

West Coast Rock-based Fisher Safety Project 2022



SURF LIFE SAVING
NORTHERN REGION



Te Kaunihera o Tāmaki Makaurau

Preface and Acknowledgements

This report is an evaluation of the 2022 West Coast Rock-based Fishers Project developed by the Auckland Council, Surf Life Saving Northern Region (SLSNR), and Drowning Prevention Auckland (DPA). It reports on the 17th year of the Project during which time many people have been involved in supporting and promoting water safety to prevent drowning. As in previous years, many people have given their time and energy both in a work and volunteer capacity to promote safety among our west coast rock-based fishing community.

We would like to thank the Iwi of Te Kawerau a Maki, and the Lusk and Woodward families for again allowing Life Rings to be installed on their land and allowing us access to maintain them.

The Project was again coordinated by personnel from three regional organisations Drowning Prevention Auckland (DPA), Surf Life Saving Northern Region (SLSNR), and Auckland Council (AC). Key people involved in the promotion of fisher safety from Drowning Prevention Auckland were Harry Aonga, and Madison Chang, with Ieuan Leigh and Kael Mead as rock fishing advisors. From Surf Life Saving Northern, key contributors included James Lea and Josh Carmine, Olivia Kayes, Aurion Mead, and Toby Smeets as fishing advisors. From Auckland Council, park ranger Stuart Leighton and his staff of rangers were actively involved in all aspects of leadership and delivery of the programme.

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<https://www.dpanz.org.nz/research/rock-fishing/>

Executive Summary

Overview

Rock-based fishing (a form of land-based fishing) is one of the deadliest recreational pursuits in New Zealand. A 10-year review conducted by Surf Lifesaving New Zealand from 2011-2021 reported an annual average mortality rate of 3 fatal drowning incidents per annum associated with land-based fishing (National Beach and Coastal Safety Report 2021, SLSNZ, 2021). Of these, most were male (93%) and the key demographic group were 25-64 year-olds of Asian ethnicity. From 2017-2021, there were 31 land-based sea fishing fatalities in New Zealand. Auckland and Waikato each accounted for one-third (32%) of all incidents, South Island 19%, $n = 6$, and rest of North Island 16%, $n = 5$. All nine fatalities in Auckland were Asian, and 66% were male ($n = 6$) (1 was unknown), and in the Waikato, all were male, and 50% Asian ($n = 5$) (Drownbase, WSNZ, 2022). Similar statistics are reported across the Tasman with an average of 13 deaths per annum, of whom 95% were male, average age 45 years, 53% were Asian born, and 83% were confirmed as not wearing a lifejacket (Cooney, Lawes, & Daw, 2020).

The 2021-22 season was again atypical of the rock-based fishing seasons previously reported because of the continued occurrence of the pandemic COVID-19 initially reported in March 2020. A succession of various levels of lockdown (e.g. Level 3 and Traffic light RED), imposed on the Auckland region in 2022 meant that restricted travel and opportunity to fish. While the Pandemic curtailed some face-to-face safety promotions, online learning via the DPA website was still operational throughout the lockdown phases.

1. Background

This is the seventeenth year of the *West Coast Rock-based Fisher Safety Project*, a collaborative intervention by the Auckland Council, Drowning Prevention Auckland (DPA) (formerly Watersafe Auckland Inc - WAI), and Surf Life Saving Northern Region (SLSNR). This report provides information on the impact of the intervention aimed at reducing rock-based fishing fatalities and promoting a safety culture among this high-risk group of aquatic recreationalists.

2. Aims

The aims of this seventeenth 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 in the 2021-22 season,
- 3) To make recommendations for future rock fishing safety promotion based on the information obtained in the survey conducted during the 2021-22 season.

3. Methods

A cross sectional study of fishers at high-risk locations on Auckland's west coast was undertaken during the summer safety campaign between December 2021 and March 2022. A total sample of 132

fishers voluntarily completed the electronic survey. The survey sought information on participation in previous surveys, awareness of the current fishing safety promotion, awareness of west coast life rings as public rescue equipment (PRE), 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 participants ($N = 132$) were predominantly male (93%), most were aged 30-64 years (68%), and one third (36%) had been resident in New Zealand for less than 10 years
- The respondents were primarily Asian peoples (50%), comprised mainly of Filipino (23%), Korean (33%), and Chinese (33%) descent
- Most fishers (64%) had lived in New Zealand for more than 10 years, 14% had lived in New Zealand for less than 4 years, 22% between 5-9 years
- It was the first visit to the site for 20% of fishers, 54% had visited less than 10 times, and 38% had visited the site where interviewed >20 times
- The reason most fishers gave for fishing on the day of interview was fun and enjoyment (70%), 20% to feed the family, 10% to be with mates

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

- 19% of respondents reported that they were aware of previous west coast fisher safety projects (2021, 24%)
- Of these, most fishers (58%) thought that the campaign had been successful, 42% thought it had not been successful
- Fewer fishers (9%) were aware of the current 2022 Project than in the previous year (2021, 34%)
- 27% of fishers were wearing lifejackets at the time of interview, with 50% of these reporting always wearing one when fishing, 35% didn't wear one because they didn't think it risky enough

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

- Most fishers (94%) reported seeing on-site life rings where they fished (2021, 81%)
- One third (36%) had read the instructions on how to use the life rings (2021, 56%)
- Most fishers (89%) thought they could use the life rings in an emergency (2021, 89%)
- One quarter (24%) had used, or seen one used in an emergency (2021, 24%)

4.4. Perceptions of Drowning Risk

- Most fishers (68%) agreed that getting swept off rocks was likely to result in their drowning (2021, 71% agreed)
- One half of fishers (51%) agreed that drowning was a constant threat when fishing from rocks on the west coast of Auckland (2021, 47% agreed)
- Most (61%) agreed that other fishers were at greater risk than themselves and thought they were strong swimmers (54%) compared with others (2021, 66% and 69% respectively)

- Most fishers (89%) agreed that wearing a lifejacket made rock-based fishing safer (2021, 86% agreed)
- Almost all fishers (91%) avoided fishing in bad weather (2021, 96% agreed)
- Almost all fishers (89%) thought that turning their backs to the sea was very dangerous (2021, 94% agreed)
- Many fishers (64%) agreed that their swimming proficiency would get them out of trouble (2021, 81% agreed)
- Many fishers (58%) thought that their local knowledge of the site would keep them out of trouble (2021, 74% agreed)
- Many fishers (59%) thought that their experience of the sea would keep them safe when fishing from rocks (2021, 85% agreed).

4.5. Water Safety Behaviours of Fishers

- 40% reported *often/always* wearing a lifejacket/buoyancy aid (2021, 40%)
- 40% reported *never* wearing any lifejacket/buoyancy aid (2021, 34%)
- Most fishers (85%) reported *never* consuming alcohol when fishing (2021, 80%)
- Many fishers (55%) reported *sometimes/often* wearing gumboots/waders (2021, 45%)
- Many (62%) reported *sometimes* going down rocks to retrieve snagged lines (2021, 58%)

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

- Most fishers (80%) considered that their safety knowledge had improved in the past year (2021, 93% agreed)
- Most fishers (73%) considered that their fishing safety attitudes had improved (2021, 92% agreed)
- Most fishers (74%) thought that their safety behaviour when fishing had improved (2021, 96% agreed)
- Most fishers (67%) thought that the safety behaviour of their mates had improved (2021, 89% agreed)
- Most fishers (64%) considered that the safety behaviour of other fishers had improved (2021, 86% agreed)

TAKE AWAY POINTS

- The survey participants were predominantly male, ethnically diverse, and a mix of newcomers and experienced fishers, still a transient population who had not taken part in previous surveys
- One fifth (20%) were first-time visitors to the fishing site where they were interviewed.
- Never wearing a lifejacket when fishing from rocks continues to be a persistent high-risk behaviour
- 27% were wearing a lifejacket when completing the survey but 35% did not because they didn't consider it risky enough, 18% had forgotten to bring it, 33% didn't own one, and 9% didn't like wearing one.

Executive Summary from operational staff of Drowning Prevention Auckland and Surf Life Saving Northern Region:

The project is now in its 17th year of operation in partnership with Auckland Council, Drowning Prevention Auckland (DPA) and Surf Life Saving Northern Region (SLSNR) and primarily funded by Auckland Council.

