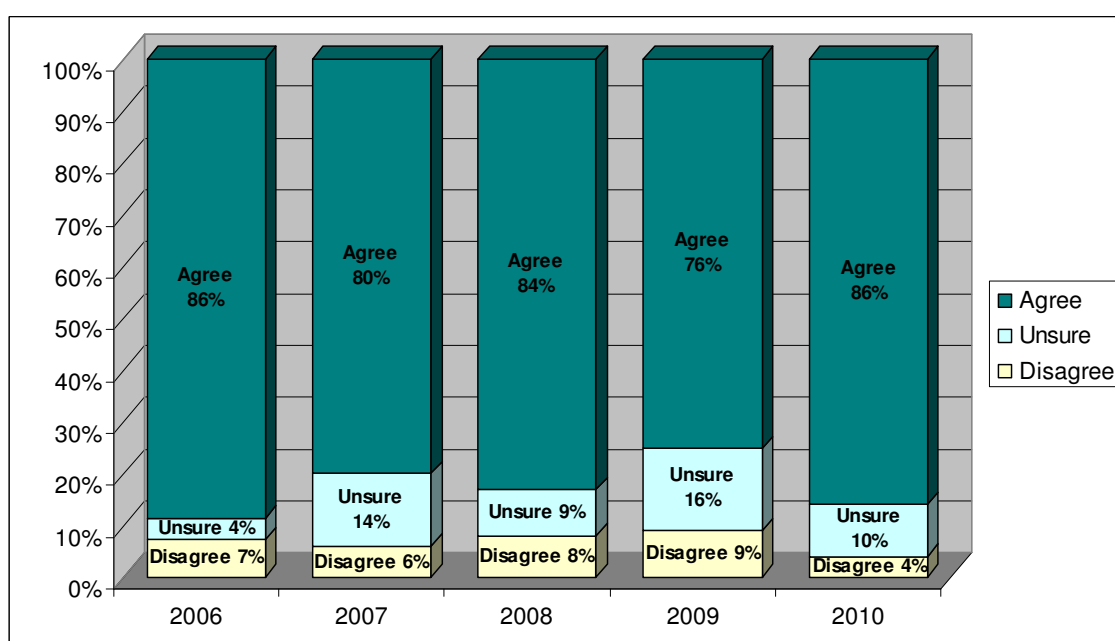


Figure 10 shows that most fishers ( $M = 70\%$ ) between 2006-2010 also *agreed/strongly agreed* that wearing a lifejacket would keep them safe while fishing, though not quite with the same conviction as indicated in responses to avoiding fishing in bad weather as a measure of the perception of efficacy of preventive actions.

**Figure 10. Fishers' perception of the efficacy of preventive action, 2006-2010**  
 -"Always wearing a lifejacket will keep me safe" (Q12, part 8)

