West Coast Rock-based Fisher Safety Project 2015 - A Decade On

Preface and Acknowledgements

This report is an evaluation of the 2015 West Coast Rock-based Fishers Project developed by the Auckland Council, Surf Life Saving Northern Region (SLSNR), and WaterSafe Auckland Incorporated (WAI). It also marks the 10th year of the Project during which time many people have been involved in supporting and promoting water safety to prevent drowning. Collectively, these people can take great pride in a job well done, lives have been saved - one incident at Muriwai alone at the start of the 2014-15 season bears testimony to that and details are included in this Report. We are especially appreciative of the longstanding commitment and foresight of Cr Sandra Coney and the Parks, Recreation and Heritage Forum - their continued enthusiasm and support has ensured the success of the project.

We would also like to thank the Iwi of Te Kawerau a Maki, and the Lusk and Woodward families 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 Reg Phillips, Auckland City Council; David Butt of Surf Life Saving Northern Region; and Teresa Stanley and Harry Aonga, WaterSafe Auckland. Stuart Leighton, Auckland Council parks ranger again deserves recognition for his outstanding commitment and leadership of the project in the field.

Finally, a very special vote of thanks to the field officers, John Yoo, and lifeguards Sarah Lodge and Nikolai Gordon. They 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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Further copy of the report is available in PDF format on the WaterSafe Auckland website under Community/Research/ Rock Fishing at: Available in PDF format at:
http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

1. Background

This is the tenth year of the *West Coast Rock-based Fisher Safety Project*, a collaborative intervention by the Auckland Council, WaterSafe Auckland Inc. (WAI), and Surf Life Saving Northern Region (SLSNR). This reports provides information on the impact of a decade-long intervention aimed at reducing land-based fishing fatalities and promoting a safety culture among this high risk group of aquatic recreationalists.

2. Purpose

The purposes of this tenth year 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 after 10 years of safety promotion
3) To make recommendations for future rock fishing safety promotion based on the information obtained

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 2015. For 2015, in addition to the written questionnaire, an electronic version (first trialled in 2014) was developed for on-site completion. The use of e-survey allowed more extensive collection of data and in a greater number of sites (2015, n = 15; 2014, n = 8). A total sample of 413 fishers voluntarily completed a written questionnaire (n = 24) or an electronic version (n = 389). The survey sought information on whether fishers had taken part in the previous campaigns, awareness of the current fishing safety promotion, opinions on angel rings as public rescue equipment (PRE) on the west coast, and perceptions of fishing dangers and their capacity to manage associated risk when fishing from rocks on Auckland's west coast.

4. Key Findings

4.1 Participant demographics:

- The sample was predominantly males (males 91%) and most fishers were aged between 20-44 years (68%).
- Proportionally more Asian peoples (52%) completed the survey, proportionally less European (16%) and Maori (11%) New Zealanders took part.
- One third (35%) had lived in New Zealand all their lives, one quarter (27%) were of recent residency (<10 years).

- One third (34%) had visited the site where surveyed less than 6 times, although familiarity with the site had increased over previous years with almost one third (31%) having visited the site >20 times.
- The reason most fishers gave for fishing on the day of interview was fun and enjoyment (48%), one quarter reported the reason was to be with mates (22%) or have a day out from work/home (3%), and a quarter (28%) said it was to feed the family.

4.2 Awareness of the West Coast Rock-based Fisher Safety Project

- One half of fishers (50%) reported that they were aware of previous west coast fisher safety projects (2014, 33%)
- Of these, most fishers (88%) thought that the campaign had been successful, 10% felt it had been slightly successful, 2% thought it had not or did not know.
- Fewer fishers (37%) were aware of the current 2015 Project (2014, 55%), possibly the consequence of the survey being carried out in additional remote sites
- Of these, most (42%) identified the fishing advisors as their source of information. Other sources included newspapers (14%), radio (21%), retail outlets (10%), magazines (7%) and television (5%).

4.3. Public Rescue equipment (PREs) – angel rings, throw bags etc

- Most fishers (75%) had seen the on-site angel rings (2014, 71%).
- Only one quarter (26%) of fishers had read the instructions on how to use the angel rings.
- Most (71%) fishers thought that they could use the angel rings in an emergency.

4.4. Perceptions of Drowning Risk

- Most fishers (77%) agreed that getting swept off rocks was likely to result in their drowning (2014, 89%).
- Two thirds (68%) agreed that drowning was a constant threat when fishing from rocks on the west coast of Auckland (2014, 70%).
- Almost one half (46%) thought that other fishers were at greater risk than themselves; 38% considered that they were strong swimmers compared with others (2014, 42% and 32% respectively).
- Most (73%) agreed that wearing a lifejacket made rock-based fishing safer (2014, 88%).
- Most (92%) avoided fishing in bad weather (2014, 89%).
- Most (73%) thought that turning their backs to the sea was very dangerous (2014, 85%).
- Almost half (48%) thought that their swimming proficiency would get them out of trouble (2014, 37%).

- One half (49%) thought that their local knowledge would keep them out of trouble (2014, 50%).
- More than one half (56%) thought that their experience of the sea would keep them safe when fishing from rocks (2014, 46%).

4.5. Water Safety Behaviours of Fishers

- Slightly more fishers reported *often/always* wearing a life-jacket/buoyancy aid (2015, 40%; 2014, 37%).
- It is a continuing concern that more than one third of fishers (38%) report *never* wearing any life jacket/flotation aid.
- Most fishers (84%) reported *never* consuming alcohol when fishing (2014, 70%) Continued promotional work on the folly of mixing alcohol with fishing from rocks is required.
- More fishers (39%) reported *sometimes/often* wearing gumboots/waders, 80% fewer (46%) reported going down rocks to retrieve snagged lines (2014, 33% and 80% respectively).

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

- Most fishers (90%) considered that their safety knowledge had improved in the past year (2014, 71%).
- Most fishers (84%) considered that their safety attitudes had improved (2014, 72%).
- Most fishers (83%) of the fishers thought that their safety behaviour when fishing had improved (2014, 70%).
- Most fishers thought that the safety behaviour of their mates (75%) or other fishers (79%) had improved (2014, 29% and 30% respectively).

Summary of trends over 10 years

- **Drowning fatalities have reduced to less than 1 per annum since the inception of the fisher safety project**
- **Fishing populations continues to be transient, culturally and linguistically diverse**
- **The environment continues to challenge the endeavours of safety advocates**
- **Behaviour change has taken place with regard to lifejacket use, other risky behaviours (such as retrieving lines) have proven to be more resistant to change**

5. The Fishing Project in action:

Below are instances of action that reflect the human face of the Project - pictorial and oral comment that brings to life the data analysis and comments contained in this Report.

- **Getting the message across**

The decade-long intervention has consistently focussed on the need to educate fishers about the critical value of lifejackets (PFD's) when fishing from rocks off Auckland's rugged west coast. In 2006, the first survey found that only 4% of fishers regularly wore lifejackets; in 2015, the tenth annual survey has reported that 40% now often /always wear lifejackets. This behaviour shift is significant because it has occurred in spite of the transitory nature of the fisher population over the years, the difficulty of reaching a culturally and linguistically diverse population, and the isolation and remoteness of the sites. The increased wearing of lifejackets can be attributed in no small part to the frontline energy and commitment of the park rangers, fishing advisors, and lifeguards – the vanguard of the Project.

Illustration: Lifeguard Nikolai Gordon works with fishers gathering survey data using an I-pad - all fishers are wearing lifejackets

(Photo courtesy of David Butt, Muriwai LGS & SLSN)

A quote from one of the team succinctly reflects the success of face-to-face promotion of the lifejacket safety message:

> *"I surveyed three men at Whites last week who didn't fish in lifejackets. Was back there yesterday and it was fantastic to see all three of them in new life jackets. They were very proud to show them off. Very glad the message is getting out there!"*
>
> (Source: lifeguard Sarah Lodge)

- **A lifesaving episode**

The following incident occurred at the start of the 2014-15 summer season. Comment reported verbatim below from David Butt, a senior lifeguard at Muriwai, provides a first-hand account of what was an extremely hazardous and life threatening incident, not only for the victims but for the rescuers as well.

> "*This was on 16/11/2014 at around 1722. Strong westerly winds and choppy conditions with 1.5-2m waves. Incident occurred when three males were fishing south of Maori Bay. Two fell in/were swept off rocks. One managed to make it to shore and raise the alarm, while the other two managed to get safely up the rocks, sustaining minor leg injuries. Due to a language barrier, the search took almost an hour before we were able to locate them with the assistance of the Westpac Helicopter. Both were in an incredibly difficult space to reach, and we eventually made the decision to swim in there. Both were wearing lifejackets which ultimately saved their lives - both from drowning in the initial phase, allowing them to scramble out of danger, and most likely hypothermia post this due to the length of search. Although both patients were relatively cold, they were both safely extricated with one winched by Westpac and the second brought out by IRB. There is no doubt lifejackets saved their lives on this day- three drownings were prevented in what could have been a disastrous start to the summer season."*
>
> David Butt, Muriwai Lifeguard Service & Surf Life Saving Northern

The economic cost of a loss of human life from drowning in New Zealand has been conservatively estimated as $3.4 million (December 2008 dollars, ACC, PwC calculation) (Accident Compensation Corporation, 2009). On the basis of this estimate and the expert eyewitness account provided above in this one incident alone, it is probable that the economic impact of the wearing of lifejackets of the fishers involved was a multi-million dollar return on investment.

A fisher at Muriwai is advised about the precarious nature of his fishing spot!!
(Photo: Courtesy of David Butt, Muriwai LGS, SLSN)

6 Summary of Key Safety Promotions, 2014-2015

Key tasks:

- Land-based fishing promotion in four fishing retail stores.
- Release two media articles on land-based fishing safety.
- Align media messaging to, and were possible deliver in partnership with, other Pacific and Asian targeted campaigns.

Ambient marketing, via Ambient Group.
Production and installation of Rock Fishing Safety decals (A3 size) on bait freezers in 85 locations across Auckland, via Z petrol stations and various fishing/marine. These were installed WC 25 May, expected removal WC 29 June. As at 30 June 18 stores elected to keep the decals in place and at the time of writing this report they are still in situ. These were:

Burnsco, Albany	Top Catch, Clevedon	Hunting & Fishing, East Tamaki
Top Catch, Glen Innes	Top Catch, Half Moon Bay	Burnsco, Half Moon Bay
Burnsco, Manukau	Kev and Ians Marin, Manurewa	Rod & Reel, Newmarket
Go Fish, Northcote	Top Catch, Otahuhu	The Big Fish, Pakuranga
Fishing Direct NZ, Silverdale	Sailors Corner, Westhaven	Smart Marine, Westhaven
Top Catch, Westhaven	Burnsco, Whangaparaoa	WSL, Westhaven

Bait freezers: (L) Burnsc, Manukau (R) Oscarma Fishing Tackle, Balmoral

Where's Harry? – Retail store promotion – Safety at Sea, 79 Gaunt Street, Westhaven, Auckland: Pauls Kite Fishing, 39A Nelson Street, Onehunga, Auckland: Arataki Visitors Centre, Auckland.
Supporting the project's increased awareness around lifejacket wearing.


Where's Harry? (L) Paul's Kite Fishing, Onehunga (M) Safety at Sea, Westhaven (R) Arataki Visitors Centre

Media coverage (5)

Print

- Front page, Nor-west News, 19 February 2015

Radio

- Hapai Hour (Nov 2014) interview Jonny Gritt
- 531PI (Jan 15) interview Harry Aonga

TV/Video

- World TV (June 2015) interview Jonny Gritt and Alan Chow
- Nor-west News posted video footage rescue drills off Flat Rock, from Tongan fishers workshop. https://youtu.be/-CggIUmlQKE

Nor-west News

YOUR PLACE, YOUR PAPER Thursday, February 19, 2015

We've had about 300 responses, a huge increase from last year. To date we haven't had a drowned fisherman.

– David Burt

Safety gear rocks

In November 2014 we entered dialogue with Auckland Council Communications team who had drafted a Rock Fishing press release, it was not published.

Resource Distribution

- 1,782 Rock Fishing Safety Brochures were distributed via 49 programmes and community events.
- 138 copies of “There Will Be Another Day’ DVD were distributed, featuring two stories of survival while land-based fishing.
- 417 copies of the New Settler Water Safety DVD were distributed, featuring Rock Fishing segment.

7. RECOMMENDATIONS

A decade has passed since organisations and individuals, concerned about the needless loss of live as a consequence of fishing on Auckland's west coast, addressed the issue through education and safety promotion. The success of the Project in saving lives is contingent upon the continuation of the support of the Council and the efforts of the collaborating organisations.

A persistent feature of the Project evident in the past decade is the transience of the fisher population - not only is it culturally diverse and recreating in isolated locations, it is an ever changing group.

To that end, it is recommended once again that:

1. Auckland Council:

- Retain the services of the safety advisors for a 2015/16 summer campaign
- Continue to provide regional leadership and support future fishing safety promotion, including the installation of angel rings and safety signage at high risk sites.

2. 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 2015.

3. Recreational fishers, fishing organizations, lifejacket retailers, fishing outlets:

- Adopt and endorse the fishing safety messages promoted by the 2015 West Coast Rock-based Fisher Safety Project.
- Encourage others in the rock fishing community to adopt safe practices - especially the wearing of 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.
- Advocate for the promotion of rock fishing safety with community groups especially those that are identified high-risk including new migrants, Pasifika and Asian peoples.

Table of Contents

1. Background

In New Zealand, 7% of all drowning fatalities occurred whilst participating in land-based fishing activity in the 10 years from 01 January, 2006 - 04 August 2015 (YTD) (Water Safety New Zealand, DrownBase, 2015). During that decade, fifty seven people died while participating in land-based fishing, with surf beaches (25%, *n* = 14) and rocky foreshores (33%, *n* = 19) being the location for most (58%) of the fatal incidents. In almost all of these instances (97%, *n* = 32), the victims were male. In terms of ethnicity, Maori (27%), Pasifika (24%) and Asian (18%) peoples were over-represented - European/Pakeha (24%) were under-represented in comparison with their national distribution (15%, 7%, 12% and 74% respectively. (Source: Statistics New Zealand, 2014). In terms of age, most fisher victims were aged between 25-45 years at the time of the drowning incident (64%, *n* = 21).

In 2006, a rock-based fisher safety campaign was launched in the Auckland region of New Zealand to combat the spate of drowning incidents associated with fishing from rocky foreshores. The Auckland Regional Council (ARC), WaterSafe Auckland Inc. (WAI), and Surf Life Saving Northern Region (SLSNR) initiated a fishing safety campaign entitled the *West Coast Fishing Safety Project* in the summer of 2006. The campaign established a fishing safety education programme that would help fishers identify and manage the risks associated with rock-based fishing on Auckland's rugged west coast. A survey of fishers was conducted to better understand fisher demographics, their knowledge of fishing safety knowledge, as well as gain information on their belief and behaviours.

The 2006 survey revealed new and alarming statistics about risky behaviours that predisposed many fishers to harm in the highly dangerous locations in which they fished. Many had limited safety skills and an overly optimistic view of their survival skills in a high-risk fishing environment (Moran, 2008). In terms of survival ability, one third (n = 81; 32%) of fishers estimated that they could not swim 25 m. Most fishers reported limited/no ability to perform CPR (n = 155; 62%). Many took unnecessary risks when fishing from rocks. For example, almost one half (n = 120; 48%) had gone to the water's edge to retrieve a snagged line and one fifth (n = 50; 20%) admitted having consumed alcohol while fishing from rocks. Most fishers agreed that always wearing a

life jacket made fishing a lot safer (n = 177; 71%), yet almost three quarters (n = 180; 72%) admitted that they never wore a life jacket.