Purpose:

Deliver a partnership-based service between Auckland Council, Drowning Prevention Auckland, and Surf Life Saving Northern Region to increase the safety of rock-based fishers and increase their awareness of risk relating to rock-based fishing activities on Auckland West Coast beaches

Key SLSNR Outcomes:

- Educating rock fishers on safer rock fishing/land-based fishing practices
- Increased rock fisher awareness on public rescue equipment, its locations and how it can be used on rock platforms to perform a bystander rescue
- Delivery of core services via four Rock-based Fishing Advisors
- Maintenance of employee Health and Safety in a dangerous environment. SLSNR drone was used when conditions were unsuitable to observe and educate in person
- Sustained proactive interactions with rock-based fishers, performing preventative actions when required, and ongoing education
- Provision of resource to perform rescues when required. All SLSNR Rock-based Fishing staff were rescue ready and were able to respond if a rock-based fisher was in trouble with the support of the lifeguard service.
- Promotion of lifejacket hubs across Auckland.
- Completion of PRE audits and checks. PRE is checked by Rock-based Fishing Advisor staff when out on rock platforms, any damage was noted and reported to Auckland Council.
- Sustained observational analysis of rock-based fishing activity in all environments. The partnership has continued to grow its intelligence on rock-based fishing trends and locations.

SLSNR key outputs were:

- Supported the completion of 132 individual surveys during the 8-week period with rock-based fishers on the west coast
- Educated 150 rock-based fishers between Piha and Muriwai beaches while interacting with them during the collection/completion of surveys during the 8-week period
- Rock-based fishing spots between Piha and Muriwai monitored during the 8-week period
- Multiple rescues/searches/first aid supporting the safe return of rock-based fishers

SLSNR Rescues, Searches and First Aids on Rock Fishers:

Club	Involved Rescue	Involved First Aid	Involved Search	Activity Fishing
Bethells Beach SLSP	Yes	Yes	Yes	Yes
Muriwai VLS	No	No	No	Yes
Piha SLSC	No	Yes	No	Yes
Piha SLSC	No	No	Yes	Yes
Piha SLSC	No	Yes	No	Yes
Piha SLSC	Yes	No	No	Yes
United North Piha	Yes	No	No	Yes
United North Piha	Yes	No	No	Yes

DPA's key outcomes were:

- Educating rock-based fishers on safer rock-based fishing/land-based fishing practices
- Supported SLSNR with training of Rock-based Fishing Advisors using an online platform as well as in a practical environment
- Educated 2367 participants on rock-based fishing safety through presentations, workshops, and seminars
- Supported the completion of 132 rock-based fisher surveys
- Educated 132 rock-based fishers while interacting with them during the collection/completion of surveys
- Actively taking part in DPA and SLSNZ research regarding PRE (public rescue equipment)
- From the surveys 27.3% were wearing lifejackets on the day with 30% stating the reason they wear a lifejacket is 'I always wear one around water'
- Completion of project report including recommendations for future initiatives
- Promotion and management of lifejacket hubs across Auckland

DPA's key outputs were:

- Managed the development of the research methodology, survey tool, completed data analysis, and report completion
- Employment of two Rock-based Fishing Advisors
- In collaboration with SLSNR we achieved a total of 132 completed surveys
- 1 x Crab Fishing Workshop
- 1 x Crab Fishing Seminar
- 4 x Rock-based Fishing Education workshop
- 4 x Rock-based Fishing Seminars
- 20+ presentations completed in relation to land-based fishing safety

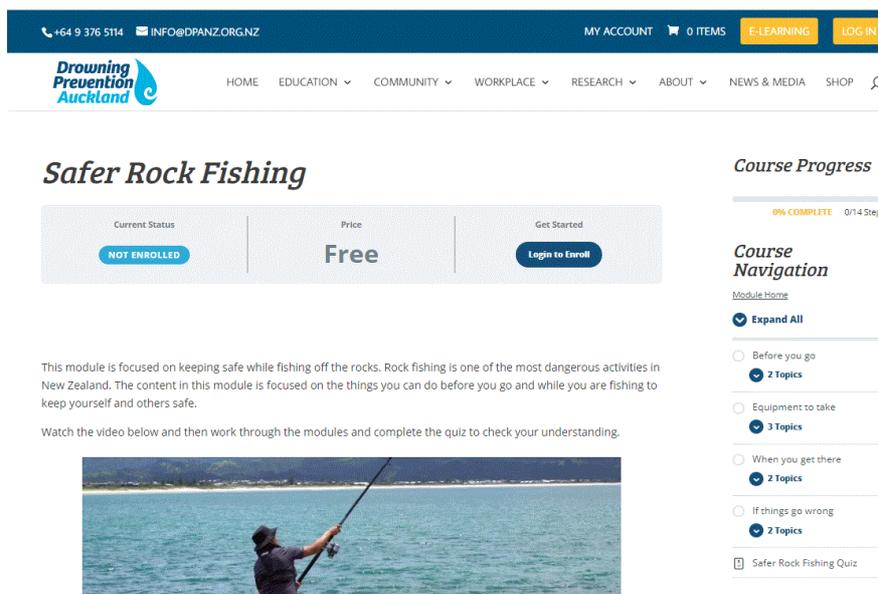
Recommendations:

- Review success of current Rock-based Fisher project model and complete a 5-10 year strategy to support the planning of this service in future years. This review should have particular focus on season length and the creation of off-season resources
- Review appropriate annual training for all Rock-based Fishing Advisors
- Review induction training for all partners annually
- Survey platform to include advisors name for accountability
- Improved engagement with Council elected officials relevant to this programme

E-learning Platform

By clicking on the E-Learning tab in the header bar of DPA's home page (at <https://www.dpanz.org.nz/>) participants can learn quick and easy ways of keeping themselves safe and reducing the risk of drowning when enjoying their recreational activity. Registration to allow access to the eLearning site is free and provides you with access to a range of drowning prevention topics. The screen shot below introduces viewers to the Safer Rock Fishing course on the DPA website at: <https://www.dpanz.org.nz/courses/safer-rock-fishing/>.

The course consists of 4 modules (9 topics) that focus on safety requirements to consider prior to going fishing, what equipment is necessary, what to do upon arrival at the fishing site, and what to do in the event of an emergency for yourself or for others. Upon completion of the 4 modules participants are invited to test their knowledge in a series of simple quizzes.



The screenshot displays the DPA website's 'Safer Rock Fishing' course page. The header features contact details (+64 9 376 5114, INFO@DPANZ.ORG.NZ), user account options (MY ACCOUNT, 0 ITEMS), and navigation tabs (E-LEARNING, LOG IN). The main navigation includes HOME, EDUCATION, COMMUNITY, WORKPLACE, RESEARCH, ABOUT, NEWS & MEDIA, and SHOP. The course title 'Safer Rock Fishing' is prominently displayed. Below the title, three key pieces of information are shown: 'Current Status' (NOT ENROLLED), 'Price' (Free), and 'Get Started' (Login to Enroll). A descriptive paragraph states the module's focus on safety while fishing off the rocks in New Zealand. A video player is embedded below the text. On the right, a 'Course Progress' sidebar indicates 0% completion (0/14 Steps) and provides a 'Course Navigation' menu with an 'Expand All' option and a list of topics: 'Before you go' (2 Topics), 'Equipment to take' (3 Topics), 'When you get there' (2 Topics), and 'If things go wrong' (2 Topics). A 'Safer Rock Fishing Quiz' is also listed.

Illustration 1. Screen shot of DPA's *Safer Rock Fishing* programme freely available at: <https://www.dpanz.org.nz/courses/safer-rock-fishing/>

RECOMMENDATIONS

On the basis of the findings, it is recommended that:

Auckland Council:

- Retain the services of the safety advisory for a 2022/23 post-Covid summer campaign,
- Continue to provide regional leadership and support future fishing safety promotion, including the installation of life rings and safety signage at high-risk sites,
- Increase provision of evidence-based public rescue equipment (PRE) in the form of life rings and throw ropes at popular but remote locations,
- Support the trialling of different PRE and the development of national PRE guidelines.