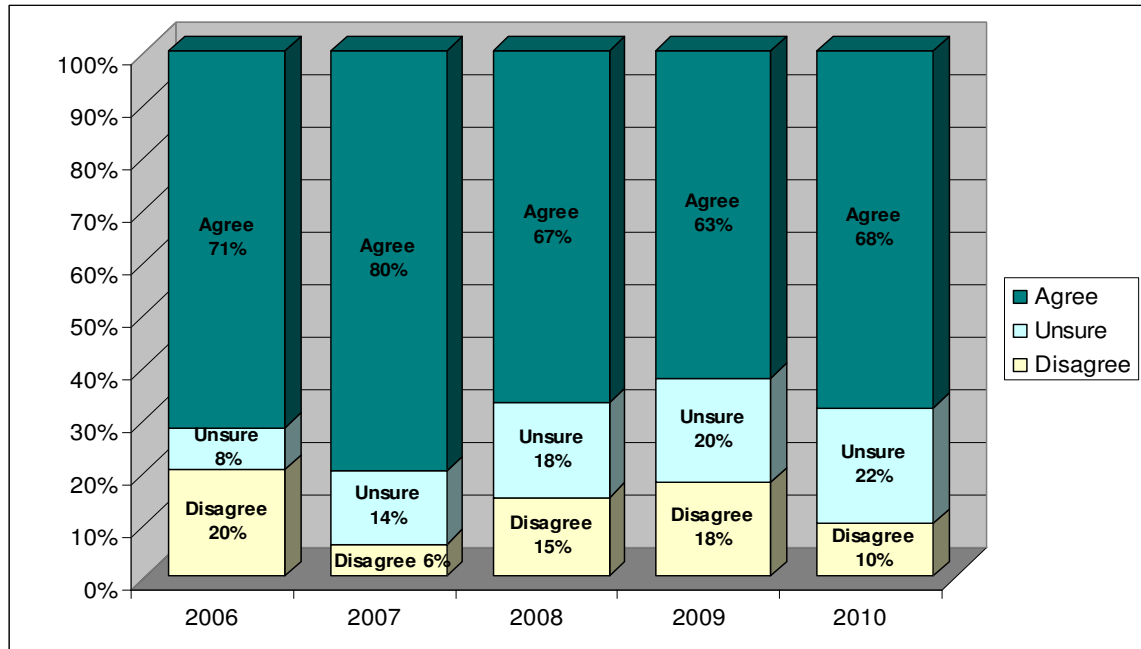
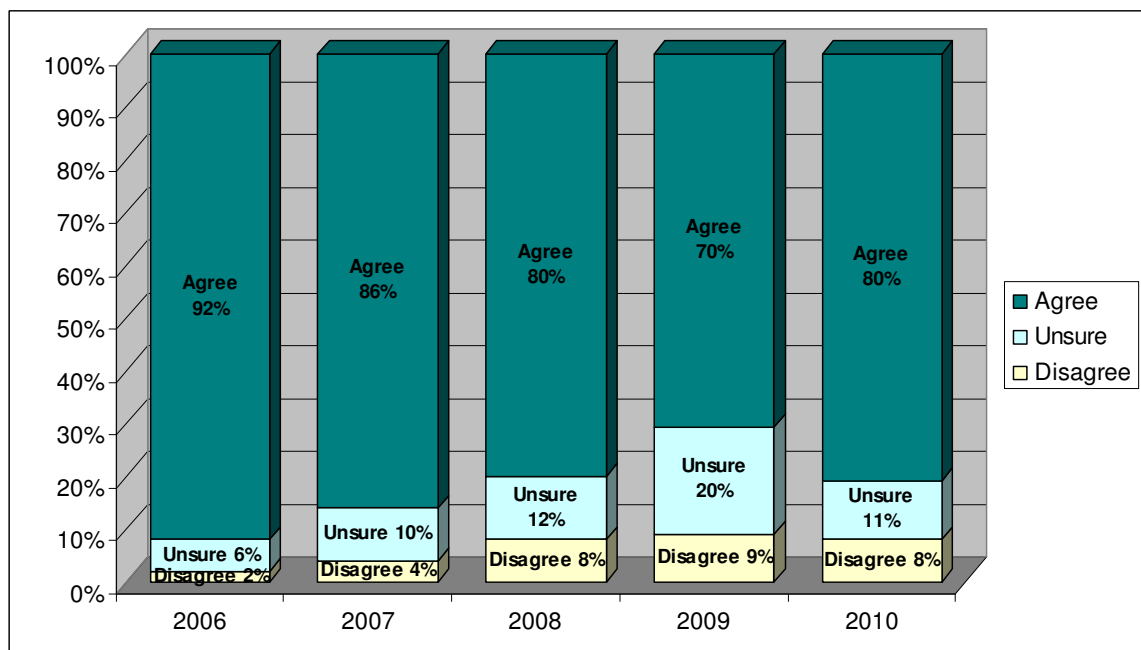


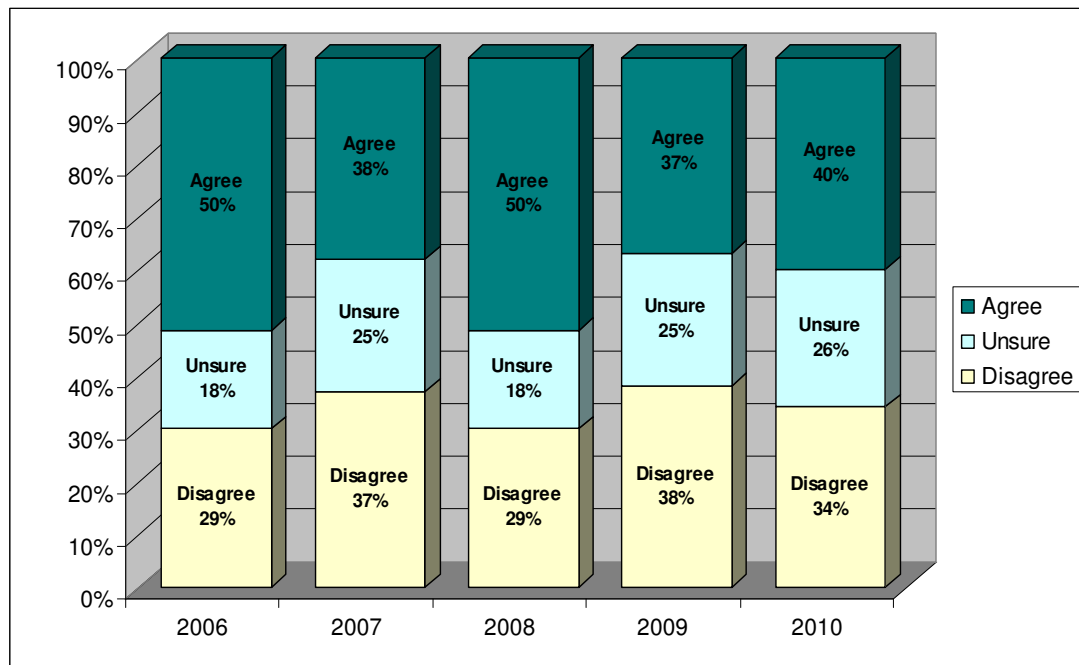
Figure 11 shows that most fishers agreed that turning their backs to the sea was very dangerous but while this opinion was widely and consistently held over the five year period, many were to report (see Table 12, page 23) that they did engage in this practice.

**Figure 11. Fishers' perception of the efficacy of preventive action, 2006-2010**  
 -"Turning my back to the waves is very dangerous" (Q12, part 9)



The final component of fishers' perceptions of the risk of drowning associated with fishing from rocks related to the self-efficacy of preventive behaviours (see Figures 12, 13, and 14).