Fishing safety messages that address the twin dangers of overestimation of ability and underestimation of risk, especially at high-risk fishing locations, were recommended (Moran, 2008). The survey also revealed that the fishing population was culturally and linguistically diverse, was of recent residency, and were not frequent visitors to the sites where surveyed (Moran, 2006). The implications of this diversity, the transience of the population, and the remoteness of the site of activity were recognized barriers to be overcome in subsequent safety promotion.

The Auckland-based project is unique in that the fishing safety education programme is conducted on-site at high-risk fishing locations with supplementary promotion of safety messages via relevant media outlets of television and radio, newspapers and magazines as well as through retail outlets and community organizations. Static displays of fishing safety, written material and verbal advice from the trained field officers were the educational tools used for on-site promotion of fishing safety. The findings of the initial study were reported back to the participating organizations who decided that the project would be continued for an additional two years (Moran, 2006). At the end of the 3-year period in 2008, the project was extended for another two years and the information obtained from annual surveys conducted from 2006-2010 provided the data for a paper published in 2011 entitled *Rock-based fishers safety promotion: Five years on* (Moran, 2011).

A decade of sustained commitment by the collaborating organisations based on an annual survey of rock-based fishers has meant that the Project has been able to grow organically in response to observed and reported knowledge, attitudes, and behaviours (K-A-B). Initial emphasis on finding out what fishers knew, thought and did about safety has been able to shift safety messages in a reflexive way to influencing behaviours most likely to our fishers at risk of drowning. Some messages (such as the wearing of lifejackets) have been persistent, dominant, worthy of perseverance, and ultimately resulting in life saving behaviour changes. Other messages (such as not going down the rocks to retrieve a snagged line) have appeared more resistant to change. This Report provides a timely overview of the current safety practices and beliefs of and a timely opportunity to see whether the years of safety promotion have been effective.

2. Purpose and Outcomes of the Study

2.1 Purpose

The purposes of this tenth year of the project were fourfold:

- To continue the on-site rock fishing safety education promotion initiated in 2006;
- To evaluate the effects of a decade-long intervention;
- To determine the effect of the project on Auckland's west coast fishers' safety practices and beliefs, and
- To make recommendations for continued 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 during the summer months of 2014-15,
2. Survey fishers to find out 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

3.1 Procedures

As in previous years, 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 others 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 survey was made to all adult fishers over 16 years of age.

The questionnaire was again produced in English, Mandarin and Korean. The survey data gathering took place from January – March, 2015 and included several peak holiday weekdays and weekends. The sites were chosen at random and included popular and high risk west coast sites at Muriwai (including Flat Rock, Maori Bay, Pillow Lava Bay, and Collins Bay), Piha, Karekare (including Whites Beach, Mercer Bay), Bethells (including O'Neils Beach), and Whatipu (including Anawhata, Paratutai Rock and Nine Pin Rock). The sample did not include fishers who used the sites at times outside 'peak' hours (such as night fishing) or fishers who frequented other high-risk west coast locations.

One major difference in the data gathering was the more extensive use of the e-questionnaire and I-pads, first trialled in 2014. The issue of I-pads and the availability of staff to conduct the survey electronically allowed more extensive collection of data and in a greater number of sites (2015, n = 15; 2014, n = 8). The electronic version as only available in English and this may have created a response bias for participants whose first language was not English.

3.2 Measures

The structured written and electronic survey (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, 11 of which had been included in the five previous surveys since 2009. Five questions sought socio-demographic information on gender, length of residency, age, ethnicity, and their previous rock fishing activity.

A question (introduced in 2014) that sought information on what was the primary reason for the fishers fishing on the day they were surveyed. The question included five possible responses: 1) For fun and enjoyment, 2) To feed the family, 3) To be with my mates, and 4) To have a day out from home/work. The reason for the inclusion of this question was to determine the accuracy of the claim that many fishers were engaged in fishing primarily for sustenance purposes in a low wage economy.

Two questions on at-risk fishing behaviours and perceptions of drowning risk from the earlier surveys were again included so as 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*.

As was the case in previous surveys from 2009, questions were included that sought information on public rescue equipment that had been installed at high risk sites in the previous 5 years. The first question asked whether fishers had seen the angel rings in high risk locations. The second questions asked fishers to report whether they had read the instructions accompanying each angel ring/throw bag. The third question asked if the fisher thought they could use the equipment in an emergency situation and the final open-ended question asked for suggestions about their installation and how they might be made more effective.

3.3 Data analysis

Data from the completed questionnaires were entered into Microsoft Excel 2010 for statistical analysis using SPSS Version 22.0 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. Trend lines are included in the graphics to indicate data direction over the 10 years that the Project has been conducted

4. KEY FINDINGS

The results of the 2015 survey are presented in six sections:

4.1 Demographics of Fishers

4.2 Awareness of West Coast Rock-based Fishing Safety Project

4.3 The Installation and Usage of Angel rings

4.4 Fisher Perceptions of Drowning Risk

4.5 Water Safety Behaviours of Fishers

4.6 Changes in Fishers' Knowledge, Attitudes and Behaviours

4.1 DEMOGRAPHICS OF FISHERS

A total of 413 questionnaires were returned from participants in rock fishing activity at popular locations on the west coast of Auckland including Muriwai (Flat Rock, *n* = 114, Maori Bay, *n* = 22, Pillow Lava Bay, *n* = 13, Collins Bay, *n* = 8, Mercer Bay , *n* =2), Piha (North Piha, *n* = 12, South Piha, *n* =45), Karekare (North Point, *n* = 42 and Whites Beach, *n* = 36), Whatipu (Anawhata, *n* = 18, Nine pin, *n* = 29, Paratutu, *n* = 20), Waitakere (Ding Bay, *n* =7) and Bethell's (Beach, *n* = 30, O'Neils Bay, *n* = 13) during the summer season of 2014.

Table 1. Demographic Characteristics of Fishers, 2015

Demographic Characteristic		***n***	***%***	**Total**
Gender	Male	378	91.4%	413 (100%)
	Female	35	8.5%	
Ethnicity	European	78	18.9%	413 (100%)
	Maori	45	10.9%	
	Pasifika	47	11.4%	
	Asian	216	52.3%	
	Other	27	6.5%	
Age group	15-19 years	13	3.1%	413 (100%)
	20-29 years	68	16.5%	
	30-44 years	211	51.1%	
	45-64 years	113	27.4%	
	65 years +	8	1.9%	
Length of residency	< 1 year	21	5.1%	413 (100%)
	1-4 years	38	9.3%	
	5-9 years	51	12.3%	
	>10 years	160	38.7%	
	All my life	143	34.6%	

Demographically, the participants in the 2015 survey reflected a similar mix as previously reported from 2006-2013. Fishers were predominantly male (91% male; 9% female) and most (68%; *n* = 279) were aged between 20-44 years (see Table 1). Proportionally more Asian peoples (52%; *n* = 216) completed the survey, whereas proportionally less European (19%; *n* = 78) and Maori (11%; *n* = 45) New Zealanders took part. One third (35%) had lived in New Zealand all their lives, more than one third (39%; *n* = 160) had lived in New Zealand less than 10 years, and one quarter (27%) were of recent residency (<10 years). The increased reporting of longer residency fishers suggests that fishers are less likely to be unfamiliar with the activity and coastline and may have been more completely acculturated into the aquatic lifestyle of New Zealand.

Table 2. Self-identified Ethnicity of Asian Fishers, 2015

Ethnic group	***n***	***%***
Chinese/Taiwanese	160	74.1%
Korean	45	20.8%
Indian	3	1.4%
Other Asian (Filipino, Japanese, Vietnamese)	8	3.7%
Total	216	100%

Table 2 shows that those who self-identified as of Asian origin were predominantly Chinese/Taiwanese (74%; *n* =160), Korean (21%; *n* = 45), and of other Asian origins including Indian, (1%; *n* = 4) and other Asian ethnicities (4%; *n* = 8). Because the electronic version of the survey (that was only available in English) was the most frequently used method of gathering data, no differentiation of response by language spoken was possible in the 2015 survey.

Table 3. Frequency at Site where Interviewed, Other Places Fished, and Reasons for Fishing, 2015

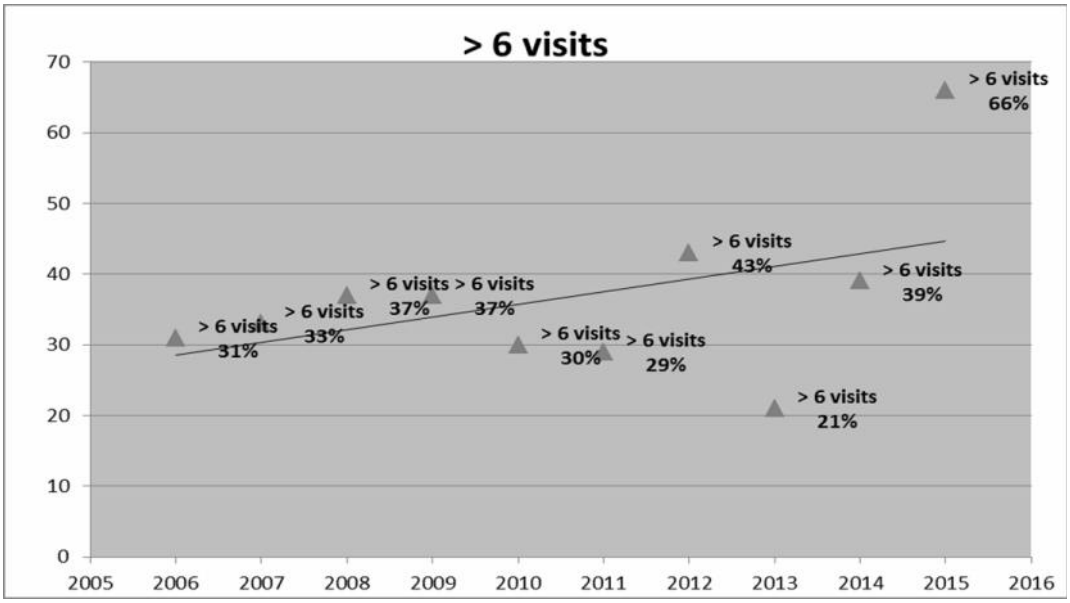
How often have you fished at this site?	***n/%***		**Cumulative %**
First time at site	73	17.7%	17.7%
2-5 times	66	16.0%	33.7%
6-10 times	83	20.1%	53.8%
11-20 times	63	15.3%	69.0%
>20 times	128	31.0%	100.0%
Where else have you fished?			
Other Auckland west coast sites	62		
Northland	4		
Auckland Harbours (inc. Manukau, Waitemata)	18		
Inner Hauraki Gulf (inc. Whangaparoa, Maraetai etc)	5		
Outer Hauraki Gulf (inc. Coromandel, Great Barrier Island)	8		
Other New Zealand sites	10		
Other not specified (inc. boats)	19		
What is the main reason for fishing today?			
Fun and enjoyment	199	48.2%	48.2%
Feed the family	114	27.6%	75.8%
Be with mates	89	21.5%	97.3%
Have a day off from work/home	11	2.7%	100.0%

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 one fifth (18%, *n* = 73) reported that this was their first visit to the site and one third (34%, *n* = 66) had visited the site up to 5 times. Cumulatively, most fishers (54%) reported that they had visited the site less than 10 times, but one third (31%, *n* =128) had visited the site more than twenty times. In comparison with previous years, fishers were more likely to be regular visitors to the sites and thus have greater experience of the west coast environment and the vagaries of its weather, tide, and surf conditions.

Figure 1 shows the trend line of the number of times fishers had visited the site at which they completed the survey from 2006 to 2015. Over the decade, the frequency of visits to the site where the fisher was surveyed has gradually trended upwards towards increased number of visits to the site.

Figure 1. Trend line of fisher visits to site, 2006-2015

Question: *"How often have you fished at this location?"*



When frequency of visits to the site where fishing was compared with the previous year, two thirds (66%) of the fishers reported that they had fished at the site more than 20 times (2014, 39%) and fewer fishers (18%) reported it was their first time at the site (2014, 24%) (see Figure 1a, Appendix 2). Cumulatively, one third (34%) of fishers had visited the site less than 5 times in 2015 compared with more than half (61%) in 2014.

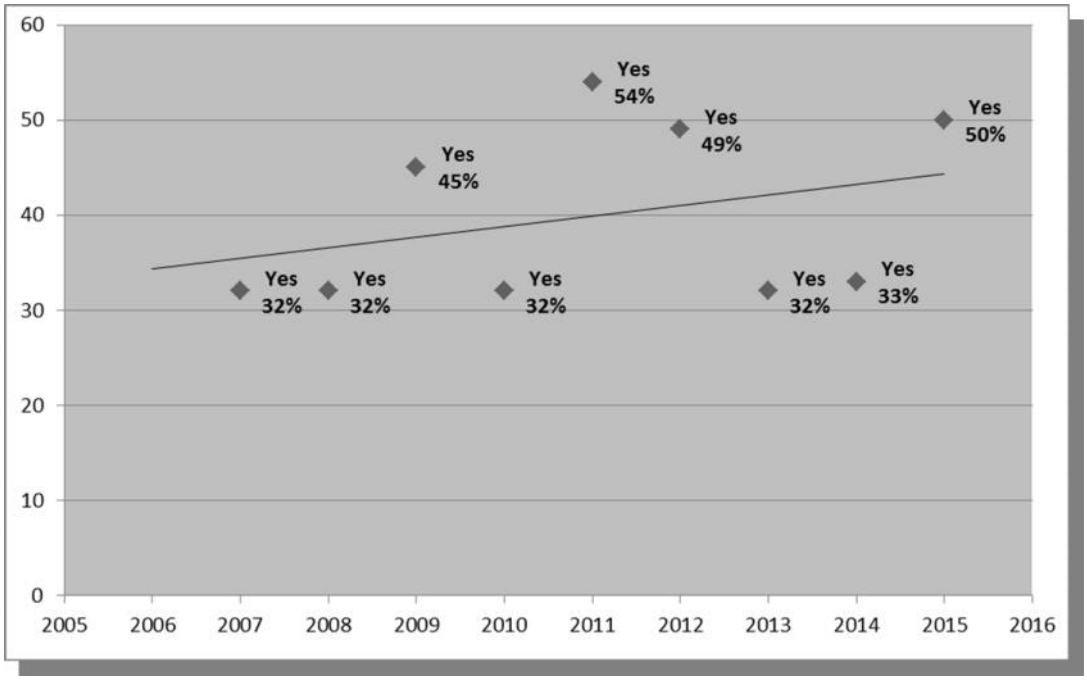
In addition to other indicators (such as greater use of English version survey responses, increased length of residency), it would appear that, after a decade of surveillance, the demographic pattern Auckland's West coast rock-based fisher population may be changing. Whether this trend is likely to be reflected in safer, greater awareness of the rock-based fishing campaign and more informed safety behaviours is the focus of subsequent reporting.

4.2 AWARENESS OF WEST COAST ROCK-BASED FISHING SAFETY PROJECT

Figure 2 shows the trend line of the number of times fishers who were aware of previous west coast fishing safety campaigns and had completed the survey from 2007 to 2015. Over the decade, more fishers were aware of the previous safety campaign although half (50%) still had not heard of the promotion in 2015, reinforcing previous comments about the difficulty of reaching every fisher in remote settings on Auckland's west coast where fishers engage in their activity.

Figure 2. Trend line of participation in previous fishing surveys, 2007-2015

Question: *"Did you take part in previous rock fishing surveys?"*



More fishers surveyed in 2015 reported that they had taken part in previous west coast rock-based fishing safety surveys compared with the previous year (2015, 50%; 2014, 33%) (see survey question 1, Appendix1). Reasons for a lack of consistency in awareness of the project are hard to determine. The increased number of sites surveyed and the use of e-surveys rather than hard copy written questionnaires available in multiple languages are possible reasons, as are difficulties in data gathering (such

weather, sea conditions) and lack of fisher motivation to comply with surveyor requests to take part as they become more familiar with the surveys existence each year.

