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## Rock-based Fisher Safety Promotion: A Decade On

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# Rock-based Fisher Safety Promotion: A Decade On

## **Cover Page Footnote**

Acknowledgement The author would like to acknowledge the considerable input of collaborating organisations, especially the park rangers, fishing advisers, and surf lifeguards who have been the public face of the Project for the past decade.

## Abstract

In the 10 years between 2006 and 2015, seven percent of all drowning fatalities in New Zealand were the consequence of land-based fishing activity (Water Safety New Zealand, 2015). In 2006, a collaborative campaign was launched in the Auckland, New Zealand entitled the *West Coast Fisher Safety Project*. This paper reports on the findings of annual surveys from 2006-2015 to determine what impact, if any, the safety promotion project has had. The most emphatic change in fisher behavior in the intervening decade has been the more frequent self-reported use of lifejackets (2006: 4%; 2015: 40%) and a gradual shift in fisher awareness of the risks associated with rock-based fishing and their vulnerability to that risk. Some risky behaviors (e.g., retrieving snagged lines, wearing gumboots/waders) persisted and required further attention. We discuss implications of having 10 years of data to underpin our understanding of fisher safety and help shape its future direction.

*Key words:* land-based fishing, risk of drowning, water safety education, water competency, drowning prevention

## Introduction

In an island nation, well known for its aquatic lifestyle and easy access to open water, the benefits of aquatic recreation in New Zealand are not without attendant risks. In the 10 years between 2006 and 2015, seven percent of all drowning fatalities in New Zealand were the consequence of land-based fishing activity (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%,  $n = 19$ ) accounting 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 New Zealanders (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 between 25-45 years at the time of the drowning incident (64%,  $n = 21$ ).

In 2006, in response to public concerns and media reports, a rock-based fisher safety campaign was launched in the Auckland region of New Zealand to combat a spate of surf-related drowning incidents associated with fishing from rocky foreshores. In the summer of 2006, a local authority (Auckland Regional Council), a water safety organisation (WaterSafe Auckland), and a rescue organisation (Surf Life Saving Northern) initiated a collaborative rock-based fishing safety campaign entitled the *West Coast Fishing Safety Project* (hereafter referred to as the Project). 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. At this point, little was known about the fishers and what knowledge, attitude, and behaviors informed the pursuit of their sport.

A survey of fishers was conducted to better understand fisher demographics, their knowledge of fishing safety, and their perceptions of the risk of drowning when rock-based fishing. The 2006 survey revealed new and alarming statistics about risky behaviors 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 (32%) of fishers

estimated that they could not swim 25 m. Most fishers reported limited/no ability to perform CPR (62%). Many took unnecessary risks when fishing from rocks. For example, almost one half (48%) had gone to the water's edge to retrieve a snagged line and one fifth (20%) admitted having consumed alcohol while fishing from rocks. Most fishers agreed that always wearing a life jacket made fishing a lot safer (71%), yet almost three quarters (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 (hereafter referred to as CALD), 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. Similar cultural and linguistic diversity among rock-based fishers has been reported in Australia (Crosariol, Vasica, & Franklin, 2010; Mathews, Thompson, & Bracchi, 2010; Mitchell & Haddrill, 2003, 2004; Mitchell, Ware, & Bambach, 2014; Thompson, 2010).

The ongoing Auckland-based project is unique in that the fishing safety education programme was the first of its kind to be 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. Full details of the safety promotion and its resources are available by searching on rock fishing at: [www.watersafe.org.nz/](http://www.watersafe.org.nz/)

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). Similar rock-based safety interventions have since been reported in Australia (Birch, Morgan, Arch, & Mathews, 2015 including in New South Wales (Mitchell, Ware, & Bambach, 2014).

It is the purpose of this study to report on the effects of a decade-long safety intervention to achieve the following outcomes:

1. To report the findings of the 2015 Auckland west coast rock-based fisher survey;
2. To collate and compare the findings of the annual surveys conducted from 2006-2015;
3. To determine the effect of the safety project on Auckland's west coast fishers' safety practices and beliefs; and
4. To make recommendations for continued rock fishing safety promotion based on the information obtained.

