

Rock Based Fishing Research Report YE25



Report prepared by

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Executive Summary

This report presents a comprehensive synthesis of findings from the 2025 Rock-Based Fishing Observational Study and Rock-Based Fishing Community Survey. Together, these studies aim to provide a robust, evidence-informed foundation for future safety interventions, infrastructure planning, and behavioural education relating to one of New Zealand's highest-risk recreational activities. The analysis incorporates two decades of historical data and incorporates 309 detailed observations from high-risk coastal sites, survey responses from 55 active fishers, and movement analytics sourced from GPS data via ActiveXchange.

The study confirms that rock-based fishing remains a predominantly male activity (89%) with a marked shift toward an older demographic: more than half (51%) of participants in 2025 were aged 45 or older, up from 20% in 2006. Most fishers (79%) have lived in New Zealand for over a decade, indicating a shift from newly settled populations to more established communities. Despite positive trends in several safety behaviours, including increased weather checks (92%), cell phone carriage (95%), and abstention from alcohol (100%), concerning behaviours such as wearing gumboots and climbing down rocks to retrieve snagged lines remain persistent and pose considerable drowning risks.

While lifejacket usage has improved from just 5% in 2006 to 41% in 2025, this is still significantly below best practice recommendations. Critically, a perceptual disconnect remains; while most respondents agree that rock fishing is risky, many overestimate their own swimming ability and reliance on local knowledge, despite their limited preparedness or use of safety equipment. Changes in behaviours with regard to lifejacket use are a cause for concern and will require further intervention in the coming season.

The observational component of this study was led by Aurion Mead, Coastal Safety Officer at Surf Life Saving Northern Region, whose extensive fieldwork across known high-risk locations provided invaluable real-world data on fisher behaviours and environmental hazards. Additionally, we acknowledge ActiveXchange for the provision of essential location-based movement data. This data, drawn from GPS-enabled mobile

devices within 100m x 100m quadkeys, enabled the identification of peak visitation days and times and was instrumental in aligning observations and future interventions with site usage. This innovative, world first, data integration and partnership with ActiveXchange marks a significant step forward in the targeted prevention of rock-based fishing fatalities.

Together, these studies represent a landmark effort in combining field observation, community insight, and data to inform an evidence based best-practice approach to recreational fishing safety in Auckland. Drowning fatalities have reduced to less than one fatality per annum since the inception of the fisher safety project however, the environment continues to challenge the endeavours of safety advocates.

Key Recommendations

The following recommendations are presented to guide policy, community engagement, and infrastructure development. Recommendations are aligned with the internationally recognised Drowning Chain of Survival (Szpilman et al., 2014), ensuring a holistic approach to prevention, response, and education.

1. Prioritise lifejacket use through policy, education, and incentives

- Scope the Introduction of local bylaws requiring lifejackets in designated high-risk rock-based fishing zones, particularly during poor weather or swell alerts. This should be done in consultation with national and regional fishing organisations, high profile individuals and / or ambassadors.
- Work with national and regional fishing organisations, high profile individuals and / or ambassadors and bait and tackle stores to develop lifejacket incentive schemes (e.g., retail discounts, free gear swaps).
- Promote real-world case studies and culturally relevant storytelling to humanise the impact of non-wear and foster behavioural change.

2. Strengthen site-based infrastructure with public rescue equipment (PRE)

- Ensure all key rock fishing locations are equipped with clearly visible, well-maintained PRE (e.g., life rings and throw bags).
- Standardise signage across regions, using plain language and bilingual formats, supported by visual instructions.
- Regularly audit equipment presence and condition, with local bodies tasked with maintenance accountability.

3. Use ActiveXchange data to inform strategic deployment and engagement

- Align safety messaging campaigns, patrols, and educational interventions with the peak visitation times identified via ActiveXchange.
- Maintain routine review of quadkey heatmaps to monitor shifting user patterns, supporting adaptive resource planning.
- Continue using ActiveXchange data to support funding applications and demonstrate the need for safety infrastructure.

4. Enhance cultural responsiveness and multilingual outreach

- Deliver education and communication campaigns in multiple languages, particularly targeting Asian, Pacific, and migrant communities.
- Leverage fishing clubs, brands, retail stores, ambassadors, and ethnic media channels to build trust and reach hard-to-engage fishers.
- Employ bicultural and multicultural safety ambassadors to increase relatability and community resonance.

5. Target behavioural risk factors resistant to change

- Develop targeted interventions focused on reducing the prevalence of high-risk behaviours such as:
 - Climbing down rocks to retrieve snagged lines
 - Wearing gumboots or inappropriate footwear
 - Turning one's back to waves

- Use signage, educators and on-site prompts to disrupt these behaviours in real time, and pair with reminder messaging during peak seasons

6. Institutionalise regular observation and longitudinal monitoring

- Continue the rock-based fishing survey to track shifts in attitudes, demographics, and self-reported behaviours.
- Integrate behavioural data with drowning incident records to enhance risk mapping and inform preventative action.

7. Increase awareness of the limitations of self-perceived safety

- Develop campaigns that challenge common cognitive biases such as the illusion of control and overconfidence in swimming / water competence.
- Emphasise that many rock fishing fatalities involve experienced fishers and / or those with local knowledge.
- Reinforce that drowning is swift, silent, and often occurs too quickly for personal competence to compensate for inadequate gear.

8. Coordinate cross-agency response and best practice development

- Collaborate with Surf Life Saving Northern Region, local councils, maritime safety authorities, public health agencies and sector partners to unify messaging and share data.
- Utilise best-practise from international examples where appropriate.
- Explore the feasibility of a national guideline or framework for rock-based fishing safety, modelled on successful elements of this collaborative, Auckland-led initiative.

9. Complete research on rock-based fisher rescues

- In conjunction with land-based / fishing organisations and networks, complete research to determine the scope and best practices of rock-based fisher rescues

with the option of developing a dedicated bystander rescue module for rock-based fishermen.

- The module should include how to respond safely using public rescue equipment, safely perform a bystander rescue, and when to call for emergency help.

Table of Contents

Executive Summary.....	2
Key Recommendations.....	3
Table of Contents	7
1. Background.....	8
2. On-site Observations.....	10
2.1 Introduction	10
2.2 Methodology.....	12
2.3 Results.....	15
2.4 Discussion	32
2.5 Recommendations.....	33
3. Rock-based Fisher Profile.....	36
3.1 Introduction	36
3.2 Methodology.....	36
3.3 Results.....	38
3.4 Discussion	51
3.5 Recommendations.....	52
4. Conclusion.....	55
5. References.....	57

List of Figures

Figure 1 Drowning Chain of Survival	10
Figure 2 Muriwai flat rock.....	11
Figure 3 ActiveXchange data.....	13
Figure 4 Observation venues.....	16
Figure 5 Time of observations	16
Figure 6 Weather conditions at time of observation	19
Figure 7 Swell size at time of observation	20
Figure 8 Wind direction at time of observation	21
Figure 9 Wind strength at time of observation	22
Figure 10 Rock based fisherman in appropriate clothing	25
Figure 11 Individual fishing alone in inappropriate attire	27
Figure 12 Public rescue equipment and signage.....	31
Figure 13 Attitudes of fishers showing agree/strongly agree over 20 years of data.....	44
Figure 14 Behaviours of fishers (often/always) over 20 years of data	46
Figure 15 What people were doing requiring a fisher rescue	51
Figure 16 Drowning Prevention Auckland lifejacket hub - Piha	54
Figure 17 Fisher in safety equipment.....	56

List of Tables

Table 1 Headcount and fishers by venue	17
Table 2 Observations of fishers present by weather	19
Table 3 Observations of fishers present by tide.....	20
Table 4 Observations of fishers present by swell.....	21
Table 5 Observations of fishers present by wind direction	22
Table 6 Observations of fishers present by wind strength	22
Table 7 Fisher behaviours by venue	23
Table 8 Fisher profile demographics over 20 years of data.....	39
Table 9 Fisher profile attitudes over 20 years of data	41
Table 10 Fisher profile perceived behaviours	45

1. Background

The collaborative partnership to address Auckland's west coast rock-based fishing fatalities began in 2006 with Drowning Prevention Auckland, Surf Life Saving Northern Region (SLSNR), and Auckland Council. The project has prioritised gathering evidence to inform the development of interventions. Dr Kevin Moran has provided annual reports on the evidence gathered, together with recommendations for future efforts. This research report comprises two research studies, real time observations of fishers on the rocks, undertaken by Surf Life Saving Northern Region's Coastal Safety Officer, and an online survey of fishers to determine their fishing activity, attitudes, and behaviours.

The *Drowning Chain of Survival* outlines five critical actions to improve outcomes in aquatic emergencies: Prevent drowning, Recognise distress, Provide flotation, Remove from water, and Provide first aid. Within the context of the rock-based fishing project, this framework offers a valuable lens through which to design, assess, and justify targeted interventions. For instance, encouraging the use of lifejackets, checking weather conditions, and avoiding high-risk behaviours such as wearing gumboots or retrieving snagged lines directly contribute to the first step—*Prevention*. Enhanced signage and visibility of Public Rescue Equipment (PRE) support rapid *Recognition* and *Response*, while the correct and confident use of flotation devices like life rings ensures effective *Provision of flotation* and *Removal from water*. Finally, emergency preparedness behaviours, such as carrying a phone or having access to rescue/ first aid trained companions, align with the final step—*Provide first aid*. By embedding the Drowning Chain of Survival throughout the rock-based fishing safety initiative, the project ensures a holistic and evidence-based approach to drowning prevention, tailored to the unique risks of this popular recreational activity.

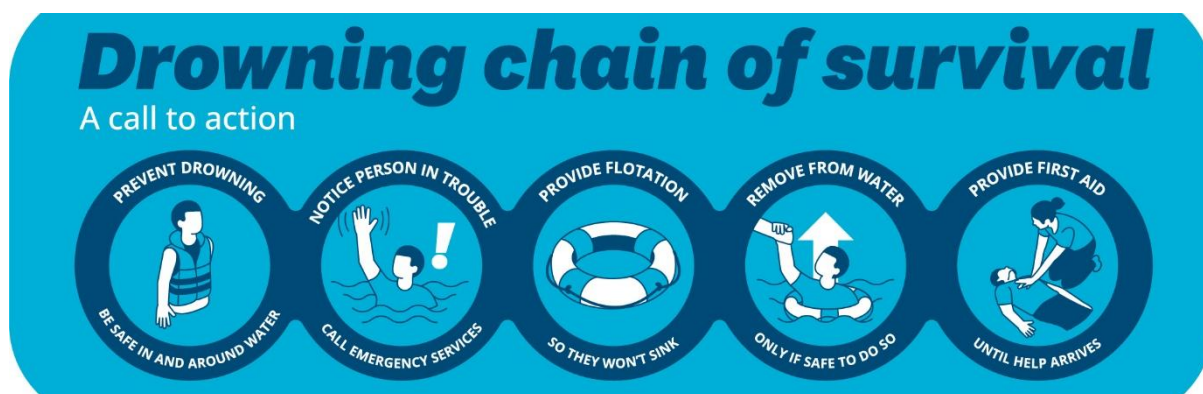


Figure 1 Drowning Chain of Survival

Note. "Creating a Drowning Chain of Survival," by D. Szpilman, J. Webber, L. Quan, J. J. L. M. Bierens, J. C. Mott, C. Tournoux-Facon, & J. R. Sempstrott, 2014, *Resuscitation*, 85(9), p. 1151. Copyright 2014 by Elsevier. Adapted with permission.

2. On-site Observations

2.1 Introduction

Twenty years of data collection has provided invaluable evidence on the demographics, attitudes, perceived risk and competencies, and intended behaviours of rock-based fishers on Auckland's west coast. The evidence that hasn't been gathered to date is the actual behaviours of fishers including, when and where they fish. The provision of the Surf Life Saving Northern Region (SLSNR) Coastal Safety Officer has enabled the project to access real-life evidence of actual fishing behaviours. This new knowledge provides us with an opportunity to compare those actual behaviours with intended behaviours. Additionally, integration of ActiveXchange visitation data has strengthened the analysis by providing objective insights into peak site usage, seasonal trends, and high-risk locations, enabling more targeted and evidence-based interventions.