Drowning Prevention Auckland, Surf Life Saving Northern Region and other safety organisations:

- Promote and evaluate the e-Learning module on the DPA website, and add a question to the annual survey,
- Increase lifejacket use in the public domain with strong media messaging,
- Commit resources and personnel to the ongoing work collaboratively with all partners to promote best practice for West Coast fishing safety education beyond 2022,
- To gain a more accurate understanding of when and how often the PRE are used in an emergency, we recommend using available technology to trial a monitoring system of the PRE at one site (Muriwai Flat Rock).

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

- Adopt and endorse the fishing safety messages promoted by the 2022 West Coast Rock-based Fisher Safety Project,
- Be aware of, and promote participation in, the new e-Learning website, especially in fishing magazines, newspapers, and other online media outlets,
- 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

Section number	Section Heading	Page number
	Preface and Acknowledgements	<i>ii</i>
	Executive Summary	<i>iii-ix</i>
	Table of Contents	<i>x</i>
	List of Tables	<i>xi</i>
	Project Report 2022	1-32
1	Overview	1
2	History	1-2
3	Aims and Outcomes of the Study	3
4	Fishers Safety Survey	4-6
	4.1 Survey administration	4
	4.2 Survey Measures	4-6
	4.3 Data analysis	6
5	Key Findings	7-24
	5.1 Demographics of fishers	8-10
	5.2 Awareness of West Coast Fisher Safety Project	11-13
	5.3 Public rescue equipment (life rings, throw bags etc)	14-15
	5.4 Fisher perceptions of drowning risk	16-20
	5.5 Water safety behaviours of fishers	21-22
	5.6 Changes in fisher knowledge, attitudes, and behaviours	23-24
6	Conclusions	25
7	Summary of Key Safety Promotions, 2022	26-27
8	Recommendations	28
9	References	29-32
	Appendix 1 - Survey Questionnaire	<i>i-vi</i>
	Appendix 2 – SLSN/DPA Operational Report	<i>i-iii</i>

List of Tables	Page no.	
Table 1	Survey sites, December 2021 – March 2022	4
Table 2	Demographic characteristics of fishers, 2021-2022	8
Table 3	Self-identified ethnicity of Asian fishers, 2021-2022	9
Table 4	Fishing frequency at site where interviewed and main reason for fishing, 2021-2022	10
Table 5	Participation in and estimation of success of previous <i>Fisher Safety Projects</i>	11
Table 6	Awareness of current <i>Rock-based Fisher Safety Project</i> , 2021-2022	12
Table 7	Use/non-use of lifejacket on day of interview, 2021-2022	13
Table 8	Awareness of the public rescue equipment (PREs), 2021-2022	14
Table 9	Fisher perceptions of the risk of drowning, 2021-2022	16
Table 10	Comparison of fisher beliefs in severity of risk of drowning, 2021 and 2022	17
Table 11	Comparison of fisher vulnerability to the risk of drowning, 2021 and 2022	18
Table 12	Comparison of fisher beliefs on efficacy of preventive actions, 2021 and 2022	19
Table 13	Comparison of fisher beliefs on self-efficacy of actions, 2021 and 2022	19
Table 14	Fishers' Self-reported water safety behaviours, 2021-2022	21
Table 15	Comparison of self-reported changes in fishers' safety knowledge, attitudes, and behaviours, 2021 and 2022	23

Project Report – 2022

1. OVERVIEW

Rock-based fishing (a form of land-based fishing) is one of the deadliest recreational pursuits in New Zealand. A 10-year review conducted by Surf Lifesaving New Zealand from 2011-2021 reported an annual average mortality rate of 3 fatal drowning incidents per annum associated with land-based fishing (National Beach and Coastal Safety Report 2021, SLSNZ, 2021). Of these, most were male (93%) and the key demographic group were 25-64 year-olds of Asian ethnicity. From 2017-2021, there were 31 land-based sea fishing fatalities in New Zealand. Auckland and Waikato each accounted for one-third (32%) of all incidents, South Island 19%, $n = 6$, and rest of North Island 16%, $n = 5$. All nine fatalities in Auckland were Asian, and 66% were male ($n = 6$) (1 was unknown), and in the Waikato, all were male, and 50% Asian ($n = 5$) (Drownbase, WSNZ, 2022). Similar statistics are reported across the Tasman with an average of 13 deaths per annum, of whom 95% were male, average age 45 years, 53% were Asian born, and 83% were confirmed as not wearing a lifejacket (Cooney, Lawes, & Daw, 2020).

The 2021-22 season was again atypical of the rock-based fishing seasons previously reported because of the continued occurrence of the pandemic COVID-19 initially reported in March 2020. A succession of various levels of lockdown (e.g. Level 3 and Traffic light RED), imposed on the Auckland region in 2022 meant restricted travel and opportunity to fish. While the Pandemic curtailed some face-to-face safety promotions, online learning via the DPA website was still operational throughout the lockdown phases.

2. HISTORY

In 2006, a rock-based fisher safety campaign was launched in the Auckland region of New Zealand to combat the spate of surf-related drowning incidents associated with fishing from rocky foreshores. The Auckland Regional Council (ARC), Drowning Prevention Auckland (formerly 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. Four temporary rangers, fluent in Chinese, were employed and trained as rock fishing safety advisers and survey administrators. All rock fishers either on-site or in transit to the site were asked to complete a self-directed, written questionnaire that sought information on fishing practices and beliefs. A very high response rate (91%) was obtained with only 21 refusals during the 10-week data-gathering period resulting in a final database of 250 fishers.

The first onsite survey, undertaken at four popular high-risk sites - Muriwai, Piha, Karekare and Whatipu), 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). 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. 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 organisations.

3. Aims and Outcomes of the Project

3.1 AIMS

The aims of this seventeenth 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.
- 3) To make recommendations for future rock fishing safety promotion.

3.2 OUTCOMES

The specific outcomes of this Report are:

1. Ascertain the effect of on-site rock fishing safety promotion during the summer months of 2021-2022
2. Report findings on fisher awareness and perceptions of the West Coast Rock-based Fishing Project
3. Report fisher opinions on the value of safety signage and life ring flotation devices currently located at high-risk west coast fishing locations,
4. Provide information on fisher:
 - a. perception of drowning risk,
 - b. safety behaviour and attitudes,
 - 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.

4. Fisher Safety Survey

4.1 Survey Administration

The data gathering took place during December 2021 and March 2022 and included several peak holiday weekdays and weekends. The onsite data gathering took place using a Survey Gizmo e-questionnaire and iPads, first trialled in 2014.

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. Not all sites were surveyed, but the most popular and frequented sites at Muriwai and Piha were well represented. The sites surveyed included high risk west coast fishing sites at Muriwai (Flat Rock, Maori Bay), Piha (including Whites Beach), and Bethells beach (including O’Neill Beach), (See Table 1).

Table 1. Survey sites, 2021-22

Fishing location where interviewed	<i>n</i>	%
Muriwai (including Flat Rock, Maori Bay)	108	82%
Bethells beach (including O’Neill Beach, Ihumoana Island, & Raeakiaki Point)	6	4.5%
Piha (including Camel Rock and Dawson’s Ledge, South Piha)	18	13.5%
Total	132	100%

4.2 Measures

The structured 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 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* (See Appendix 1, Questions 13). 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.

A new question included in the most recent survey (2022) sought information on lifejacket use on the day of being surveyed to ascertain why or why not fishers were/were not wearing a lifejacket (See Appendix 1, Questions 1-3). It was hoped that drilling down into reasons for and against lifejacket use while fishing from rocks would help direct future efforts to promote their use. The open-ended responses were categorised into four most frequent responses for wearing a lifejacket and five most commonly occurring responses for not wearing one (see Table 7).