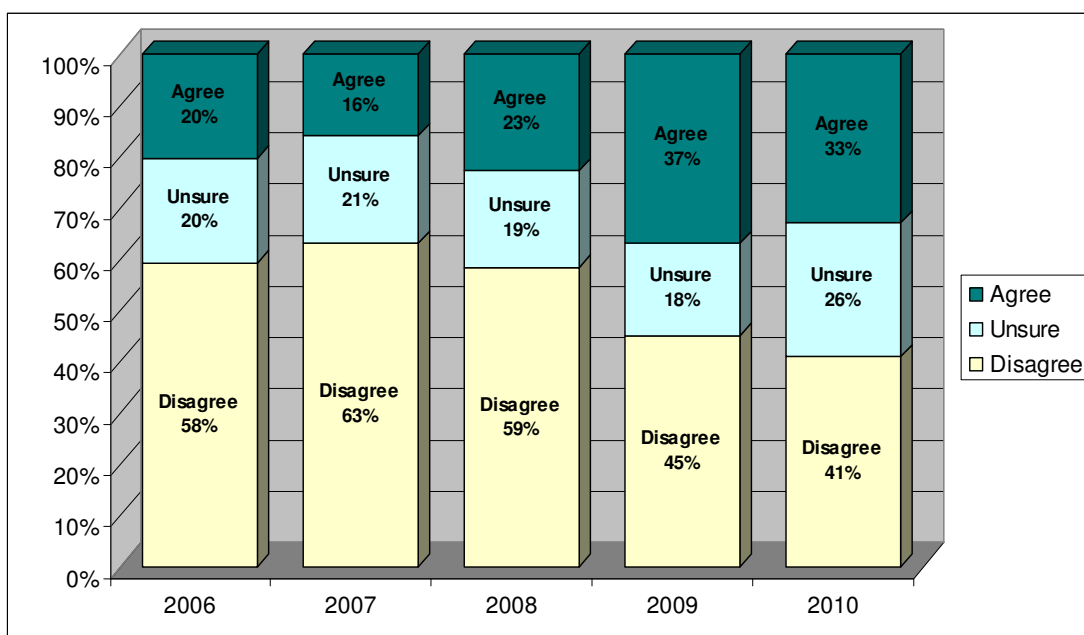
**Figure 12. Fishers' perception of the self-efficacy of preventive behaviours, 2006-10**  
**"my local knowledge of the site will keep me safe" (Q12, part 10)**



The data displayed in Figure 12 suggests little change from 2006-2010 in perceptions of their local knowledge in keeping them safe with most fishers ( $M = 43\%$ ) agreeing that this knowledge was a self-efficacious drowning prevention behaviour. Only a third of fishers ( $M = 33.4\%$ ) either *disagreed* or *strongly disagreed* that their local knowledge would keep them safe, with approximately one quarter of fishers consistently *unsure* whether it would protect them or not. This would suggest that, in spite of the evidence previously reported about the infrequency of visits to the site where they were surveyed (see Figure 1), many fishers may have an inflated belief about their local knowledge and its protective influence on the risk of drowning when fishing from rocks at high risk sites, and that has persisted throughout the duration of the Project with different annual cohorts of fishers.

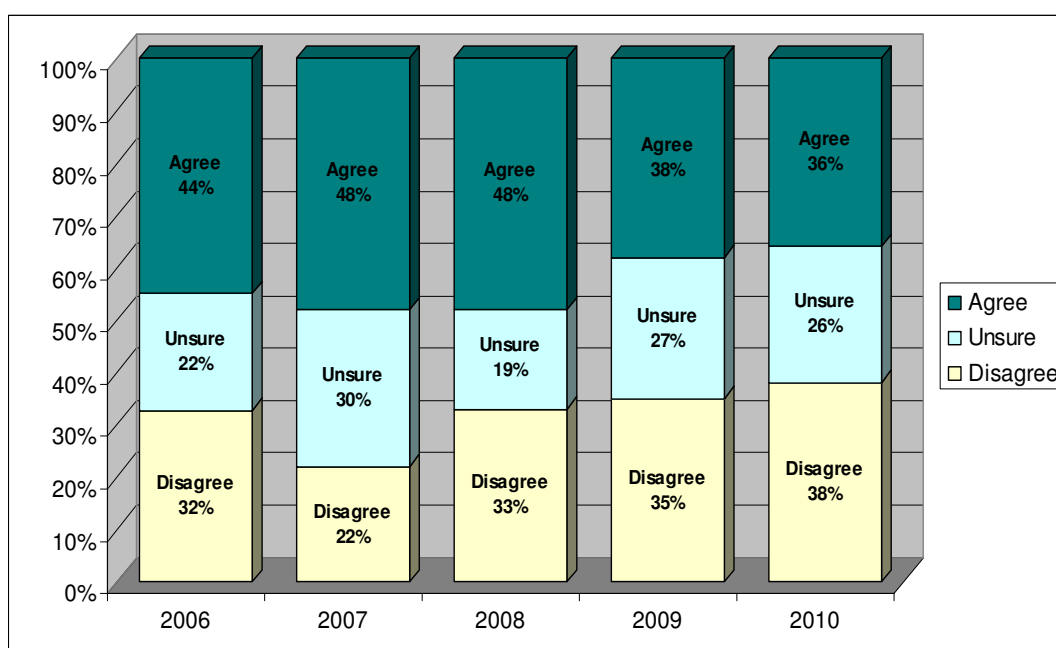
Figure 13 shows fishers' perceptions of the self-efficacy of preventive behaviours but as they relate to knowledge of the sea in general rather than local knowledge of the site. In contrast to the consistently widespread misconceptions of efficacy of their local knowledge, fewer fishers acknowledged that their knowledge of the sea was an effective drowning deterrent with most fishers either *unsure* (range 18-26%) or *disagreeing* (range 41-63%) that their knowledge of the sea would keep them safe.