## Method

A cross sectional study was undertaken at the end of each summer safety campaign at high-risk fishing sites on Auckland's rugged west coast renowned for its consistent surf and frequent surf rescue activity - a coastline within 30km of metropolitan Auckland's city centre. As was the case in previous years (Moran, 2008; 2011), participants in the 2015 survey were either fishing at the chosen sites or in transit to and from the site. For consistency, 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 survey was made to all adult fishers over 16 years of age.

### Data gathering

The questionnaire was 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 chosen included popular and high-risk west coast sites at Muriwai, Piha, Karekare, Bethells, and Whatipu. The sample did not include fishers who used the sites at times outside 'peak' hours (e.g., night fishing) or fishers who frequented other high-risk west coast locations.

### Survey Instrument

The annual survey 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 nine previous surveys since 2006. Five questions sought socio-demographic information on gender, length of residency, age, ethnicity, and their previous rock fishing activity.

As part of each annual survey, a question on safety behaviors asked fishers to self-report on six behaviors (e.g., *when rock fishing, do you wear a lifejacket/buoyancy aid*) using four response categories (*never, sometimes, often and always*). A question on risk perception utilising Rogers (1983) Protection Motivation Theory was developed using statements similar to that used in a survey of Auckland beachgoers (McCool, Moran Ameratunga, & Robinson, 2008, 2009). The statements focussed on fishers' perception of risk related to severity of the threat (e.g., the contextual risk of drowning – surf, rips, slippery rocks, isolation), their vulnerability to that risk (e.g., how at risk are they as individuals), their perception of the efficacy of preventive actions (e.g., lifeguard availability, lifejacket use), and self-efficacy of their preventive actions (e.g., their local knowledge of the site). The questions consisted of 12 statements (3 on each process) that required fishers to state whether they *strongly agreed, agreed, were unsure, disagreed, or strongly disagreed* with each statement.

### 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 including 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 were

expressed in terms of the number of respondents to each survey question within groups. Where appropriate, trend lines were included in the figures so as to indicate data direction over the 10 years that the Project has been conducted.

For the purpose of comparing the possible effects of the safety intervention on fisher knowledge, attitudes, and behaviors, key variables thought likely to be of importance to the making of recommendations for future safety promotion have been included in this study. They included analysis of change in fisher demographics over the 10-year period (e.g., the frequency of visits to site where interviewed; length of residency); changes in fisher behavior (e.g., the wearing of PFDs; alcohol use when fishing from rocks), and changes in risk perception (e.g., the severity of the risk of drowning; their vulnerability to that risk). Full results of each of the ten annual surveys from 2006 to 2015 are available at the following website: <http://www.watersafe.org.nz/family-communities/research-and-information/rock-fishing/>