Table 4 shows that, of the 207 fishers who had taken part in the previous surveys, most (88%; *n* = 182) considered that the campaign had been *highly successful/successful* compared with those who either considered it *slightly/not successful* (10%; *n* = 21) or who *did not know* (2%; *n* = 4).

Table 4. Participation in, and estimation of success of, the previous projects

Did you take part in the previous rock fishing projects?	***n***	**%**
Yes	207	50.1
No	206	49.9
Total	413	100.0
If Yes, how successful do you think it was?	***n***	***%***
Highly successful	57	27.5
Successful	125	60.4
Slightly successful	21	10.1
Not successful	0	-
Don't know	4	1.9
Total	207	100.0

When asked whether they were aware of the current fisher safety campaign, more than one third of fishers (37%; *n* = 152) reported that they were aware of the current campaign, a lesser proportion than that reported in the previous year (2014, 60%) (Moran, 2014). Table 5 shows that, when those who were aware of the 2015 project were asked how they had found out about the project, the fishing safety advisors (42%, *n* = 87) were identified as the most frequent source of information (2014, 57%). One fifth of fishers (21%, *n* = 42) identified radio, 10 percent identified television (5%, *n* = 10) and 14% identified newspapers (*n* = 28) as their source of information.

As was the case in previous years, many fishers had heard of the current safety promotion through the council-employed fishing safety advisors, which once again

reinforces 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, retail outlets, and magazines (as indicated by the lesser recall of the current project via these channels).

Table 5. Are you aware of, and how did you find out about, the current (2015) project?

Are you aware of the current (2015) project?	***n***	**%**
Yes	152	36.8%
No	261	63.2%
Total	413	100.0
If Yes, how did you find out about the current project?*	***n***	***%***
Fishing safety advisors	87	42.4%
Radio	42	20.5%
Newspapers	28	13.7%
Retail outlets	20	9.8%
Magazines	15	7.3%
Television	10	4.9%
Other sources (e.g. friends)	3	1.5%
Total	205*	100.0

*Participants were allowed multiple responses

4.3 PUBLIC RESCUE EQUIPMENT (angel rings, throw bags etc.)

Table 6 shows that three quarters of fishers (75%; *n* = 310) reported having seen the angel rings at popular fishing sites, the same proportion as in the previous year compared with slightly more than one half of the respondents (52%; *n* = 67) in 2009 who reported having seen the angel rings when they were first installed.

Table 6. Awareness of the angel rings, 2015

Have you seen the angel rings?	***n***	**%**
Yes	310	75.1%
No	103	24.9%
Total	413	100.0%

When asked if they had read the associated signage and instructions on how to use the rescue equipment in an emergency, only one quarter (26%, *n* = 106) of fishers reported that they had read the instructions. Even though so few of the fishers reported not having read the instructions, most (71%) thought that they could use the angel rings in an emergency. More than one quarter (29%, *n* = 119) reported that they did not think they could use an angel ring in an emergency. Given the isolation of most of the fishing locations on the west coast of Auckland, this is a major source of concern since bystander assistance is likely to be critical in the time before lifeguards and/or other emergency services are able to expedite a rescue response.

When asked for suggestions of ways of making the equipment more effective one fifth of fishers (21%) thought there should be more of them. Some fishers (*n* = 21) thought the angel rings should be placed closer to the water's edge, but, on reflection of the locations where they were interviewed, re-location closer to the water would not be feasible in high seas or big surf.

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 7. Fishers' Perceptions of Risk of Drowning, 2015

Do you think that-	Strongly agree/ Agree		Unsure		Strongly disagree/ Disagree	
	n	*%*	*n*	*%*	*n*	*%*
1. Getting swept off the rocks is likely to result in my drowning	318	77.0	27	6.5	68	16.4
2. Rock fishing is no more risky than other water activities	97	23.5	61	14.8	255	61.8
3. Drowning is a constant threat to my life when rock fishing	280	67.8	41	9.9	92	22.3
4. I am not concerned about the risks of rock fishing	122	29.5	34	8.2	257	62.2
5. Others rock fishers are at greater risk of drowning than me	189	45.8	151	36.6	73	17.7
6. I am a strong swimmer compared with most other people	157	38.0	71	17.2	185	44.7
7. I avoid fishing in bad conditions to reduce drowning risk	380	92.0	9	2.2	24	5.8
8. Always wearing a life jacket makes fishing a lot safer	305	73.8	57	13.8	51	12.3
9. Turning my back to the waves when rock fishing is very dangerous	300	72.6	26	6.3	87	21.1
10. My local knowledge of this site means I'm unlikely to get caught out	201	48.7	66	16.0	146	35.3
11. My experience of the sea will keep me safe when rock fishing	233	56.4	66	16.0	114	27.6
12. My swimming ability means I can get myself out of trouble	197	47.7	885	20.6	131	31.7

Table 7 shows responses to statements 1-3 (Question 12) that relate to fisher perceptions of the severity of the risk of drowning when fishing from rocks (see Appendix 1 – survey questionnaire). Almost all fishers (77%) agreed that getting swept off rocks was likely to result in drowning, more than half (62%) disagreed that fishing from rocks was no more risky than other water activities, and more than two thirds (68%) agreed that drowning was a constant threat to their life when rock fishing. As was the case in previous years, it appears that fishers have a greater appreciation of the risk of drowning associated with fishing from rocks off Auckland's west coast. It is hoped that this heightened sensitivity of risk will promote safer fishing practice within the fisher community.

Figure 3 shows the change in opinions on the severity of the risk of drowning related to getting swept off the rocks. The trend line suggest that fishers have become more aware of the risk of drowning at high risk rock based fishing sites over the decade from 2006 -2015.While previous responses that agree with this statement have varied in previous years (2006, 70%; 2012, 87%), the 2015 results reinforces a continued shift in risk awareness over the ten years that the project has been running (see Figure 3a, Appendix 2 for details).

Figure 3. Trend line of the severity of risk of drowning if swept off rocks while fishing, 2006-2015

Statement: "*Getting swept off the rocks is likely to result in my drowning"*

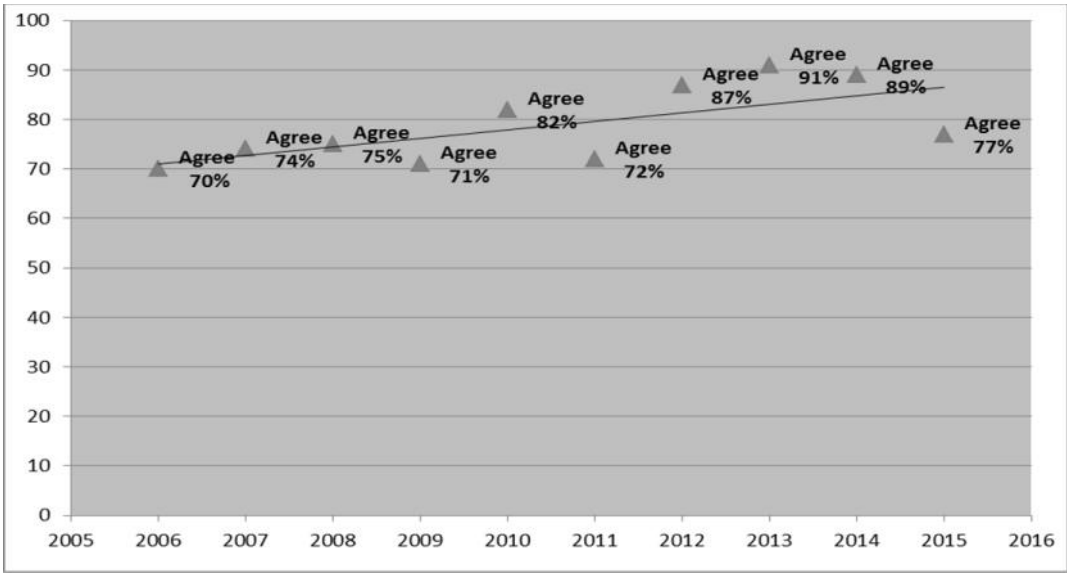
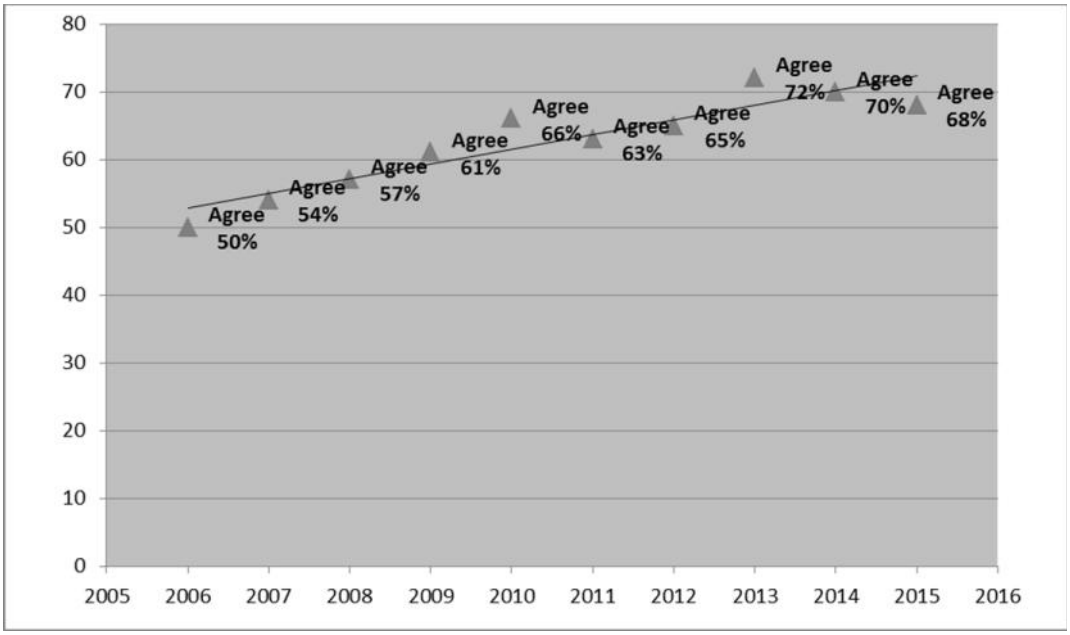


Figure 4 shows a similar upward trend in the 10 years from 2006-2015 with regard to their awareness of the risk of drowning when engaged in fishing from rocks off the West Coast of Auckland. It appears that fishers' sensitivity to the risk confronting them has heightened over the years which may suggest that their safety behaviours have improved.

Figure 4. Trend line of the severity of risk of drowning while fishing, 2006-2015

Statement: *"Drowning is a constant threat to my life when rock fishing"*

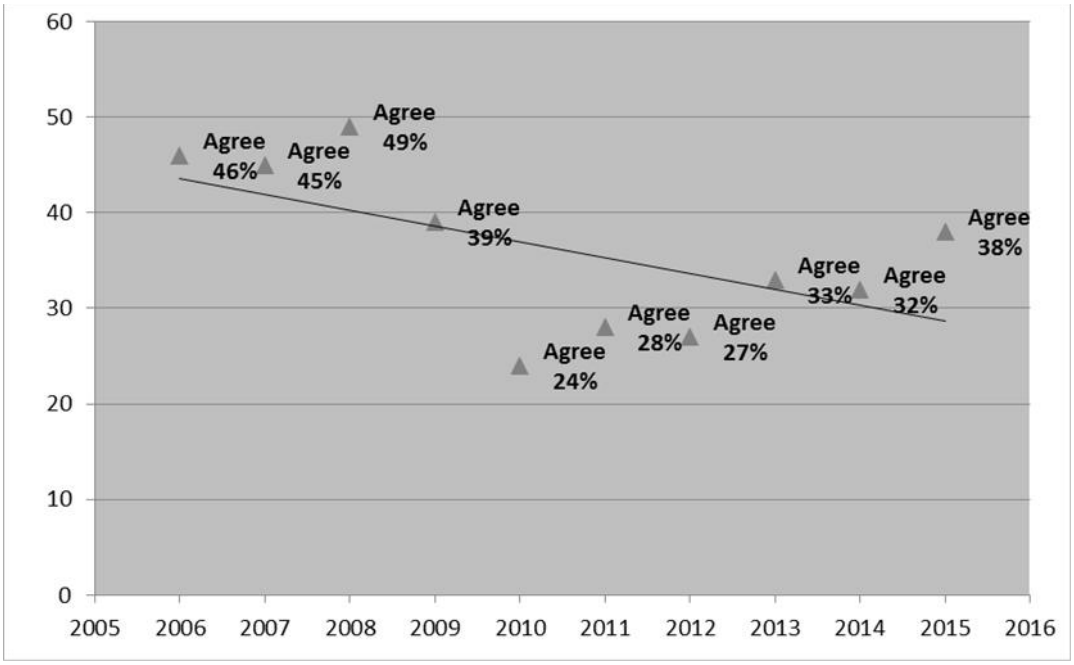


Responses to statements 4-6 (Question 12) related to fisher perceptions of their vulnerability to drowning when fishing from rocks (see Appendix 1 – survey questionnaire). Most fishers (62%) disagreed that they were not concerned about the risk of drowning (2014, 72%), but almost half (46%) thought that other fishers were more vulnerable to the risk of drowning than themselves and many (37%) were unsure of this. As was the case in 2014, more than one third (38%) considered that they were strong swimmers compared with other people, but most either disagreed (45%) or were unsure (17%) (See Appendix 3, Figure 4a). These slight positive shifts are again

consistent with a shift in attitudes regarding drowning risk as reported in the first five years of the study from 2006 (Moran, 2011).

Figure 5. Trend line of vulnerability, comparative swimming competency, 2006-2015

Statement: *"I am a strong swimmer compared with most other people"*



Responses to statements 7-9 (Question 12) related to fisher perceptions of the efficacy of preventive action in reducing drowning risk when fishing from rocks (see Appendix 1 – survey questionnaire). Most fishers taking part in the 2015 survey responded positively to all three statements of the efficacy of preventive actions to reduce drowning risk. Table 8 shows that most fishers agreed that they avoided fishing in condition that were bad (2015, 92%; 2014, 89%), that wearing a life jacket made fishing a lot safer (2015, 74%; 2014, 88%) and that turning your back to the sea when fishing from rocks was very dangerous (2015, 73%; 2014, 84%).