**Figure 13. Fishers’ perception of the self-efficacy of preventive behaviours, 2006-10**  
**“my experience of the sea will keep me safe” (Q12, part 11)**



The final perception asked fishers to report their confidence in their swimming ability to get themselves out of trouble (see Figure 14). A slight change in perception is evident in the latter two years with more than one third (2009, 35%; 2010, 38%) disagreeing that their swimming ability was an effective deterrent. Over the five years, the proportions agreeing or disagreeing with this statement remained constant, a consistency which suggests that fisher beliefs about their survival ability are firmly entrenched.

**Figure 14. Fishers’ perception of the self-efficacy of preventive behaviours, 2006-10**  
**“my swimming ability means I can get myself out of trouble” (Q12, part 12)**



## 4.5 Water Safety Behaviours of Fishers

Fishers were asked to report previous water safety behaviours (see survey question 13, 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 9).

Table 9 shows the self-reported fishing behaviours in 2010. As was the case in the previous 5 years of the project, the most noticeable positive change in self-reported behaviour relates to the use of life-jackets or buoyancy aids. Fewer fishers reported *never* wearing a life-jacket/buoyancy aid (2010, 35%; 2006, 72%) and more reported wearing them *sometimes* (2010, 35%; 2006, 23%) or *often* (2010, 31%; 2006, 4%). This positive change in self-reported behaviour was again reinforced by anecdotal evidence from fishing advisors and lifeguards of greater use of buoyancy aids at the end of the 2010 summer season.

Table 9. Fishers' Self-reported Water Safety Behaviours, 2010

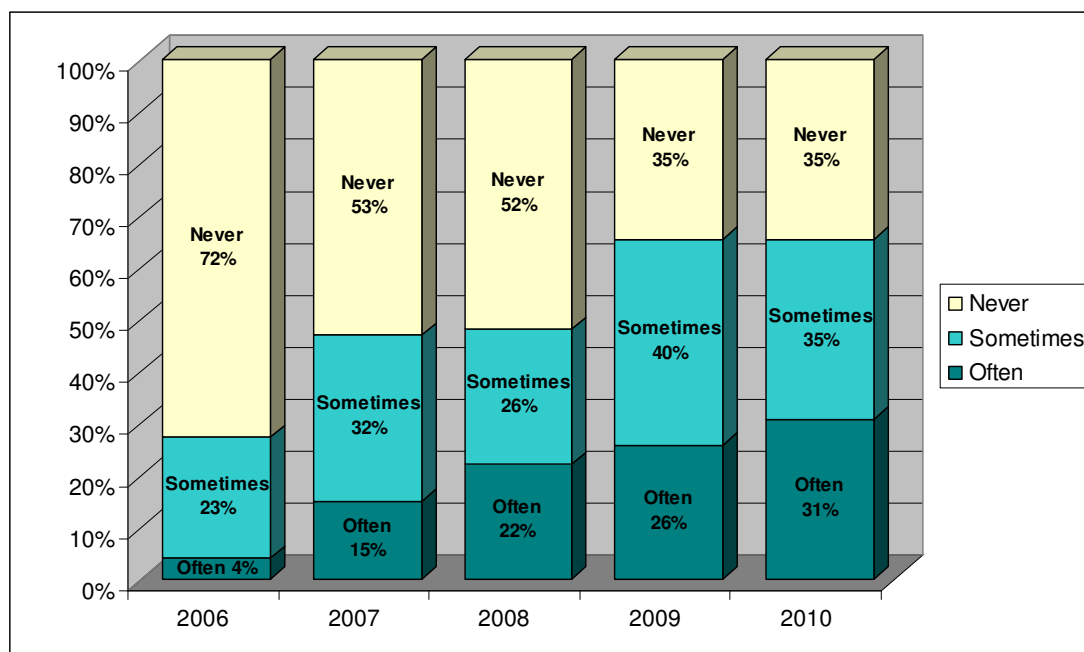
When rock fishing, do you -	Never		Sometimes		Often	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
<b>Wear a life-jacket or other flotation device</b>	37	34.6	37	34.6	33	30.9
<b>Turn your back to the sea when fishing</b>	59	55.1	34	31.8	14	13.1
<b>Wear gumboots or waders</b>	48	44.9	42	39.3	17	15.9
<b>Drink alcohol when you are fishing</b>	63	58.9	29	27.1	15	14.0
<b>Take a cell phone in case of emergencies</b>	7	6.5	11	10.3	88	82.2
<b>Check weather/water conditions first</b>	6	5.6	21	19.6	80	74.8
<b>Go down rocks to retrieve snagged line</b>	50	46.7	25	23.4	32	30.0