Figure 2 Muriwai Flat Rock

2.2 Methodology

Study design

A structured on-site observational study was conducted to monitor and document risk-related behaviours among rock-based fishers across high-risk coastal locations on Auckland's west coast. The purpose was to gather consistent, real-time data on environmental conditions, safety equipment usage, and observable fishing behaviours that may contribute to unintentional water immersion.

As part of a groundbreaking approach not previously applied in this context globally, the Rock-Based Fishing Advisor was recommended to visit sites during identified peak user times, using ActiveXchange data to strategically align engagement efforts with actual site usage patterns. ActiveXchange data is sourced from over 600 million global monthly users and provides granular insights into relative foot traffic and vehicle movement using anonymised GPS mobile data.

This information is mapped within a 100 x 100 metre grid known as a quadkey, allowing accurate identification of when and where people are using specific locations. For this report, all site-specific quadkeys were checked to determine peak user times across each fishing location. These insights have been used to align visitation trends with optimal engagement periods for the Coastal Safety Officer and should continue to be used to inform tailored safety recommendations based on usage patterns.

While this method provides a strong proxy for site usage, it's important to note that not all data captured within the ActiveXchange quadkeys are rock-based fishers and may represent sightseers or other visitors to the site. It is also important to note that rock-based fishers may not carry their mobile phones or devices capable of contributing to GPS-based datasets. Therefore, the figures presented should be considered approximations and are best interpreted alongside on-site observation and behaviour studies to validate and supplement the findings.

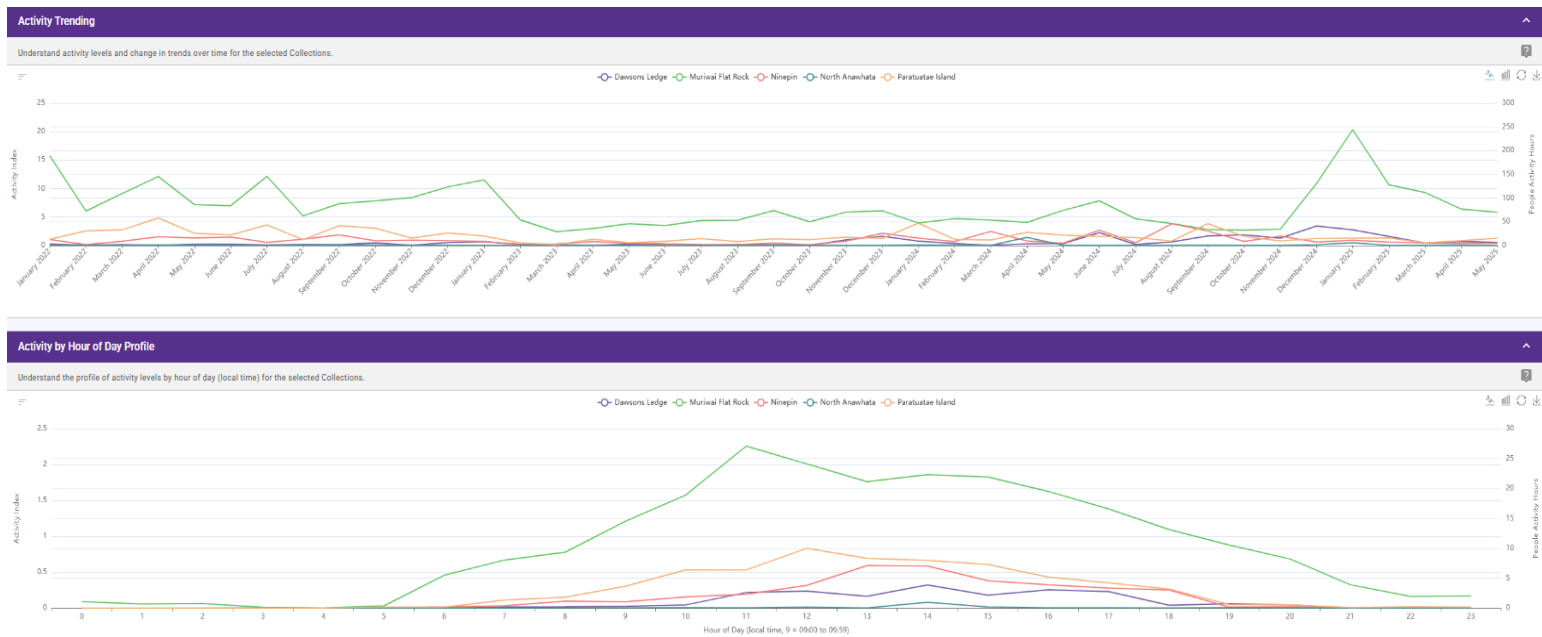


Figure 3 ActiveXchange data

Note. General site usage and daily visitation patterns across selected rock-based fishing locations, based on ActiveXchange GPS movement data, providing insight into when sites are most frequently used, supporting the timing of education and engagement effort.

Figure 3 shows that Muriwai Flat Rock consistently had the highest visitation of all monitored sites, with a significant peak in February 2024, reflecting the increased presence of fishers during the summer months. The lower graph shows that activity across all sites peaked between 10:00 AM and 2:00 PM, which also matches observational data indicating that most fishers arrive mid-morning and remain through early afternoon. This information was used to guide the development of the Coastal Safety Officers site visitation roster.

Observation instrument

Data collection utilised a standardised observation checklist, designed to ensure consistency and comparability across sites and time periods. The tool captured:

- Location-specific data (19 pre-identified high-use rock-based fishing sites)
- Temporal data (exact date and time block)
- Environmental conditions (weather, tide, swell, wind strength and direction)
- Presence and readiness of Public Rescue Equipment (PRE)

- Behavioural metrics (e.g., number of fishers, lifejacket usage, risk behaviours)
- Supplementary qualitative observations

The observer recorded data using a combination of direct counts and structured behavioural prompts to ensure reliable, real-time field inputs. The form allowed for both quantitative data entry (head counts, activity tallies) and qualitative notation (comments, unexpected behaviours).

Site selection

Nineteen locations were selected based on historical risk profiles, previous drowning incidents, and popularity among rock-based fishers. These included key access points at Muriwai, Piha, Bethell's, Karekare, Whatipu, Anawhata, and North Piha.

Sampling and timing

Observations were conducted across a range of time blocks (00:00–24:00) to capture activity throughout the day, including dawn and dusk peaks. Data collection occurred across a multi-week period encompassing a range of weather and tidal conditions to reflect variability in fishing patterns.

Data collection procedures

The SLSNR Coastal Safety Officer completed training with DPA researchers in recording observations. Observations were consistent as there was only one observer. Observers were trained in using the form and conducted systematic sweeps of each site during designated time slots. At each location, they recorded:

- The number of individuals fishing
- Lifejacket and footwear use
- Solo versus group activity
- Whether fishing occurred in visibly dangerous conditions
- Secondary behaviours such as climbing on rocks, alcohol consumption, or standing with backs to the ocean

Weather, swell, tide, and wind conditions were recorded at the time of observation, with tidal data verified via regional forecasts where needed.

Data analysis

Quantitative data were entered into a Microsoft CVS file and an IBM SPSS Version 29 database to determine:

- Lifejacket and safety gear uptake
- Frequency and distribution of high-risk behaviours
- Site-specific behavioural trends
- Correlation of behaviour with environmental conditions

Analysis included using descriptive statistics for frequencies and chi-square analysis to test for association between two variables such as presence of fishers and environmental conditions. Qualitative comments were analysed thematically to identify emerging behavioural patterns or site-specific risks not captured in structured fields.

2.3 Results

A total of 309 observations were recorded over 19 sites from 22 October 2024 to 30 May 2025. Note that to 23 June 2025 there have been a total of 375 observations, but 30 May was used as a cutoff date for analysis.

Venues

The venues and percentages of observations are shown in Figure 4. As can be seen there was an excellent distribution of observations across all venues.

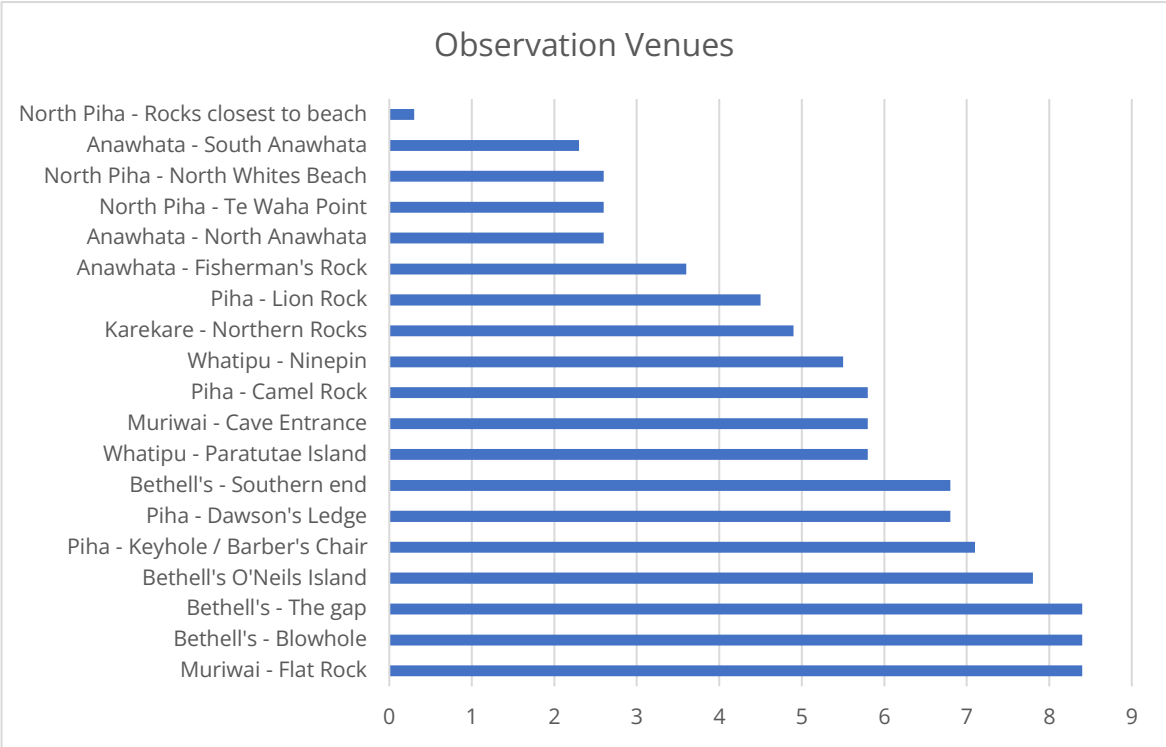


Figure 4 Observation venues

Times

Observations were taken over a 24-hour periods, with most observations (85%) undertaken between 7.00am and 2.00pm as shown in Figure 5.