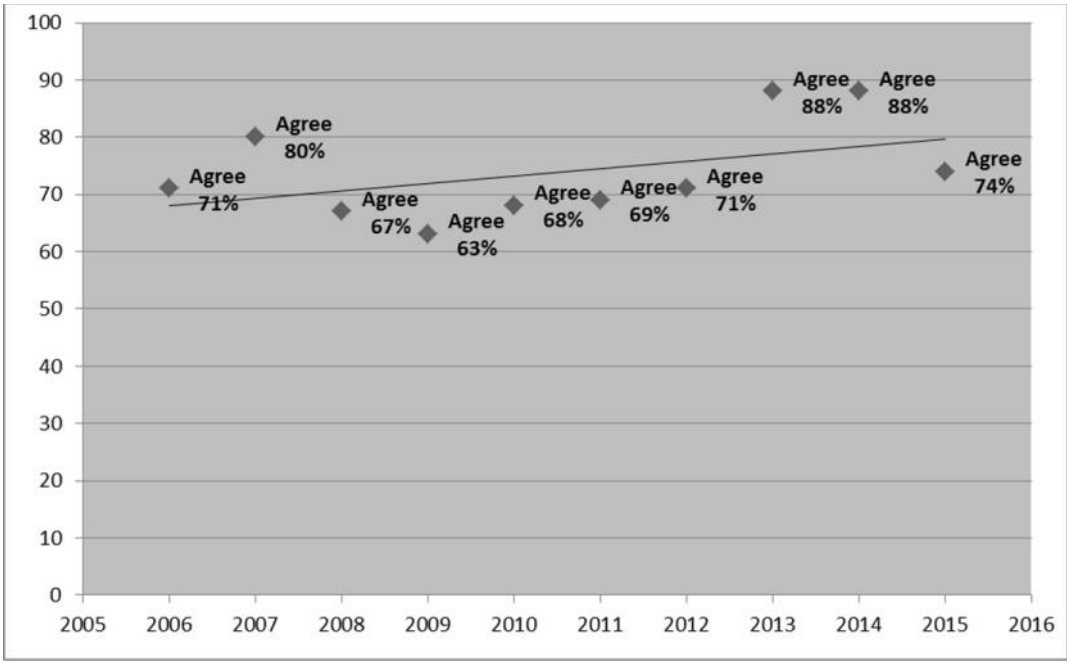
Table 8. Comparison of fisher beliefs in efficacy of preventive actions, 2014 and 2015

Do you think that-		Strongly agree/ Agree	Unsure	Strongly disagree/ Disagree
7. I avoid fishing in bad conditions to reduce drowning risk	2015	92%	2%	6%
	2014	*89%*	*8%*	*4%*
8. Always wearing a lifejacket makes fishing a lot safer	2015	74%	14%	12%
	2014	*88%*	*5%*	*8%*
9. Turning my back to the waves when fishing is very dangerous	2015	73%	6%	21%
	2014	84%	13%	2%

While the difference in reporting of lifejacket efficacy for 2015 is down in comparison with the previous year the trend line identified in Figure 6 indicates that, over the decade, fisher opinion on the use of lifejacket has positively changed. While it would appear that the safety message about lifejacket use when fishing from rocks appears to be positively changing, Figure 4a (see Appendix 2) suggests a small proportion of the fishers (6-20%) disagree that lifejackets always make fishing safer and this recalcitrance appear extremely resistant to change. Likewise, a small but persistent proportion of fishers disagree that turning away from the sea is very dangerous suggesting that this ingrained practice may be the future focus of safety messaging**.**

Figure 6. Trend line of attitude change with regard to lifejacket use when fishing from rocks, 2006-2015

Statement: *"Always wearing a life jacket makes fishing a lot safer"*



Responses to statements 10-12 (Question 12) related to fisher perceptions of the self-efficacy of their preventive behaviours in reducing drowning risk when fishing from rocks (see Appendix 8.1 – survey questionnaire). In previous surveys, fishers have been confident of their ability to keep themselves safe - their self-efficacy - the current survey results suggest that participants in 2015 also considered themselves capable of looking after themselves.

Table 9 shows a comparison of fishers beliefs about their ability to cope with the risk associated with fishing from rocks on Auckland's west coast. The first two statements regarding local knowledge and experience of the sea are consistent but the third statement regarding the perceived protective value of their swimming competency suggest respondent in 2015 had greater belief in their swimming capacity.

Table 9. Comparison of fisher confidence in ability to cope with risk, 2014 and 2015

Do you think that-		Strongly agree/ Agree	Unsure	Strongly disagree/ Disagree
10. My experience of the sea will keep me safe when fishing	2015	49%	16%	35%
	2014	*50%*	*17%*	*33%*
11. My local knowledge of this site means I'm unlikely to get caught out	2015	56%	16%	28%
	2014	*50%*	*18%*	*33%*
12. My swimming ability means I can get myself out of trouble	2015	48%	21%	32%
	2014	37%	18%	45%

The trend lines over the 10 years of the Project for these components of self-efficacy show little change in attitudes.

Figure 7. Trend line of attitude change with regard to protective value of local knowledge, 2006-2015

Statement: *"My local knowledge of this site means I'm unlikely to get caught out"*

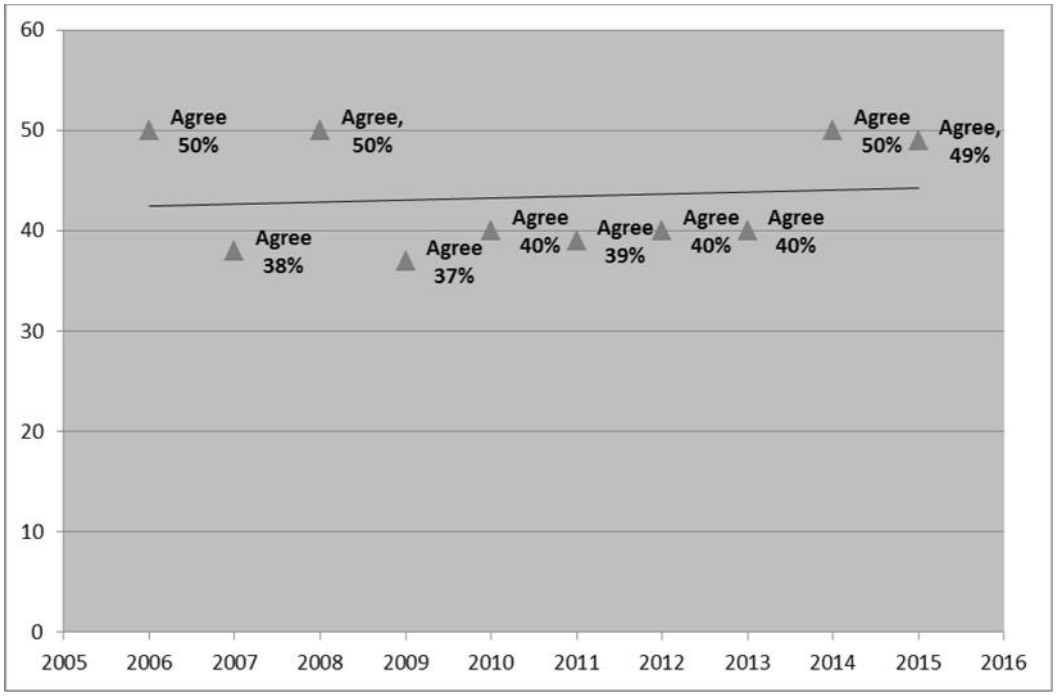
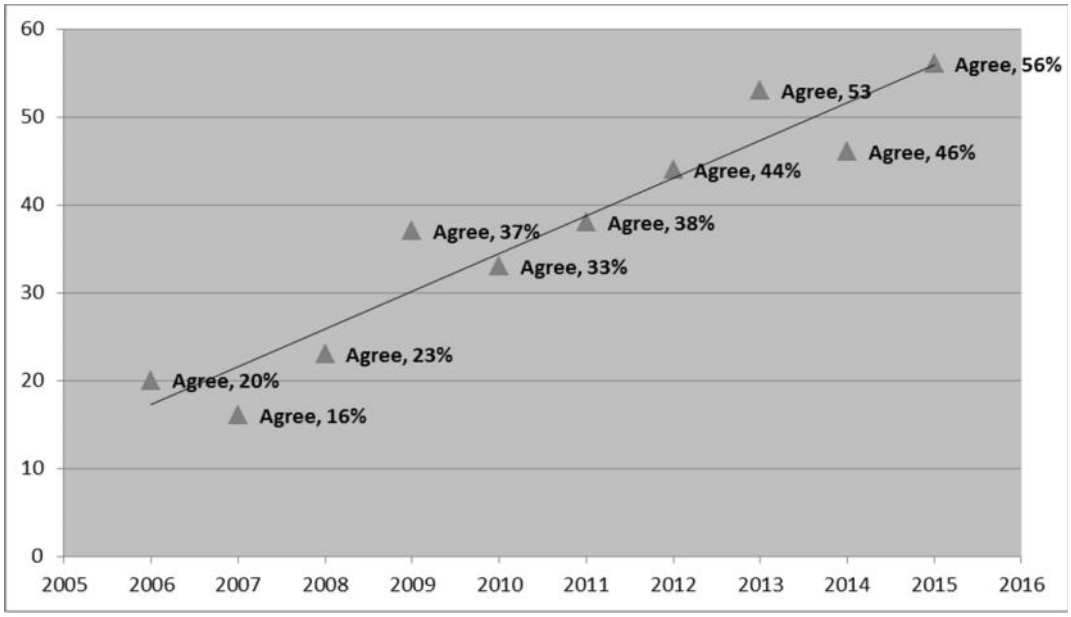


Figure 7 shows the trend line for responses related to the protective capacity of their local knowledge suggests that, in the intervening 10 years of the Project, belief in the protective power of their local knowledge has been consistently strong irrespective of the consistently low frequency of visits to the site. While frequency of visits to sites had increased slightly over the years, it is unlikely that the protective power of such knowledge, real or imagined, will do much to minimise risk in the hazardous locations fisher use on the west coast. The same optimism in the self-efficacy of their knowledge of the sea was evident in the trend line shown in Figure 8.

Figure 8. Trend line of attitude change with regard to protective value of fishers' experience of the sea, 2006-2015

Statement: "*My experience of the sea will keep me safe when fishing*"



When analysed in comparison with the results from the previous year, some changes were evident as seen in Table 9. One half of the fishers (49%) believed their local knowledge of the site would keep them out of trouble (2014, 50%). In the 2015 survey, more fishers believed their experience of the sea would keep the safe when

fishing (2015, 56%; 2014, 46%). The reasons for this are unclear, the most recent survey results suggest that fishers have visited the site more frequently than in previous years (see Figure 1, page 9) but whether this increased familiarity with the site has increased confidence in the protective value of their local knowledge and their experience of the sea is not known. Furthermore whether this increased knowledge is real or imagined requires further observational testing.

More fishers on 2015 believed that their swimming ability would get them out of trouble if necessary (2015, 48%; 2013, 37%). Again, whether the protective value of their swimming competency is real or imagined is not known. Further assessment of real competencies is required to verify or refute their perceived confidence.

4.5 WATER SAFETY BEHAVIOURS OF FISHERS

Fishers were asked to report their 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. As in previous surveys, the latter two responses were aggregated and are reported in the tables and text as *often/always* (see Table 10).

Table 10. Fishers' Self-reported Water Safety Behaviours, 2015

When rock fishing, do you -	Never		Sometimes		Often/Always	
	n	*%*	*n*	*%*	*n*	*%*
1. Wear a lifejacket or other flotation device	247	43.3%	68	16.5%	166	40.2%
2. Check weather/water conditions first	33	8.0%	40	9.7%	340	82.3%
3. Drink alcohol when you are fishing	346	83.8%	46	11.1%	21	5.1%
4. Wear gumboots or waders	253	61.3%	91	22.0%	69	16.7%
5. Turn your back to the sea when fishing	126	30.5%	184	44.6%	103	24.9%
6. Take a cell phone in case of emergencies	23	5.6%	56	13.6%	334	80.9%
7. Go down rocks to retrieve snagged line	223	54.0%	144	34.9%	44	11.1%

Figure 9 indicates critically important behaviour change with regards to lifejacket use since the inception of the project with a peak in lifejacket use occurring in 2011. The positive change in the trend line since 2006 is encouraging and supports anecdotal evidence of greater use of lifejackets by fishers. While the positive change in behaviour related to the use of life jackets/flotation devices has consistently improved, it is still a concern that many fishers (43%) report *never* wearing any lifejacket/buoyancy aid. Figure 10 shows a persistent minority of fishers (range 72%-28%) who never wear lifejackets, and while attitudes towards the wearing of lifejackets

previously reported is positive (Figure 6) some fishers appear to be very resistant to change.

Figure 9. Fishers who *often/always* wear a lifejacket, 2006-15 (Q13, part 1)

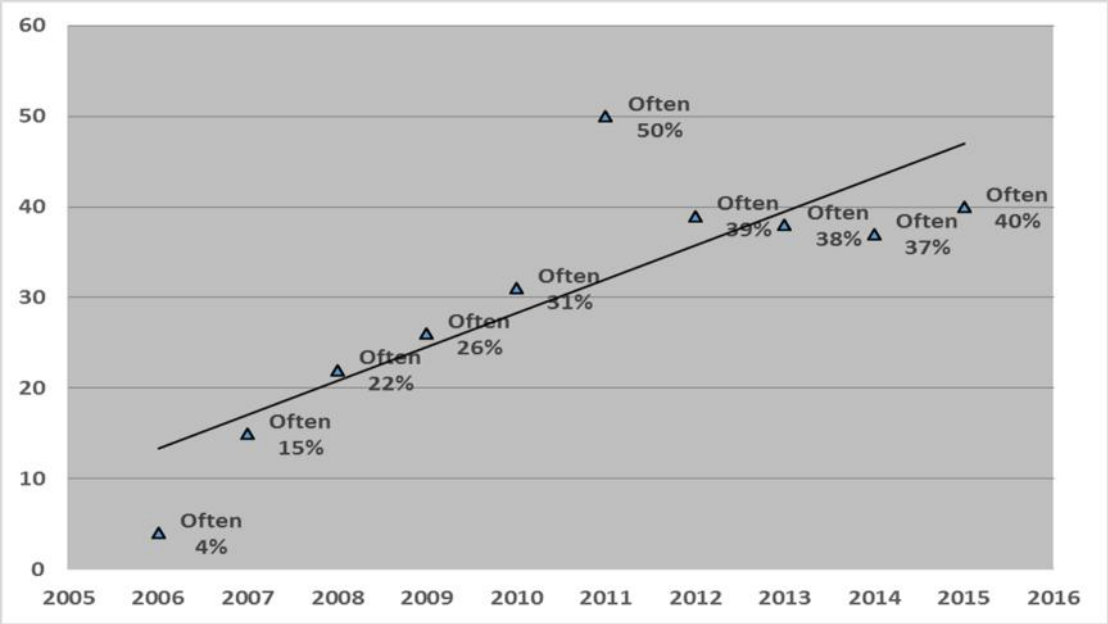
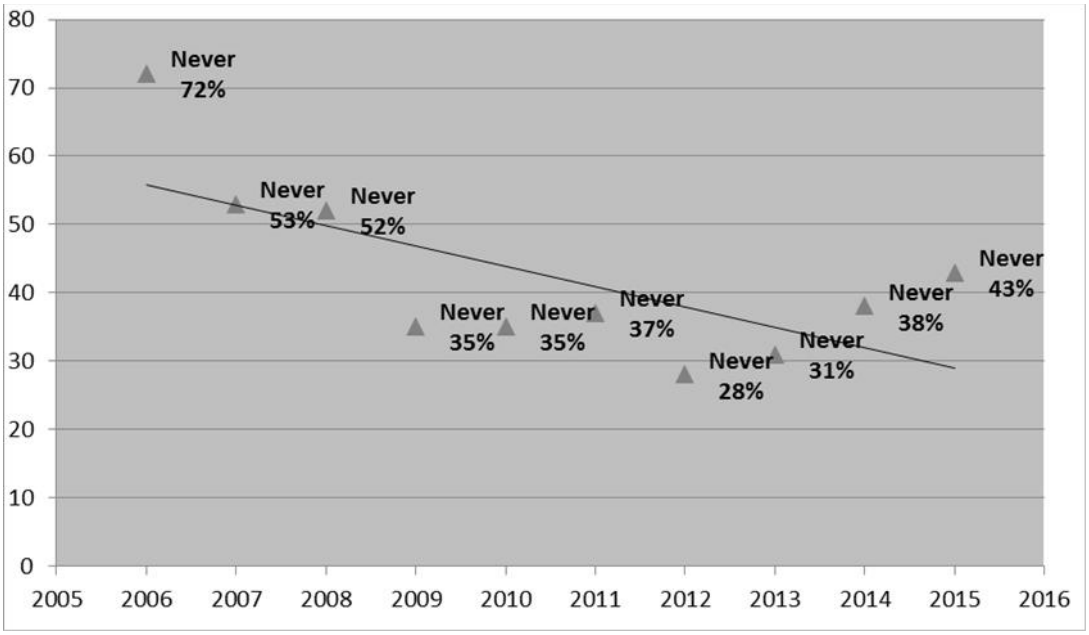


Figure 10. Fishers who *never* wear a lifejacket, 2006-15 (Q13, part 1)



Almost all fishers (82%) reported *often/always* checking the weather beforehand, and, of these most (78%) reported *always* checking conditions. A small but persistent proportion of fishers (c. 8-10%) continue to fish with minimum or no regard to the weather and sea conditions, reaching these fishers is problematic since it does not appear to be language- or residency- related. As stated in 2014, short of closing off some of the more exposed fishing sites during bad weather and stormy seas, it is difficult to see how such fundamental safety information can be further promoted. The remoteness of many of the sites would make periodic closure of them physically difficult to organise and enforce.