Two questions on at-risk fishing behaviours (See Appendix 1, Questions 16) and perceptions of drowning risk (See Appendix 1, Questions 15) from the earlier surveys were again included to compare fishing safety behaviours and risk perception. 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 risk perception question used Protection Motivation Theory (Rogers, 1983, 1997) as a guiding theoretical framework. The question on risk perception consisted of 12 statements and required fishers to state whether they *strongly agreed*, *agreed*, were *unsure*, *disagreed*, or *strongly disagreed* with the statement related to the following four risk cognition constructs:

1. Perceived severity of the threatened event (how severe is the risk of drowning?) (See Appendix 1, Question 15, Statements 1-3)
2. Perceived vulnerability to the likelihood of having trouble while engaging in aquatic activity leading to drowning (how vulnerable am I to that risk?), (See Appendix 1, Question 15, Statements 4-6)
3. Response efficacy of the risk prevention options, the belief that taking protective action will be effective in drowning prevention (water safety precautions such as swimming between patrol flags), (See Appendix 1, Question 15, Statements 7-9)

4. Perceived self-efficacy, the extent to which one can undertake the recommended prevention behaviours (how well do I know/apply water safety rules?). (See Appendix 1, Question 15, Statements 10-12)

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*. (See Appendix 1, Question 17)

As was the case in previous surveys from 2009, questions were included that sought information on public rescue equipment (PRE) that had been installed at high-risk sites in the previous years. The first question asked whether fishers had seen the life rings in high-risk locations. The second questions asked fishers to report whether they had read the instructions accompanying each life ring/throw bag. The third question asked if the fisher thought they could use the equipment in an emergency. A fourth question asked the fishers had they used a life ring in an emergency or seen one used. (See Appendix 1, Question 14)

4.3 Data analysis

Data from the completed questionnaires were downloaded from an Alchemer Survey Word file for statistical analysis using SPSS Version 26.0 in Windows. Descriptive statistics such as numbers and percentages 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.

As was the case in previous years, comparisons were made between findings from the current survey with the previous year's survey because data gathering processes (electronic data gathering via Alchemer and iPad were compatible). Trend lines using previous surveys from 2006 were not included because of differing data gathering procedures (written questionnaire in 3 different languages). Historical comparison with pre-2018 data should be treated with caution given this methodological limitation.

5. KEY FINDINGS

The results of the 2022 survey are presented in six sections:

5.1 Demographics of Fishers

5.2 Awareness of West Coast Rock-based Fishing Safety Project

5.3 The Installation and Usage of Life Rings

5.4 Fisher Perceptions of Drowning Risk

5.5 Water Safety Behaviours of Fishers

5.6 Changes in Fishers' Knowledge, Attitudes and Behaviours



Illustration 2. Whatipu, remote location, not a lifejacket in sight

5.1 DEMOGRAPHICS OF FISHERS

Demographically, the participants ($N = 132$) were predominantly male (93%), of Asian ethnicity (50%), most were aged 30-64 years (68%), and slightly more than one third (36%) had been resident in New Zealand for less than 10 years (see Table 2).

Table 2. Demographic Characteristics of Fishers, 2021-2022

Demographic Characteristic		<i>n</i>	<i>Valid %</i>	Total
Gender	Male	123	93%	132 (100%)
	Female	9	7%	
Ethnicity	European	27	20%	132 (100%)
	Maori	8	6%	
	Asian	66	50%	
	Pasifika	20	15%	
	Other	11	8%	
Age Group	15-19 years	6	5%	132 (100%)
	20-29 years	31	23%	
	30-44 years	46	35%	
	45-64 years	44	33%	
	65+ years	5	4%	
Length of residency	< 1 year	0	0%	132 (100%)
	1-4 years	19	14%	
	5-9 years	29	22%	
	>10 years	45	34%	
	All my life	39	30%	

Table 3 shows that those who self-identified as of Asian origin ($n = 66$) were predominantly Korean (33%; $n = 22$) and Chinese/Taiwanese (33%; $n = 22$), followed by Filipino (23%; $n = 15$), and other Asian ethnicities including Burmese (5%; $n = 3$), Indian/Afghani (3%; $n = 2$) and Papua and New Guinean (3%; $n = 2$). In comparison with the previous year, fewer Filipino fishers and more Korean and Chinese fishers took part in the survey. The constantly changing pattern among Asian ethnicities suggests that promoting fisher safety through written language may require multiple translation so use of illustrated messaging is highly recommended.

Table 3. Self-identified Ethnicity of Asian Fishers, 2021-2022

Asian Ethnicity	<i>n</i>	%
Filipino	15	23%
Korean	22	33%
Chinese/Taiwanese	22	33%
Myanmar/Burmese	3	5%
Indian/Afghan	2	3%
Papua New Guinean	2	3%
Total	66	100%

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 4 shows that for one fifth (20%) of the fishers it was the first time they had visited the site where surveyed (2020, 24%). Cumulatively, almost one of fishers (46%) reported that they had visited the site less than 5 times (2020, 65%). More than one third of fishers (37%) had visited the site more than twenty times (2020, 24%).

As in previous years, more than half (54%) of the fishers were not likely to have visited the site where interviewed more than 10 times, a finding that contradicts the trend for increased experience of the fishing locations having been evident in the findings of the full surveys completed in recent years (2013-2020).

Fun and enjoyment were given as the overwhelming reason for fishing at the site where surveyed (70%). Subsistence fishing to feed the family was reported by one fifth (20%) of fishers.

Table 4. Frequency at Site where Interviewed and Reasons for Fishing, 2021-2022

How often have you fished at this site?	n/%		Cumulative %
First time at site	26	20%	20%
2-5 times	32	24%	44%
6-10 times	13	10%	54%
11-20 times	11	8%	62%
>20 times	50	38%	100.0%
What is the main reason for fishing today?			
Fun and enjoyment	92	70%	132 (100%)
Feed the family	27	20%	
Have a day off from work/home	3	2%	
Be with mates	10	8%	



Illustration 3. Multilingual/visual signs for Life Ring use in an emergency

5.2 AWARENESS OF WEST COAST ROCK-BASED FISHING SAFETY PROJECT

Fewer fishers (14%, $n = 19$) of fishers surveyed in 2022 reported that they had taken part in previous west coast rock-based fishing safety surveys, a lesser proportion than that reported in the previous year (2021, 17%). The proportion for both 2021 and 2022 seasons is much lower than in previous years and may reflect the reduced opportunity for safety advisors to make face-to face contact during lockdown conditions.

Table 5 shows that, of the 24 fishers who had taken part in the previous surveys, some considered that the campaign had been very *successful* (11%) or *successful* (47%) but a much greater proportion (42%) had reported that it was *not successful*. This may again be the consequence of reduced face-to-face contact in recent years under Covid restrictions or a reflection on the sites where fishers were surveyed. It suggests that further efforts be made to increase the public profile of the safety campaign be considered.

Table 5. Participation in, and estimation of success of, the previous projects

Did you take part in the previous rock fishing projects?	<i>n</i>	%
Yes	19	14% (2021: 17%)
No	113	86% (2021: 83%)
Total	132	100%
If Yes ($n = 19$), how successful do you think it was?		
Very successful	2	11% (2021: 32%)
Successful	9	47% (2021: 68%)
Not successful	8	42% (2021: 0%)
Total	24	100.0%

Two thirds of fishers (68%, $n = 90$) reported that they were not aware of the current safety promotion. Unfortunately, data seeking information on sources of information (such as on-site advisors, news and social media, fishing retail outlets etc) was not collected in 2022. It is recommended that this be included in future surveys to help public promotion of the Project.

Table 6. Are you aware of the current (2022) project?

Are you aware of the current (2022) project?	<i>n</i>	%
Yes	12	9% (2021: 34%)
No	90	68% (2021: 66%)
Nil Response	30	23% (2021: 0%)
Total	132	100%

In addition to the above questions on public rescue equipment (PRE), a further question was included in the 2022 Survey seeking information on personal protection equipment (PPE) in the form of lifejacket use (PFD). Table 8 shows that while more than one quarter (27%) of respondents were observed wearing lifejackets when interviewed on location, almost three quarters (73%) were not. When asked to explain why the prime reason for wearing a lifejacket, one half (50%) of fishers responded that they always wore one when around open water, one third (31%) said they did so in response to media and social media advice, 8% did so on the insistence of their partner or family member, and 11% did so because of a family/friend experience of an immersion incident.

When asked to explain the prime reason for not wearing a lifejacket on the day of interview, the most frequently reported reason was that they did not consider it to be risky enough (35%). This is consistent with other research findings on risk underestimation especially among male beachgoers (Stanley & Moran, 2021; Stanley & Moran 2018; Moran, Webber, Stanley, 2018; Moran & Willcox, 2013), one third (33%) reported that they did not own one or that they could not afford to buy one (5%).