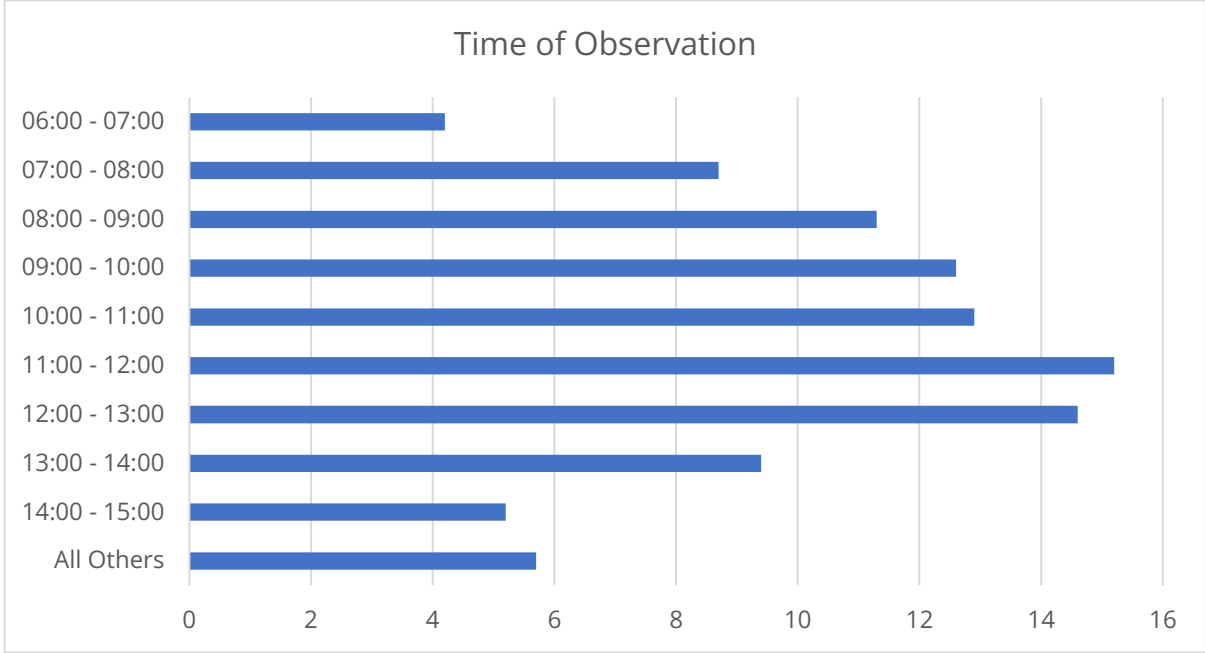


Figure 5 Time of observations

Presence of fishers

The observational data highlights the prevalence and distribution of rock-based fishing activity across 19 coastal locations. A total of 309 site observations were completed during the assessment period; however, not all included observed headcounts or active fishing at the time of visit. Of the 831 individuals recorded across these observations, 50% ($n = 418$) were observed to be actively fishing.

Table 1 Headcount and fishers by venue

Venue	Total Headcount / %	Total Fishing / % of fishers present
Whatipu - Ninepin	36 / 4%	36 / 100%
Bethell's - The Gap	29 / 3%	29 / 100%
North Piha - North Whites Beach	8 / 1%	8 / 100%
North Piha - Te Waha Point	8 / 1%	8 / 100%
Anawhata - North Anawhata	7 / 1%	7 / 100%
Anawhata - Fisherman's Rock	6 / 1%	6 / 100%
Anawhata - South Anawhata	2 / 2%	2 / 100%
Karekare - Northern Rocks	31 / 4%	27 / 87%
Whatipu - Paratutae Island	85 / 10%	70 / 82%
Bethell's - Blowhole	130 / 16%	26 / 20%
Muriwai - Flat Rock	104 / 13%	78 / 75%
Piha - Dawson's Ledge	55 / 6%	38 / 69%
Piha - Camel Rock	40 / 5%	24 / 60%
Bethell's O'Neils Island	34 / 4%	20 / 59%
Piha - Keyhole / Barber's Chair	187 / 23%	35 / 19%
Muriwai - Cave Entrance	53 / 6%	4 / 8%
North Piha - Rocks closest to beach	0 / 0%	0 / 0%

Piha - Lion Rock	4 / 1%	0 / 0%
Bethell's - Southern end	12 / 1%	0 / 0%
Total	831	418 / 50%

The observations reveal varying levels of fishing activity across 19 coastal rock fishing sites, with notable differences in site usage. The most popular sites for people to be seen on the rocks were the Piha Keyhole/Barber’s Chair (23%, $n = 187$), the Bethell’s Blowhole (16%, $n = 130$), and Muriwai Falt Rock (13%, $n = 104$).

Seven sites recorded observations where all the headcount on the rocks were fishing. These included Anawhata – Fisherman’s Rock (6/6), North Anawhata (7/7), South Anawhata (2/2), Bethell’s – The Gap (29/29), North Piha – North Whites Beach (8/8), Te Waha Point (8/8), and Whatipu – Ninepin (36/36), indicating people go to these locations solely to fish. High fishing participation was also observed at Whatipu – Paratutae Island (70/85; 82%), Karekare – Northern Rocks (27/31; 87%), and Muriwai – Flat Rock (78/104; 75%), reinforcing their status as popular fishing destinations.

Conversely, some sites demonstrated mixed or low fishing activity. Bethell’s – O’Neils Island (20/34; 59%), Piha – Camel Rock (24/40; 60%), and Dawson’s Ledge (38/55; 69%) show strong fishing presence, yet also attract other recreational users. In contrast, Muriwai – Cave Entrance (4/53; 8%), Bethell’s – Blowhole (26/130; 20%), and Piha – Keyhole / Barber’s Chair (35/187; 19%) reflect either lower fishing engagement or a broader diversity of recreational use. Finally, Bethell’s – Southern End (0/12), Piha – Lion Rock (0/4), and North Piha – Rocks Closest to Beach (0/0) recorded no fishing activity, suggesting minimal fishing relevance or unfavourable conditions at the time of observation.

The most popular fishing locations recorded by the observation fisher numbers were Muriwai - Flat Rock (19%, $n = 78$) and Whatipu - Paratutae Island (17%, $n = 70$). This correlates with historical fatality data.

Figure 6 closely mirrors what was observed in the field, where rock-based fishing activity was highest during warmer weather and calmer sea conditions. These patterns confirm

that the ActiveXchange visitation data aligns with the actual fishing numbers observed on-site.

Weather conditions

The weather was sunny for more than one-half of observations ($n = 178, 58\%$) and cloudy for another one-third ($n = 90, 29\%$). The remainder of observations were undertaken when it was windy ($n = 18, 6\%$), rainy ($n = 18, 6\%$), or stormy ($n = 5, 2\%$) (Figure 6).

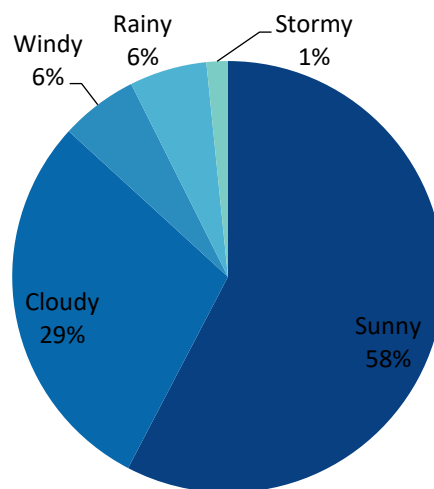


Figure 6 Weather conditions at time of observation

Table 2 Observations of fishers present by weather

Weather	Number of Observations when there were No Fishers / %	Number of Observations when there were Fishers Present / %
Cloudy	65 / 21%	46 / 15%
Rainy	24 / 8%	6 / 2%
Stormy	3 / 0%	2 / 1%
Sunny	111 / 36%	96 / 31%
Windy	12 / 4%	10 / 3%

Weather does not show a significant association with fishing activity.

Tide

Around one-third of observations were undertaken on each of high tide or two hours either side (30%, $n = 94$), mid tide (29%, $n = 91$), and low tide or two hours either side (40%, $n = 124$).

Table 3 Observations of fishers present by tide

Tide	Number of Observations when there were No Fishers / %	Number of Observations when there were Fishers / %
High tide (± 2 hrs)	54 / 17%	54 / 17%
Low tide (± 2 hrs)	87 / 28%	67 / 22%
Mid tide	74 / 24%	39 / 13%

Chi-square analysis showed that there may be a trend for fishing by state of the tide, but it's not strong enough to conclude a statistically significant relationship. There was more likely to be no fishers present on a mid- and low tide.

Swell

Swell was measured in approximate one metre blocks to 4 metres. Most observations ($n = 196$, 64%) occurred when the swell was 1-2 metres.

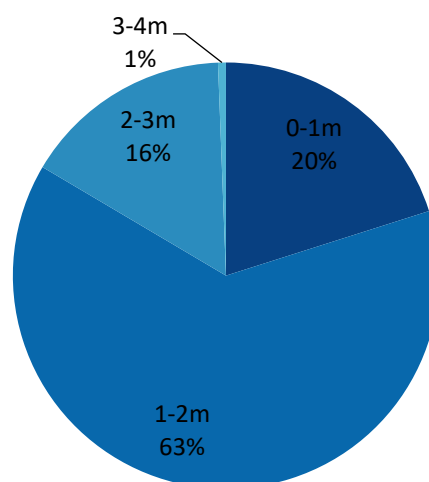


Figure 7 Swell size at time of observation

Table 4 Observations of fishers present by swell

Swell	Number of Observations when there were No Fishers / %	Number of Observations when there were Fishers / %
0-1m	25 / 8%	41 / 13%
1-2m	137 / 44%	96 / 31%
2-3m	53 / 17%	21 / 7%
3-4m	0 / 0%	2 / 1%

Swell height has a strong relationship with fishing activity. People are statistically more likely to fish during conditions when swells were less than two metres ($\chi^2(2) = 19.28, p = 0.002$).

Wind direction

Not surprisingly for the west coast, for two-thirds of the observations (66%, $n = 205$), the wind direction was onshore.

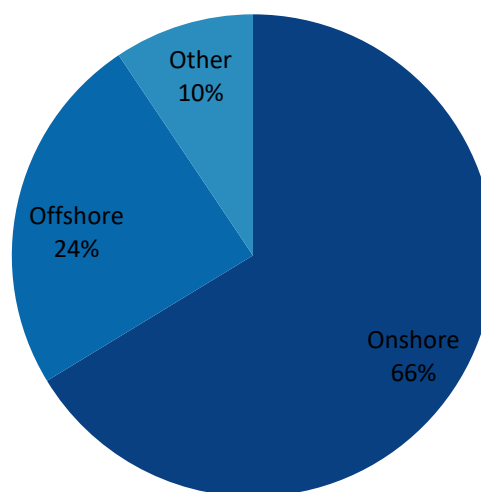


Figure 8 Wind direction at time of observation

Interestingly though, when the wind was neither onshore or offshore, fishers were more likely to be observed than not present ($\chi^2(3) = 17.39, p \leq 0.001$).

Table 5 Observations of fishers present by wind direction

Wind Direction	Number of Observations when there were No Fishers / %	Number of Observations when there were Fishers / %
Offshore	51 / 14%	28 / 7%
Onshore	157 / 42%	108 / 29%
Other	7 / 2%	24 / 6%

Wind strength

Wind strength was measured using the Beaufort wind scale based on visual observations, primarily of sea state. Almost all observations (93%, $n = 288$) were conducted when the wind strength was calm / light (12%, $n = 36$), light / gentle breeze (53%, $n = 165$), or moderate / fresh breeze (28%, $n = 17$).