Figure 11 shows a consistent pattern of compliance with this important safety behaviour from 2006-2015 when most fishers also reported *often/always* checking the weather beforehand. From 2006 -2014, approximately three-quarters of fishers (range 72-91%) *always/often* checked the weather beforehand and a small proportion (range 2-12%) consistently *never* checked the weather. The continued positive trend in this behaviour is encouraging and reflects an improved safety culture among fishers.

Figure 11. Self–reported safety behaviours, 2006-2015
- When fishing from rocks do you check weather beforehand? (Q13, part 2)

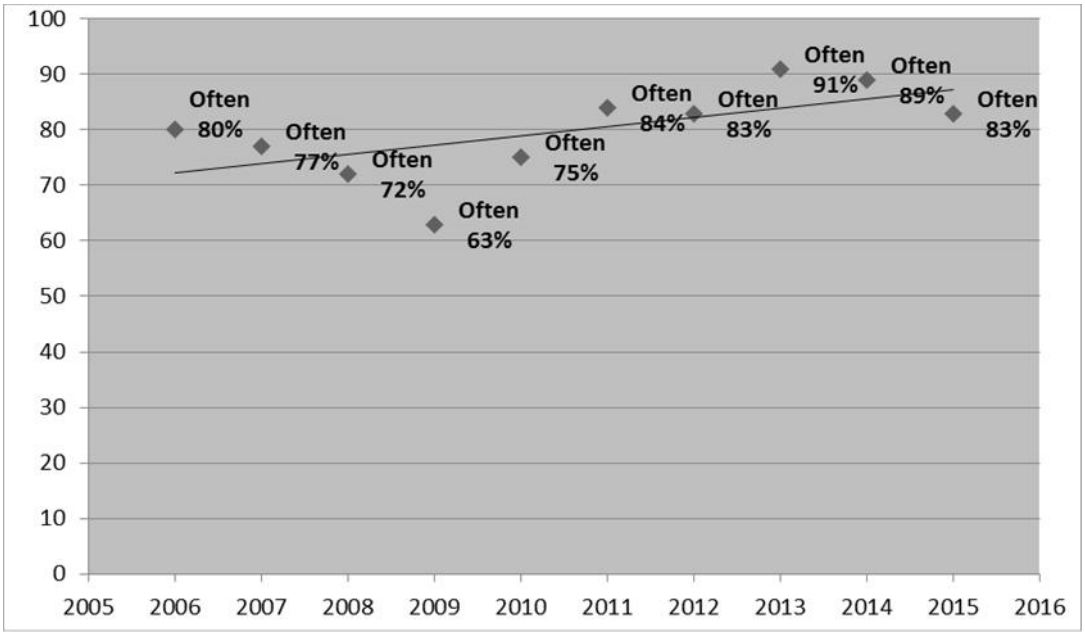
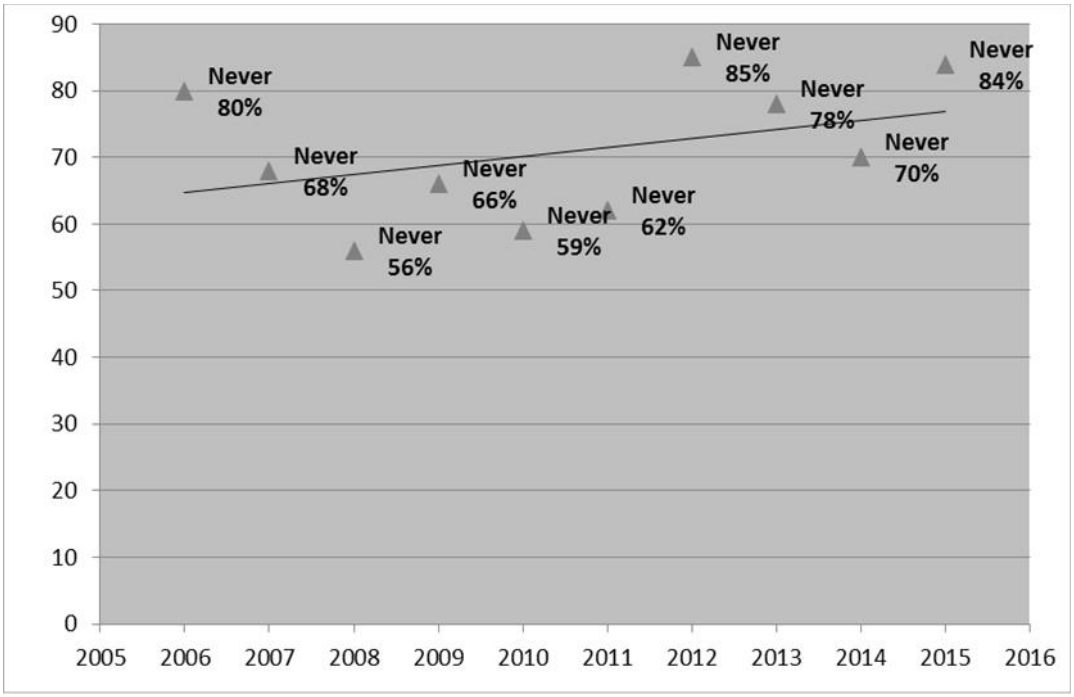


Table 10 shows that most fishers (84%) reported that they *never* mixed alcohol and fishing, but a proportion (16%) of fishers did *sometimes /often* consume alcohol when fishing in 2015. Figure 12 shows that most fishers recognised the inherent danger of mixing alcohol consumption with high risk rock-based fishing and abstained from alcohol use when fishing. Continued promotion of the no alcohol use in rock fishing safety promotion is recommended.

Figure 12. Self–reported safety behaviours, 2006-2015
- When fishing from rocks do you drink alcohol? (Q13, part 3)



The fourth risky practice related to the wearing of waders or gumboots. Table 10 shows that most fishers (61%) reported that they *never* wore gumboots or waders, but more than one third (39%) did, with almost 22% reporting that they did *sometimes* and 17% *often/always* wearing gumboots or waders. As in previous years, it may still be prudent to combine messaging about protective clothing with safe clothing, While Figure 13 shows some sign of positive behavioural change over the decade of intervention, continued emphasis on the need for safe clothing/footwear is recommended.

Figure 13. Self–reported safety behaviours, 2006-2015

- When fishing from rocks do you wear gumboots or waders? (Q13, part 4)

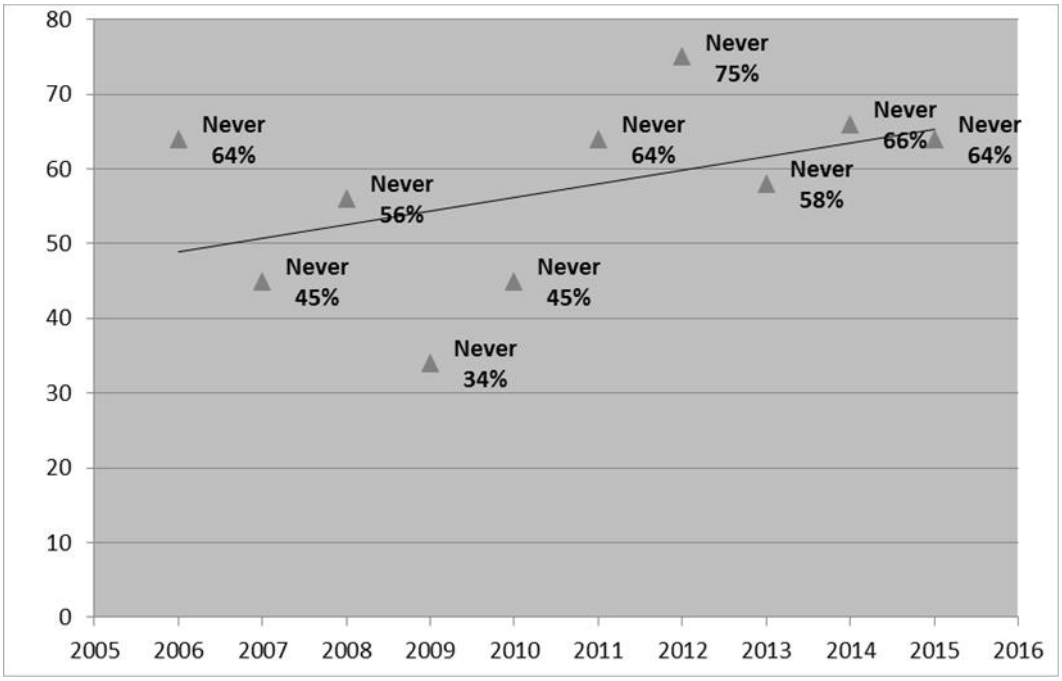
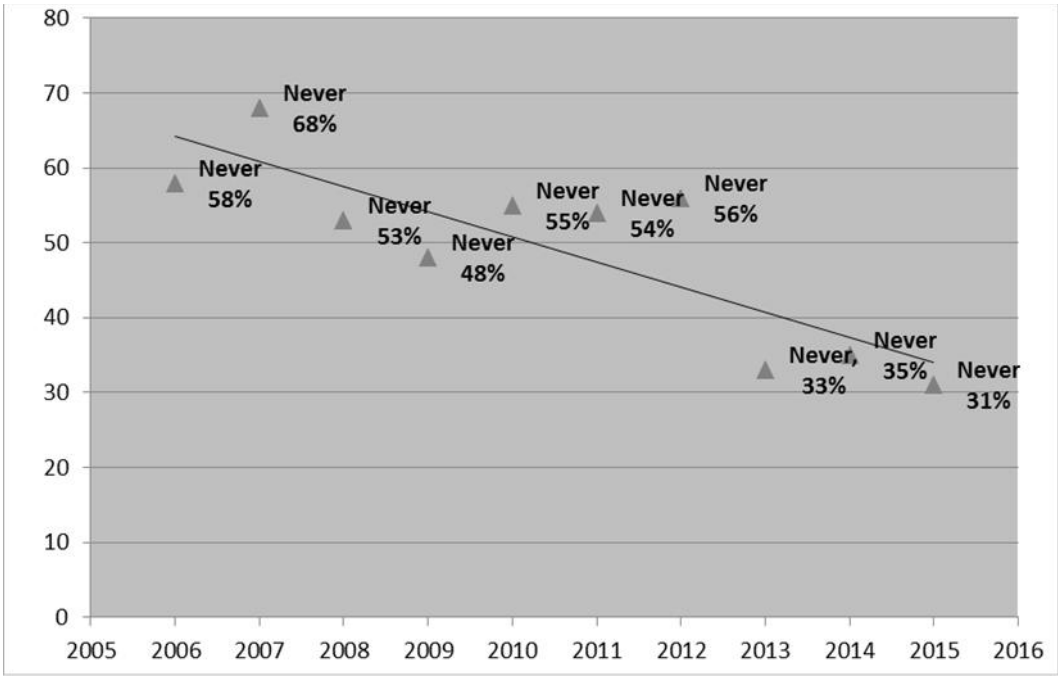


Table 10 shows that the dangerous practice of turning your back to the sea – was reported by seven out of every ten fishers (70%), with almost one half of fishers (45%) *sometimes* and 25% *often/always* turning their backs to the sea at some time when fishing from rocks. The trend line shown in Figure 14 indicates that this risky behaviour has not changed a great deal during the decade of the Project and, of the risky behaviours included in the decade of surveying this is the only one that has got worse. A breakdown of response over the decade shows that between a quarter and half of fishers (range 24-56%) turned their back on the sea *sometimes* and a smaller proportion (range 5-15%) said they did so *often* (see Figure 11a, Appendix 3). Given this continued widespread practice and the seeming impermeability of fishers to the safety messaging around it, it is suggested that this aspect of safety messaging be reviewed with the possibility of suggesting alternative strategies to reduce the risk of having to turn your back to the sea be explored.

Figure 14. Self–reported safety behaviours, 2006-2015

-When fishing from rocks do you turn you back on the sea? (Q13, part 5)

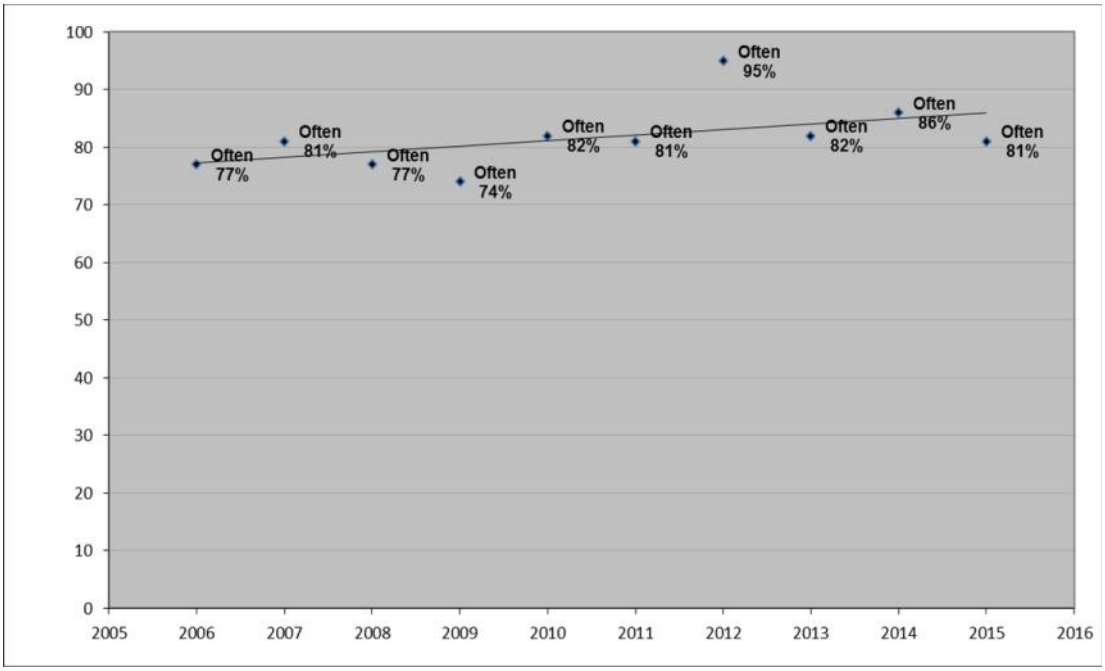


Fishers were asked whether they carried a cell phone for emergency use. Table 10 shows that most fishers (81%) reported that they *often/always* carried a cell phone, with 14% reporting that they *sometimes* did and 5% that they *never* did. This continued widespread carriage of cell phones by fishers is encouraging and suggests that emergency services may be better able to respond to incidents in these traditionally remote locations. Given that the 2015 surveys reached more locations than previous surveys and most of those sites were more isolated than previous sites surveyed, future surveys may seek information from fishers about the cell phone coverage.

Figure 15 shows that most fishers have consistently reported carrying cell phones when fishing off Auckland's west coast from 2006-2015. More than three quarters of fishers surveyed from 2006-2015 carried mobile phone, particularly valuable given the isolated location of many of the sites .The trend line indicates that the practice is on the increase (range 74%-95%), further research on their actual use in emergencies (possibly via an analysis of emergency callouts requiring rescue assistance) would reinforce the necessity of carrying them.