Further investigation on the socio-economic status of rock-based fishers to determine if they are a resource deficit group, and, if so, what incentives to acquire a lifejacket could be included in future safety promotion. Finally, almost one fifth (18%) reported that they had forgotten to bring it on the day of interview, some (11%) stated that they didn't like wearing them, suggesting a lack of priority in the use of lifejacket as essential equipment as well as some resistance to the wearing of a lifejacket when fishing from rocks.

Table 7. Lifejacket Use/Non-use Today, 2021-2022

Are you wearing a lifejacket today?	<i>n</i>	%
Yes	36	27%
No	96	73%
If Yes (<i>n</i> = 36) why?		
Always wear one around open water	18	50%
Have seen media and/or social media advice	11	31%
Partner/family insist I wear one	3	8%
Family/friends have had an immersion incident	4	11%
If No (<i>n</i> = 96) why?		
I don't think it's risky enough	34	35%
I don't have one	32	33%
I forgot it today	17	18%
I don't like wearing it	9	9%
I can't afford it	5	5%
Other	3	3%

5.3 PUBLIC RESCUE EQUIPMENT (life rings, throw bags etc.)

Fishers were asked to report on their awareness of public rescue equipment (PRE) on the west coast high-risk fishing locations (See Appendix 1, Question 14).

Table 7 shows that almost all fishers (94%) had seen life rings at their Auckland West Coast fishing sites, a greater proportion than reported in the previous year (2021, 81%).

Table 8. Awareness of the public rescue equipment (PREs), 2021-2022

Is there a life ring where you are fishing today?	<i>n</i>	%
Yes	124	94%
No	8	6%
Have you read the life ring instructions?		
Yes	49	37%
No	83	63%
Do you think you could use one in an emergency?		
Yes	117	89%
No	15	11%
Have you used or seen one used in an emergency?		
Yes	31	24%
No	101	76%

When asked if they had read the associated signage and instructions on how to use the rescue equipment in an emergency, one third of fishers (37%; $n = 49$) reported that they had read the instructions (2021, 56%). As was the case in the previous year even though many fishers (63%) reported not having read the instructions, most (89%) thought that they could use the life rings in an emergency (2021, 89%). One tenth (11%) thought that they did not think they could use a life ring in an emergency (2021, 11%) which is a cause for concern given the remoteness of many of the fishing sites and the likely necessity of bystander rescue. As was the case in the previous year, one very salient finding indicative of the value of public rescue equipment related to the use of the life rings where one quarter (24%; $n = 31$) had either used or seen them used in an emergency.

If this finding is accurate, it confirms the importance of PRE reported elsewhere (Velasco et al., 2022) and suggests current efforts by DPA and SLSNZ (podcast available at: <https://www.dpanz.org.nz/news-media/>) to extend their availability in other high risk and remote areas is a worthwhile investment.



Illustration 4. Life ring at west coast rock-based fishing site (Muriwai)

WHAT TO DO IN AN EMERGENCY
 如何處理緊急情況 | 응급 상황에서는 어떻게 해야 하나? | O LE MEA E FA'ILE TRIM O FAALAVELAVE FAAGUSETI | KOE MEA KE TE OLU KA MOHO HA FAKATU'UTAMAKI

	<p>If someone falls in the water 如果有人掉進水中 만약 누가 바다에 빠진다면 A pa'u se isi i le sami Ka too ha taha ki tahi pe vailahi</p>	
	<p>Pick up an Angel-Ring or flotation device 請拾起救生圈或任何浮物 구명 장비를 잡으세요 Piki loa i luga le pa'u e faaopeopea ai (Mama agelu) To'o 'ae Angel Ring pe me'a kakau pe ko ha me'a pe 'e lava tokoni ke te testee'aki</p>	
	<p>Throw Angel-Ring to the person in the water 將救生圈 向遇溺者 구명 장비를 바다에 빠진 사람에게 던지세요 Togi atu le pa'u e faaopeopea ai i le tagata ua pa'u i le sami O li kihe tokotaha 'oku 'i he tahi</p>	
	<p>Dial 111 for police and report your location and emergency. Send someone to find help (a lifeguard) 撥打電話 111 向警方求助- 報告肇事位置及緊急情況, 派人尋求協助 (如救生員) 111에 전화해서 지금 있는 장소와 응급 상황을 알립니다. 응급 구조원 등에게 도움을 요청합니다 Vili le telefoni numera 111 mo Looloo - lipoti i ai le faalavelave faatasi ma le nofoaga o loo tupu ai. Faatonu se tagata e sa'ili mai se faaoasoini. (se fasi o le Au-Lava'a) Telefoni ki he "111" kihe Polisi fakahaa ki ai 'ae feitu'u 'oku ke 'iai pea moe fakatu'utamaki 'oku hoko Pea fekau ha taha ke kumi tokoni kiha Lifeguard pe ha taha pe 'e ala tokoni</p>	

Illustration 5. Multilingual signage on how to use the life rings

5.4 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 Appendix 1, Question 15). 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 9. Fishers’ Perceptions of Risk of Drowning, 2021-2022

Do you think that-	Strongly agree/ Agree		Unsure		Strongly disagree/ Disagree	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
1. Getting swept off the rocks is likely to result in my drowning	90	68%	14	11%	28	21%
2. Rock fishing is no more risky than other water activities	47	36%	26	20%	59	44%
3. Drowning is a constant threat to my life when rock fishing	67	51%	21	16%	44	33%
4. I am not concerned about the risks of rock fishing	35	26%	10	8%	82	66%
5. Others rock fishers are at greater risk of drowning than me	80	61%	24	18%	28	21%
6. I am a strong swimmer compared with most other people	71	54%	21	16%	40	30%
7. I avoid fishing in bad conditions to reduce drowning risk	120	91%	7	5%	5	4%
8. Always wearing a life jacket makes fishing a lot safer	117	89%	7	5%	8	6%
9. Turning my back to the waves when rock fishing is very dangerous	118	89%	5	4%	9	7%
10. My local knowledge of this site means I’m unlikely to get caught out	77	58%	19	14%	36	27%
11. My experience of the sea will keep me safe when rock fishing	78	59%	18	14%	36	27%
12. My swimming ability means I can get myself out of trouble	84	64%	15	11%	33	25%

Statements 1-3 (Question 15) in Table 9 relate to fishers’ perceptions of **the severity of the risk of drowning** when fishing from rocks (see Appendix 1 – survey questionnaire). In 2022, two thirds of fishers (68%) agreed that getting swept off rocks was likely to result in drowning, and one half (51%) considered drowning a constant risk when fishing from rocks yet one third (36%) thought rock fishing was no more risky than other water activities. Table 10 compares the responses of fishers’ perception of risk from the current survey 2022 with the previous year. Fewer fishers in 2022 appeared to have a realistic perception of the severity of the risk of drowning when compared with 2021 responses. Most fishers believed that getting swept off rocks would result in their drowning and drowning was a constant threat to their life when fishing, yet more perceived rock fishing as no more risky than other water activities.

Table 10. Comparison of beliefs of the severity of drowning risk, 2021 and 2022

Do you think that-		Strongly agree/ Agree	Unsure	Strongly disagree/ Disagree
1. Getting swept off the rocks is likely to result in my drowning	2022	68%	11%	21%
	2021	71%	11%	18%
2. Rock fishing is no more risky than other water activities	2022	36%	20%	44%
	2021	47%	5%	48%
3. Drowning is a constant threat to my life when rock fishing	2022	51%	16%	33%
	2021	61%	8%	31%



Illustration 6. Using a life ring, Flat Rock, Muriwai

The second measure of fishers' perception of the appraisal of drowning risk – personal **vulnerability to the risk** was determined from statements 4-6 in Question 15 and reported in Table 11.