While the positive change in behaviour related to the use of life-jackets/flotation devices, one of the key safety messages of the 2009 fishing safety promotion, is gratifying, it is still a concern that more than one third of fishers (35%) report *never* wearing any life-jacket/buoyancy aid. When analysed over the 5-year duration of the project to date, the increase in use of life-jackets/PFD's has been very consistent and pronounced (see Figure 15). Changing behaviours among such a transient and difficult to reach sub-population has always been a challenge in west coast fisher drowning prevention but this result over 5-year period suggest that the education



intervention has shifted a traditionally intransigent behaviour. 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. A change of this magnitude in the voluntary wearing of protective gear (c.31%) has been identified in studies on the introduction of compulsory bike helmet legislation in Australia as an important precursor to the successful implementation of safety legislation. In contrast to this success, recent evidence from Australia suggest that, as was the case in New Zealand at the start of this campaign in 2006, over 80% of Australian fishers recently surveyed never or only sometimes wore life jackets (Mathews, Thompson, & Bracchi, 2010).

**Figure 15. Self-reported safety behaviours, 2006-2010**  
**- When fishing from rocks do you wear a life jacket? (Q13, part 1)**



With the exception of the non-use of lifejackets, other at-risk behaviours have not diminished over the years. The contributing factors that may explain this persistence into 2010 include the predominance of males among fishers (83%), the transience of the fisher population only one third of respondents (32%) had taken part in previous surveys, and the culturally and linguistically diverse population with nearly half (43%) of the survey respondents having completed the non-English version of the questionnaire). In addition, one third of the respondents were also first time users of the site where interviewed (2010, 31%, 2006, 36%) and thus may not have seen the recently installed safety signage or angel rings. Finally, many of the respondents in each year of the study had lived for less than 4 years in New Zealand (2010, 36%). As stated in the previous (Moran, 2008, 2009), 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.

**Figure 16. Self-reported safety behaviours, 2006-2010**  
**- When fishing from rocks do you check weather beforehand? (Q13, part 2)**

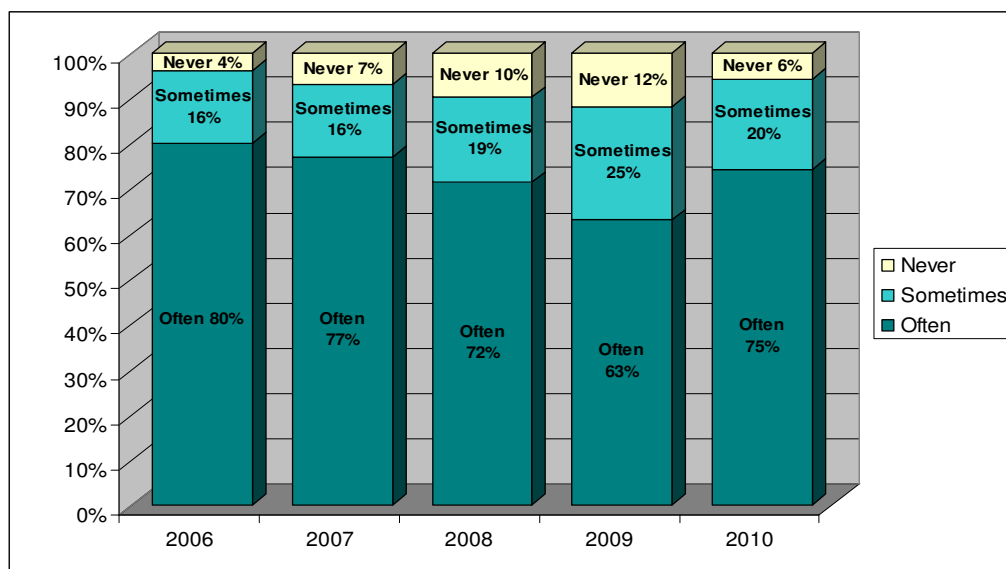


Figure 16 shows from 2006 -2010, that three-quarters of fishers (range 72-80%) often checked the weather beforehand and a small proportion (range 4-12%) consistently *never* checked the weather.

**Figure 17. Self-reported safety behaviours, 2006-2010**  
**- When fishing from rocks do you drink alcohol? (Q13, part 3)**