## Results

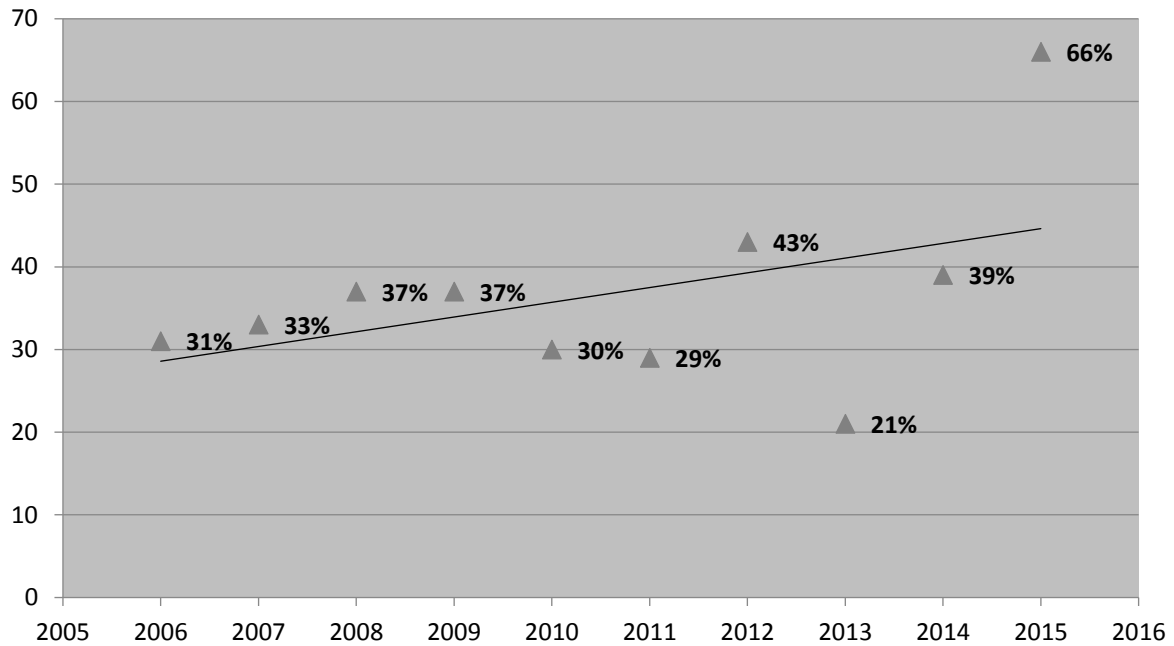
### Fisher Demographics, 2006-2015

A total of 413 questionnaires were returned from participants in the 2015 survey compared with the average return of  $M = 165$ , (range 112-413) over the previous nine years of the Project. Demographically, the participants in the 2015 survey reflected a similar mix as previously reported from 2006-2014. Table 1 shows the demographics for participants in the most recent survey (2015) compared with the inaugural survey in 2006 (in italics). In 2015, fishers were predominantly male (91%) and most (51%) were between 30-44 years, similar proportions to those reported in 2006 and all intervening surveys. As was the case at the outset of the Project in 2006, proportionally more Asian peoples (52%) completed the survey in 2015, whereas proportionally fewer European (19%) and Maori (11%) New Zealanders took part. Change was evident in the length of residency among respondents from 2006 to 2015, with a lower proportion of fishers with < 4 years residence (2015, 14%; 2006, 42%). In 2015, most fishers (73%) had lived in New Zealand for 10 years or more (2006, 40%).

**Table 1.** Comparison of Fisher Characteristics 2015 and 2006 survey (2006 in *italics*)

Rock-based fishers		2015	2006
		<i>n (%)</i>	<i>n (%)</i>
Gender	Male	378 (91%)	229 (92%)
	Female	35 (9%)	20 (8%)
Ethnicity	European	78 (19%)	83 (33%)
	Maori	45 (11%)	16 (7%)
	Pasifika	47 (11%)	24 (10%)
	Asian	216 (52%)	123 (49%)
	Other	27 (7%)	3 (2%)
Age group	15-29 years	81 (20%)	57 (23%)
	30-44 years	211 (51%)	142 (57%)
	45-64 years	113 (27%)	46 (18%)
	65 years +	8 (2%)	4 (2%)
Residency	< 4 years	59 (14%)	105 (42%)
	5-9 years	51 (12%)	43 (18%)
	10 years +	303 (73%)	101 (40%)
Total		413 (100%)	249 (100%)

Fishers were asked to describe how often they had fished at the location where they completed the questionnaire. In 2015, one-fifth (18%) reported that this was their first visit to the site (2006, 36%) and one-third (34%) had visited the site previously up to 5 times (2006, 33%). Cumulatively, in 2015, most fishers (54%) reported that they had visited the site fewer than 10 times (2006, 80%), but one-third (31%) had visited the site more than twenty times (2006, 19%). Figure 1 shows the change in frequency of visits (>6 visits) to the site where interviewed for each year from 2006 to 2015. Over the decade, the frequency of visits to the site where the fisher was surveyed has gradually trended upwards.