Table 11. Comparison of beliefs in vulnerability to drowning risk, 2021 and 2022

Do you think that-		Strongly agree/ Agree	Unsure	Strongly disagree/ Disagree
4. I am not concerned about the risks of rock fishing	2022	26%	8%	66%
	2021	37%	4%	59%
5. Others rock fishers are at greater risk of drowning than me	2022	61%	18%	21%
	2021	66%	13%	21%
6. I am a strong swimmer compared with most other people	2022	71%	16%	30%
	2021	69%	8%	23%

Two thirds of fishers (66%) disagreed that they were not concerned about the risk of drowning (2021, 37%), yet almost two thirds (61%) thought that other fishers were more vulnerable to the risk of drowning than themselves (2021, 66%). More fishers (71%) in 2021 considered that they were strong swimmers compared with other people (2021, 69%). Fewer fishers (23%) in 2021 disagreed that they were strong swimmers when compared with others (2021, 30%). Reasons for this self-reported estimate of better swimming ability are hard to explain but it is likely to reflect male overestimation of ability and underestimation of risk previously reported (Moran, 2008, 2011, 2017).

Responses to statements 7-9 (Question 15) related to fisher perceptions of the **efficacy of preventive action** in reducing drowning risk when fishing from rocks (See Appendix 1, Questions 15). Most fishers taking part in the 2022 survey responded positively to all three statements of the efficacy of preventive actions to reduce drowning risk (Table 11). Almost all fishers in 2022 avoided fishing in bad weather (91%), agreed that wearing a lifejacket when fishing from rocks made it a lot safer (89%) and avoided turning their back to the waves (89%). Comparable figures for the previous year were 96%, 86%, and 94% respectively which suggests that the current cohort of fishers were more aware of the efficacy of preventive actions in making their fishing safer, especially

regarding the value of wearing a lifejacket. However, given that only 27% were wearing lifejackets when surveyed (see Table 8) suggests that a reality gap exists between perception and practice which needs to be addressed in future safety promotion.

Table 12. Comparison of fisher beliefs in efficacy of preventive actions, 2021 and 2022

Do you think that-		Strongly agree/ Agree	Unsure	Strongly disagree/ Disagree
7. I avoid fishing in bad conditions to reduce drowning risk	2022	91%	5%	4%
	2021	96%	1%	3%
8. Always wearing a lifejacket makes fishing a lot safer	2022	89%	5%	6%
	2021	86%	5%	9%
9. Turning my back to the waves when fishing is very dangerous	2022	89%	4%	7%
	2021	94%	2%	4%

Responses to statements 10-12 (See Appendix 1, Questions 15) related to fisher perceptions of the **self-efficacy of their preventive behaviours** in reducing drowning risk when fishing from rocks. It describes their confidence in their capacity to counter their risk of drowning. In previous surveys, fishers have been confident of their ability to keep themselves safe - their self-efficacy.

Table 13. Comparison of fisher self-efficacy to cope with risk, 2021 and 2022

Do you think that-		Strongly agree/ Agree	Unsure	Strongly disagree/ Disagree
10. My local knowledge of this site means I'm unlikely to get caught out	2022	58%	14%	27%
	2021	74%	16%	10%
11. My experience of the sea will keep me safe when rock fishing	2022	59%	14%	27%
	2021	85%	7%	8%
12. My swimming ability means I can get myself out of trouble	2022	64%	11%	25%
	2021	81%	11%	8%

The responses reported in Table 13 suggest that more participants in the previous year's survey considered themselves capable of looking after themselves with more fishers believing that their experience of the sea (2021, 85%; 2022, 59%), that their local knowledge (2021, 74%; 2022, 58%) would keep them safe, and their swimming ability would get them out of trouble (2021, 81%; 2022, 64%). It is hard to reconcile this confidence in their capacities with the reality that more than half (54%) of the fishers had visited the site where fishing less than 10 times surveyed (and 20% reported that it was their first visit to the site!!) (See Table 4 for detail). Rather it suggests that, as in previous years, fishers generally overestimated their capacity to cope with the demands of the high-risk environments that they fish in.

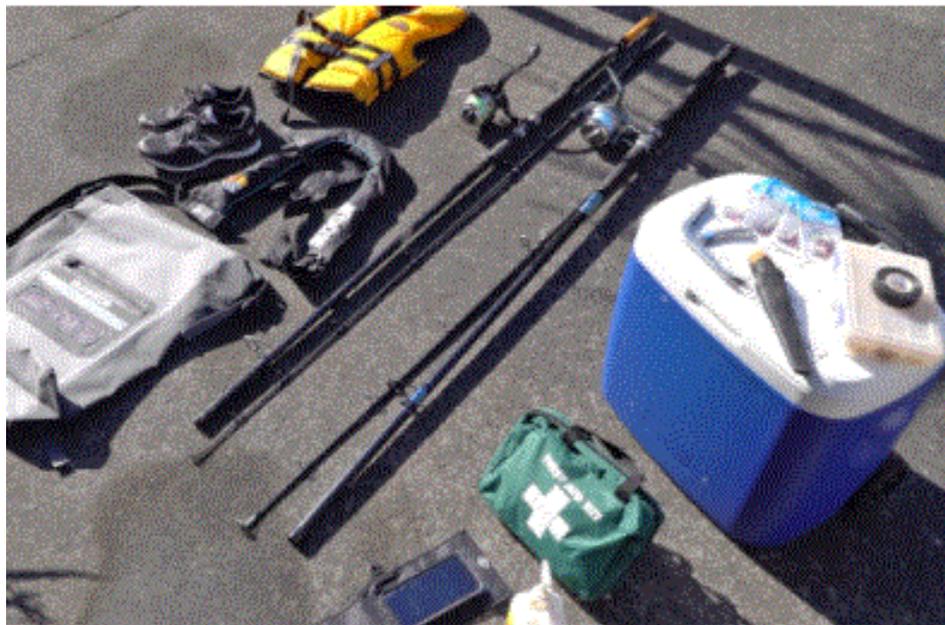


Illustration 7. Essential equipment highlighted in the online Fisher safety programme available at: <https://www.dpanz.org.nz/courses/safer-rock-fishing/>

5.5 WATER SAFETY BEHAVIOURS OF FISHERS

Fishers were asked to report their previous water safety behaviours (See Appendix 1, Question 16) 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 14).

Table 14. Fishers’ Self-reported Water Safety Behaviours, 2021-2022

When rock fishing, do you -	Never		Sometimes		Often/Always	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
1. Wear a lifejacket or other flotation device	52	40%	40	30%	40	40%
2. Check weather/water conditions first	3	2%	10	8%	119	90%
3. Drink alcohol when you are fishing	112	85%	19	14%	1	1%
4. Wear gumboots or waders	72	55%	29	22%	31	23%
5. Turn your back to the sea when fishing	82	62%	46	35%	4	3%
6. Take a cell phone in case of emergencies	2	2%	7	5%	123	93%
7. Go down rocks to retrieve snagged line	82	62%	44	33%	6	5%

Table 14 shows a variation of safety behaviours among the 2022 cohort of rock-based fishers. On the positive side, almost all fishers reported *often/always* checking the weather and water conditions before going fishing (90%), taking a cell phone in case of emergencies (93%) and *never* drinking alcohol when fishing (85%). Corresponding proportions in the previous year (2021) were 96%, 94%, and 80% respectively. A similar proportion of fishers reported the wearing of lifejackets. Slightly more reported *never* going down the rocks to retrieve a snagged line (2021, 62%; 2022, 58%) but fewer fishers reported that they *never* had turned their backs to the sea when fishing (2022, 62%; 2021,

73%). Similar proportions reported *never* wearing gumboots or waders (2021, 55%; 2020, 55%) but a minority of fishers in both years reported that they *often/always* engage in this risky practice (2022, 23%; 2021, 22%).

As has been reported in previous years, the high-risk behaviours seem remarkably resistant to change. Whether it is because fishers are unaware of, or underestimate the risk, or whether they consider the risk worth taking in terms of their estimation of their personal competency to deal with that risk remains unknown. Further promotion of the dangers associated with these behaviours is advised. Both are highlighted in the *Rock Fisher Safety* modules on the recently launched E-learning platform. Future survey analysis may inform us of whether fishers have accessed advice on these issues of persistent unsafe practice, and subsequently changed their behaviours.

Auckland fisherman's death 'avoidable' if he'd worn a lifejacket, coroner says

A coroner has warned a lifejacket could be "the difference between life and death" after a fisherman drowned on Auckland's west coast. Coroner Alison Mills commented on the death of a rock-based fisher at Bethell's Beach that:

"It is apparent there's a need for continued education and reinforcement of the message that lifejackets save lives when rock fishing.