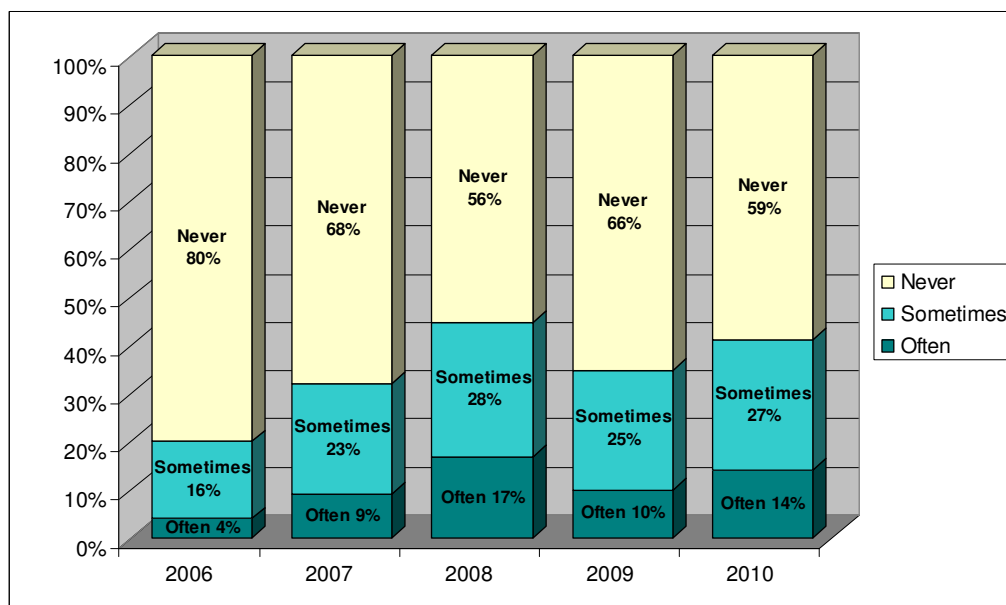


Figure 17 shows that most fishers did not mix alcohol with fishing but, consistently over the five-year period, one third of fishers sometimes or often did consume alcohol when fishing at these high risk site, and the proportion abstaining from alcohol consumption appeared to drop slightly (2006, 80%; 2010, 59%).

Figure 18 shows that, in spite of safety messaging throughout the campaign, many fishers *often* (range 13-24%) or *sometimes* (range 23-45%) wore waders or gumboots.

**Figure 18. Self-reported safety behaviours, 2006-2010**  
**- When fishing from rocks do you wear gumboots or waders? (Q13, part 4)**

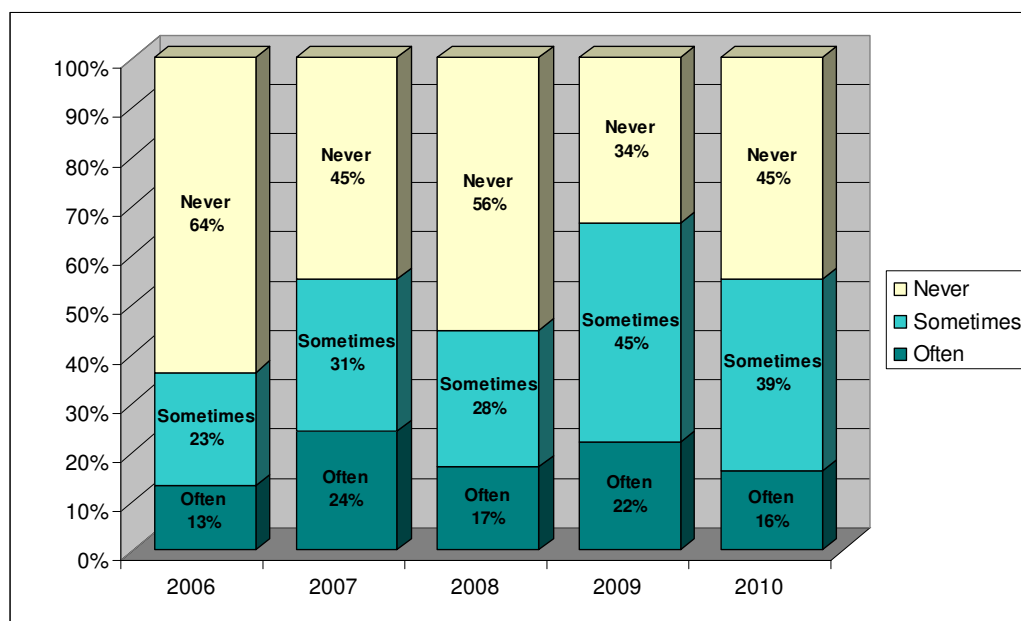
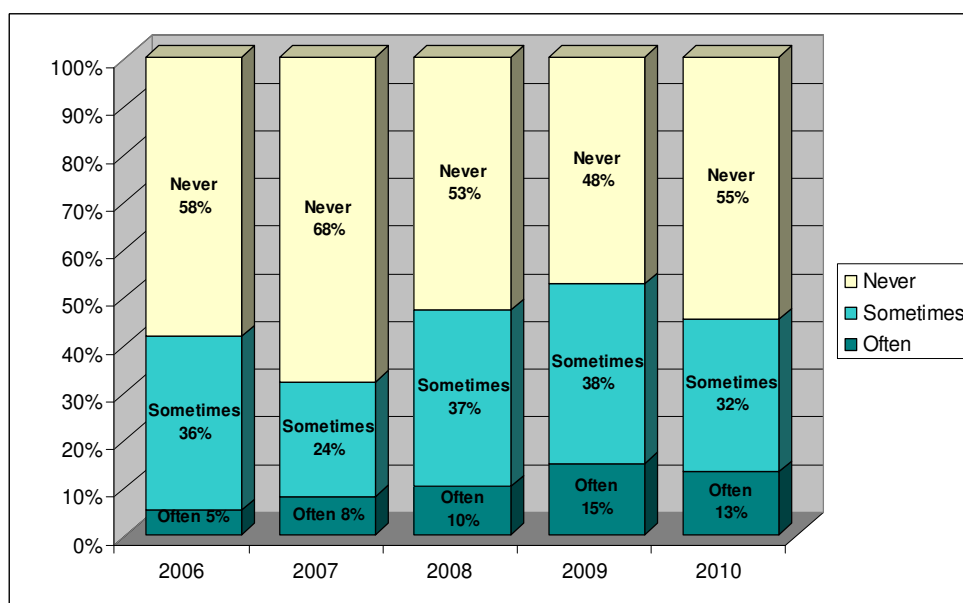