**Figure 1.** Frequency of fisher visits to site (>6 visits) where interviewed, 2006-2015

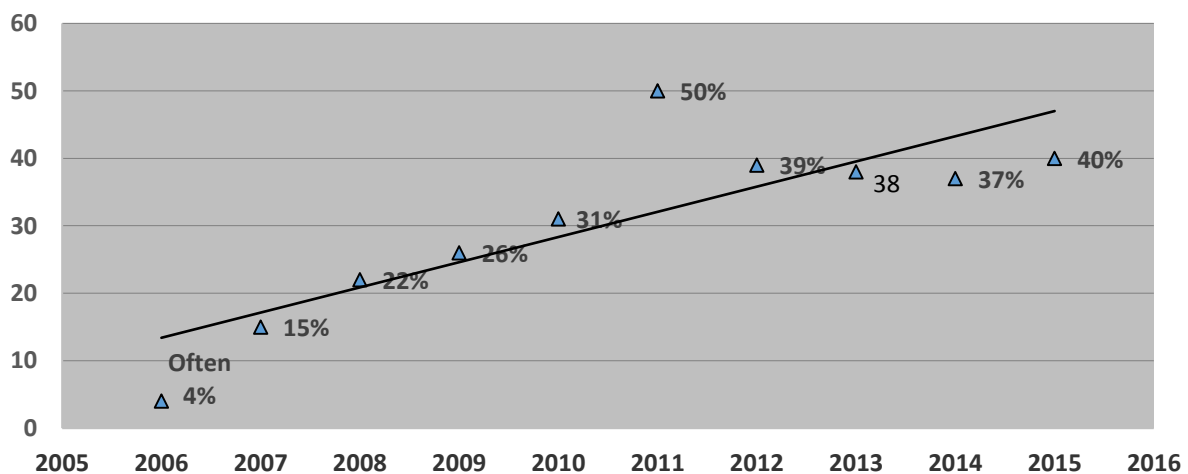
### Water Safety Behaviors of Fishers

Table 2 shows the self-reported fishing behaviors in 2015 compared with the results of the first survey in 2006 (in italics). In 2015, 43% of fishers reported *never* wearing a lifejacket. In 2006, almost three quarters (72%) of fishers *never* wore a lifejacket (2015, 43%) and only a small proportion (4%) *often/always* wore one (in 2015, 40%). Similar proportions of fishers had gone to the water's edge to retrieve a snagged line (2006, 48%, 2015, 46%), had worn gumboots or waders (2006, 36%, 2015, 39%), or had consumed alcohol while fishing from rocks (2006, 20%, 2015, 16%). More fishers reported that they had turned their backs to the sea while fishing from rocks in the 2015 survey (2006, 41%, 2015, 69%).

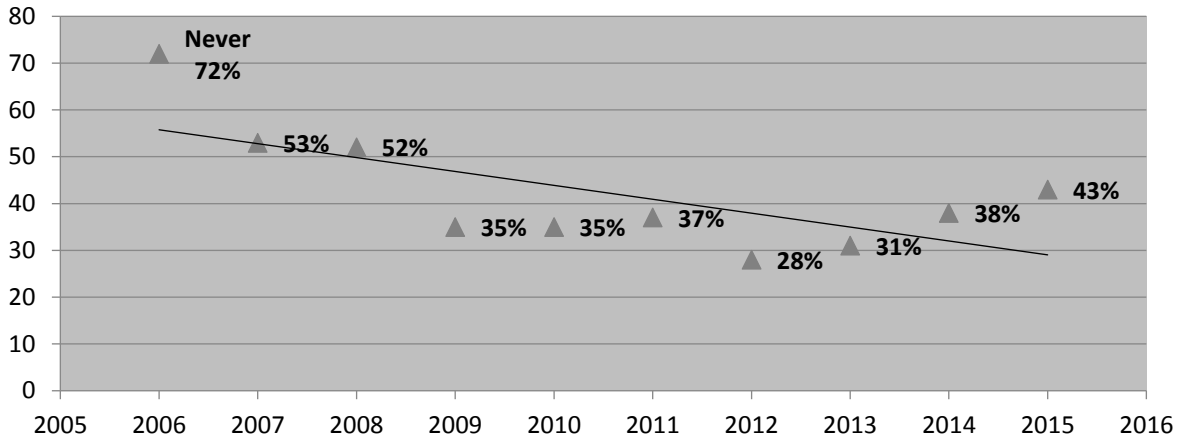
**Table 2.** Fishers' self-reported safety behaviors, 2015 and 2006