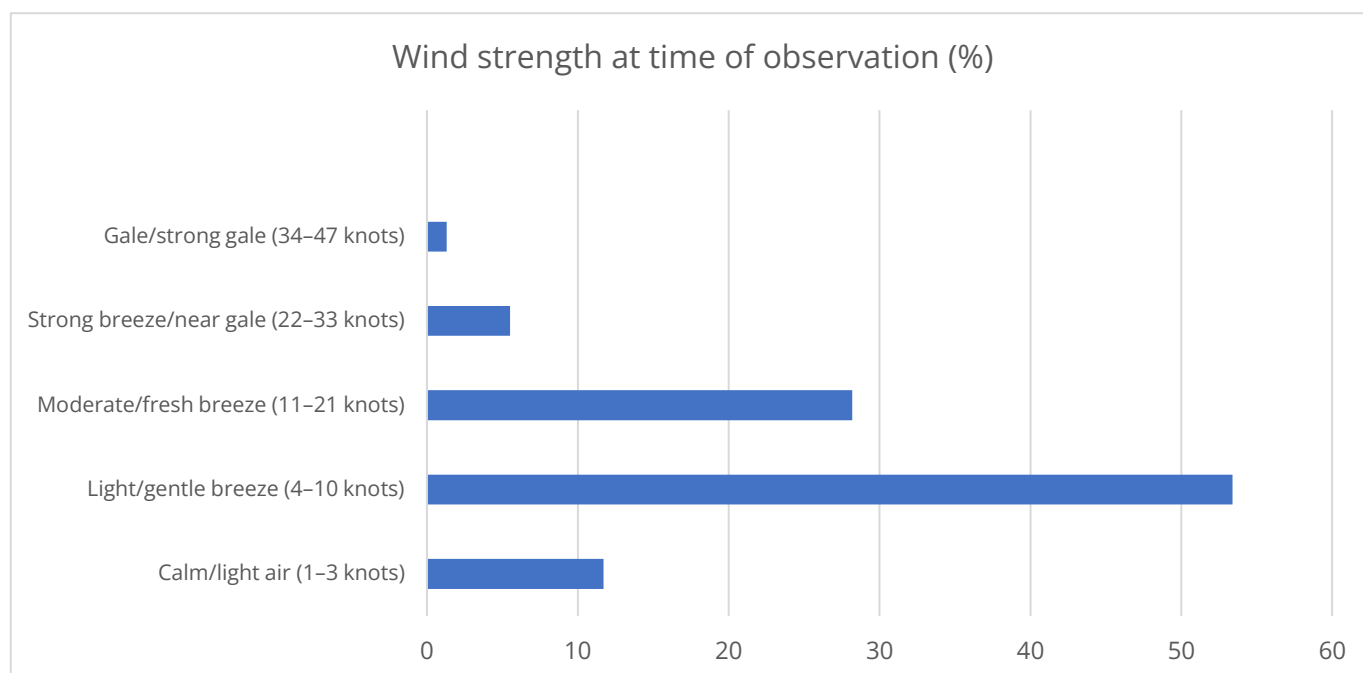


Figure 9 Wind strength at time of observation

It was positive to see there were no fishers during gale force winds, however, other wind strengths had no statistical significance to affect fishing activity.

Table 6 Observations of fishers present by wind strength

Wind Strength Range (Knots)	Number of Observations when there were No Fishers / %	Number of Observations when there were Fishers / %
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0-3 (Calm/light air)	25 / 12%	19 / 12%
4-10 (Light/gentle breeze)	113 / 53%	76 / 48%
11-21 (Moderate/fresh breeze)	68 / 32%	52 / 32%
22-33 (Strong breeze/near gale)	9 / 4%	9 / 6%
34-47 (Gale/Strong gale)	0 / 0%	4 / 2%

Fishing behaviours

Of the recorded 831 people on the rocks, one-half (50%, $n = 418$) were actively fishing. Just under one-third of fishers (29%, $n = 121$) were wearing lifejackets. Another 5% of fishers ($n = 22$) accepted and wore lifejackets when given to them by the Coastal Safety Officer. One-fifth of fishers (21%, $n = 86$) were seen fishing alone and one-third of fishers (29%, $n = 121$) were observed fishing in dangerous conditions.

Table 7 Fisher behaviours by venue

Venue	Lifejackets / %	Suitable Clothing / %	Fishing Alone / %	Dangerous Conditions / %	Other Risky Behaviours / %
Bethell's - The Gap	23 / 19%	24 / 14%	2 / 2%	16 / 13%	4 / 2%
Bethell's - Blowhole	20 / 17%	8 / 5%	6 / 7%	2 / 2%	5 / 2%
Piha - Keyhole / Barber's Chair	17 / 14%	12 / 7%	6 / 7%	14 / 12%	12 / 5%
Muriwai - Flat Rock	13 / 11%	28 / 17%	18 / 21%	37 / 31%	42 / 17%
Piha - Dawson's Ledge	12 / 10%	11 / 7%	5 / 6%	7 / 6%	44 / 17%
Piha - Camel Rock	9 / 7%	12 / 7%	7 / 8%	14 / 12%	15 / 6%
Bethell's O'Neils Island	8 / 7%	5 / 3%	2 / 2%	11 / 9%	11 / 4%
Whatipu - Paratutae Island	6 / 5%	31 / 18%	14 / 16%	7 / 6%	54 / 21%

Whatipu - Ninepin	6 / 5%	16 / 10%	10 / 12%	3 / 2%	21 / 8%
Anawhata - Fisherman's Rock	4 / 3%	4 / 2%	1 / 1%	0 / 0%	2 / 1%
Karekare - Northern Rocks	2 / 2%	9 / 5%	4 / 5%	5 / 4%	15 / 6%
North Piha - North Whites Beach	1 / 1%	3 / 2%	3 / 3%	3 / 2%	7 / 3%
Anawhata - North Anawhata	0 / 0%	2 / 1%	4 / 5%	0 / 0%	6 / 2%
Muriwai - Cave Entrance	0 / 0%	1 / 1%	0 / 0%	2 / 2%	6 / 2%
Anawhata - South Anawhata	0 / 0%	1 / 1%	2 / 2%	0 / 0%	1 / 0%
North Piha - Te Waha Point	0 / 0%	1 / 1%	2 / 2%	0 / 0%	7 / 3%
North Piha - Rocks closet to beach	0 / 0%	0 / 0%	0 / 0%	0 / 0%	0 / 0%
Piha - Lion Rock	0 / 0%	0 / 0%	0 / 0%	0 / 0%	0 / 0%
Bethell's - Southern end	0 / 0%	0 / 0%	0 / 0%	0 / 0%	0 / 0%
TOTAL	121 / 29%	168 / 40%	86 / 21%	121 / 29%	252 / 60%

A total of 748 fishing-related risk behaviours were recorded across 19 coastal rock fishing venues. These behaviours were categorised into five key types: lifejacket use, suitable clothing, fishing alone, fishing during dangerous conditions, and other risky behaviours captured through open-text observation. The data reveals important patterns in the safety practices (or lack thereof) among recreational fishers along Auckland's west coast.

Lifejacket use was low, with 121 instances observed, representing one-third (29%) of all fishers. The highest usage was documented at Bethell's – The Gap (19%, $n = 23$),

followed by Muriwai – Flat Rock (11%, $n = 13$), Piha – Dawson’s Ledge (10%, $n = 12$), and Piha – Keyhole / Barber’s Chair (14%, $n = 17$). Notably, although there were very few fishers there, sites including North Piha – Te Waha Point, and all three Anawhata locations, recorded no lifejacket use at all.

Suitable clothing for rock-based fishing includes secure, grippy footwear such as sports shoes or trail shoes with non-slip soles—avoiding gumboots, steel-capped boots, or jandals, which can increase the risk of slipping or entrapment. Clothing should consist of thermal or fleece layers made from moisture-wicking materials, which help retain body heat when wet and reduce the risk of hypothermia in the event of unexpected immersion. A total of 168 fishers (40%) were observed wearing suitable clothing. Whatipu – Paratutae Island (18%, $n = 31$), Muriwai – Flat Rock (17%, $n = 28$), and Bethell’s – The Gap (14%, $n = 24$) were the leading sites for appropriate clothing and footwear use. However, this still means that more than one-half (60%) of fishers across all venues were not suitably dressed for the hazardous conditions.



Figure 10 Rock based fisherman in appropriate clothing

One-fifth of fishers were observed fishing alone (21%, $n = 86$), posing serious risks due to the absence of immediate help in the event of an emergency. The most prominent locations for lone fishers were Muriwai – Flat Rock (21%, $n = 18$), Paratutae Island (16%, $n = 14$), Whatipu – Ninepin (12%, $n = 10$), and Piha – Camel Rock (8%, $n = 7$).

Equally concerning were the one-third of fishers (29%, $n = 121$) seen fishing during dangerous environmental conditions, such as rough surf, slippery rocks, or rising tides. Muriwai – Flat Rock again stood out with the highest number of risky weather-related fishing behaviours (31%, $n = 37$), followed by Bethell's – The Gap (13%, $n = 16$), and both Piha – Camel Rock and Keyhole / Barber's Chair (each 12%, $n = 14$).

Other risky behaviours made up another one-third of all observed actions, accounting for 252 instances (34%). These included actions such as climbing down rock faces to retrieve gear, poor awareness of the ocean, standing too close to the water's edge, and wearing inadequate footwear. Whatipu – Paratutae Island recorded the highest number in this category (21%, $n = 54$), followed by Piha – Dawson's Ledge (17%, $n = 44$) and Muriwai – Flat Rock (17%, $n = 42$).

Overall, the behavioural analysis clearly identifies Muriwai – Flat Rock, Whatipu – Paratutae Island, and Bethell's – The Gap as the highest-risk venues, with all three consistently ranking in the top tier across multiple risk categories. These sites are characterised by both high usage and high-risk activity. In contrast, sites such as Anawhata – South Anawhata, Piha – Lion Rock, and Bethell's – Southern End exhibited low or no recorded unsafe behaviours, suggesting limited fishing activity or safer practices during the observation period.



Figure 11 Individual fishing alone in inappropriate attire

Open Text Behavioural Response - Thematic Analysis

Anawhata – Fisherman's Rock

Themes: Repeated high-risk behaviour, dangerous locations, lack of safety gear

Observer reported seeing the same individuals repeatedly at unsafe locations:

"4th time I've seen 2 fishermen east of fishermen's rock. No flotation, standing on very unsafe rock."

This suggests an entrenched pattern of behaviour and high-risk decision-making, reinforcing the need for ongoing monitoring and direct intervention.

Anawhata – North Anawhata

Themes: Environmental inattention, gear retrieval risks

Fishers were described with backs to the ocean and engaging in:

"Climbing down rocks to retrieve tackle."

This combination indicates a lack of environmental awareness and willingness to risk injury for gear recovery, increasing vulnerability to waves and slips.

Anawhata – South Anawhata

Themes: Poor lifejacket use, wave exposure, visibility issues

One participant noted:

"Improper fitting of lifejacket while already in the water,"

highlighting a lack of competence in PPE use. Backs to the ocean were again a concern, raising risk of being surprised by swell.

Bethell's – Blowhole

Themes: Substance use while fishing, unsafe positioning

Reported behaviours included:

"Consumption of alcohol or other drugs" and "Backs to the ocean."

The convergence of substance use and poor situational awareness greatly increases drowning risk in this turbulent location.

Bethell's – Southern End

Themes: Absence of risky activity, site management success

No active fishers were present at the time, with the observer remarking:

"Refreshing to see 0 fisherman out in dangerous conditions."

This suggests that in some conditions, deterrents or environmental cues (e.g., rough sea state) are effective in minimising risky behaviour.

Below are comments (unedited, direct quotes) that reference unsafe risky behaviours:

- 1. Spokesman knew the rock fishing messages but was wearing gumboots and had no LJ "only people who go to water's edge need jackets" 6x wearing jeans*
- 2. They stand very close to the edge of rocks and get splashed by surf while fishing for little rock cod that they appear to use as bait*

In over one-half (57%, $n = 170$) of the observations there were no fishers on the rocks. The 20 observations at Bethells – Southern end and the 13 at Piha – Lion Rock recorded no fishers. Two of the five observations in stormy or wind gale conditions reported three and five fishers respectively.