"Wearing a lifejacket can make the difference between life and death when rock fishing."

Mills said there was also a need to continue to promote safe rock fishing practices, especially among new migrants of Pasifika and Asian descent.

"I note and commend drowning prevention Auckland's recent appointment of a drowning prevention advisor specifically for the Asian community."

Source: Stuff, 2nd Feb 2022

5.6 CHANGES IN FISHERS' KNOWLEDGE, ATTITUDES, AND BEHAVIOURS

Fishers were asked to assess whether their fishing safety knowledge, attitudes, and behaviour and that of their mates and other fishers had improved. (See Appendix 1, Question 17)

Table 15. Comparison of Self-Reported Changes in Fishers' Safety Knowledge, Attitudes and Behaviours, 2021 and 2022

Do you think that -	Year	Agree		Disagree		Don't know		Total	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Your rock fishing safety knowledge has improved?	2022	105	80%	4	3%	23	17%	132	100.0
	2021	129	93%	0	0.0	10	7%	139	100.0
Your rock fishing safety attitude has improved?	2022	96	73%	9	7%	27	20	132	100.0
	2021	131	92%	2	1%	6	4%	139	100.0
Your rock fishing safety behaviour has improved?	2022	98	74%	0	0%	34	26%	132	100.0
	2021	133	95%	1	1%	5	4%	139	100.0
Your mates' rock fishing behaviour has improved?	2022	88	67%	6	4%	38	29%	132	100.0
	2021	124	89%	3	2%	12	9%	139	100.0
Other rock fishers' behaviour has improved?	2022	84	64%	6	4%	42	32%	132	100.0
	2021	119	86%	8	5%	12	9%	139	100.0

Table 15 shows that most fishers (80%) considered that their safety knowledge had improved in recent years. Most fishers thought that their attitudes towards fisher safety

had improved (73%) and a similarly proportion (75%) thought that their safety behaviours had improved.

Comparative figures for the previous year suggest that fishers' perception of their knowledge, attitudes, and behaviours (K-A-B) had improved to some extent. However, fewer fishers believed their knowledge had improved (2022, 80%; 2021, 93%), fewer believed their attitudes towards safety had improved (2022, 73% 2021, 92%) and considerably fewer believing that their safety behaviour had improved (2022, 74%; 2021, 95%).

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 15 also shows that most fishers (67%) thought that the safety behaviour of their mates had improved (2021, 89%). When asked about the behaviour of other rock-based fishers, most fishers (64%) in the 2022 survey thought they had observed better safety behaviours of other fishers, a lesser proportion than that reported in the previous year (2021, 89%).



Illustration 8. Extreme weather and sea conditions on Flat Rock, Muriwai doesn't deter this fisher

6. CONCLUSIONS

Based on the above findings, several key points are worthy of reiteration. They include:

- In 2022, most fishers were male (93%), 68% were aged between 30-64 years of age and of Asian descent (50%). Many (64%) had lived in New Zealand for more than 10 years, 36% had lived in New Zealand for less than 10 years.
- In 2022, for 20% of fishers it was the first visit to the site and 64% had visited the site less than 5 times. In contrast, 38% had visited the site more than 20 times.
- Fishers in the 2022 survey had less awareness of the previous or current Rock-based Fisher Safety programme. Given the transience of the rock fishing community and the remoteness of fishing sites (that has characterised all previous surveys) perhaps this is not surprising. Furthermore, the likelihood of less awareness was likely exacerbated by the pandemic environment of 2021-22. Further ways of disseminating safety knowledge (such as the recent eLearning platform modules) as well as increased onsite advisory service maybe another way of getting the messages to this elusive community.
- The 2022 cohort of fishers had low awareness of the risks associated with their fishing, some had little understanding of the need for lifejackets when rock-based fishing (demonstrably in terms of wearing a lifejacket when surveyed and when responding to questions about their safety behaviours). As was the case in previous surveys, many were overly confident about the protective value of their self-reported knowledge of the sea, local conditions, and swimming competency. Underestimation of risk and overestimation of competency to cope with that risk remain a critical concern among this high-risk group.
- The greatest concern is still the lack of lifejacket use with 27% of fishers not wearing one at the time of interview and 34% reported *never* wearing one, and only 40% wearing one *often* or *always*. Other high-risk behaviours such as going down the rocks to retrieve snagged lines, wearing gumboots or waders, and turning your back to the sea are all still practised by many fishers (see Table 14, p. 21).

7. SUMMARY OF KEY SAFETY PROMOTIONS, 2022

DPA's key outcomes were:

- Supported SLSNR with training of rock fishing advisors using an online platform and then in a practical environment.
- Educated 236 participants on rock fishing safety through presentations, workshops, and seminars.
- DPA rock fishing advisors surveyed 132 rock fishers
- Actively taking part in DPA and SLSNZ research regarding PRE (personal rescue equipment)
- From the surveys 7.3% were wearing lifejackets on the day with 30% stating the reason they wear a lifejacket is 'I always wear one around water'.

DPA's key outputs were:

- Hiring of 2 x Rock Fishing Advisors
- In collaboration with SLSNR we achieved a total of 150 completed surveys
- 1 x Crab Fishing Workshop
- 1 x Crab Fishing Seminar
- 4 x Rock Fishing Education workshop
- 4 x Rock Fishing Seminars
- 20+ presentations completed in relation to land-based fishing safety
- 2 x Charter-Boat Fishing Workshops

Recommendations:

- **To extend the length of time the Rock Fishing Programme is operating as we have observed Rock Fishers fishing year-round.**
- **To scope what it would look like to have one – two aquatic rangers year-round. This would increase observation, education, and response to rescues on our coastline.**
- **Yearly coastal awareness training for all Rock Fishing Advisors.**
- **Induction training to involve all partners annually.**
- **Survey platform to include advisors name for accountability.**
- **Ability to report to Local Council pre and post season.**

E-Learning Module 2022

By clicking on the e-learning tab in the header bar of DPA's home page (at <https://www.dpanz.org.nz/>), participants can learn quick and easy ways of keeping themselves safe and reducing the risk of drowning when enjoying their recreational activity. Registration to allow access to the eLearning site is free and provides you with access to a range of drowning prevention topics.

Introduced in March 2020, the screen shot below introduces viewers to the Safer Rock Fishing course on the DPA website at: <https://www.dpanz.org.nz/courses/safer-rock-fishing/>.

The course consists of 4 modules (9 topics) that focus on safety requirements to consider prior to going fishing, what equipment is necessary, what to do upon arrival at the fishing site, and what to do in the event of an emergency for yourself or for others. Upon completion of the 4 modules participants are invited to test their knowledge in a series of simple quizzes.

The screenshot displays the DPA website's interface for the 'Safer Rock Fishing' course. At the top, a dark blue header contains contact details (+64 9 376 5114, INFO@DPANZ.ORG.NZ), account options (MY ACCOUNT, 0 ITEMS), and navigation buttons (E-LEARNING, LOG IN). Below the header is the Drowning Prevention Auckland logo and a navigation menu with categories like HOME, EDUCATION, COMMUNITY, WORKPLACE, RESEARCH, ABOUT, NEWS & MEDIA, and SHOP. The main content area features the course title 'Safer Rock Fishing' and three key metrics: 'Current Status' (NOT ENROLLED), 'Price' (Free), and 'Get Started' (Login to Enroll). A descriptive paragraph explains the module's focus on safety while fishing off the rocks. Below the text is a video player showing a person fishing. To the right, a 'Course Progress' section indicates 0% completion and 0/14 steps. A 'Course Navigation' sidebar lists five topics: 'Before you go' (2 Topics), 'Equipment to take' (3 Topics), 'When you get there' (2 Topics), 'If things go wrong' (2 Topics), and 'Safer Rock Fishing Quiz'.

Illustration 10. Screen shot of DPA's *Safer Rock Fishing* programme freely available at: <https://www.dpanz.org.nz/courses/safer-rock-fishing/>

8. RECOMMENDATIONS

On the basis of the findings, it is recommended that:

Auckland Council:

- Retain the services of the safety advisory for a 2022/23 post-Covid summer campaign,
- Continue to provide regional leadership and support future fishing safety promotion, including the installation of life rings and safety signage at high-risk sites,
- Increase provision of evidence-based public rescue equipment (PRE) in the form of life rings and throw ropes at popular but remote locations,
- Support the trialling of different PRE and the development of national PRE guidelines.