When rock fishing, do you	Year of survey	Never		Sometimes		Often/Always	
		n	(%)	n	%	n	%
Wear a lifejacket or other flotation device	2015	247	(43.3%)	68	(16.5%)	166	(40.2%)
	2006	180	(72.0%)	58	(23.2%)	11	(4%)
Check weather/water conditions first	2015	33	(8.0%)	40	(9.7%)	340	(82.3%)
	2006	11	(4.4%)	40	(16.0%)	198	(79.6%)
Drink alcohol when you are fishing	2015	346	(83.8%)	46	(11.1%)	21	(5.1%)
	2006	200	(80.0%)	39	(15.6%)	10	(4.0%)
Wear gumboots or waders	2015	253	61.3%	91	(22.0%)	69	(16.7%)
	2006	159	(63.6%)	58	(23.2%)	32	(13.2%)
Turn your back to the sea when fishing	2015	126	(30.5%)	184	44.6%	103	(24.9%)
	2006	146	(58.4%)	90	(36.0%)	13	(5.2%)
Take a cell phone in case of emergencies	2015	23	(5.6%)	56	(13.6%)	334	(80.9%)
	2006	24	(9.6%)	33	(13.2%)	192	(76.6%)
Go down rocks to retrieve snagged line	2015	223	(54.0%)	144	(34.9%)	44	(11.1%)
	2006	129	(51.6%)	95	(38.0%)	25	(10%)

Analysis of lifejacket use and alcohol consumption over the decade of the Project revealed some interesting trends. Figure 2a shows the percentage of fishers who *often/always* wore a lifejacket when fishing from rocks (range 4% - 50%) and Figure 2b shows the proportion of fishers who *never* wore a lifejacket (range 72% - 28%). A gradual shift in the self-reported wearing of lifejackets is apparent in the trend line with more fishers wearing them *often/always* and fewer fishers *never* wearing a lifejacket.

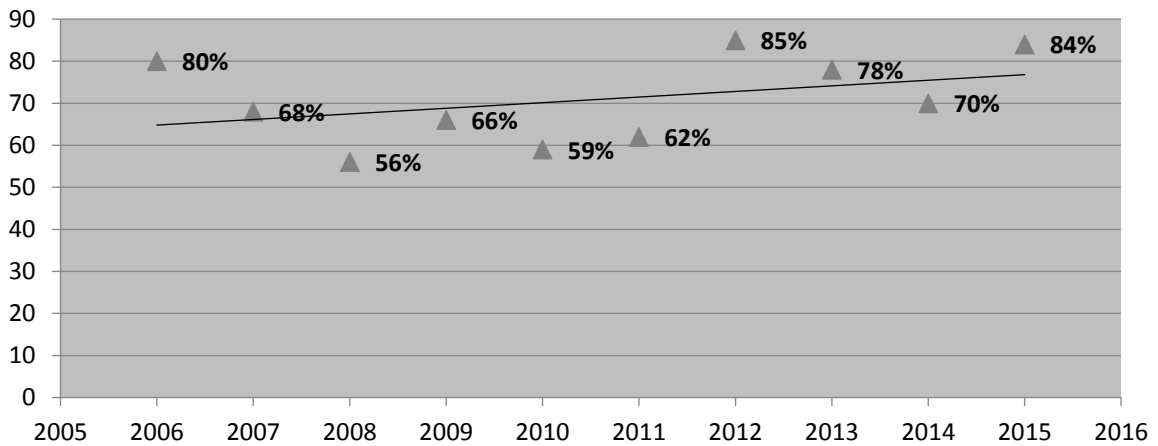
**Figure 2a.** Percent of fishers who *often/always* wear a lifejacket by year, 2006-2015.