Below are comments (unedited, direct quotes) that reference positive behaviours:

- 1. 1 guy fishing here for years, always wears LJ and tells other people not to go near edge of rocks. He comes at low tide, stays all day during high and leaves at low tide again.*
- 2. Repeat Korean fisherman, fishes alone but wears all the correct gear, is aware of tidal conditions.*

Public rescue equipment

Public Rescue Equipment (PRE) plays a vital role in supporting the "provide flotation" and "remove from water" stages of the *Drowning Chain of Survival*—a globally recognised framework that outlines five critical actions to reduce drowning risk: prevent drowning, recognise distress, provide flotation, remove the person from the water, and provide aftercare. By offering an immediate and effective means of aiding a person in trouble, PRE reduces the likelihood of the rescuer entering the water themselves, thereby lowering the risk of double fatalities. According to the *Surf Life Saving New Zealand (SLSNZ) Guide to Public Rescue Equipment for the New Zealand Coast*, PRE should be contextually appropriate to the aquatic environment and always prioritise the safety of

the rescuer, particularly in unpredictable coastal environments such as Auckland's west coast rock-based fishing sites.

In the 2025 rock-based fishing season, the Coastal Safety Officer conducted weekly checks across sites, with 92% of observations ($n = 274$) confirming that PRE was in place and ready for use. This high availability reflects strong maintenance practices and reinforces the importance of consistent access to life rings or rescue buoys. In the few instances where PRE was not observed, this was largely due to groups relocating to isolated spots beyond the reach of installed equipment, such as remote rocks at Anawhata, or due to missing components (e.g., a life ring present but no rope). In such cases, remedial action was taken, including obtaining a replacement throw rope through Council channels.

These findings underscore the importance of regular auditing and rapid replacement protocols. Furthermore, the presence of PRE supports fishers not only in self-rescue scenarios but also in assisting others. As highlighted by the 2025 survey, 41% of fishers had witnessed an incident where someone unintentionally entered the water or was at risk of drowning, and nearly one-quarter (24%) had personally performed a rescue. These figures further validate the need for accessible, functional PRE to enable safe and effective lay rescuer interventions. Embedding PRE at all popular fishing locations and ensuring visibility from commonly used fishing spots can strengthen the local application of the Drowning Chain of Survival and reduce the likelihood of preventable fatalities.



Figure 12 Public rescue equipment and signage

2.4 Discussion

A total of 309 observations were conducted across 19 west coast rock-based fishing venues between 22 October 2024 and 30 May 2025, forming a strong foundation for analysing fisher behaviours, environmental influences, and safety risks. The spread of observations was well-balanced across sites, offering representative insight into how each venue is used. Popular locations such as Piha Keyhole/Barber's Chair (23%), Bethell's Blowhole (16%), and Muriwai Flat Rock (13%) attracted the highest visitor numbers. In contrast, more specialised or remote sites like Anawhata and North Piha tended to draw a smaller number of visitors, most of whom were actively engaged in fishing, highlighting a potentially more focused and risk-prone user base.

Across all observations, just over half of the individuals recorded ($n = 418$) were actively fishing, though participation varied widely between venues. At some sites, every individual observed was fishing, suggesting highly specialised usage with limited environmental or recreational diversity. On the other hand, locations such as Piha Keyhole and Bethell's Blowhole, while drawing large numbers of people, showed much lower proportions of active fishing. This suggests these sites may serve broader recreational functions or attract more casual visitation.

Environmental conditions played a complex role in influencing fishing activity. Tidal conditions showed some influence, with fishing activity being most common at high tide (17%) and least common at mid-tide (13%). Notably, swell height was found to have a statistically significant effect: fishing was most likely to occur when swells were under 2 metres ($p = 0.002$), confirming the perception that calmer seas invite more activity. Wind direction was also significant, with ambiguous or variable winds associated with increased fishing presence ($p \leq 0.001$). However, contrary to expectations, factors such as wind strength and weather conditions (e.g. sun, rain, storm) did not show a strong predictive effect on the presence of fishers, although extreme events like gale-force winds still correlated with reduced activity.

The most concerning findings relate to observed safety behaviours among fishers. Only 29% were wearing lifejackets during observation periods—a critically low number given the known risks of the activity. While some individuals accepted lifejackets from on-site safety officers, this did not lead to widespread or consistent adoption. Observers reported that only 40% of fishers were wearing suitable clothing, such as thermal layers or non-slip footwear, indicating a moderate level of adherence to best practice. Alarmingly, 21% of fishers were alone, increasing their vulnerability in the event of an emergency, and 29% were fishing in conditions deemed dangerous by observers. Certain sites stood out for higher-risk profiles—particularly Muriwai Flat Rock and Whatipu Paratutae Island—where multiple unsafe behaviours were frequently observed in combination.

Observer notes provided further qualitative depth to these trends. High-risk behaviours were often entrenched and included fishing close to the water's edge, failing to assess incoming swells, using inappropriate gear, and overlooking changes in tide. Several individuals were seen repeating unsafe behaviours across multiple days and locations, particularly in areas that were less frequently monitored. This highlights the persistent nature of risk among some fishers and the need for targeted, sustained engagement.

Despite the prevalence of risk, positive behaviours were also observed. At a number of sites, certain individuals consistently demonstrated good practice—wearing appropriate clothing, checking tide conditions, and even advising others to keep safe. These examples offer potential for peer-led behaviour change strategies, where role models within the community can support a shift in norms.

2.5 Recommendations

1. Increase targeted safety messaging at high-risk sites

Sites with consistently high-risk profiles—particularly Muriwai – Flat Rock, Whatipu – Paratutae Island, and Bethell's – The Gap—should be prioritised for intensified safety campaigns. These should include highly visible, site-specific signage (in multiple languages), on-site engagement days, and translated educational materials. Messaging

should focus on lifejacket use, checking swell conditions, and avoiding fishing alone. These areas should also be regularly monitored to evaluate the effectiveness of the interventions.

2. Improve lifejacket access and incentivisation

Expand initiatives that improve access to lifejackets and encourage their consistent use. Loan or hire schemes at popular fishing locations, along with retailer or community discount partnerships, should be promoted as part of a wider incentivisation strategy. Explore options for on-site distribution during peak periods. Messaging should shift beyond awareness to behavioural commitment, supported by visual prompts, demonstrations, and success stories of fishers saved by lifejackets.

3. Scope the expansion of public rescue equipment (PRE)

While the observed presence of PRE was high (92%), full coverage is not guaranteed. Ongoing audits are required to identify equipment gaps or wear-and-tear. Consider installing instruction panels with diagrams at each PRE station. Further efforts should focus on improving fishers' awareness and confidence in using PRE through direct engagement, signage, and public rescue demonstrations in collaboration with local safety organisations.

4. Enhance observation and engagement during peak times

Peak fishing periods—particularly after-work hours and weekends—should continue to guide observation schedules, using ActiveXchange quadkey data to align staff deployment with peak risk periods. This ensures efficient use of resources and maximises opportunities for live engagement. Increasing the presence of trained safety officers or ambassadors during these times can help reinforce messages when fishers may be the most receptive.

5. Support community role models and peer influence

Empower experienced and safety-conscious fishers to become informal or trained safety advocates. These individuals can model key behaviours such as lifejacket use, fishing in groups, and choosing safe attire. Establish peer recognition or small incentive schemes to encourage continued leadership. Peer influence is a powerful behavioural driver, especially in culturally and linguistically diverse communities.

6. Integrate environmental data into public safety messaging

Provide real-time and forecasted environmental information—such as swell, tide, and wind conditions—via digital platforms, physical signage at known access points, or SMS alert systems. Tailor advice to specific sites based on historical risk conditions. Simple prompts such as "swell over 2m = don't fish here" should be used to encourage situational risk assessment.

7. Use qualitative data to inform interventions

Observer field notes captured valuable context behind fisher decisions and behaviours. These qualitative insights should be formally analysed to guide future messaging and campaign design. For example, if observers note overconfidence or cultural risk beliefs, messaging should directly address these misconceptions. Tailored storytelling or testimonial-based approaches may resonate more effectively with certain groups.

8. Monitor emerging trends and return to low-activity sites

Sites such as Piha – Lion Rock and Bethell's Southern End reported no or very few risky behaviours but should not be deprioritised entirely. Periodic visits are necessary to detect changes in usage patterns, infrastructure degradation, or risk resurgence. These sites can also serve as positive case studies for what successful safety interventions may look like in other areas.

9. Identify frequent fishers as safety allies

Fishers who are regularly observed at high-use locations may be engaged as informal site stewards or safety champions. These individuals often carry influence within their

communities and can serve as trusted voices. Identify these fishers through repeated engagement and provide basic training or resources to help them support peer-to-peer education and safety promotion on-site.

3. Rock-based Fisher Profile

3.1 Introduction

The 2025 rock-based fishing survey was designed to better understand the demographics, behaviours, perceptions, and safety practices of Auckland's rock-based fishing community. The initiative was led by Drowning Prevention Auckland (DPA), with support from the New Zealand Angling and Casting Association, the New Zealand Sport Fishing Council, and Daiwa, who generously sponsored a prize incentive to encourage participation.

3.2 Methodology

Survey period and recruitment

The survey was open from 17 December 2023 to 11 May 2024 and received a total of 55 responses. Promotion of the survey occurred through online social media platforms, recreational fishing groups, organisational newsletters, and community networks with a focus on engaging culturally and linguistically diverse fishers, particularly those active on Auckland's west coast. The incentive was a Daiwa 22 Free Swimmer BR reel and a 20 Saltist Hyper rod package valued at \$759.98. This was promoted as a prize draw for participants who completed the survey by the closing date. Promotional messaging highlighted the high fatality rate associated with rock-based fishing, particularly among Asian men aged 25–64, and positioned the survey as a vital step toward safer fishing environments.

Survey instrument

The survey instrument was adapted from previous West Coast Rock-based Fisher Project surveys (2006, 2011, 2016, 2021) to enable direct comparison over time while also incorporating updated items relevant to current fishing practices. The 2025 questionnaire contained 29 both closed and open-ended questions and was designed to take approximately five minutes to complete. It was hosted online via Alchemer.

The survey covered six thematic sections:

1. Demographics (e.g., gender, ethnicity, age, length of residency)
2. Fishing habits (frequency at site, primary motivations)
3. Awareness and perception of safety devices (e.g., life rings)
4. Perceptions of drowning risk and self-efficacy
5. Safety behaviours and practices (e.g., lifejacket use, alcohol use, footwear, retrieving snagged lines)
6. Emergency preparedness (e.g., carrying cell phones, checking weather and tides)

The survey was reviewed internally by DPA to ensure clarity and cultural appropriateness. It was made available in English only but designed with plain language principles to support comprehension across a broad participant base. The survey was entered into Alchemer for electronic completion. A link or QR code was shared with the following organisations and retailers for distribution.

- Burnsco Westhaven
- Burnsco Half Moon Bay
- New Zealand Sports Fishing Councils - Membership Newsletter
- New Zealand Angling and Casting Association
- Top Catch – Auckland Branches
- Marine Deals
- Oscarma Fishing and Tackle

Ethical considerations

Participation in the survey was voluntary, and participants were informed that their responses would remain confidential and anonymised. No identifying information was collected. If participants wished to enter a draw for a prize, contact details were recorded which were stored separately from survey responses to protect privacy. As this was a low-risk public health research activity aimed at improving safety, formal ethics committee approval was not sought but ethical principles were adhered to throughout.

Data analysis

Quantitative data from Alchemer were exported to Excel and analysed descriptively using frequency counts and percentages. Qualitative open-text responses were reviewed thematically to identify patterns or unique insights regarding risk perception, safety equipment use, and recommendations for future interventions. Where possible, findings were compared with previous rock-based fisher survey years to identify trends and inform future education and policy development.

3.3 Results

Demographics

The demographics of fishers over 20 years are recorded in Table 8. Fishing continues to be a male-dominated activity (89% in 2025) with an overrepresentation of Asian fishers (55% in 2025) when compared with one-third (31%) Asian representation in the 2023 Census data. There seems to be a trend of more older fishers, in 2006 almost all (80%, $n = 200$) were aged under 45 years, in 2025 this had dropped to one-half (50%, $n = 29$). In addition, fishers are now more likely to have resided in New Zealand for more than 10 years (2025 79%, $n = 41$; 2006 40%, $n = 101$).