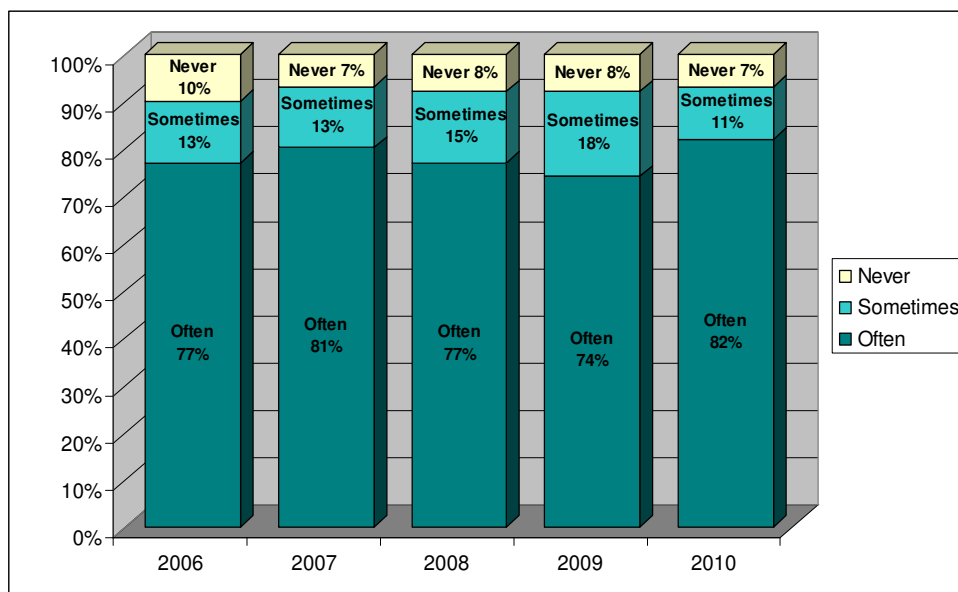
Figure 19 shows that more than half of participants (range 48-68%) *never* turned their back to the sea when fishing, but that many did *sometimes* (range 24-38%) or *often* (range 5-15%).

**Figure 19. Self-reported safety behaviours, 2006-2010**  
**-When fishing from rocks do you turn you back on the sea? (Q13, part 5)**



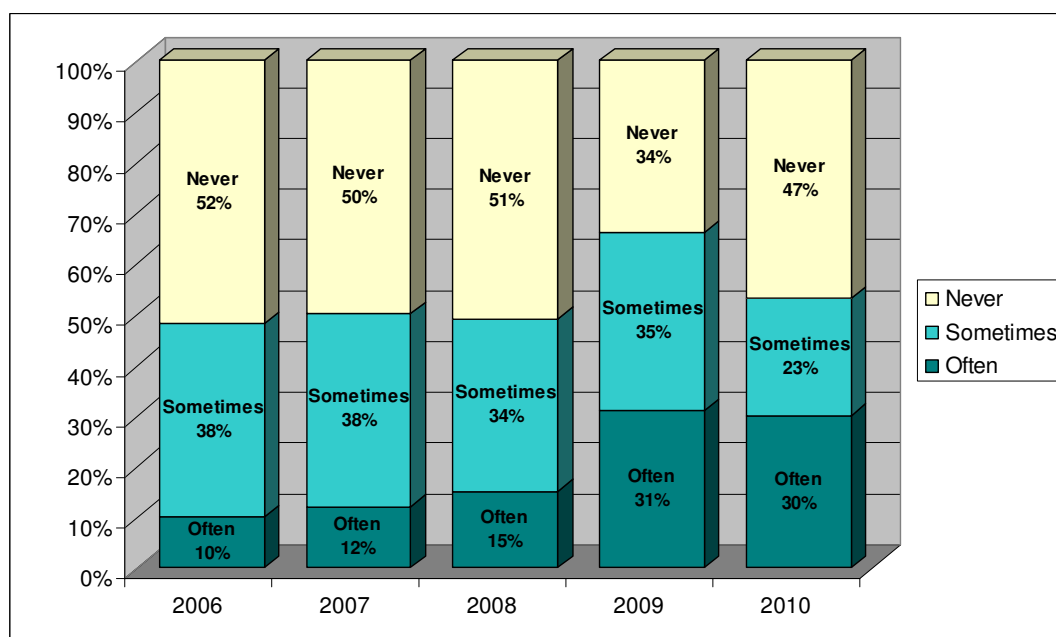
Fishers were asked whether they carried a cell phone for emergency use (see Figure 20). More than three-quarters (range 74-82%) of fishers reported that they *often/always* carried a cell phone when fishing whereas a small proportion (range 7-10%) *never* carried one.