**Figure 2b.** Percent of fishers who *never* wear a lifejacket by year, 2006-2015.

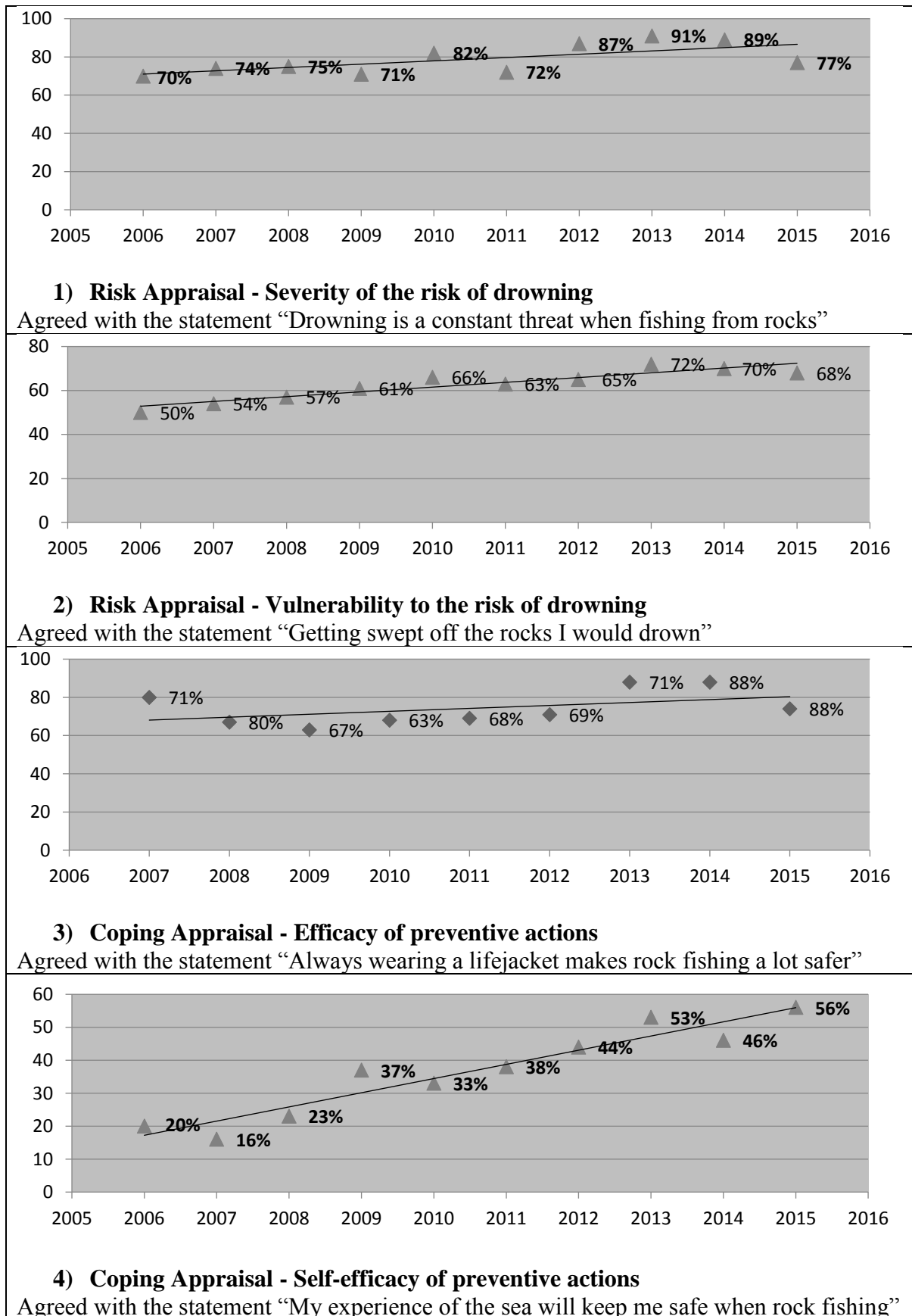
Changes in the consumption of alcohol when fishing over the 10 years of the Project are not as obvious as those for lifejacket use. Nevertheless, we observed a modest increase in those abstaining from drinking while fishing, particularly in the last four years.



**Figure 3.** Percent of fishers who abstained from alcohol consumption when fishing from rocks by year, 2006-2015

### Fishers' perception of drowning risk

As part of each annual survey, fishers were asked to respond to 12 statements related to the risk and coping appraisal processes that comprise the health cognitions thought to reduce the risk of drowning (McCool et al., 2008; 2009; Moran, 2008; 2011). Figure 4 shows four of those responses related to how fishers perceive the severity of the threat (i.e., the risk of drowning), their vulnerability to that risk, their perception of the efficacy of preventive actions, and the self-efficacy of their own actions (Rogers, 1983). Over the 10 year period of the intervention, the trend lines indicate that most fishers' perception of the severity of the drowning risk (1: Risk Appraisal) (range: 70 - 91%) and perceptions of their vulnerability to that risk (2: Risk Appraisal) (range: 50 - 72%) increased over time. Similarly, fishers' perceptions of the efficacy of preventive actions in general (3: Coping Appraisal) (range: 63 - 88%) and the self-efficacy of their preventive actions (4: Coping Appraisal) (range: 16 - 56%) also increased over time.