Table 8 Fisher profile demographics over 20 years of data

	2006 (n/%)	2011 (n/%)	2016 (n/%)	2021 (n/%)	2025 (n/%)
Gender					
Male	229 / 92%	126 / 88%	133 / 91%	131 / 94%	49 / 89%
Female	21 / 8%	17 / 12%	14 / 9%	8 / 6%	6 / 11%
Age ¹					
15-19 years		3 / 2%	6 / 4%	11 / 8%	1 / 2%
20-29 years	58 / 23%	43 / 30%	22 / 15%	20 / 14%	8 / 14%
30-44 years	142 / 57%	52 / 36%	71 / 48%	52 / 37%	20 / 34%
45-64 years	46 / 18%	43 / 30%	43 / 29%	43 / 31%	23 / 39%
65+ years	4 / 2%	3 / 2%	5 / 3%	13 / 10%	7 / 12%
Ethnicity					
European	83 / 33%	29 / 20%	31 / 21%	53 / 38%	17 / 31%
Māori	16 / 6%	6 / 4%	4 / 3%	7 / 5%	2 / 4%
Pacific Peoples	24 / 10%	18 / 13%	24 / 16%	15 / 11%	3 / 5%
Asian	123 / 49%	88 / 61%	79 / 54%	56 / 40%	30 / 55%
Other	4 / 2%	3 / 2%	9 / 6%	8 / 6%	3 / 5%
Length of residency ²					
<1 year		5 / 3%	8 / 5%	2 / 1%	1 / 2%
1-4 years	105 / 42%	23 / 16%	8 / 5%	21 / 15%	5 / 9%
5-9 years	44 / 18%	49 / 34%	20 / 14%	18 / 13%	6 / 11%
10 years	101 / 40%	44 / 31%	58 / 40%	43 / 31%	19 / 35%
All my life		23 / 16%	53 / 36%	55 / 40%	24 / 44%
How often fished at site					
First time at site	20 / 8%	32 / 22%	33 / 22%	28 / 20%	Not Asked
2-5 times	37 / 15%	70 / 49%	28 / 19%	36 / 26%	
6-10 times	33 / 13%	28 / 19%	14 / 10%	12 / 9%	
11-20 times	38 / 15%	11 / 8%	11 / 8%	12 / 9%	
More than 20 times	121 / 49%	3 / 2%	61 / 42%	51 / 37%	

Public rescue equipment (PRE)

PRE awareness and confidence among rock-based fishers has evolved over time, although comparisons across years are complicated by non-uniform questioning and shifting terminology. In 2006, no questions relating to angel rings or rescue equipment were asked. By 2011, 69% of respondents reported having seen angel rings, and among

¹ 2006 age groups classified as 15-24 years, 25-44 years, 45-64 years, 65+

² 2006 length of residency classified as <4 years, 5-9 years, 10 years

those, 98% believed they were either “essential” (44%) or “useful” (54%), indicating strong perceived value and relevance.

In 2016, awareness increased further, with 87% stating they had seen an angel ring, but only 26% had read the instructions. Despite the low instructional engagement, 74% believed they could use one in an emergency, reflecting a gap between preparedness and confidence.

By 2021, the data showed high levels of both access and readiness. 81% of respondents indicated an angel ring was present where they fished, and 56% had read the instructions, more than doubling the 2016 figure. Confidence was also high, with 89% believing they could use one in an emergency, and 24% had either used or seen one used, suggesting growing practical familiarity.

In 2025, the question wording shifted from "angel rings" to the broader term "public rescue equipment or life ring," which may have affected reported awareness. Only 27% of respondents said such equipment was present where they usually fish, a significant drop from 2021. However, 59% had read the instructions, and 90% felt confident using one in an emergency, maintaining the trend of growing preparedness. Just 17% had seen or used one in an actual emergency, slightly lower than in 2021.

Overall, while confidence and instruction reading have steadily improved, the perceived presence of equipment has fluctuated, possibly due to infrastructure gaps or missing rescue equipment. The data highlights the need for consistent and broader visibility of rescue equipment at fishing locations to support both awareness and effective use.

Reason for fishing

In 2006 and 2011, participants were not asked to identify their main reason for fishing, making it difficult to compare early data with later trends. However, in 2016, 2021, and 2025, a clear pattern emerged across all three surveys: fun and enjoyment was consistently the most cited reason for rock-based fishing. In 2016, 65% of respondents selected fun and enjoyment, increasing to 71% in 2021 and 73% in 2025, highlighting a steady upward trend in recreational motivation. The proportion fishing to feed the family remained relatively stable at around 19% in both 2016 and 2021, before

decreasing to 14% in 2025. Social motivations such as being with mates and taking a day off were less commonly reported, remaining below 13% across all three years. This suggests that while subsistence and social reasons exist, the dominant driver for rock-based fishing in recent years has been leisure and personal enjoyment.

In 2025, while the specific question "How often have you fished at this site?" was not asked, participants were instead asked how often they fish from rocks in general. The responses indicate that 55% fish from rocks at least monthly, with 10% doing so more than once a week, 14% weekly, and 24% monthly. An additional 31% reported fishing 5–10 times per year, while 22% did so less than five times annually. These results suggest a high level of ongoing engagement in rock-based fishing, reinforcing the need for tailored safety interventions in this high-risk activity.

Attitudes

Responses to attitudes have been dichotomised into agree/strongly agree and disagree/strongly disagree for ease of reporting. Participants were asked to respond to 12 statements to determine attitudes and risk perception when fishing from rocks (Table 9).

Table 9 Fisher profile attitudes over 20 years of data

Rock-based Fishing Attitudes	2006 (n/%)	2011 (n/%)	2016 (n/%)	2021 (n/%)	2025 (n/%)
Getting swept off the rocks is likely to result in my drowning					
Strongly agree/agree	176 / 70%	103 / 72%	89 / 61%	99 / 71%	34 / 58%
Unsure	39 / 16%	20 / 14%	26 / 18%	15 / 11%	15 / 25%
Strongly disagree/disagree	31 / 12%	21 / 15%	32 / 22%	25 / 18%	10 / 17%
Rock fishing is no more risky than other water activities					
Strongly agree/agree	103 / 41%	35 / 24%	68 / 46%	65 / 47%	24 / 41%
Unsure	46 / 18%	37 / 26%	47 / 32%	7 / 5%	10 / 17%
Strongly disagree/disagree	97 / 39%	72 / 50%	32 / 22%	67 / 48%	25 / 42%

Drowning is a constant threat to my life when rock fishing					
Strongly agree/agree	126 / 50%	99 / 69%	98 / 67%	85 / 61%	27 / 46%
Unsure	45 / 18%	24 / 17%	28 / 19%	11 / 8%	5 / 9%
Strongly disagree/disagree	75 / 30%	21 / 15%	21 / 14%	43 / 31%	27 / 46%
I am not concerned about the risks of rock fishing					
Strongly agree/agree	68 / 27%	31 / 22%	29 / 20%	52 / 37%	14 / 24%
Unsure	26 / 10%	45 / 31%	18 / 12%	5 / 4%	11 / 19%
Strongly disagree/disagree	152 / 60%	68 / 47%	100 / 68%	82 / 59%	34 / 58%
Other rock fishers are at greater risk of drowning than me					
Strongly agree/agree	81 / 32%	41 / 29%	66 / 43%	92 / 66%	27 / 46%
Unsure	76 / 30%	69 / 48%	75 / 51%	18 / 13%	19 / 32%
Strongly disagree/disagree	89 / 36%	34 / 24%	9 / 6%	29 / 21%	13 / 22%
I am a strong swimmer compared with most other people					
Strongly agree/agree	116 / 46%	44 / 31%	67 / 46%	96 / 69%	28 / 48%
Unsure	48 / 19%	51 / 35%	38 / 26%	11 / 8%	13 / 22%
Strongly disagree/disagree	82 / 33%	49 / 34%	42 / 29%	32 / 23%	18 / 31%
I avoid fishing in bad conditions to reduce the risk of drowning					
Strongly agree/agree	219 / 88%	112 / 78%	137 / 93%	133 / 96%	53 / 90%
Unsure	10 / 4%	27 / 19%	4 / 3%	2 / 1%	3 / 5%
Strongly disagree/disagree	17 / 7%	5 / 4%	6 / 4%	4 / 3%	3 / 5%
Always wearing a lifejacket makes fishing a lot safer					

Strongly agree/agree	177 / 71%	100 / 69%	92 / 63%	120 / 86%	50 / 85%
Unsure	20 / 8%	25 / 17%	26 / 18%	7 / 5%	7 / 12%
Strongly disagree/disagree	49 / 20%	19 / 13%	29 / 20%	12 / 9%	2 / 3%
Turning my back to the waves when rock fishing is very dangerous					
Strongly agree/agree	229 / 92%	109 / 76%	101 / 69%	131 / 94%	55 / 93%
Unsure	14 / 6%	24 / 17%	8 / 5%	3 / 2%	1 / 2%
Strongly disagree/disagree	3 / 1%	11 / 8%	38 / 26%	5 / 4%	3 / 5%
My local knowledge of this site means I'm unlikely to get caught out					
Strongly agree/agree	127 / 50%	51 / 35%	114 / 78%	103 / 74%	32 / 54%
Unsure	46 / 18%	59 / 41%	13 / 9%	20 / 14%	7 / 12%
Strongly disagree/disagree	73 / 29%	34 / 24%	20 / 14%	16 / 12%	20 / 34%
My experience of the sea will keep me safe when rock fishing					
Strongly agree/agree	144 / 58%	77 / 54%	126 / 86%	118 / 85%	34 / 58%
Unsure	51 / 20%	39 / 27%	13 / 9%	10 / 7%	5 / 9%
Strongly disagree/disagree	51 / 20%	28 / 20%	8 / 5%	11 / 8%	20 / 34%
My swimming ability means I can get myself out of trouble					
Strongly agree/agree	110 / 44%	52 / 36%	112 / 76%	113 / 81%	19 / 32%
Unsure	56 / 22%	51 / 35%	20 / 14%	16 / 12%	17 / 29%
Strongly disagree/disagree	80 / 32%	41 / 29%	15 / 10%	11 / 8%	23 / 39%

The attitudes surrounding rock-based fishing have changed little over the 20 years. As with previous research with adults (Stanley & Moran, 2021), attitudes have proved difficult to change.