Drowning Prevention Auckland, Surf Life Saving Northern Region and other safety organisations:

- Promote and evaluate the e-Learning module on the DPA website, and add a question to the annual survey,
- Increase lifejacket use in the public domain with strong media messaging,
- Commit resources and personnel to the ongoing work collaboratively with all partners to promote best practice for West Coast fishing safety education beyond 2022.

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

- Adopt and endorse the fishing safety messages promoted by the 2022 West Coast Rock-based Fisher Safety Project,
- Be aware of, and promote participation in, the new e-Learning website, especially in fishing magazines, newspapers, and other online media outlets,
- 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,**
- To gain a more accurate understanding of when and how often the PRE are used in an emergency, we recommend using available technology to trial a monitoring system of the PRE at one site,
- Support the work of frontline fishing advisors and lifeguards in their efforts to make rock-based 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.

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Appendix 1



West Coast Rock Fishing Project YE2022

Date: _____

Time: _____

Location: _____

1) Are you wearing a lifejacket today?

- Yes
- No

2) If yes, why?

- My partner/family makes me wear one
- I have seen media/social media and thought I should wear one
- I have, or one of my friends/family have, had an incident fishing
- I always wear one around water
- Other

3) If No, why not?

- I forgot it today
- I don't have one
- I don't like wearing it
- I don't think its risky enough
- Other - Please state why not:

4) Are you aware of the current west coast rock fishing safety promotion in Auckland?

- Yes
- No

5) If yes, how did you know about it?

6) Have you taken part in previous west coast rock fishing promotions?

- Yes
- No

7) If Yes, do you think the project is...

- Very successful
- Successful
- Not Successful

8) Are you?

- Male
- Female

9) How old are you?

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

10) How would you best describe yourself?

- European New Zealander
 - Maori
 - Pasifika
 - Chinese
 - Korean
 - Indian
 - Other (e.g. African, French, Spanish, Taiwanese etc.):
-

11) 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

12) How often have you fished at this location?

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

13) 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

14) Public Rescue Equipment (PRE/Life Rings)

	Yes	No
1. Is there any PRE located where you usually fish?	<input type="radio"/>	<input type="radio"/>
2. Have you read instructions on how to use them?	<input type="radio"/>	<input type="radio"/>
3. Do you think you could use one in an emergency?	<input type="radio"/>	<input type="radio"/>
4. Have you used a PRE, seen or know of one being used, in an emergency?	<input type="radio"/>	<input type="radio"/>

If Yes to Q14, please explain below

15) 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 compare 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	()	()	()	()	()

16) 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	()	()	()	()

17) 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 improved	()	()	()
4. My rock fishing mates seem more safety conscious	()	()	()
5. Other rock fishers around me seem more safety conscious	()	()	()

Thank You!

Appendix 2



Surf Life Saving Northern/Drowning Prevention Auckland Report

Rock Fishing Project YE2022

Executive Summary from Drowning Prevention Auckland and Surf Life Saving Northern Region:

The project is now in its 17th year of operation in partnership with Auckland Council, Drowning Prevention Auckland (DPA) and Surf Life Saving Northern Region (SLSNR) and solely funded by Auckland Council. The West Coast Rock-based fishing project has seen a decline of drowning while fishing off Auckland's west coast. In the five years from 2005 to 2009, land-based fishing accounted for 25 drowning fatalities in New Zealand, 10% of all drowning incidents nationwide, and 29% of all beach related fatalities (Water Safety New Zealand, 2010). From 2016 – 2020, 27 fishers lost their lives and 2 of these were in Auckland (WSNZ, 2021).

Purpose:

Increasing the safety and awareness of Rock Fishers on our West Coast beaches around Auckland in collaboration with Drowning Prevention Auckland and Auckland Council.

SLSNR outcomes were:

- 4 Rock Fishing advisors were trained and inducted by SLSNR, DPA and Auckland Council regarding the role and purpose.
- Rock fishing advisors did not compromise their own safety during this project. SLSNR drone was used when conditions were unsuitable to observe and educate.
- Rock Fishing Advisors proactively interacted with Rock Fishers and provide any preventative actions required.
- SLSNR Rock Fishing Advisors were rescue ready and were able to respond if a Rock Fisher is in trouble with the support of the lifeguard service.
- Rock Fishing Advisors promoted lifejacket hubs across Auckland.
- PRE is checked when out on rock platforms, any damage is noted and reported to the Regional Lifeguard Supervisor.
- PRE is tested by Rock Fishing Advisors and Rock Fishers when arranged by DPA as part of the PRE research project.
- Raised water safety awareness around rock fishing to 'at-risk' for drownings groups, specifically men.
- Educated on safer rock fishing/land-based fishing practices.
- Rock fishers were educated through the survey created by DPA.
- Rock fishers gained awareness on how PRE was used on rock platforms.
- Observational scope and awareness of where people are rock fishing using the SLSNR drone.

SLSNR key outputs were:

- Interacted and collected a total of 150 Surveys’ during the 8-week period from Rock Fishers on the West Coast.
- Educated over 150 or more Rock Fishers between Piha and Muriwai Beaches during the 8-week period.
- Rock fishing spots between Piha and Muriwai monitored during the 8-week period.

SLSNR Rescues, Searches and First Aids on Rock Fishers:

Club	Incident Date	Involved Rescue	Involved First Aid	Involved Search	Activity Fishing
Baylys Beach SLS	29/01/2022	No	No	No	Yes
Baylys Beach SLS	13/10/2021	No	No	Yes	Yes
Bethells Beach SLSP	8/10/2021	Yes	Yes	Yes	Yes
Kariaotahi SLSC	7/01/2022	No	No	Yes	Yes
Kariaotahi SLSC	24/10/2021	No	No	No	Yes
Kariaotahi SLSC	24/10/2021	No	Yes	No	Yes
Muriwai VLS	23/01/2022	No	No	No	Yes
Piha SLSC	25/04/2022	No	Yes	No	Yes
Piha SLSC	5/03/2022	No	No	Yes	Yes
Piha SLSC	20/02/2022	No	Yes	No	Yes
Piha SLSC	8/01/2022	Yes	No	No	Yes
Raglan SLSC	16/04/2022	Yes	No	No	Yes
Raglan SLSC	6/11/2021	No	No	Yes	Yes
Raglan SLSC	31/07/2021	No	No	Yes	Yes
Sunset Beach LS	3/04/2022	Yes	No	No	Yes
Sunset Beach LS	27/02/2022	No	Yes	No	Yes
Sunset Beach LS	3/01/2022	No	Yes	No	Yes
Sunset Beach LS	25/10/2021	Yes	No	No	Yes
United North Piha Lifeguard Service	6/03/2022	Yes	No	No	Yes
United North Piha Lifeguard Service	20/02/2022	Yes	No	No	Yes



DPA's key outcomes were:

- Supported SLSNR with training of rock fishing advisors using an online platform and then in a practical environment.
- Educated 2367 participants on rock fishing safety through presentations, workshops and seminars.
- DPA rock fishing advisors surveyed 132 rock fishers
- Actively taking part in DPA and SLSNZ research regarding PRE (personal rescue equipment)
- From the surveys 27.3% were wearing lifejackets on the day with 30% stating the reason they wear a lifejacket is 'I always wear one around water'.

DPA's key outputs were:

- Hiring of 2 x Rock Fishing Advisors
- In collaboration with SLSNR we achieved a total of 150 completed surveys
- 1 x Crab Fishing Workshop
- 1 x Crab Fishing Seminar
- 4 x Rock Fishing Education workshop
- 4 x Rock Fishing Seminars
- 20+ presentations completed in relation to land-based fishing safety
- 2 x Charter-Boat Fishing Workshops

Recommendations:

- To extend the length of time the Rock Fishing Programme is operating as we have observed Rock Fishers fishing year-round.
- To scope what it would look like to have one – two aquatic rangers year-round. This would increase observation, education and response to rescues on our coastline.
- Yearly coastal awareness training for all Rock Fishing Advisors.
- Induction training to involve all partners annually.
- Survey platform to include advisors name for accountability.
- Ability to report to Local Council pre and post season.