Figure 15. Self–reported safety behaviours, 2006-2015

- 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. Table 10 shows that, in 2015, one half (54%) of fishers reported that the *never* went down the rocks to free a snagged line, but more than one third (35%) reported that they did *sometimes* and one in ten (11%) reported that they *often* engaged in this risky practice. While an improvement on the previous year (in 2014 only 20% reported that they never went down the rocks), that almost one half (46%) of fishers sometime engage in this highly dangerous practice is most concerning.

Figure 16 shows the trend in this behaviour over the 10 years of the project. As was the case with wearing gumboots (Figure 13) and turning your back to the sea (Figure 14), the frequency of this self–reported behaviour has not improved over the decade of the Project. As was the case in previous years, anecdotal evidence from observations of fisher practices suggests that few fishers cut their lines in response to snagging the line on surface or underwater rocks. Continued promotion of line cutting as the safest way to fish from rocks is recommended.

Figure 16. Self–reported safety behaviours, 2006-2015
- **Do you go down the rocks to retrieve snagged line? (Q13, part 7)**

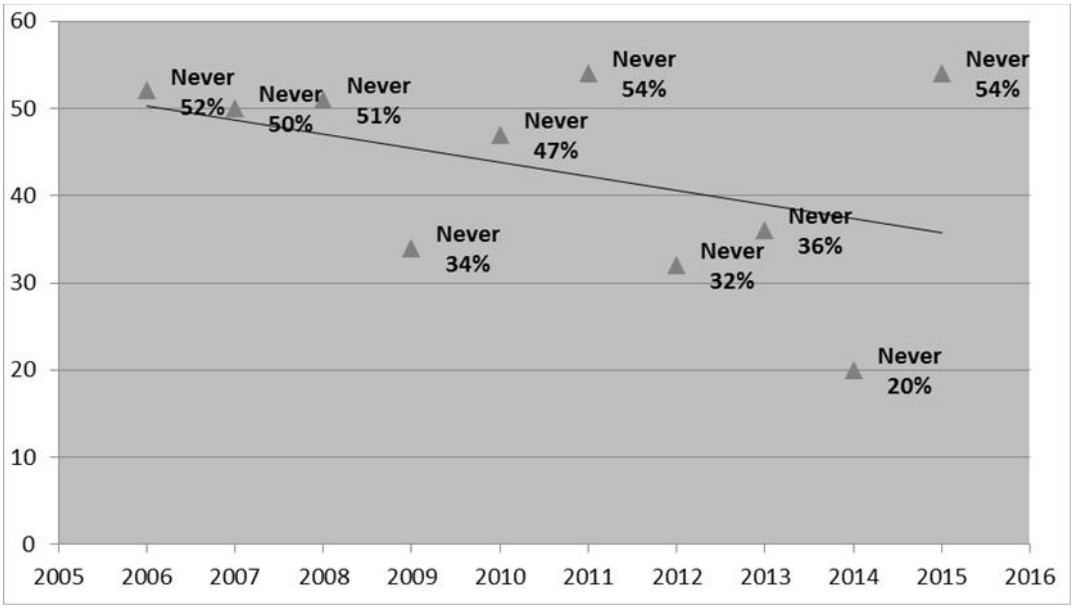
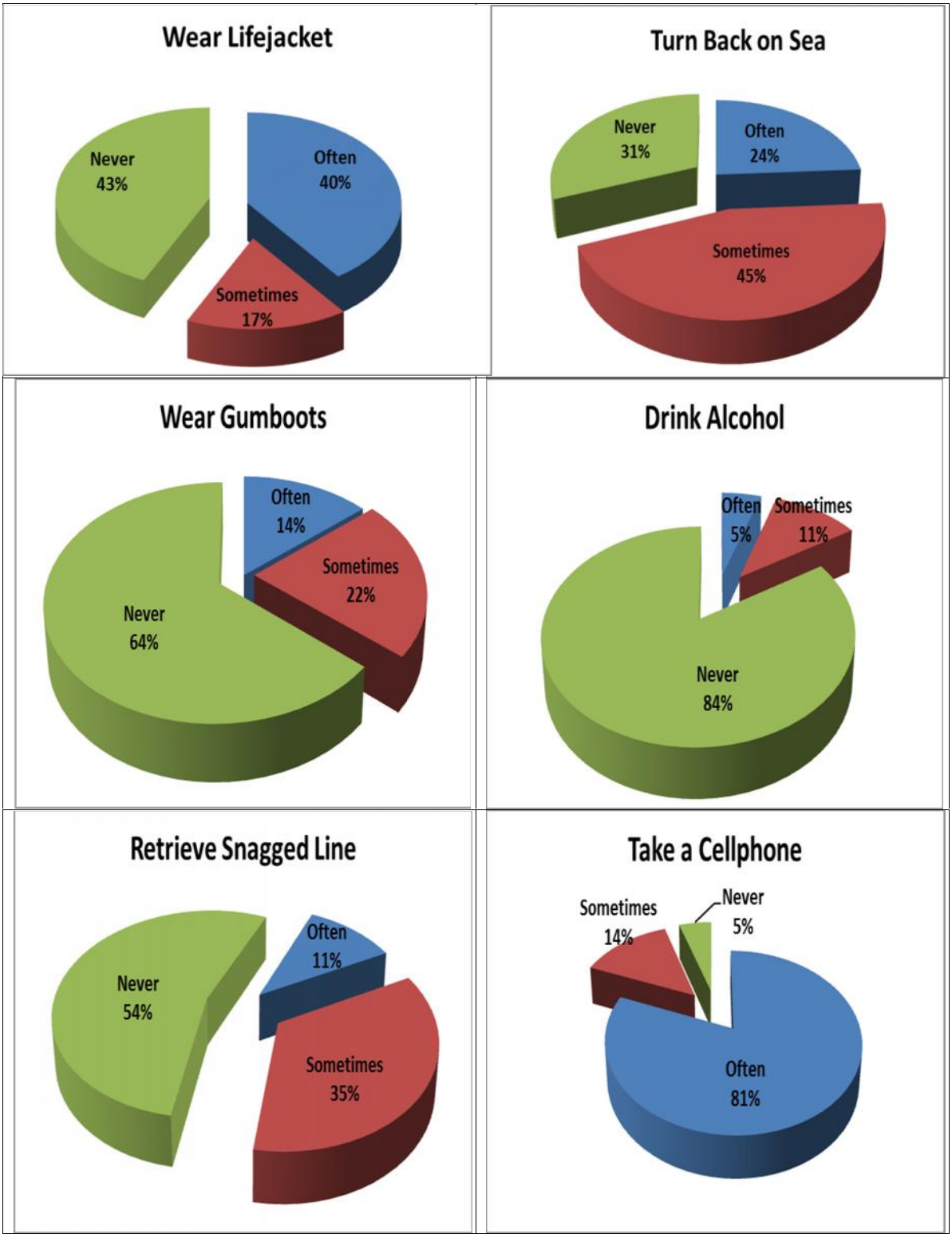


Table 11. Summary of Safety Behaviours, 2015



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 since the inception of the Project in 2006 (see question 14, Appendix 1). Table 12 shows that most fishers (90%) considered that their safety knowledge had improved in recent years, a small proportion (7%) thought that it had not improved and 3% didn't know whether it had improved. Comparative figures for the previous year suggest that fishers perceive more positive change in their safety knowledge in 2015.

Table 12. Comparison of Self-Reported Changes in Fishers' Safety Knowledge, Attitudes and Behaviours, 2014-2015

Do you think that -	Year	Agree		Disagree		Don't know		Total	
		n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Your rock fishing safety knowledge has improved?	2015	371	89.8	30	7.3	12	2.9	413	100.0
	2014	*75*	*70.8*	*6*	*5.7*	*25*	*23.6*	*106*	*100.0*
Your rock fishing safety attitude has improved?	2015	345	83.5	55	13.3	13	3.1	413	100.0
	2014	*76*	*71.7*	*5*	*4.7*	*25*	*23.6*	*106*	*100.0*
Your rock fishing safety behaviour has improved?	2015	341	82.6	62	15.0	10	2.4	413	100.0
	2014	*74*	*69.8*	*7*	*6.6*	*25*	*23.6*	*106*	*100.0*
Your mates' rock fishing behaviour has improved?	2015	308	74.6	45	10.9	60	14.5	413	100.0
	2014	*31*	*29.2*	*24*	*22.6*	*51*	*48.1*	*106*	*100.0*
Other rock fishers' behaviour has improved?	2015	324	78.5	18	4.4	71	17.2	413	100.0
	2014	*31*	*29.2*	*23*	*27.7*	*52*	*49.1*	*106*	*100.0*

Most fishers (84%) believed that their safety attitudes had improved, though some (13%) considered that their attitude had not improved or didn't know (3%). Most fishers (83%) also considered that their safety behaviour had improved, more than the proportion reported in the previous year (2014, 70%) with 15% believing their safety behaviour had not improved and 2% not knowing if it had.

To determine whether participants in the survey had seen 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 12 shows that more fishers thought that the safety behaviour of their mates had improved (2015, 75%; 2014, 29%), conversely, fewer thought their mates fishing behaviour had not improved (2015, 11%, 2014, 23%). A similar positive response about safety behaviour was reported in regards to other fishers, with most fishers (79%) believing that other rock fishers behaviour had improved (2014, 29%) and fewer believing that it had not improved (2015, 4%; 2014, 28%). The substantial change in fishers' perceptions of safety behaviour of themselves and other fishers are, hopefully indicative of a real change in the safety culture of west coast fishers as indicated by most of the self-reported behaviours and changes in attitudes reported in section 4.4 and 4.5. It is possible that these changes may have been influenced by change in data gathering procedures in 2015, further analysis in future years will help determine whether the changes are sustained.

5. RECOMMENDATIONS

A decade has passed since organisations and individuals, concerned about the needless loss of live as a consequence of fishing on Auckland's west coast, addressed the issue through education and safety promotion. The success of the Project in saving lives is contingent upon the continuation of the support of the Council and the efforts of the collaborating organisations.

A persistent feature of the Project evident in the past decade is the transience of the fisher population - not only is it culturally diverse and recreating in isolated locations, it is an ever changing group.

To that end, it is recommended once again that:

Auckland Council:

- Retain the services of the safety advisors for a 2015/16 summer campaign
- Continue to provide regional leadership and support fishing safety promotion, including provision of angel rings and safety signage at high risk sites.

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, especially among the Asian community
- Commit resources and personnel to the ongoing work with all partners to promote best practice for West Coast fishing safety education beyond 2015.

Recreational fishers, fishing organizations, lifejacket retailers, fishing outlets:

- Adopt and endorse the fishing safety messages promoted by the 2015 West Coast Rock-based Fisher Safety Project.
- Encourage others in the rock fishing community to adopt safe practices - especially the wearing of 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.
- Advocate for the promotion of rock fishing safety with community groups especially those that are identified high-risk including new migrants, Pasifika and Asian peoples.

6. REFERENCES

Accident Compensation Corporation (2009). *Review of the economic and social costs of drowning fatalities and water-related injuries compared to prevention. October 2009*.Wellington: ACC/Price Waterhouse Coopers (PwC).

Moran, K. (2014). *Water safety and Auckland's West Coast fishers – 2013.* Report to the Auckland Council, Surf Life Saving Northern Region and WaterSafe Auckland Inc. Auckland: Watersafe Auckland. Available at: Community/Research/ Rock Fishing at: http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

Moran, K. (2013). *Water safety and Auckland's West Coast fishers – 2013.* Report to the Auckland Council, Surf Life Saving Northern Region and WaterSafe Auckland Inc. Auckland: Watersafe Auckland. Available in PDF format at: http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

Moran, K. (2012). *Water safety and Auckland's west coast fishers- Report 2012*. Report to the Auckland Regional Council, Surf life Saving Northern and Watersafe Auckland. Auckland: WaterSafe Auckland. Available in PDF format at: http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

Moran, K. (2011). *Water safety and Auckland's west coast fishers- Report 2011*. Report to the Auckland Regional Council, Surf life Saving Northern and Watersafe Auckland. Auckland: WaterSafe Auckland. Available in PDF format at: http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

Moran, K. (2010). *Water safety and Auckland's west coast fishers- Report 2010*. Report to the Auckland Regional Council, Surf life Saving Northern and Watersafe Auckland. Auckland: WaterSafe Auckland. Available in PDF format at: http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

Moran, K. (2011). Rock-based fisher safety promotion: Five years on. *International Journal of Aquatic Research and Education*, *5*(2), 164-173.

Moran, K. (2010). *Water safety and Auckland's west coast fishers- Five years on.* Report to the Auckland Regional Council, Surf life Saving Northern and Watersafe Auckland. Auckland: WaterSafe Auckland. Available in PDF format at: http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

Moran, K. (2009). *Water safety and Auckland's west coast fishers- Report 2009*. Report to the Auckland Regional Council, Surf life Saving Northern and WaterSafe Auckland. Auckland: WaterSafe Auckland. Available in PDF format at: http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

Moran, K. (2008). Water safety beliefs and behaviours of Auckland's west coast rock fishers. *International Journal of Aquatic Education and Research, 2*, 127-138.

Moran, K. (2008, July). *Water safety and Auckland's West Coast fishers – Final report 2008*. Report to the Auckland Regional Council, Surf Life Saving Northern Region and WaterSafe Auckland. Auckland: WaterSafe Auckland Incorporated. Available in PDF format at: http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

Moran, K. (2007). *Water safety and Auckland's West Coast fishers – Follow-up report 2007*. Report to the Auckland Regional Council, Surf Life Saving Northern Region and WaterSafe Auckland. Auckland: WaterSafe Auckland Incorporated. Available in PDF format at: http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

Moran, K. (2006, May). *Water safety and Auckland's West Coast fishers*. Report to the Auckland Regional Council, Surf Life Saving Northern Region and WaterSafe Auckland, Auckland: Watersafe Auckland Incorporated. Available in PDF format at: http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/

Statistics New Zealand (2014). 2013 Census QuickStats about culture and identity. Accessed 4th August available at: http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-culture-identity.aspx

Water Safety New Zealand (WSNZ), 2015. New Zealand land based drowning fatalities 2006-2015. *Drownbase*™. Wellington: WSNZ. Accessed 4th August 2015.

8. Appendix

8.1 Appendix 1 - The survey questionnaire
8.2 Appendix 2 -2014 -15 Figures

Rock-Fishing in Auckland: 2015

From 2006-13, 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.
The survey is voluntary and anonymous, so no names will ever be known.
If you have any queries about the survey please ask the rock fishing advisor who will be happy to assist you.

Date: _____ **Time:** _____ **Location:** _____

1. a) Did you take part in the Auckland west coast rock-fishing project in the past?

Yes No

If Yes, do you think the project is:

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

☐ Māori

☐ Pasifika

☐ Chinese / Taiwanese

☐ Korean

☐ Indian

☐ Other (e.g. African, French, Spanish etc.)

_____

_____

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 <u>this location</u>?

This my first time

Between 2-5 times

Between 6-10 times

Between 11-20 times

More than 20 times

9. Tick ONE of the list below that best describes your reason for fishing today:

For fun and enjoyment

To feed the family

To be with my mates

To have a day out from home / work

11. 1 - Have you seen angel rings on the West Coast? Yes No

2 – Have you read instructions on how to use them? Yes No

3 – Do you think you could use one in an emergency? Yes No

4 – Do you have any suggestions on how to make them more effective? _____

_____

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. As a result of the rock fishing project, do you believe that:	**Agree**	**Disagree**	**Don't know**
1 My knowledge of rock fishing safety has improved			
2 My practice of rock fishing safety has improved			
3 My attitudes towards rock fishing safety have			
4 My rock fishing mates seem more safety conscious			
5 Other rock fishers around me seem more safety conscious			

Information on the locations, tides and weather is available on www.findabeach.co.nz
Thank you for taking part in the survey, please return this form to the Rock Fishing Advisor.