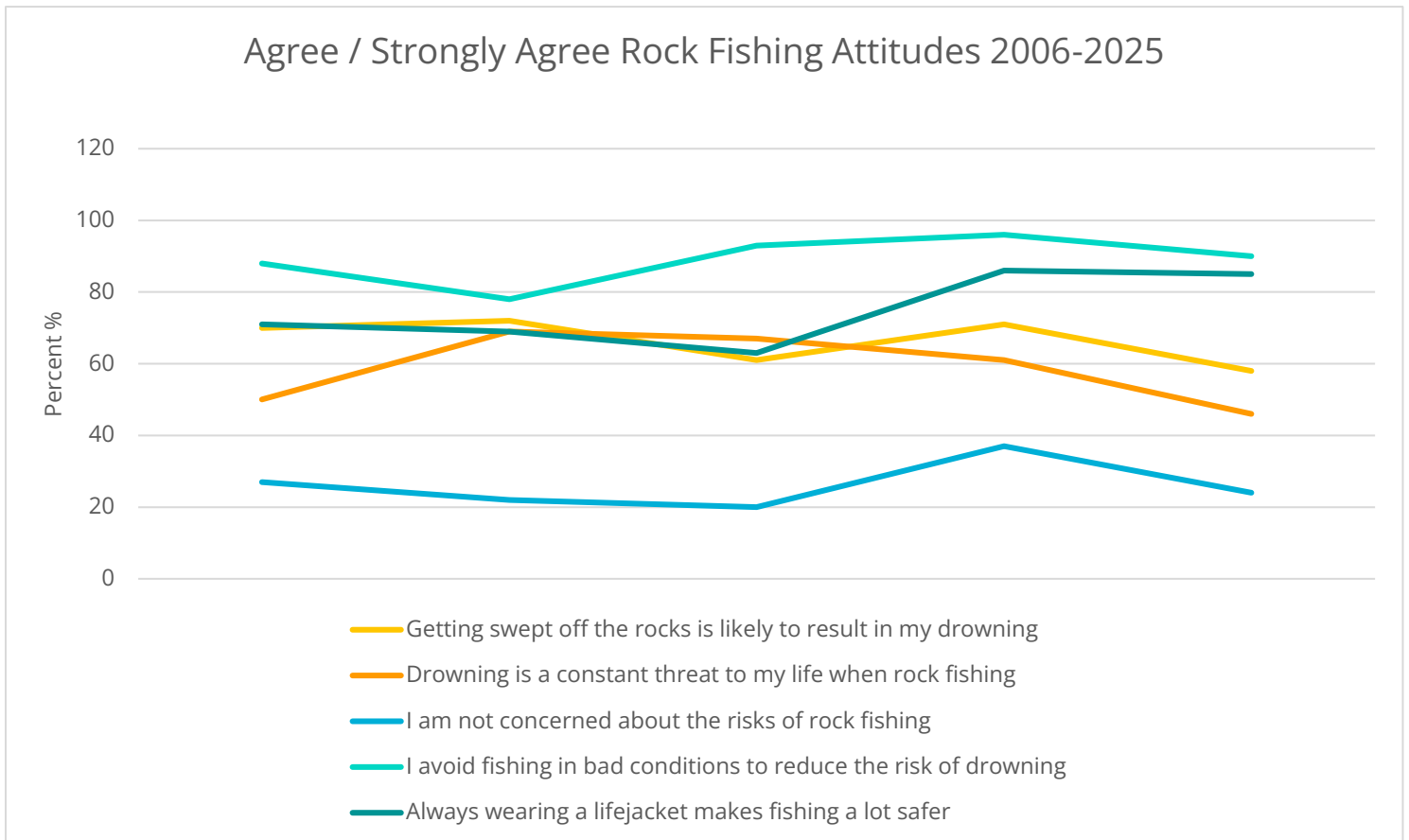


Figure 13 Attitudes of fishers showing agree/strongly agree over 20 years of data

Some changes in attitudes have been recorded. The belief that *“getting swept off the rocks is likely to result in drowning”* remained relatively high but has gradually declined from 72% in 2011 to 58% in 2025. Similarly, the view that *“drowning is a constant threat to my life when rock fishing”* dropped from a peak of 69% in 2011 to 46% in the latest survey, suggesting a reduced sense of personal vulnerability. Interestingly, fewer fishers now claim they are unconcerned about the risks, with only 24% agreeing in 2025, a consistent signal that most continue to acknowledge the danger. Encouragingly, safety-driven behaviours remain strong. Agreement with the statement *“I avoid fishing in bad conditions to reduce the risk of drowning”* stayed consistently high, reaching 90% in 2025. Likewise, belief in the effectiveness of lifejackets has grown steadily, with 85% now agreeing that *“always wearing a lifejacket makes fishing a lot safer.”* These results highlight a positive shift toward safety practices, even as perceptions of immediate risk appear to be softening.

Perceived water safety behaviours of fishers

Fishers were asked to record their actual behaviours when fishing. Again, responses have been dichotomised for ease of analysis into never/sometimes and often/always.

Table 10 Fisher profile perceived behaviours

Water Safety Behaviours of Fishers	2006 (n/%)	2011 (n/%)	2016 (n/%)	2021 (n/%)	2025 (n/%)
Wear a lifejacket or other flotation device					
Never/Sometimes	238 / 95%	72 / 50%	112 / 76%	83 / 60%	35 / 59%
Often/Always	11 / 5%	72 / 50%	35 / 24%	56 / 40%	24 / 41%
Turn your back to the sea when fishing					
Never/Sometimes	236 / 94%	124 / 86%	114 / 77%	128 / 92%	57 / 97%
Often/Always	13 / 6%	20 / 14%	33 / 22%	11 / 8%	2 / 3%
Wear gumboots or waders					
Never/Sometimes	217 / 87%	76 / 53%	125 / 85%	109 / 78%	48 / 81%
Often/Always	32 / 13%	68 / 47%	22 / 15%	30 / 22%	11 / 19%
Drink alcohol when you are fishing					
Never/Sometimes	239 / 96%	133 / 92%	138 / 94%	133 / 96%	59 / 100%
Often/Always	10 / 4%	11 / 8%	9 / 6%	6 / 4%	0 / 0%
Take a cell phone in case of emergencies					
Never/Sometimes	57 / 23%	27 / 19%	12 / 8%	8 / 6%	3 / 5%
Often/Always	192 / 77%	117 / 81%	135 / 92%	131 / 94%	56 / 95%
Check weather/water conditions first					
Never/Sometimes	51 / 20%	23 / 16%	6 / 4%	6 / 4%	5 / 9%
Often/Always	198 / 80%	121 / 84%	131 / 90%	133 / 96%	54 / 92%

Go down the rocks to retrieve a snagged line					
Never/Sometimes	224 / 90%	129 / 90%	109 / 74%	128 / 92%	52 / 88%
Often/Always	25 / 10%	15 / 10%	38 / 26%	11 / 8%	7 / 12%

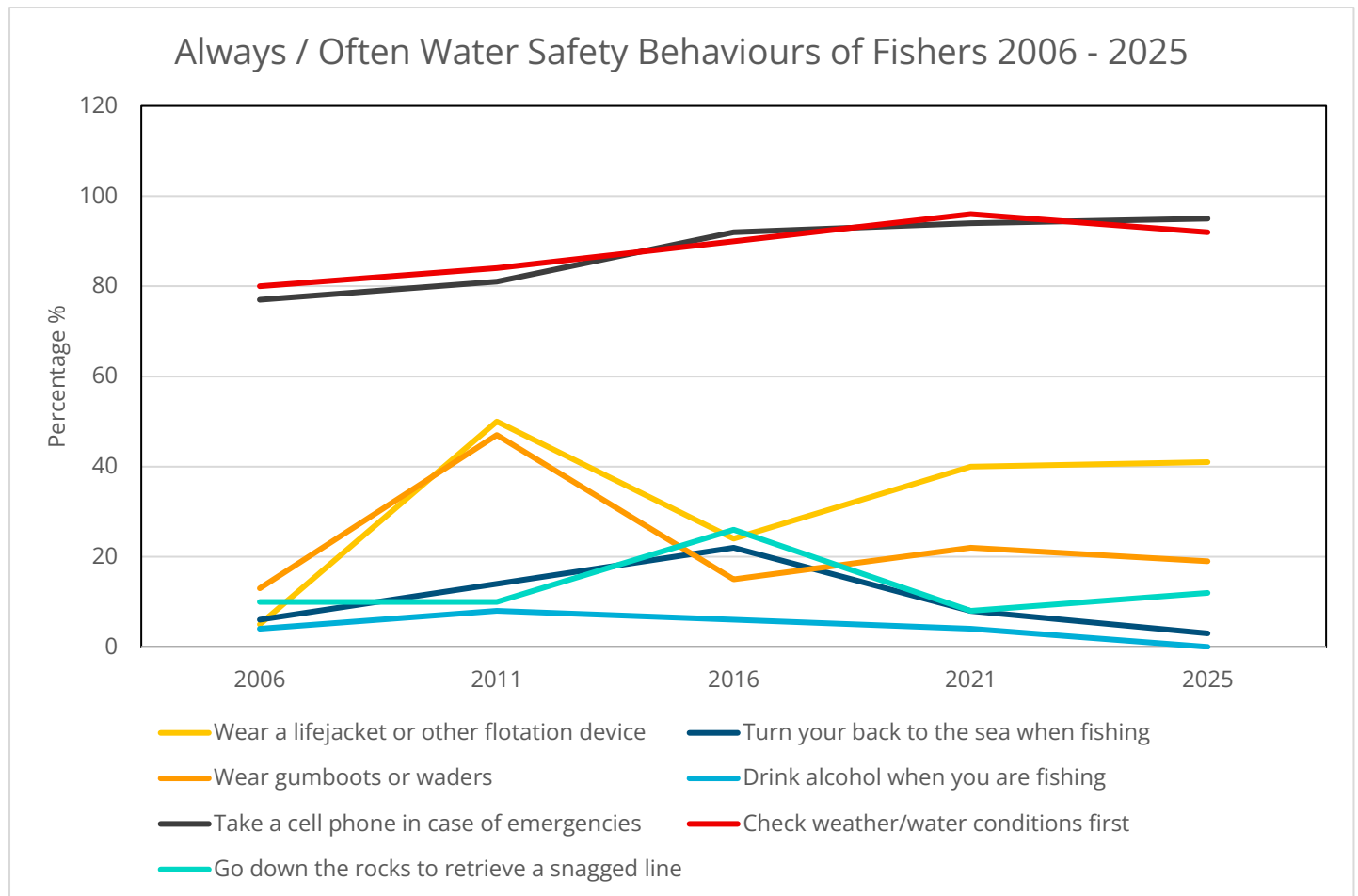


Figure 14 Behaviours of fishers (often/always) over 20 years of data

The tracking of fisher behaviours over time demonstrates positive progress in several key behaviours. Over the past two decades, trends in self-reported water safety behaviours among rock-based fishers have revealed both promising improvements and areas needing continued attention. The most significant and consistent progress is seen in preparedness actions: the percentage of fishers who check weather and water conditions before fishing has remained high and improved, rising from 80% in 2006 to 96% in 2021, with a slight drop to 92% in 2025. Similarly, taking a cell phone for emergencies has seen a steady increase, reaching 95% in 2025. Encouragingly, alcohol

use while fishing has decreased to nil reporting frequent consumption in 2025, suggesting strong adoption of this critical safety behaviour.

However, lifejacket use, while improved from just 5% in 2006, remains inconsistent and lower than ideal, hovering at 41% in 2025 after peaking slightly at 50% in 2011. This indicates a continued gap between awareness and action in adopting flotation devices.

Riskier behaviours, such as turning one's back to the sea, remain relatively rare, with only 3% of respondents in 2025 reporting this action. However, going down rocks to retrieve snagged lines has seen a slight uptick again (12% in 2025), and wearing gumboots or waders, a contributing risk factor, has not improved significantly, remaining at 19%.

Overall, while there is encouraging progress in some critical safety behaviours like weather checks and emergency preparedness, the inconsistent use of lifejackets and the persistence of some hazardous practices highlight the need for ongoing education and behaviour change initiatives among rock-based fishers.

Rock-based fisher profile examples

The following fisher case studies provide examples of how individuals prepare for and perceive fishing from rocks.