**Figure 20. Self-reported safety behaviours, 2006-2010**  
**- When fishing from rocks do you carry a cell phone (Q13, part 6)**



The final self-reported behaviour related to the dangerous practice of going down the rocks to the waters edge to retrieve a snagged line. Figure 21 shows that approximately half of the fishers from 2006-2010 reported that they never did this (range 34-52%). However many fishers reported that they *sometimes* (range 23-38%) or *often* (range 10-31%) did engage in this risky practice.

**Figure 21. Self-reported safety behaviours, 2006-2010**  
**- When fishing from rocks do you go down the rocks to retrieve snagged line? (Q13, part 7)**



## 4.6. Changes in Fishers' Knowledge, Attitudes and Behaviours

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 four years after the first year of the inception of the Project in 2006 (see question 14, Appendix 1). Table 10 shows that two thirds of fishers (66%) considered that their safety knowledge had improved in the past four years, a small proportion (4%) thought that it had not improved and one fifth (20%) didn't know whether it had improved, a slight improvement on the 2007 findings. Almost two thirds (62%) considered that their safety attitudes had improved, though some (12%) considered that their attitude had not improved. As was the case in 2007, approximately half of the fishers in 2010 thought that their safety behaviour when fishing had improved (2010, 62% compared with 2007, 53%).

*Table 10. Comparison of Self-Reported Changes in Fishers' Safety Knowledge, Attitudes and Behaviours, 2007-2010*

In the past year -	Year	Agree		Disagree		Don't know		Total	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Your rock fishing safety knowledge has improved?	2010	71	66.4	15	4.0	21	19.6	107	100.0
	2007	71	63.4	7	6.3	34	30.4	112	100.0
Your rock fishing safety attitude has improved?	2010	66	61.7	13	12.1	28	26.2	107	100.0
	2007	70	62.5	10	8.9	32	28.6	112	100.0
Your rock fishing safety behaviour has improved?	2010	66	61.7	14	13.1	27	25.2	107	100.0
	2007	59	52.7	17	15.2	36	32.1	112	100.0
Your mates rock fishing behaviour has improved?	2010	50	46.7	17	15.9	40	37.4	107	100.0
	2007	59	52.7	8	7.1	45	40.2	112	100.0
Other rock fisher's behaviour has improved?	2010	45	42.1	18	163.8	44	41.1	107	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 10 shows that fewer participants in 2010 compared with 2007 thought that the safety behaviour of their mates (2010, 47%; 2007, 53%) or other fishers (2010, 42%; 2007, 55%) had improved.

## 5. Recommendations

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

### **1. To the Auckland Regional Council (ARC) or its 2011 equivalent:**

- 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 2011 summer campaign and on a permanent basis thereafter.
- Given the ethnic diversity of the rock fishing population, retain the multilingual advisory service and look to ways of presenting safety information in multiple languages
- Promote and support regional leadership via the inaugural super-city governance structure to support future fishing safety promotion, including the installation of angel rings, or other public rescue equipment, and safety signage at high risk sites thereby affirming the Region's commitment to maintain harbour and coastal safety
- Consider the implementation of legislation through local by-laws of the compulsory use of lifejackets at high-risk west coast fishing sites
- Scope the benefits of other types of public rescue equipment

### **2. To WaterSafe Auckland, Surf Life Saving Northern Region 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 2010.
- 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:**

- Adopt and endorse 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.

### **4. To lifejacket manufacturers and distributors**

- Continue to support the West Coast Fishing Safety Project.
- Advocate for the promotion of rock fishing safety with retailers.

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# 7. Appendix

## **7.1 Appendix 1 - The survey questionnaire**

## Rock-Fishing in Auckland: 2010-

From 2006-09, Auckland's west coast rock fishers have been asked 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 coast rock-fishing project in the past FOUR 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 angel rings on the west coast?**  
Yes No If **Yes**, do you think they are-  
Essential  
Very useful  
Not very useful  
Waste of money  
Don't know
- 10. Can you suggest other dangerous sites without angel rings on the west coast -**

**11. Do you think that the angel rings**      **Strongly Agree**      **Agree**      **Unsure**      **Disagree**      **Strongly Disagree**

1 – Have clear instructions on how to use them  
 2 – Are the best source of assistance  
 3 – Are located in the most suitable sites

**12. Do you think that-**      **Strongly Agree**      **Agree**      **Unsure**      **Disagree**      **Strongly Disagree**

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

**13. When rock fishing, do you –**      **Never**      **Sometimes**      **Often**      **Always**

1 Wear a lifejacket/buoyancy aid  
 2 Check weather forecast beforehand  
 3 Drink alcohol when fishing  
 4 Wear gumboots or waders  
 5 Turn your back on the sea  
 6 Take a cell phone in case of emergencies  
 7 Go down the rocks to retrieve snagged line

**14. Do you believe that:**      **Agree**      **Disagree**      **Don't know**

1 My knowledge of rock fishing safety has improved in the past 4 years  
 2 My practice of rock fishing safety has improved in the past 4 years  
 3 My attitudes towards rock fishing safety have improved in the past 4 years  
 4 My rock fishing mates seem more safety conscious in the past 4 years  
 5 Other rock fishers around me seem more safety conscious in the past 4 years

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