Appendix 2: Supplementary Analysis, 2006-2015

Figure 1a. Number of visits to site where surveyed, 2006-2015

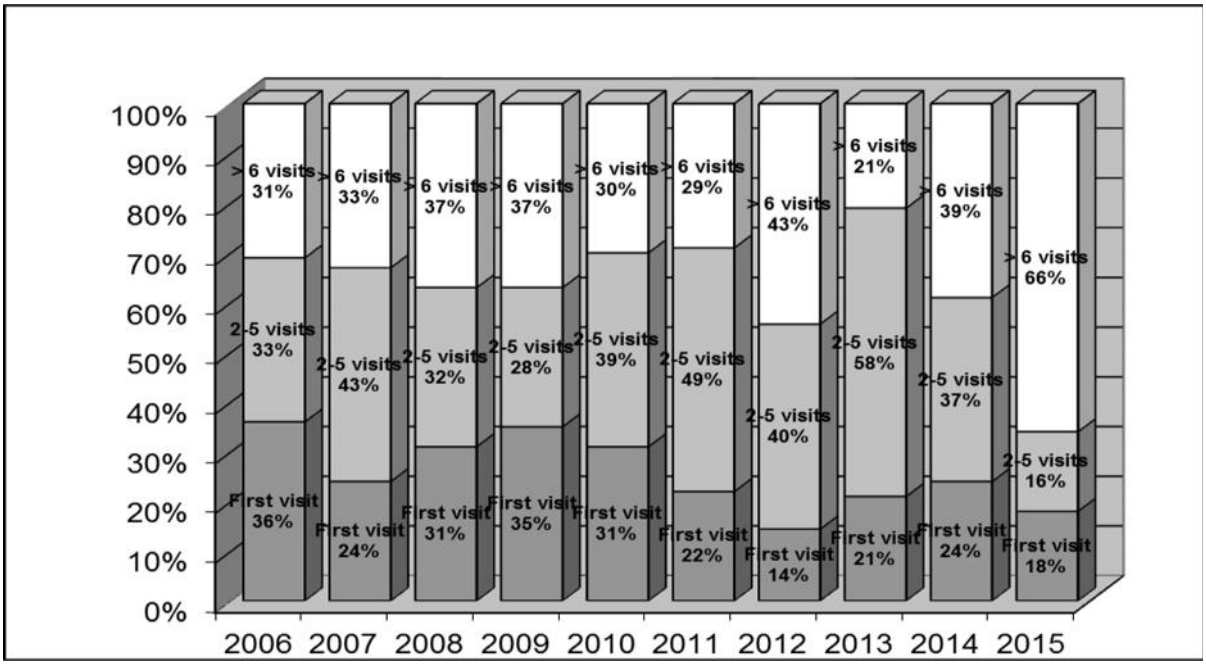
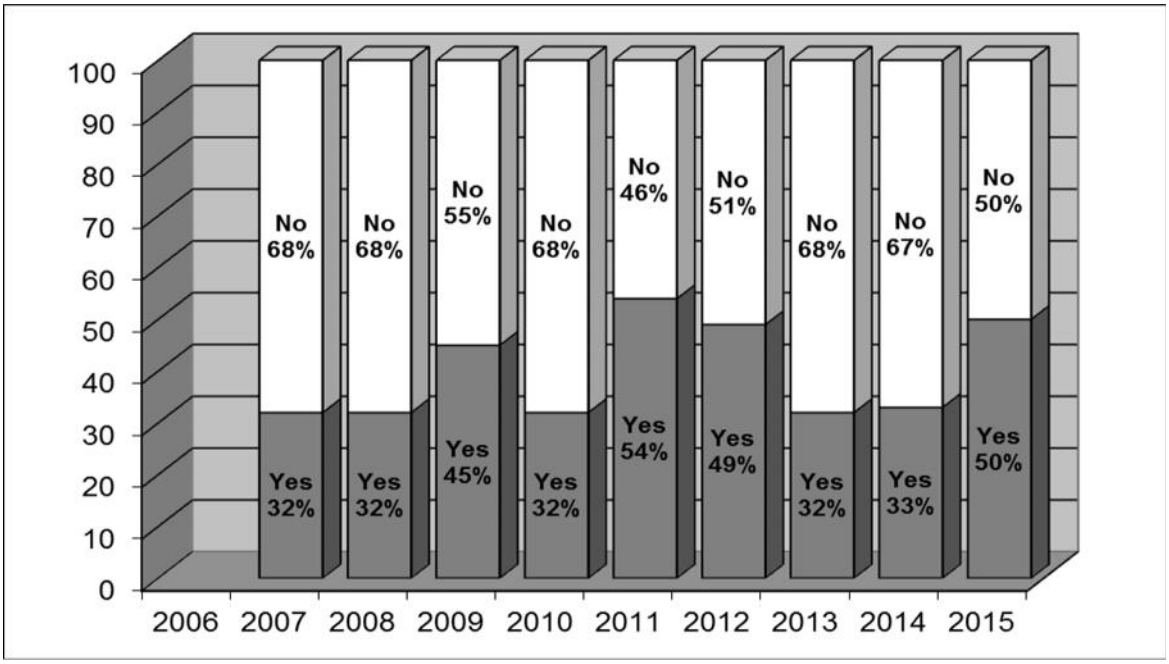


Figure 2a Percentage of fishers who had taken part in previous surveys, 2007-2015



Question 12. Opinions on safety:
Severity of risk, vulnerability, efficacy of preventive actions, self-efficacy

Figure 3a. Severity of risk of drowning if swept off rocks while fishing, 2006-2015

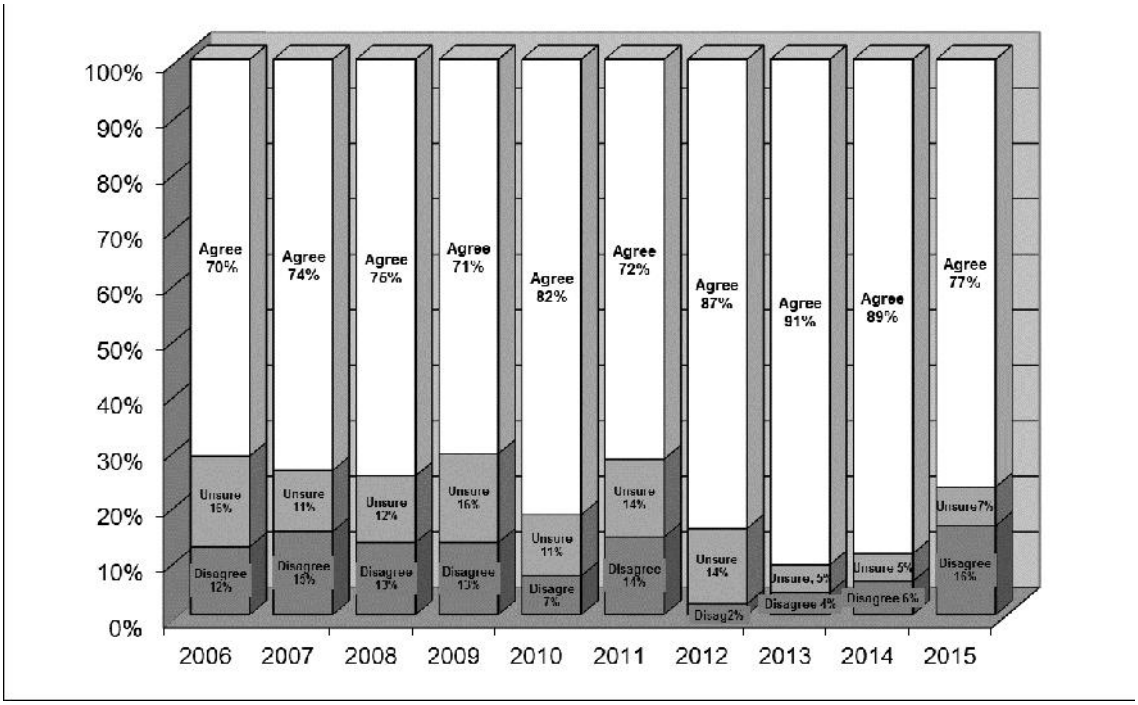


Figure 4a. Vulnerability – swimming competency, 2006-2015

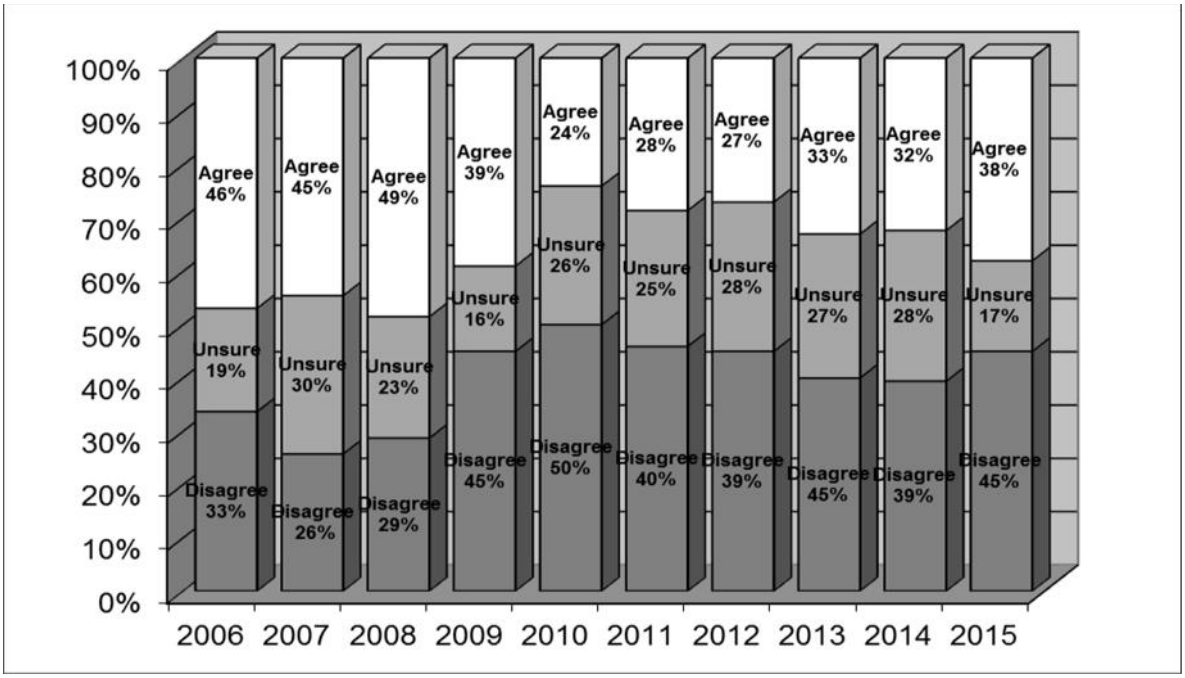


Figure 5a. Efficacy of Preventive action –wearing a lifejacket, 2006-2015

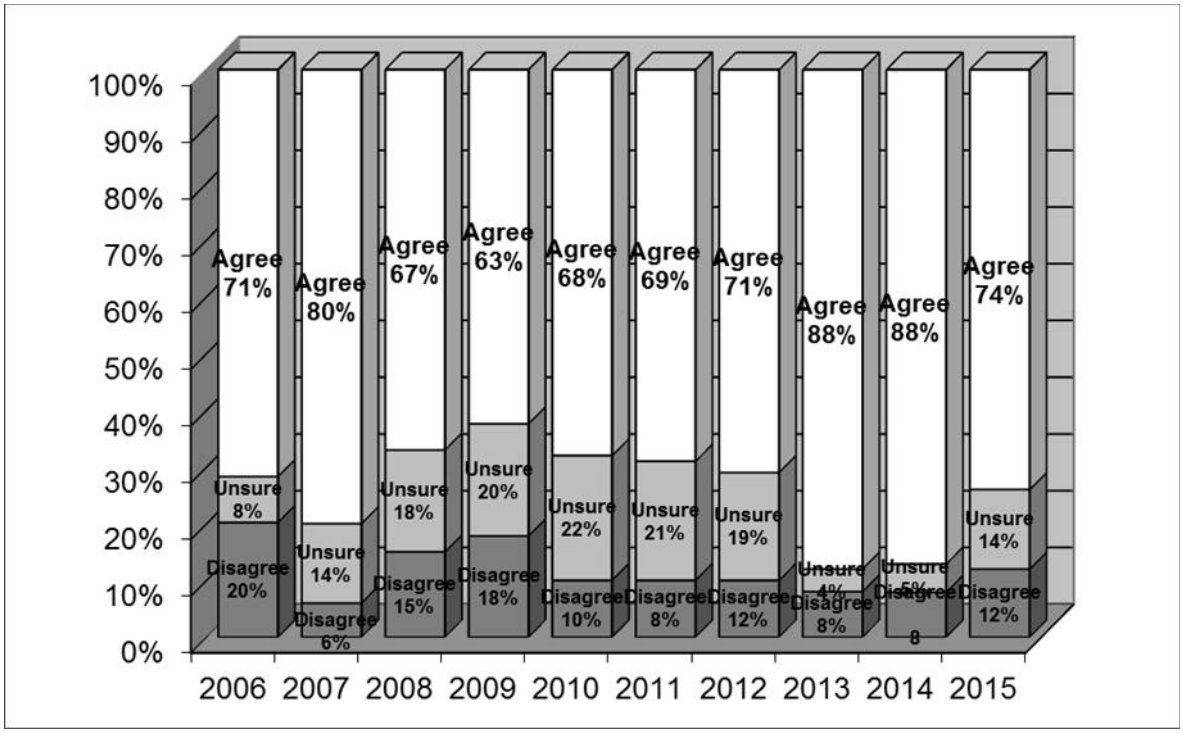
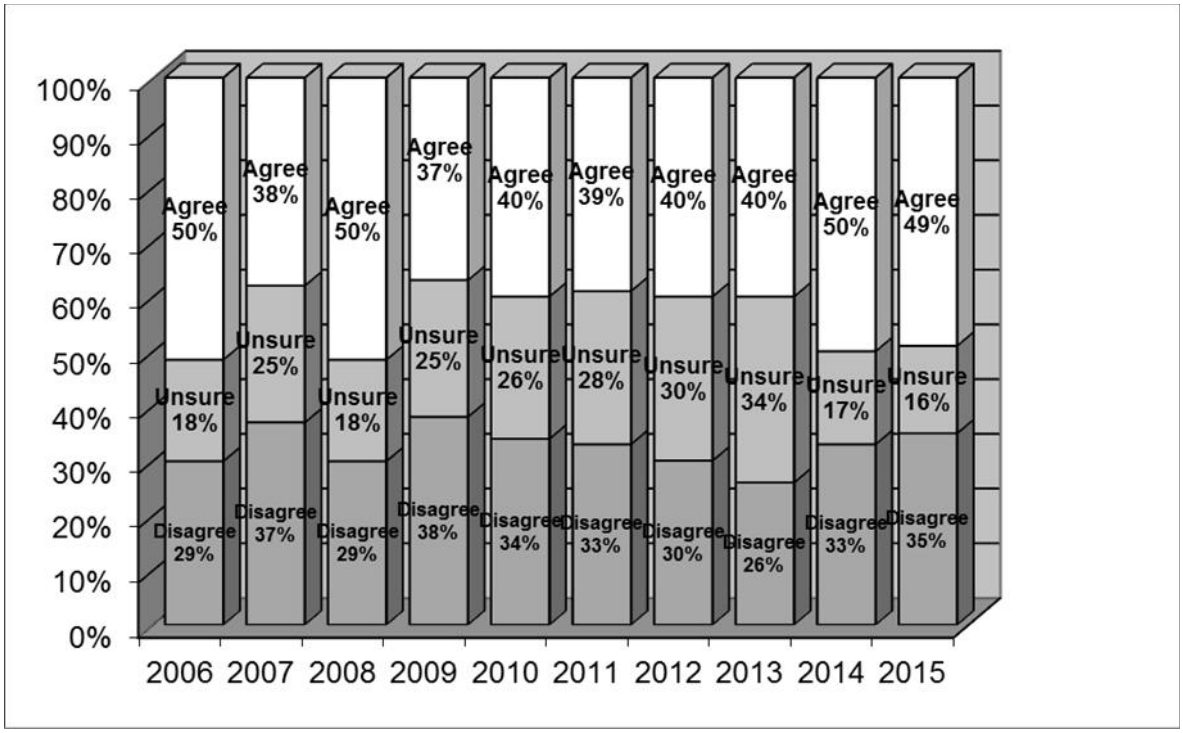