**Figure 4.** Trend lines for fisher perceptions of risk and coping appraisals (based on Rogers Protection Motivation Theory, 1983), 2006-2015.

## Discussion

This is the first study on fisher drowning prevention to report annually on the impact of a water safety intervention over a sustained period of time. From 2006 - 2015, an annual survey of fishers, conducted toward the end of each summer season at high risk fishing sites, has provided collaborating water safety organisations with information upon which to focus their ongoing drowning prevention initiatives. In the first five years of the Project (2006-2010), the annual surveys indicated that the rock-based fisher population was transient, and culturally and linguistically diverse (Moran, 2011). The results of the successive five years (2011-2015) suggest that, while transience and diversity in the population are still characteristics that make them a difficult group to target with safety education messages, several changes in their demographic composition have taken place.

While fishers are predominantly male and of Asian ethnicity throughout the decade, the increased length of residency (Table 1) and the increased number of visits to the site where interviewed (Figure 1) suggest two possibilities. First, fishers are more likely to be acculturated into New Zealand society (and therefore more accessible to public health and safety messaging). Second, fishers may be more familiar with the setting in which they fish (and therefore have accumulated local knowledge of environmental conditions and associated risks). Evidence to support the latter is seen in fisher coping appraisal cognition (reported in Figure 4, part 4) where fishers express increasing belief that their knowledge of the sea and local knowledge of the site will keep them safe when fishing. That almost one third (31%) had visited the site where interviewed more than 20 times in 2015 re-affirms observations made in 2011, that fishers were becoming more familiar with the locale and thus more likely to be aware of changing conditions and local hazards (Moran, 2011). Whether these trends are likely to be reflected in greater awareness of rock-based fishing safety and more informed safety behaviors is unknown but continued investment in future enquiry is recommended.

Demographic changes were not the only factors to change in the decade of the Project. Perhaps the most salient change has been the increased use of lifejackets by fishers at the high risk surf sites. Ten times as many fishers self-reported that they *often/always* wore lifejackets when fishing from rocks (2006, 4%; 2015, 40%), a practice supported by anecdotal observation by surf lifeguards and park rangers as well as high profile media coverage of dramatic rescues where fishers had survived the initial fall into boisterous surf and stayed afloat long enough to be rescued because they had been wearing lifejackets (for example, Piha 2016 available at: <http://www.stuff.co.nz/auckland/81935035/Dramatic-rescue-of-fisherman-plucked-from-the-water-at-Piha> ).

A quote from one of the lifeguards engaged in the Project in 2015 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!”*

(Moran, 2015, p. vi)

Another verbatim comment from a senior lifeguard involved in the hazardous rescue of two fishers, also in 2015, reinforces the value of lifejackets from a rescuer perspective:

*“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. . . 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.”*

(Moran, 2015, p. vii)

The annual economic cost of a loss of human life from drowning in New Zealand has been conservatively estimated as \$3.4 million (December 2008 NZ 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.

The use of lifejackets has been the fundamental message throughout the duration of the Project via multilingual information pamphlets, spot prizes, discount vouchers all available both onsite and via retail fishing outlets/gas stations. While such behavior change is encouraging, it is still of concern that, in the 2015 survey, four in ten fishers (43%) reported *never* wearing a lifejacket. An observational study at 10 rocky platforms in Victoria, Australia found that, in spite of a 3-year (2013-2015) targeted safety campaign aimed at rock-based fishers from CALD backgrounds, almost all fishers (97%) observed were not wearing lifejackets (Birch, Morgan, Arch, & Mathews, 2015). On the basis of the improved uptake of lifejacket use among Auckland fishers over the decade that the Project has run and recognising that further behavior change is essential, it is recommended that the use of such non-traditional avenues of communication as outlined be continued.