2025 Case study fisher 1

Male, 45-64 years, European New Zealander, lived in New Zealand whole life, fishes to feed family, and usually fishes at Piha with a background in surf life saving

Behaviours

- *Often wears a lifejacket because he always wears one around water*
- *Always fishes with a buddy*
- *Never consumes alcohol or wears gumboots when fishing*

- *Sometimes turns his back to the ocean and climbs down rocks to retrieve snagged line*
- *Sometimes checks the weather*

But perceptions

- *Agrees that rock-based fishing is no more risky than other water activities*
- *Strongly agrees his local knowledge of the site will keep him safe when fishing from rocks*
- *Strongly agrees his experience of the sea will keep him safe*
- *Strongly agrees his swimming ability will get him out of trouble*

2025 Case study fisher 22

Male, 20-29 years, European, lived in New Zealand less than one year, fishes to feed family, and usually fishes at Muriwai, Piha, and Manukau harbour where he has rescued 3 people

Behaviours

- *Never wears a lifejacket because he doesn't think it's risky enough*
- *Always checks the weather*
- *Sometimes fishes with a buddy*
- *Never consumes alcohol, wears gumboots when fishing, turns his back to the ocean or climbs down rocks to retrieve snagged line*

But perceptions

- *Strongly agrees that rock-based fishing is no more risky than other water activities*
- *Strongly agrees his local knowledge of the site will keep him safe when fishing from rocks*
- *Strongly agrees his experience of the sea will keep him safe*

- *Strongly agrees his swimming ability will get him out of trouble*

2025 Case study fisher 31

Male, 45-64 years, Chinese, lived in New Zealand more than ten years, fishes for fun and enjoyment, and usually fishes at Piha and Whatipu

Behaviours

- *Always wears a lifejacket because a close associate has had an incident fishing*
- *Always checks the weather*
- *Sometimes fishes with a buddy*
- *Never consumes alcohol, wears gumboots when fishing, turns his back to the ocean or climbs down rocks to retrieve snagged line*

But perceptions

- *Agrees that rock-based fishing is more risky than other water activities*
- *Disagrees his swimming ability will get him out of trouble or his local knowledge of the site will keep him safe when fishing from rocks*
- *Agrees he avoids fishing in bad conditions*
- *Agrees his experience of the sea will keep him safe*

2025 Case study fisher 53

Male, 30-44 years, Korean, lived in New Zealand five to ten years, fishes for fun and enjoyment, and usually fishes at Muriwai, would call 000 for assistance if no PRE present.

Behaviours

- *Sometimes wears a lifejacket, sometimes he forgets to bring it*

- *Always checks the weather and always wears gumboots when fishing*
- *Always fishes with a buddy*
- *Never consumes alcohol, turns his back to the ocean or climbs down rocks to retrieve snagged line*

But perceptions

- *Agrees that rock-based fishing is more risky than other water activities and that he is concerned about the risks of fishing from rocks*
- *Agrees his swimming ability will get him out of trouble and his local knowledge of the site will keep him safe when fishing from rocks*
- *Agrees he avoids fishing in bad conditions*
- *Agrees his experience of the sea will keep him safe*

Individual experiences shape how people prepare and act on the rocks. Although some positive safety behaviours were reported, there is room for improved environmental and incident knowledge as well as assessing personal competency and risk for these sites to improve fisher safety.

Rock-based fisher rescues

A new question that was asked in 2025 was regarding incidents where fishers have entered the water unintentionally, or their lives were at risk. Almost one-half of fishers (41%, $n = 24$) have witnessed such incidents. Almost one-quarter of fishers have rescued someone in trouble in the water when fishing from rocks or heading to or from their fishing spot. Most of the people requiring a rescue (61%, $n = 8$) had been fishing themselves (Figure 15). This information raises further questions about how often and how fishers are rescuing others.

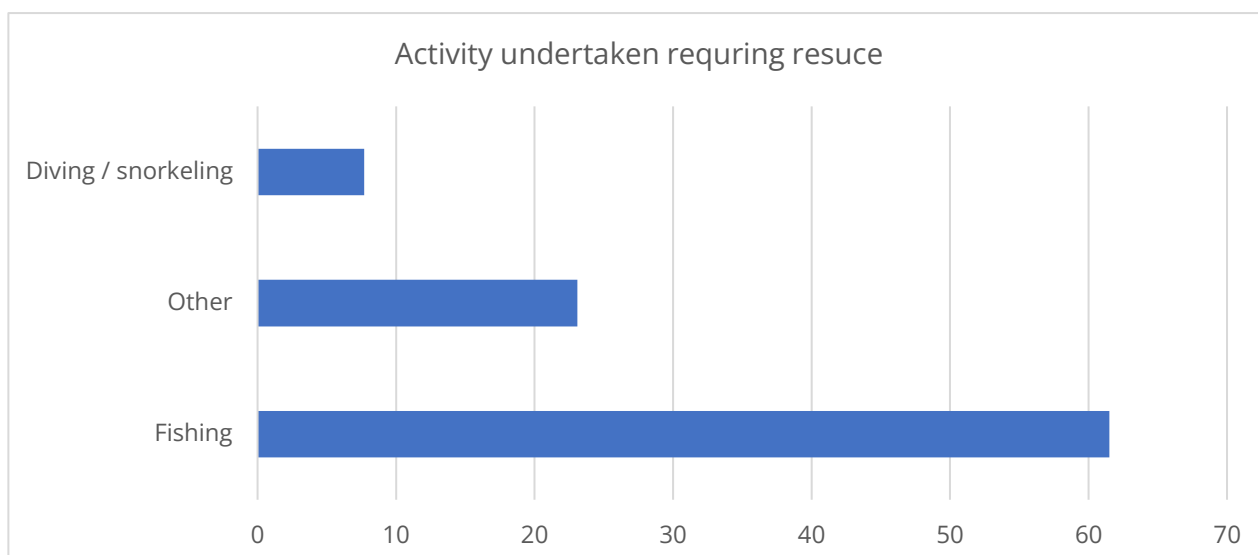


Figure 15 What people were doing requiring a fisher rescue

3.4 Discussion

The 2025 rock-based fishing survey reinforces longstanding patterns within this high-risk recreational activity: participation continues to be overwhelmingly male-dominated, culturally and linguistically diverse, and populated by a transient group of both newcomers and seasoned fishers. Over one-third of the 2025 participants had fished in New Zealand for less than 10 years, and one-fifth (20%) were visiting their fishing site for the first time. This transience limits the cumulative effect of safety education campaigns, as the target audience is constantly evolving.

While safety attitudes remain relatively strong, the perception of immediate personal risk appears to be softening. Agreement with the idea that drowning is a constant threat dropped from two-thirds (69%) in 2011 to under one-half (46%) in 2025, and belief in the likelihood of drowning after being swept off rocks also declined. At the same time, more fishers now express confidence in their swimming ability, local knowledge, and experience of the sea as protective factors. This perceived invulnerability is concerning, as it may contribute to reduced adherence to proven safety practices like lifejacket use.

Despite increased awareness, lifejacket use remains worryingly low. Less than one-half of respondents (41%) reported often or always wearing one in 2025, a decline from 50% in 2011. Other risky behaviours also persist: one-fifth (19%) still wear gumboots or

waders, 12% climb down rocks to retrieve snagged lines, and although rare, a small proportion still report turning their back to the sea. While alcohol use has reduced to zero in the latest data, these other entrenched behaviours suggest that culturally embedded practices or misconceptions about risk continue to undermine safety.

Awareness and confidence in using public rescue equipment have grown steadily. In 2025, almost all respondents (90%) believed they could use a life ring or similar equipment in an emergency, up from 74% in 2016. However, less than one-third (27%) reported such equipment being available at their usual fishing site, a significant drop from previous years. While this may reflect infrastructure gaps, it could also result from changing question wording in the survey. Nonetheless, it indicates an opportunity to improve visibility, signage, and education regarding the presence and use of rescue equipment.

The 2025 case studies exemplify the diverse and nuanced nature of risk perception and behaviour among rock-based fishers. While some individuals display ideal safety habits but overconfidence in their own abilities, others are fully aware of the risks yet fail to consistently follow basic safety measures like wearing a lifejacket. These inconsistencies underscore the complexity of changing behaviour in this group and the need for tailored, context-aware interventions.

3.5 Recommendations

To reduce fatalities and serious incidents among rock-based fishers, a multi-faceted and evidence-based response is required—one that blends targeted infrastructure, culturally responsive education, behavioural science, and strategic data use. The following recommendations are informed by rock-based fishing survey data, rock-based fisher profile responses and international drowning prevention frameworks.

Improving lifejacket use must remain a central focus. Despite long-term awareness campaigns, only 41% of fishers report wearing lifejackets often or always. Future campaigns must confront the perceptions of invulnerability and overconfidence that continue to undermine safety. Social norming strategies, cultural storytelling, and incentive-based campaigns that may include fishing gear giveaways for lifejacket

wearers. These campaigns must aim to change behaviour at a community level. These approaches should be complemented by culturally tailored outreach efforts, including translated resources and partnerships with ethnically aligned fishing groups, to reflect the diversity of the fishing population.

Infrastructure changes are urgently needed and should be invested in. While perceived confidence in using public rescue equipment has improved, only 27% of respondents reported that such equipment is present at their fishing site. Rescue equipment must not only be installed but also appropriate to the unique demands of rocky coastal terrain. Priority sites should include those with historical incidents or high use, as identified through ActiveXchange visitation data and observation reporting.

Persistent risk behaviours such as climbing down rocks to retrieve lines or wearing gumboots highlight the need for direct behavioural prompts. Developing education or signage at known hotspots, especially with context-specific messaging tied to past local incidents, can influence decision-making in real-time. In parallel, ongoing positive trends like checking weather forecasts and carrying mobile phones should be reinforced through consistent messaging that frames safety as a series of habitual, linked actions rather than individual choices.

To consolidate these efforts a rock-based fisher rescue module should be scoped. More information is required on who is rescuing, and how rescues are being undertaken. This new information could inform the development of a bystander fisher module. A short, practical education intervention such as this would provide in-person or video-based instruction on how to respond safely to a drowning incident from the rocks, focusing on dry based, non-contact rescue, use of throw bags, flotation, and emergency preparedness. It is recommended that this module be delivered through community groups, retail partnerships, and social media, and integrated into existing relevant educational campaigns or courses provided activations at high-risk coastal locations.

Ongoing data-driven responsiveness is critical. The use of ActiveXchange data in 2025 enabled engagement during peak fishing periods and provided insight into the transient nature of site users. Future initiatives should continue this dual approach—pairing

visitation data with qualitative observations and periodic surveys to ensure interventions are context-relevant and reaching the intended audience. This should also include the identification and support of frequent fishers to act as community champions, capable of modelling safety behaviours and reinforcing campaign messages from within the fishing community.

By combining environmental design, public rescue equipment, culturally appropriate outreach, and targeted education like the rock-based fisher rescue module, these recommendations aim to create a safer environment for all who engage in rock-based fishing—without diminishing the cultural, recreational, and social value of the activity.

Future research is recommended to determine the scope and practice of fishers who are rescuing other fishers. Engagement with land-based fishing organisations and networks is advised.



Figure 16 Drowning Prevention Auckland lifejacket hub - Piha

4. Conclusion

Findings from both the 2025 observational study and the accompanying rock-based fishing survey present a rich, complementary picture of the evolving state of rock-based fishing safety in Auckland. Observational insights offered objective documentation of high-risk practices in real-time, while the survey added valuable context about fishers' self-perceived behaviours, motivations, and attitudes.

Trends from 20 years of data collection reveal that rock-based fishing continues to be a male-dominated pursuit. Notably, older fishers (45+ years) now make up over one-half of the cohort, up from just one-fifth in 2006—indicating a demographic shift. Most respondents in 2025 had also lived in New Zealand for ten years or more, compared with just over one-half in 2006, suggesting a more settled fishing population overall.

There have been encouraging improvements in safety behaviours over time. More fishers now report wearing lifejackets, checking the weather, carrying mobile phones, and abstaining from alcohol while fishing—key indicators of increased awareness. However, these gains are offset by persistent risky habits. Gumboot use and climbing down rocks to retrieve snagged lines remain stubbornly common, and observational data continues to confirm these behaviours in the field.

Perhaps most concerning is the gap between perception and reality. Despite consistent acknowledgement of certain risks, many fishers continue to underestimate their personal vulnerability while overestimating their abilities. Attitudes such as “my swimming ability will get me out of trouble” or “my local knowledge will keep me safe” remain common, even among those engaging in high-risk behaviours.

The use of ActiveXchange data to align educational visits with peak site visitation represents a groundbreaking shift in how behavioural change can be targeted more effectively. However, this innovation must be supported by sustained, culturally tailored education efforts that confront the deeply held beliefs fishers carry about safety, risk, and competence.

Together, these studies show progress, but also clearly demonstrate that risk reduction in rock-based fishing is far from complete. Ongoing, evidence-based interventions remain essential to close the gap between knowledge and behaviour, and ultimately, to save lives.



Figure 17 Fisher in safety equipment

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