Figure 6a. Self-Efficacy of Preventive action – local knowledge, 2006-2015



Question 13 Self-reported behaviours

Figure 7a. Self–reported safety behaviours, 2006-2015
- When fishing from rocks do you wear a lifejacket? (Q13, part 1)

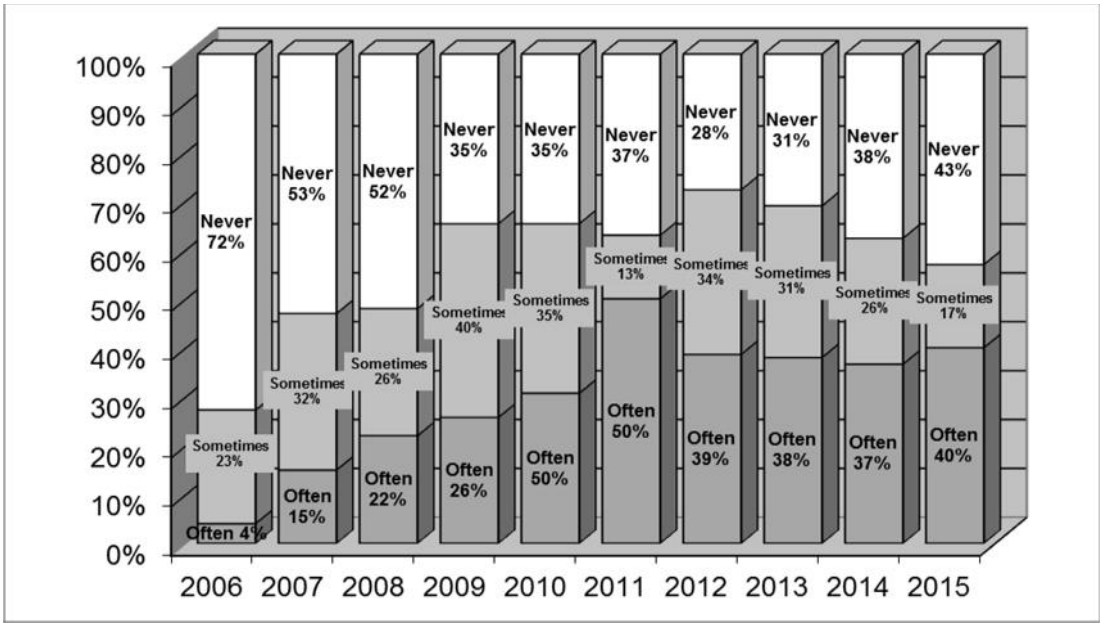


Figure 8a. Self–reported safety behaviours, 2006-2015
- When fishing from rocks do you check weather beforehand? (Q13, part 2)

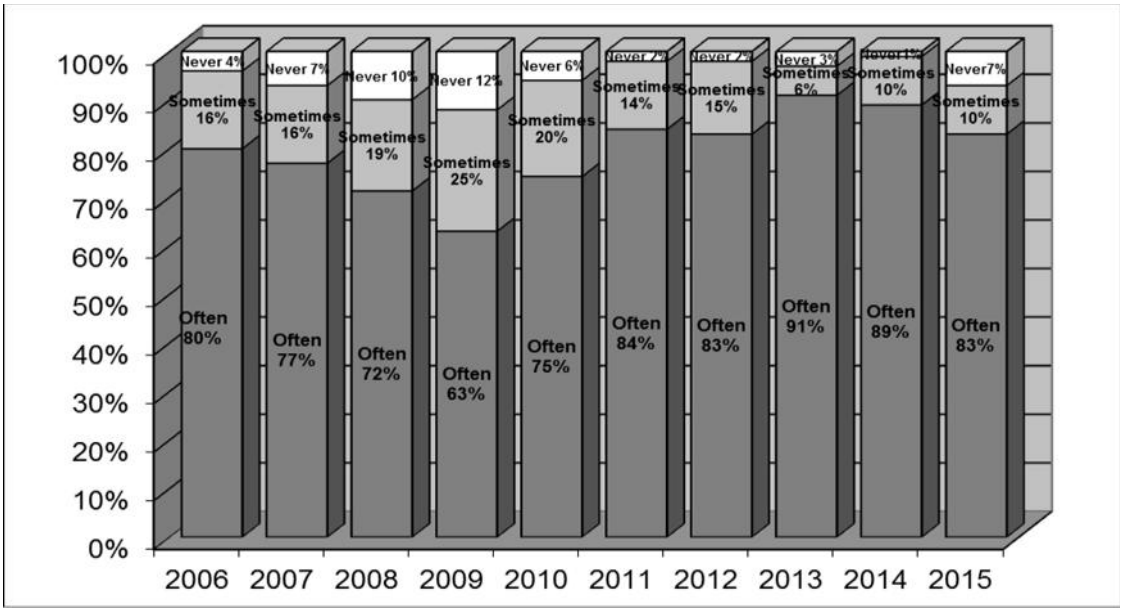


Figure 9a. Self–reported safety behaviours, 2006-2015

- When fishing from rocks do you drink alcohol? (Q13, part 3)

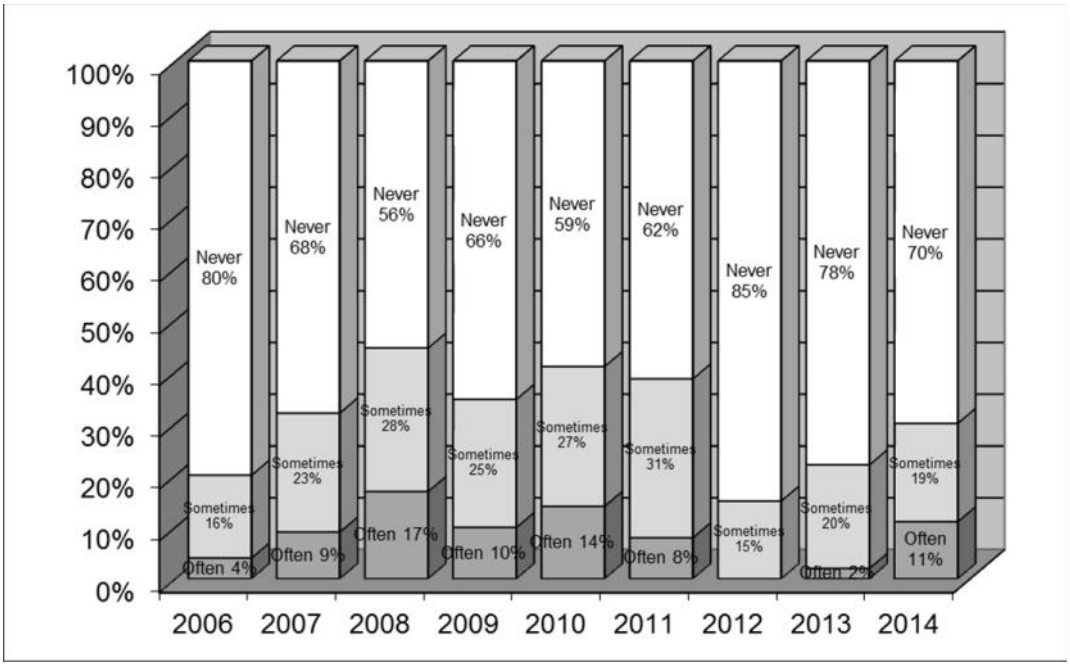


Figure 10a. Self–reported safety behaviours, 2006-2015

- When fishing from rocks do you wear gumboots or waders? (Q13, part 4)

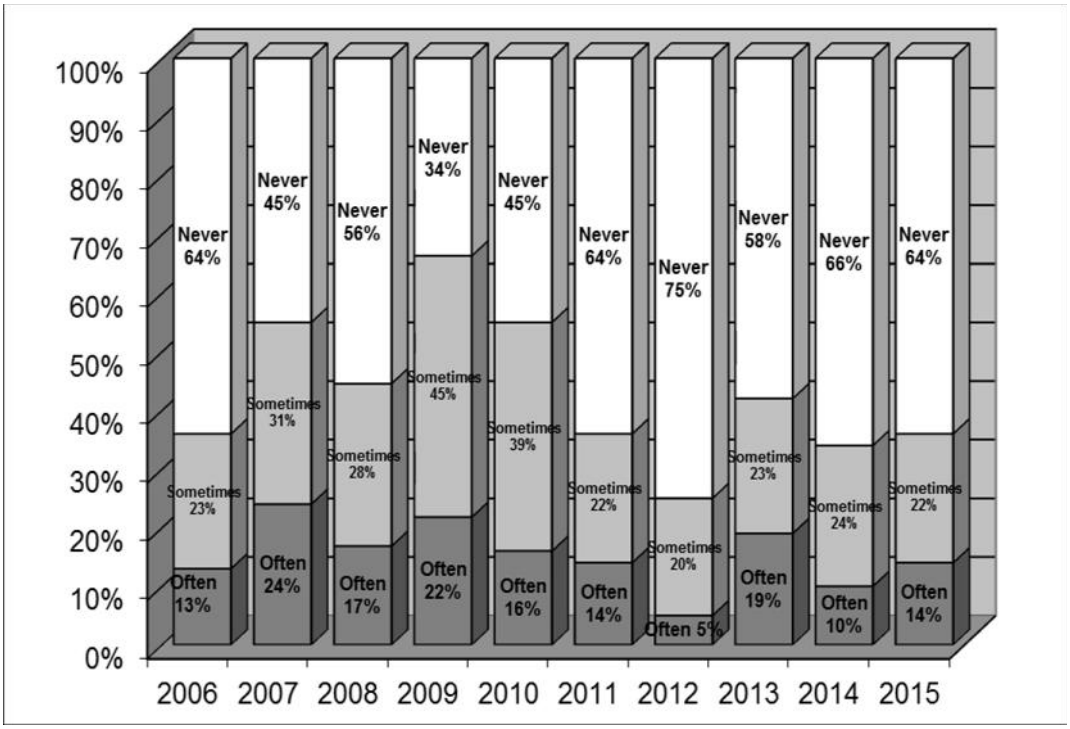


Figure 11a. Self–reported safety behaviours, 2006-2015

-When fishing from rocks do you turn you back on the sea? (Q13, part 5)

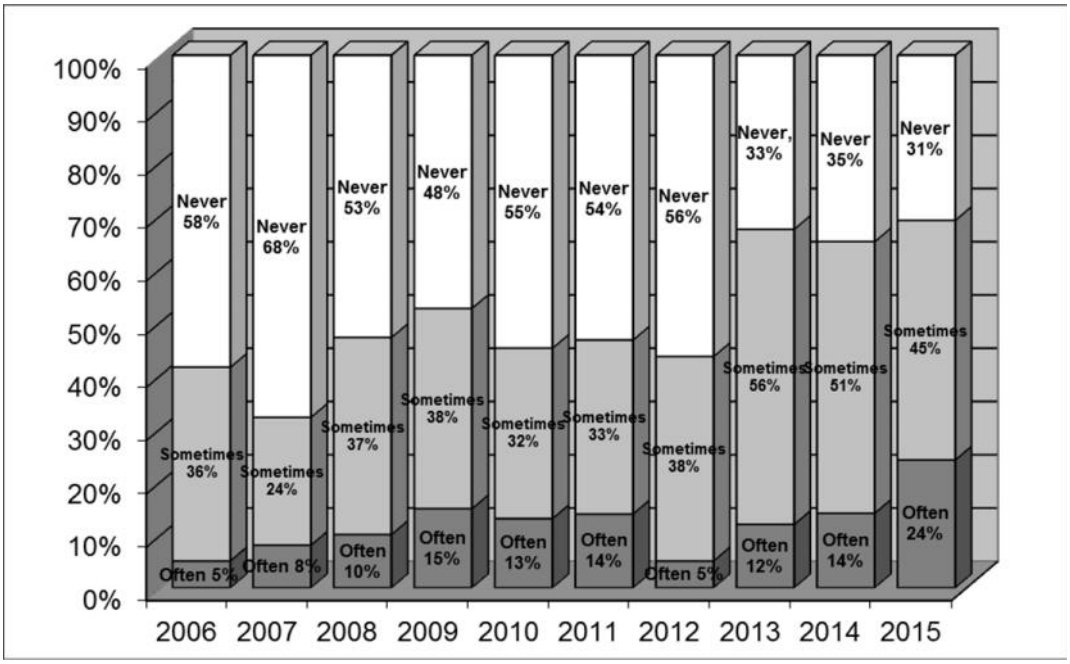


Figure 12a. Self–reported safety behaviours, 2006-2015

- When fishing from rocks do you carry a cell phone (Q13, part 6)

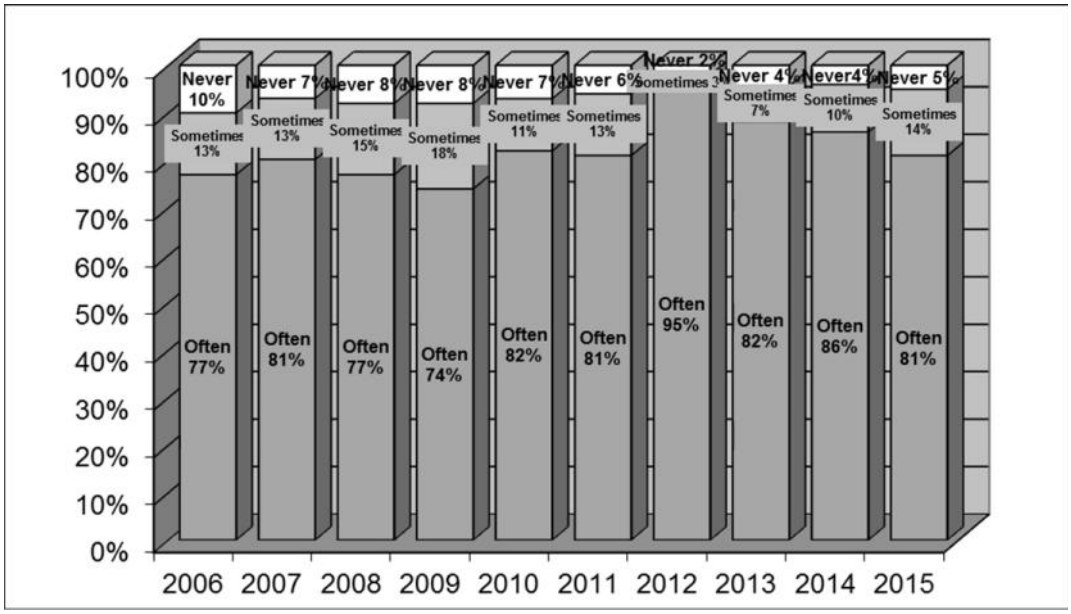


Figure 13a. Self–reported safety behaviours, 2006-2015

- **Do you go down the rocks to retrieve snagged line? (Q13, part 7)**