Other changes in self-reported safety behaviors have not been as apparent. Figure 3 shows that while most fishers *never* consumed alcohol when fishing (range 56-85%), some persist with the practice and only a moderate upward trend in this behavior is apparent over time. Continued promotional work on the folly of mixing alcohol with fishing from rocks is required. Some risky fishing behaviors such as wearing gumboots/waders and going down rocks to retrieve snagged lines appear particularly resistant to change. In 2006, two thirds (64%) of fishers *never* wore gumboots/waders, the same proportion as that reported in 2015. Recent exploration of the biomechanical principles underpinning sudden immersion and compromised flotation suggests that fishers may require more safety awareness about waders but further work is required on their use in fishing sports (Petross, Blitvich, & McElroy, 2015).

In 2006, half (52%) of the fishers reported that they never went down the rocks to retrieve snagged lines, a similar proportion to that reported in 2015 (54%). An observational study in Australia found that almost two thirds (60%) of fishers were observed being within two metres of the water edge (Birch et al., 2015). Another risky behavior frequently reported throughout the decade of surveying was that of turning your back to the sea (Table 2). In 2015,

more than one quarter (26%) reported that they *often/always* did and less than one third (31%) stated that they *never* did. In Australia, Birch and colleagues (2015) observed most fishers (80%) turning their back to the sea at some stage during a 90 minutes period of observation. Why these risky behaviors persist among rock-based fishers in spite of highly publicised safety messaging is hard to explain. It might be that fishers learned their craft in calm waters where such practices may not be so threatening or that they know the risks but choose to ignore them or both. The persistence of such practices makes the lifejacket messaging even more imperative given that sudden immersion and compromised flotation in isolated locations such as wave platforms make recovery/rescue problematic. Recent research using qualitative analysis to unpack rock-based fishers' perceptions of risk and coping appraisal processes are a likely first step in developing an understanding of this socially complex issue (Veeran-Colton, Keenan, Ford, & Mathews, 2015).

### **Limitations**

While the results of this study conducted over a ten-year period offer a valuable insight into the influence on a fisher safety education intervention, they should be treated with some caution. First, because each survey from 2006-2015 was cross sectional in nature, only associations rather than causality can be determined. Second, while all surveys were conducted onsite, at the same time of year, and used the same data processing, the participants of the convenience samples differed each year so individual changes in perceptions and behaviors cannot be extrapolated longitudinally. Third, the numbers of participants in each annual survey varied considerably because of variable weather and water conditions. Thus, as was the case in previous reporting (Moran, 2008; 2011), aggregated cross sectional data differences were the proxy measures used to infer possible changes in beliefs and behaviors over time. Fourth, as was the case in previous studies (Moran, 2008; 2011), the use of self-reported data on safety behaviors reported in each of the annual self-complete surveys may have introduced bias that may not reflect actual behavior (Robertson, 1992; Mickelide 1997; Watson, Kendrick, & Coupland, 2003). Further observational studies to confirm/refute these are recommended. These limitations notwithstanding, the accumulated evidence of positive changes (and lack thereof) in fisher safety knowledge, attitudes, and behaviors offer clear direction for future safety education interventions.

### **Conclusion**

This on-going study provides a timely overview of the current safety practices and beliefs of fishers and an opportunity to see whether the 10 years of safety promotion have been effective. A decade of sustained commitment by the collaborating organisations based on feedback from an annual survey of rock-based fishers has meant that the intervention was able to grow organically in response to observed and reported knowledge, attitudes, and behaviors (K-A-B) of fishers. Initial emphasis on finding out what fishers knew, thought and did about safety enabled a shift in safety messages in a reflexive way to influence behaviors thought most likely to put 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 behavior changes. Other messages (e.g., not going down the rocks to retrieve a snagged line,

not wearing gumboots/waders, not turning your back to the sea) have appeared more resistant to change and require further effort.

Most importantly, the decade from 2006-2015 has seen a reduction in fisher drowning fatalities on Auckland's west coast to less than one per annum. In addition, many rescues have been recorded where victims survived and victim and rescuer have both attributed survival to the wearing of lifejackets and other safety initiatives (e.g., the availability of angel rings at high risk sites) that have been the focus of the Project (Moran 2014, 2015). The return on investment for participating organisations has been gratifying and encouraging - the return to home safely for rock-based fishers over the past decade is beyond measure.

### Acknowledgement

The author would like to acknowledge the considerable input of collaborating organisations, especially the park rangers, fishing advisers, and surf lifeguards who have been the public face of the Project for the past decade.

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